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Substance use and self-poisoning in schizophrenia: 11-year findings from a national clinical survey of suicide in mental health patients in the UK

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ABSTRACT

Suicide is the leading cause of unnatural death among people with schizophrenia. Substance use is a highly prevalent comorbid feature of schizophrenia and a modifiable risk factor for suicide. However, no studies have examined changes in the frequency of substance use or self-poisoning in those who died by suicide over time. Knowing this could support more tailored approaches to reducing specific risk factors and access to means in those with schizophrenia who are at risk of suicide. We conducted an 11-year observational study on a clinical survey of people with schizophrenia in the UK who died by suicide within 12 months of contact with mental health services between 2010 and 2020 (n = 2718). Overall, alcohol, cannabis and stimulants were the most frequently reported substances. The odds of lifetime use significantly increased over time for cannabis, stimulants, heroin, and benzodiazepines. There were differences in socio-demographic, behavioural and clinical factors between those with recent and historical alcohol and drug use before death. Deaths by hanging, jumping and self-poisoning were the most common suicide methods. Though deaths by hanging significantly increased over time, deaths by self-poisoning significantly decreased, especially by means of psychotropic medication and opioids. To improve risk management, clinical efforts should focus on identifying and treating people with schizophrenia using specific substances. Nationwide initiatives for improving safety in prescribing could be contributing to reduced risks of suicide via self-poisoning in this group.

1. Introduction

Suicide is the leading cause of unnatural death among people with a diagnosis of schizophrenia (Moreno-Küstner et al., 2021). In this patient group, rates of suicide are almost 10 times higher than the general population (Correll et al., 2022) and approximately 10–15 % of people die by suicidal means (Harris and Barraclough, 1997). Consequently, the reduction of suicide in schizophrenia is considered an international public health priority (Lu et al., 2020).

Substance use is a highly prevalent comorbid feature of schizophrenia and a modifiable risk factor for suicide (Gut-Fayand et al., 2001). Meta-analyses have shown that approximately 25 % of people with schizophrenia meet criteria for lifetime alcohol use disorder (Hunt et al., 2018). Rates of lifetime drug use disorder are similarly high (27.5 %), and notable for cannabis (26.2 %), stimulants (7–9 %) and heroin (2–8 %) (Hunt et al., 2018; Sara et al., 2015; Pedersen et al., 2012). However, while the rates of alcohol, cannabis, stimulant, and heroin use in people with schizophrenia have remained stable over time, the lifetime prevalence of drug use disorder has increased (Hunt et al., 2018). Whether the frequencies of alcohol and specific drug use in people with schizophrenia who die by suicide have changed over time is unknown. Exploring this could help to identify increasing risk factors for suicide and focus treatment efforts within mental health services.

Several demographic, behavioural and clinical characteristics have been associated with substance use in people with schizophrenia, which are broadly aligned with risk factors found in the general population. These include male gender, younger age, higher premorbid cognitive functioning, a forensic history, a family history of substance use, relational trauma, and difficulties in occupational, and economic functioning (Temmingh et al., 2021; Brunette et al., 2018; Compton et al.,

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2005; Cantor-Graae et al., 2001). One study, using findings from a national clinical survey, also showed that in comparison to those with schizophrenia who died by suicide without substance dependence, people with schizophrenia and substance dependence who died by suicide were more likely to be male, younger, single, living alone, unemployed and have a history of violence (Hunt et al., 2006). However, no studies have yet compared demographic, behavioural or clinical characteristics between those with historical or recent alcohol or drug use in those with schizophrenia who die by suicide. These sub-groups are important, given the role of concurrent substance use in the prediction of psychosis onset (Arseneault et al., 2004), relapse (Alvarez-Jimenez et al., 2012), hospitalisation (Strålin and Hetta, 2020) and suicide (Mulligan et al., in press). Furthermore, examining these subgroups converge with calls for more specificity in the measurement of substance use in suicide and schizophrenia research, to aid more precise risk management, treatment, and prevention (Ouellet-Plamondon et al., 2017; Hettige et al., 2018).

