Pesticides and passion: a qualitative psychological autopsy study of suicide in Guyana

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Summary

Background The suicide rate in Guyana has consistently ranked in the top ten globally, yet there is only limited literature related to the context in which these suicides occur. This study aims to better understand the psychosocial circumstances and characteristics of suicides in Guyana.

Methods This case series study utilised a qualitative psychological autopsy method. One to three informants per deceased person (N = 31) were interviewed regarding the lives of 20 Guyanese who died by suicide (14 M, 6 F, aged 10–74 years). Interpretative Phenomenological Analysis was utilised for the data.

Findings Four superordinate themes were identified: Interpersonal Conflict, Trauma, Health, and Unknown Reasons. Interpersonal conflict included subordinate themes of Domestic Abuse, Marital Separation, and Financial Disputes. Health included subordinate themes of Physical Health and Mental Health. Pesticide poisoning was the method used by Guyanese people whose suicide was triggered primarily by interpersonal conflict.

Interpretation The findings illustrate the complexities of suicide in Guyana and the importance of adopting a bio-psychosocial perspective to suicide prevention. Suicide prevention should include mental health and suicide literacy training of medical professionals. It is recommended that the importation of highly toxic pesticides be restricted, and that less toxic substitutes be promoted. Convenience sampling, recall bias, and limited informants are limitations of this study. Future research should focus on suicidal behaviour using larger sample sizes.

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Keywords: Suicide; Guyana; Pesticide; Psychological autopsy

Introduction

The World Health Organization's (WHO) Global Health Estimates[1] indicate that the rates of suicide have been decreasing worldwide over the past two decades (2000–2019), however the Americas is the only region that has recorded an increase in suicides over this time. Guyana's estimated age standardised suicide rates have ranked in the top ten globally and the highest within the Americas region since 2000, when the WHO[2] began reporting their estimates for member states. Despite the consistently high rates of suicide, there has been limited research dedicated to suicide in Guyana.

Guyana is an anglophone country located on the northeast coast of South America, bordering Venezuela, Brazil, and Suriname. Guyana has only recently achieved high-income country classification by the World Bank, owing to recent oil discovery and extraction. Guyana is an independent republic with a complex history of colonisation by multiple European nations, involving slavery from West Africa and indentured labour from India, Portugal and China.[3,4] Guyana is divided into ten administrative regions with regions 1, 7, 8 and 9 considered to be interior regions and regions 2, 3, 4, 5, 6 and 10 considered to be coastal. Nearly 90% of the country's population reside in the coastal regions.[5] The ethnically diverse population of approximately 750,000 consists of 40% Indian heritage (Indo-Guyanese), 29% African heritage (Afro-Guyanese), 10.5% indigenous (Amerindian), 20% who identify as

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Research in context

Evidence before this study

A recent systematic review of suicidal behaviours in Guyana (2022) revealed a significant research gap regarding the lives of Guyanese people who die by suicide. We searched Google Scholar (March 1, 2023) for articles published since that review (2021–2023) using terms "Guyana" and "suicide". This search identified one cross sectional study of suicidal behaviour using responses from the 2016 PAHO STEPS Survey (Peltzer & Pengpid, 2022). A Suicide Prevention Act (2022) has also been legislated since the systematic review. The Act includes a provision for the establishment of a National Suicide Prevention Commission, tasked with developing the next National Suicide Prevention Plan. It is important that this new national plan be informed by local research findings so that interventions are tailored to the Guyanese context.

Added value of this study

This is the first psychological autopsy study to be published concerning Guyana. It provides insight into the psychosocial circumstances and characteristics of suicides in Guyana, which is critical for suicide prevention. Understanding the history and context of the people who have died by suicide is an important for the advancement of suicide prevention efforts.