The identification and restriction of common suicide methods is an effective way of reducing suicidal risk (Barber and Miller, 2014; Lim et al., 2021). Evidence suggests that methods of suicide in people with schizophrenia differ from the general population in terms of both violence and lethality (Sinyor et al., 2015). Collectively, deaths by self-poisoning, hanging, and jumping are among the most prevalent means of suicide in people with schizophrenia (Bareis et al., 2023; Chen et al., 2009; Kreyenbuhl et al., 2002), though methods do vary geographically and according to culture (Pan et al., 2021; Wu et al., 2012). More specifically, recent findings have suggested that 27 % of all deaths by suicide via means of self-poisoning involve psychotropic medication (Bareis et al., 2023). However, no studies have examined change in the frequencies of methods used in people with schizophrenia who die by suicide over time, nor have they explored change in substances used in cases of self-poisoning. Knowing this could support more tailored approaches to reducing access to means in those with schizophrenia who are at risk of suicide.

This paper describes an 11-year national consecutive case series of suicide by people with schizophrenia in contact with mental health services in the UK between 2010 and 2020. To fill important gaps in existing literature, we aimed to; 1) examine changes in the lifetime frequency of alcohol and drugs used in people who die by suicide over time; 2) compare the demographic, behavioural and clinical characteristics of people with historical and recent alcohol and drug use before death; and 3) examine changes in the frequency of methods of suicide over time, and, in cases of self-poisoning, changes in the frequency of individual substances used.

2. Materials & methods

2.1. Data collection

This study was carried out as part of the National Confidential Inquiry into Suicide and Safety in Mental Health (NCISH; Appleby et al., 2001). Methods employed in NCISH have been described in detail elsewhere (Meehan et al., 2006). In brief, data collection on cases of suicide involved three stages: (1) obtaining a comprehensive national suicide sample, irrespective of mental health history; (2) the identification of people who had contact with mental health services in the 12 months before death; and (3) the collection of clinical data about these individuals via questionnaire.

Information on all deaths in the UK with a conclusion of suicide, including those with an undetermined verdict at Coroner's inquest, was obtained from the Office for National Statistics (ONS). Open verdicts (deaths with underdetermined intent) were identified using ICD-10 codes (Y10-Y34, excluding Y33.9, Y87.0 and Y87.2) and were included as suicides in accordance with conventional methods used in suicide rate estimations in the United Kingdom (Linsley et al., 2001) to reduce the risk of under-reporting (Gunnell et al., 2013). Both suicides and open conclusions are referred to as suicides henceforth. Information on contact with mental health services in the 12 months before death was obtained from National Health Service (NHS) trust and private hospital records in the deceased's district of residence and/or death. For each case identified, the consultant psychiatrist or responsible clinician for care was sent a questionnaire to collect data on socio-demographics such as age, gender; patients' history, including historical (lifetime) and recent (in the three months prior to death) use of alcohol and drugs (i.e., heroin, stimulants, benzodiazepines, cannabis, skunk and legal highs), self-harm and violence; clinical characteristics such as primary diagnoses, treatment received and medication adherence; psychosocial history such as adverse life events, and details of suicide (including method). NCISH achieves a questionnaire response rate of >94 % (NCISH, 2022).

2.2. Sample

The sample comprised all patients with a primary diagnosis of schizophrenia or other schizophrenia-spectrum disorders who died by suicide between 2010 and 2020 inclusive.