Implications of all the available evidence

Pesticide reform, community engagement, and training of healthcare professionals are recommended as key avenues for suicide prevention in Guyana. The next National Suicide Prevention Plan should incorporate a national ban on the importation of highly lethal pesticides and promotion of less toxic substitutes. The initiation and support of community based psychosocial support groups, particularly focused on alcohol and men, would supplement the scarce human mental health resources currently available in Guyana. Furthermore, mental health and suicide literacy of medical professionals should be a part of suicide prevention in Guyana. Future research should focus on non-fatal suicidal behaviour and means selection.

'Mixed', and Chinese, Portuguese and White cumulatively contribute less than 1%.[5]

A recent systematic review of suicidality in Guyana identified preliminary evidence for key risk groups; males, female youths, and people of Indo-Guyanese ethnicity.[6] Furthermore, pesticide poisoning has been identified as the most common method for suicide[6] and reported suicide attempts[7] in Guyana. Yet, other than epidemiological and descriptive analysis, there is limited literature about the context of suicides and suicide attempts in Guyana. Of note, Groh[8] interviewed bereaved relatives about their experience of suicide loss, but did not investigate the characteristics of those who died. Therefore, little is known about the circumstances, meaning, and motives of suicide in the country. The government has initiated many suicide prevention activities and recently passed a Suicide Prevention Act (2022) which directs the establishment of a National Suicide Prevention Commission to develop a new National Suicide Prevention Plan. The 38-clause legislation also includes a directive for survivors of a suicide attempt to attend counselling, counsellors to be placed in schools, a suicide prevention helpline to be established, mandatory reporting of suicide attempts by health workers, and the establishment of suicide prevention centres. This new Act repealed the previous criminal law against attempted suicide. However, more information is needed regarding the context of suicide to inform an effective suicide prevention strategy tailored to the Guyanese context.

This study aims to better understand the psychosocial circumstances and characteristics of suicides in Guyana. It employs a qualitative psychological autopsy method to examine the life and death of Guyanese who have died by suicide through the voices of close significant others.[9] A qualitative psychological autopsy facilitates a deep understanding of the history and context of a person who has died by suicide[9] and is suggested to be an important initial investigation of suicide in a country with limited existing research.[10] This method has been used in Uganda,[11] Ghana,[12] and Nepal[13] to provide insightful analysis and contextualisation of suicide deaths.

Methods

Study design

The study involves a qualitative case series of suicides in Guyana and is reported in accordance with the consolidated criteria for reporting qualitative research (COREQ) checklist,[14] see Supplement A in the Supplementary Material.

Data collection

Recruitment for this study was conducted by promotion through: (1) Facebook page, (2) public media campaign, (3) distributed through NGO networks and (4) snowballing from informant networks. Those interested in participating were invited to reach out to the lead author (CS, interviewer) via phone or direct message. Indirect snowballing involved informants being asked to provide the details of the study to others whom they know have been affected by suicide. Snowballing was the most successful recruitment method. Additional informants for each person who died by suicide were identified using the same indirect snowballing method.

Semi-structured psychological autopsy interviews took place between November 2021 and January 2022 at informants' homes and workplaces. The first author (CS)

conducted all the interviews, which lasted between 30 min and 2.5 h. She is a Clinical Psychology PhD candidate and registered provisional psychologist. She is Australian, married to a Guyanese, and has lived in Guyana for eight years prior to this study. Four of the interviews were attended by a village elder to facilitate introductions. Rapport was established with the informants and the interviewer carefully explained the purpose of the study and made clear the informants' right to refuse to participate or to withdraw at any time without consequence. Informants were also provided with a written information sheet about the study. After assuring confidentiality and anonymity of both the person who died by suicide and the informant, oral consent was obtained. All but three of the informants consented to being audio recorded. For those who did not consent to audio recording, written notes were taken.