2.3. Analyses

To explore the frequency of lifetime alcohol and drug use in patients with schizophrenia who died by suicide each year, a graphical analysis was undertaken. Changes over time were calculated via logistic regression and expressed via odds ratios (ORs) with 95 % confidence intervals (CIs), adjusting for year, and frequency of substance use in cases of suicide each year as the criterion variable. The reference group contained those who died by suicide but had no recorded substance use each year. A similar analysis was undertaken to examine frequency of, and change in, suicide methods, and substances used in cases of suicide by self-poisoning over time. For wider context, these were plotted alongside frequencies of suicide methods found in the general population and a patient population collected by NCISH across the examined time frame. Over the observation period, the overall response rate was lowest during calendar years 2018, 2019 and 2020 due to the time associated with legal processes and data collection. We therefore estimated the number of suicides between 2018 and 2020, based on the expected final return of NCISH questionnaires for the previous 8 years, to enable comparable numerator data when assessing frequencies and graphical analyses. However, only actual numbers were included in all analyses of trends. Sensitivity analyses were also calculated to assess the effect on trends of removing the year of lowest data collection (2020).

To compare those with both recent (in the three months prior to death) and historical substance use to those with only historical use on socio-demographic, behavioural and clinical factors, chi-square, and Kruskal-Wallis tests were used for dichotomous and continuous variables, respectively. Descriptive statistics are presented as valid percentages with 95 % CIs, adjusted for missing data, with analyses for alcohol and drugs presented separately. To maximise available data, all individual drugs were pooled to generate one composite drug variable. To identify the combination of variables most predictive of recent or historical alcohol or drug use group membership, models were fitted using multivariate logistic regression; one with all significant predictors from the descriptive analysis entered simultaneously (A), and the other with statistically insignificant predictors from the model A removed (backwards stepwise method) and the model refitted (B). *P*-values <0.05 were considered significant in all analyses. All analyses were conducted using STATA 15 software (STATA, 2017).

3. Results

Over the 11-year period from April 2010 until March 2020, we received notifications of 68,357 deaths by suicide. Of these, 18,403 (26.9 %) were confirmed to have been in contact with mental health

services in the 12-months prior to death. Completed questionnaires were received on 17,025 cases (92.5 % response rate). Of these, 2718 (16.0 %) had a primary diagnosis of schizophrenia or other schizophrenia-spectrum disorder. Within this group, 1753 (65 %) had a history of substance use, 1278 (49.2 %) had alcohol use and 1415 (53.9 %) had drug use. Frequencies of suicide deaths in those with schizophrenia and in those with schizophrenia and a history substance use (a subgroup) followed roughly similar patterns over time, though frequencies of suicide deaths in those with substance use were characterised by greater year-by-year fluctuation (see Appendix A).

3.1. Lifetime substance use and suicide

Frequencies of lifetime substance use in people with schizophrenia who died by suicide each year are presented in Fig. 1 (NB: data on individual substances were collected from 2011 to 2020). Overall, alcohol (49.2 %), cannabis (40.6 %), and stimulants (27.9 %) were the most frequently reported substances in this group. Despite some fluctuations, frequencies of lifetime use across all substances followed a similar pattern over time. However, between 2010 and 2020, the odds of lifetime use significantly increased for cannabis (OR = 1.57, 95 % CI = 1.50–1.65, $p < 0.01$), stimulants (OR = 1.44, 95 % CI = 1.38–1.51, $p < 0.01$), heroin (OR = 1.25, 95 % CI = 1.19–1.32, $p < 0.01$) and benzodiazepines (OR = 1.23, 95 % CI = 1.15–1.30, $p < 0.01$), and decreased for legal highs (OR = 0.78, 95 % CI = 0.70–0.87, $p < 0.01$) (see Table 1). There were no changes to any reported trends to 2 decimal places after removing data collected from 2020.

3.2. Comparison between groups and predictors of historical vs recent alcohol use

In people with schizophrenia who died by suicide, there were insufficient numbers to analyse those with only recent alcohol use (in the three months prior to death). In comparison to people with historical use only ($n = 491$), those with both recent and historical alcohol use ($n = 715$) were significantly more likely to be homeless and have recent episodes of violence and self-harm (See Table 2). The final regression model showed that patients with recent episodes of self-harm were more likely to have both recent and historical alcohol use (see Appendix B).

3.3. Comparison between groups and predictors of historical vs recent drug use

In people with schizophrenia who died by suicide, there were insufficient numbers to analyse those with only recent drug use (in the three months prior to death). Those with both recent and historical drug use ($n = 841$) were significantly more likely to be younger, unemployed, and homeless in comparison to people with historical drug use only ($n = 467$). Furthermore, they were more likely to have recent episodes of violence, self-harm, and greater non-adherence with medication (See Table 3). The final regression model found that patients aged under 25, and between 25 and 44, who were homeless, had recent episodes of violence and self-harm, and those with non-adherence with medication, were significantly more likely to have both recent and historical drug use (see Appendix C).

Table 1
Change in odds over time of lifetime substance use in patients with schizophrenia who died by suicide between 2010 and 2020.

Substance	ORs (95 % CIs)	*p*-Value
Alcohol	1.01 (0.98–1.03)	0.56
Heroin	1.25 (1.19–1.32)	<0.01
Stimulants	1.44 (1.38–1.51)	<0.01
Benzodiazepines	1.23 (1.15–1.30)	<0.01
Cannabis	1.57 (1.50–1.65)	<0.01
Legal Highs	0.78 (0.70–0.87)	<0.01

3.4. Method of suicide

The most common methods of suicide in those with schizophrenia were deaths by hanging/strangulation ($n = 1009$, 37.4 %), jumping/multiple injuries ($n = 615$, 22.8 %), and self-poisoning ($n = 565$, 20.9 %) (see Fig. 2). Although frequencies of suicide methods showed a similar pattern across schizophrenia ($n = 2718$), patient ($n = 16{,}985$) and general population ($n = 68{,}109$) groups over time, frequencies of deaths by hanging were lowest in the schizophrenia group and deaths by jumping/multiple injuries were highest. Frequency of deaths by self-poisoning were similar across the schizophrenia and patient group and were higher than the general population (see Appendixes D, E & F).

Overall, between 2010 and 2020, deaths by self-poisoning in people with a schizophrenia diagnosis showed a small but significant decline (OR = 0.96, 95 % CI = 0.93–0.99, $p = 0.01$). Frequencies of substances used in people who died by self-poisoning are presented in Fig. 3. Notably, the odds of psychotropic medication use (OR = 0.90, 95 % CI = 0.86–0.94, $p < 0.01$) and opioid use (comprising opiates and paracetamol/opiate compounds) (OR = 0.94, 95 % CI = 0.88–1.00, $p = 0.03$) significantly decreased over time (see Appendix G). Decrease in deaths by self-poisoning appeared to be compensated by increases in the frequency of deaths by hanging/strangulation (OR = 1.04, 95 % CI = 1.02–1.07, $p < 0.01$). There was no significant change in deaths by jumping/multiple injuries (OR = 0.98, 95 % CI = 0.94–1.01, $p = 0.16$). There were no changes to any reported trends to 2 decimal places after removing data collected from 2020.

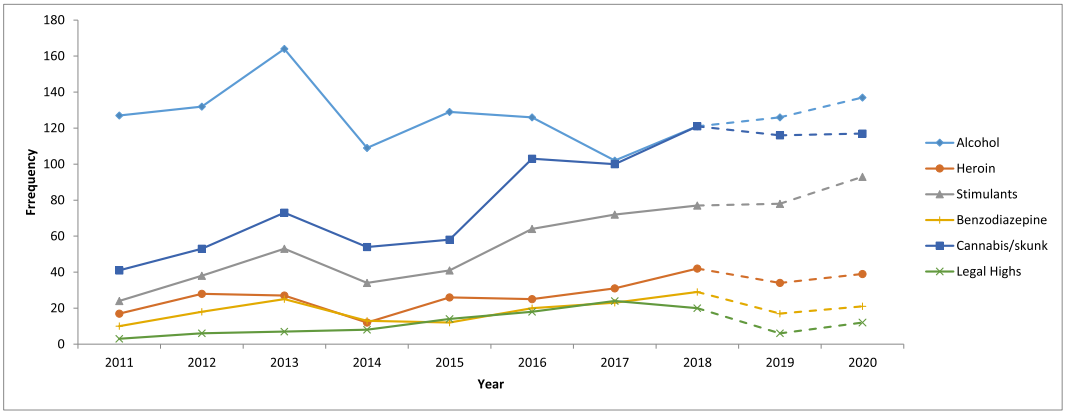

Fig. 1. Frequencies of lifetime substance use in patients with schizophrenia who died by suicide between 2011 and 2020.

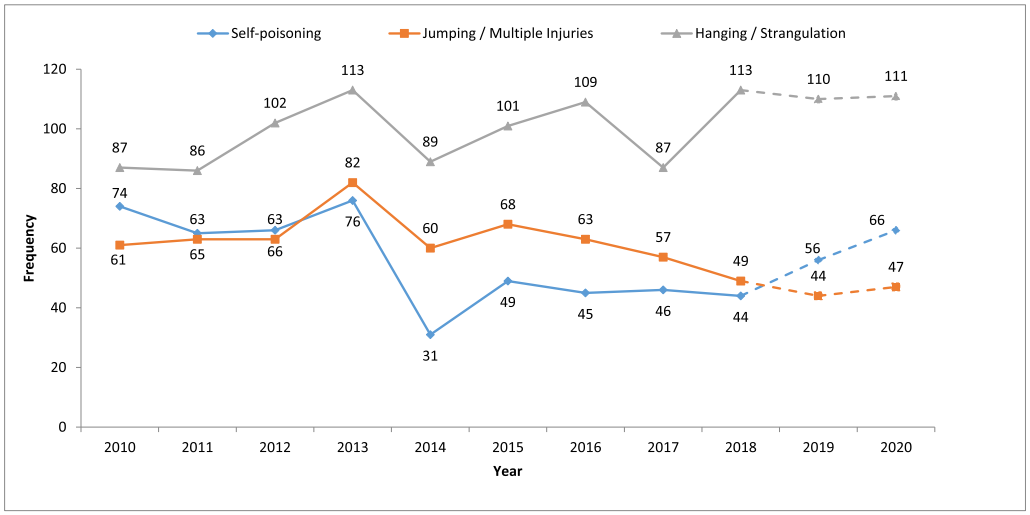

Fig. 2. Frequencies of most common suicide methods used by patients with schizophrenia between 2010 and 2020.

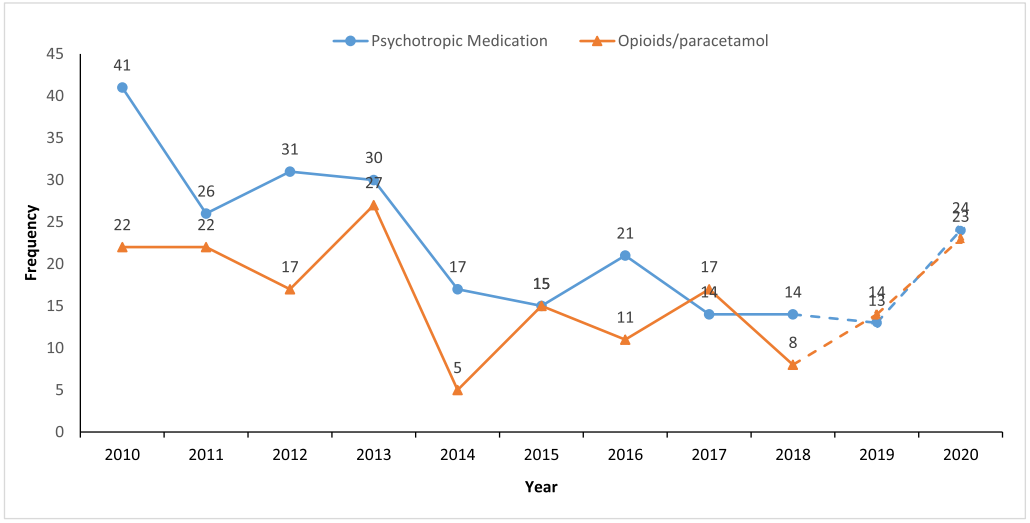

Fig. 3. Frequencies of most common substances used in self-poisoning by patients with schizophrenia between 2010 and 2020.

4. Discussion

This paper describes an 11-year national consecutive case series of suicide by people with schizophrenia in contact with mental health services between 2010 and 2020. Our results demonstrate that alcohol, cannabis, and stimulants were the most frequently reported substances in those with schizophrenia who died by suicide. These results are comparable to lifetime rates reported in several, large scale, meta-analyses (Hunt et al., 2018; Sara et al., 2015). However, while previous research has shown that the rates of individual drug use in those living with schizophrenia has remained stable over time (Hunt et al., 2018), this study found the opposite in those who died by suicide. Specifically, the odds of lifetime drug use increased for cannabis, stimulants, heroin, and benzodiazepines and reduced for legal highs over the examined time frame. This indicates that cannabis, stimulants, heroin, and benzodiazepine use could be increasing and specific risk factors for suicide death in those with schizophrenia and should be considered key targets of assessment, formulation, and intervention in mental health services (Ouellet-Plamondon et al., 2017; Hettige et al., 2018).

Differences in demographic, behavioural and clinical characteristics were found between those with historical and both recent and historical substance use. Specifically, in terms of alcohol, the most predictive characteristic of recent and historical use group membership were patients with recent episodes of self-harm. For drugs, the most predictive characteristics of recent and historical use group membership were patients aged under 25 and between 25 and 44, who were homeless, had recent episodes of violence and self-harm, and those with non-adherence with medication. Taken together, these findings corroborate and extend previous studies (Temmingh et al., 2021; Brunette et al., 2018; Compton et al., 2005; Hunt et al., 2006; Cantor-Graae et al., 2001) by identifying correlates of substance use in those who died by suicide stratified by type of substance and timing of use. They suggest that those with historical and recent alcohol or drug use before death have more complex markers of risk, psychological, and social needs. This complexity might contribute to the deleterious role of concurrent substance use identified in previous research on the onset, course, and outcomes of psychosis (Arseneault et al., 2004; Alvarez-Jimenez et al., 2012; Strålin and Hetta, 2020; Mulligan et al., in press). To reduce risk for these individuals, services need to implement care plans covering health and social care needs, including multi-agency and National Institute for Health and Care Excellence (NICE) informed approaches to the treatment of those with dual diagnosis. These should address mental and physical health, social care, housing, and other support needs and be provided flexibly to minimise the risks of disengagement (National Institute for Health and

Table 2
A comparison of demographic, behavioural and clinical factors of those with and without recent alcohol use (<3 months before death) in patients with schizophrenia who died by suicide between 2010 and 2020.

Variable	No recent alcohol/ historical alcohol (n = 491)	Recent alcohol/ historical alcohol (*n* = 715)	Test statistic	*P*-value
	n (%)	n (%)		
Demographics				
Age - Median	41.60	40.10	3.46	0.06
Male	410 (83.50)	606 (84.76)	0.34	0.56
Single	336 (68.43)	512 (71.61)	1.41	0.24
Ethnic minority	33 (6.80)	53 (7.55)	0.24	0.63
Unemployed	323 (68.14)	498 (71.76)	1.76	0.18
Heterosexual	101 (77.10)	135 (70.31)	1.82	0.18
Homeless	9 (1.87)	27 (3.88)	3.87	0.05
Living alone	299 (62.42)	424 (61.18)	0.18	0.67
Behavioural factors				
History of violence	219 (46.79)	268 (41.29)	3.35	0.07
Recent violence	7 (1.43)	26 (3.64)	5.35	0.02
History of self-harm	345 (72.05)	458 (67.35)	2.88	0.09
Recent self-harm	84 (17.11)	177 (24.76)	10.04	<0.01
Medication non-adherence	87 (18.71)	147 (21.46)	1.29	0.26
Clinical factors				
History of CPA	26 (5.30)	37 (5.17)	0.01	0.93
History of CSA	16 (3.26)	33 (4.62)	1.37	0.24
History of CEA	37 (7.54)	60 (8.39)	0.29	0.59
History of DV	9 (1.83)	22 (3.08)	1.80	0.18
Family history of suicide	13 (11.30)	17 (9.44)	0.27	0.61

CEA: childhood emotional abuse; CPA: childhood physical abuse; CSA: childhood sexual abuse; DV: domestic violence.

Table 3
A comparison of demographic, behavioural and clinical factors of those with and without recent drug use (<3 months) in patients with schizophrenia who died by suicide between 2010 and 2020.

	No recent drug/ historical drug (n = 467)	Recent drug/ historical drug (n = 841)	Test statistic	*P*-value
	n (%)	n (%)		
Demographics				
Age - Median	39.48	36.27	26.38	<0.01
Male	396 (84.80)	739 (87.87)	2.47	0.12
Single	328 (70.24)	627 (74.55)	2.84	0.09
Ethnic minority	61 (13.20)	98 (11.89)	0.47	0.49
Unemployed	299 (66.30)	594 (73.06)	6.40	0.01
Heterosexual	96 (72.18)	175 (72.61)	0.01	0.93
Homeless	6 (1.32)	39 (4.75)	10.13	<0.01
Living alone	284 (62.69)	484 (59.17)	1.51	0.22
Behavioural factors				
History of violence	206 (46.09)	340 (44.21)	0.40	0.53
Recent violence	5 (1.07)	34 (4.04)	9.17	<0.01
History of self-harm	307 (67.47)	520 (64.60)	1.07	0.30
Recent self-harm	61 (13.06)	197 (23.42)	20.36	<0.01
Medication non-adherence	81 (17.92)	200 (25.28)	8.92	<0.01
Clinical factors				
History of CPA	25 (5.35)	44 (5.23)	0.01	0.93
History of CSA	15 (3.21)	36 (4.28)	0.92	0.34
History of CEA	35 (7.49)	84 (9.99)	2.26	0.13
History of DV	7 (1.50)	22 (2.62)	1.73	0.19
Family history of suicide	12 (10.08)	25 (10.64)	0.03	0.87

CEA: childhood emotional abuse; CPA: childhood physical abuse; CSA: childhood sexual abuse; DV: domestic violence.

Care Excellence, 2016).

The most common methods of suicide in those with schizophrenia were deaths by hanging, jumping and self-poisoning. The prevalence rates found in this study align with schizophrenia cohorts in previous papers (Bareis et al., 2023; Sinyor et al., 2015; Chen et al., 2009; Hunt et al., 2006; Kreyenbuhl et al., 2002) and support the proposition that suicide deaths in schizophrenia are characterised by both violence and lethality (Sinyor et al., 2015; Pan et al., 2021). Though frequencies of suicide methods showed a similar pattern across schizophrenia, patient and general population groups over time, deaths by hanging were lowest and deaths by jumping were highest among the schizophrenia group. Previous research has demonstrated that suicide via jumping, also regarded as 'atypical' means, is especially common in those with schizophrenia (Docherty et al., 2022). This may be explained by a tendency for impulsive, rather than meticulous planning, or the experience of specific psychotic, rather than affective, symptoms (Nielssen et al., 2010). Therefore, impulsive behaviour and psychosis symptoms may be important targets of psychiatric and psychological intervention within mental health services and key components of risk mitigation for atypical suicide methods.

While there was no change in the frequency of deaths by jumping over time, our results show that deaths by hanging increased and deaths by self-poisoning decreased in the schizophrenia group. Specifically, in cases of self-poisoning, the use of psychotropic medication and opioids decreased. This is somewhat surprising as studies have found that self-poisoning is the most frequent method of suicide used by those with schizophrenia (Bareis et al., 2023). However, our results may reflect the work of ongoing nationwide initiatives to improve safety in prescribing, such as the UK Prescribing Observatory for Mental Health (POMH-UK) (Barnes and Paton, 2012). Nevertheless, as deaths by hanging increased over time, clinical teams should continue to focus their efforts on reducing access to these means where they can (i.e., in institutional settings) and adopt multi-agency approaches to reduce specific behavioural and clinical risk factors for suicide in those with schizophrenia (Gut-Fayand et al., 2001; Barber and Miller, 2014; Lim et al., 2021).

This study has several limitations. Firstly, although large scale national studies of suicide hold value, without a comparison group, no causal conclusions can be drawn. Therefore, the importance of substance use relative to other risk factors cannot be determined by this data. Secondly, all information was collected via clinicians retrospectively reviewing medical records, applying ICD-10 diagnostic criteria, or using clinical judgments as opposed to standardised measures. As clinicians were not blind to patient outcome, this could have resulted in bias. Nevertheless, previous research has supported the accuracy of the NCISH questionnaire as most items are factual, rather than subjective; disagreements between teams submitting data are infrequent; and risk of bias is comparable to other forms of suicide research, including psychological autopsy studies, regarded as the most informative method of investigation (Appleby et al., 1999). Thirdly, our sample is a select sample, as not all people with schizophrenia have contact with mental health services, especially those who experience homelessness (Folsom et al., 2005) or frequent residential mobility (Lix et al., 2007), and those using substances may instead be supported by drug and alcohol services. If future studies can access and combine data from mental health and drug and alcohol services, it could hold promise in capturing a more reliable picture of substance use and suicide death in those with schizophrenia. Lastly, our findings have limited generalisability to other countries given the influence of cultural norms on the availability of suicide methods (Pan et al., 2022; Wu et al., 2012).

In conclusion, our findings show that the frequency of cannabis, stimulant, benzodiazepine, and heroin use in those with schizophrenia

who died by suicide has increased between 2010 and 2020. Considering the impact of regressive austerity on population and economic health, in addition to health service provision over this period, it is plausible that vulnerable groups, such as those with schizophrenia, may have increasingly used substances before death to manage chronic stress and potential gaps in care (Friebel et al., 2022). Our results also show that, compared to people with schizophrenia with historical substance use, those with recent and historical alcohol or drug use before death have more markers of risk and some unique, psychological, and social needs. While deaths by self-poisoning via the use of psychotropic medication and opioids have reduced over time, and possibly reflect the work of ongoing initiatives to improve safety in prescribing, deaths by hanging have increased. Therefore, clinical efforts should concentrate on identifying people with schizophrenia using specific substances, implementing holistic care plans to address unique and complex needs associated with dual diagnosis, and reducing access to suicidal means via hanging where possible, as these may improve risk management for this clinical group in line with international public health priorities (Lu et al., 2020).

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CRediT authorship contribution statement

Lee D. Mulligan: Conceptualization, Formal analysis, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Lana Bojanić:** Conceptualization, Formal analysis, Methodology, Writing – review & editing. **Isabelle M. Hunt:** Conceptualization, Methodology, Writing – review & editing. **Alison Baird:** Methodology, Writing – review & editing. **Pauline Turnbull:** Methodology, Writing – review & editing. **Nav Kapur:** Writing – review & editing. **Louis Appleby:** Writing – review & editing. **Jenny Shaw:** Conceptualization, Formal analysis, Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

LA chairs the National Suicide Prevention Strategy Advisory Group (NSPAG) at the Department of Health and Social Care in England; NK is a member of the Group and is supported by Greater Manchester Mental Health NHS Foundation Trust. NK chaired the 2022 NICE guideline development group for depression in adults and was a topic expert member for the NICE suicide prevention guideline. NK chaired the guideline development group for the NICE guidelines on the longer-term management of self-harm 2011 and was a topic advisor on the 2022 NICE guideline on self-harm. All other authors have no interests to declare.

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