The semi-structured psychological autopsy interviews began with a narrative, informant lead section, involving an open-ended request, "Please tell me about he/she". Informants recollected important events in the life history of the deceased person and at the same time presented their understanding of the suicide. The interviewer encouraged them to speak freely and refrained from interrupting. Once the narrative had naturally concluded, follow up questions were guided by 16 suicide themes (see Supplement B in the Supplementary Material for interview guide).[15] The interviewer monitored informants and sought ongoing consent at various stages. Reimbursement of the informant's time in the form of GY$2000 phone credit (US$10 equivalent) was provided at the conclusion of the interview. A debrief was conducted at the end of the interview to ensure the emotional stability of the informant before concluding. An information sheet with telephone contact details for counselling services was also provided. Field notes were completed by the interviewer at the conclusion of each interview. The transcripts were not reviewed by informants however the results were shared with them once analysis was completed.

Study subjects

Information was collected for 20 Guyanese people who died by suicide (see Table 1). These included 14 males and 6 females aged 10–74 years. Five were children (<18 years). Nine of the adults were unpartnered at the time of death. Ten died by poisoning and ten died by hanging. The religious affiliations of the persons who died were: Hinduism (n = 12), Christianity (n = 6), and Islam (n = 2). People who died by suicide were from Region 3 (n = 11), Region 4 (n = 5), Region 5 (n = 3), and Region 6 (n = 1) in Guyana and they were of Indo-Guyanese (n = 16) and Mixed (n = 4) ethnicities.

Informants

The criteria for informant participation included being age 18 years and above and close contact with the deceased person prior to their death. The death needed to have occurred between six months to five years prior to the interview (Mean = 2.4 years). Close contact was defined as having good knowledge of the person who died by suicide and having had recent communication with them before they died. For each person (n = 20) who died by suicide, 1–3 informants participated. A total of 31 informants, including parents (n = 18), children (n = 3), grandparents (n = 2), in-laws (n = 5), spouse (n = 1), sibling (n = 1) and friend (n = 1) of the deceased were interviewed. Some of the interviews involved multiple informants interviewed as a group whilst for others the informants were interviewed individually.

Ethics

This project was approved by the Griffith University Human Research Ethics Committee (GU Ref: 2021/809). Ethical approval was also provided by the Ministry of Health Guyana Institutional Review Board (132/2021).

Data analysis

The interviews were first transcribed, either by a professional transcription service or author CS. They were then analysed by CS and KK using a modified version of Interpretative Phenomenological Analysis[16] in which we explore the life and death of those who died using the information collected from their closest contacts as proxy for the decedent's experience. Author KK (sociologist and suicide researcher with over 20 years of experience) reviewed eight transcripts. In accordance with this idiographic approach, each interview was reviewed in detail by listening to the recording and reading the transcript multiple times. For people who died by suicide with multiple informants, the multiple interviews were assessed for similarities and differences and integrated into one coherent story, and thereby treated as one set of data.[17] The program NVivo was used to qualitatively code content themes, language use, and context.[18] Emergent themes were identified for each individual person who died by suicide. The first and last author consolidated the data across people who died to find superordinate themes. To address validity of the analysis and reduce investigator bias, repeated discussions of emerging themes and clustering of themes were held.[19]

Role of the funding source

The funders of this study had no role in study design, data collection, data analysis, interpretation, writing of the report or decision to submit.

Results

Four superordinate themes were identified: Interpersonal Conflict, Trauma, Health, and Unknown Reasons.

Deceased person #	Region	Sex	Suicide method	Ethnicity	Informant/s
1	4	F	Pesticide	Indo-Guyanese	Mother
2	4	F	Pesticide	Indo-Guyanese	Son, daughter-in-law (individually)
3	3	F	Hanging	Indo-Guyanese	Grandmother
4	6	F	Pesticide	Indo-Guyanese	Mother, sister (individually)
5	5	F	Hanging	Indo-Guyanese	Grandmother
6	3	F	Pesticide	Indo-Guyanese	Mother, father (group)
7	3	M	Pesticide	Indo-Guyanese	Mother, father (individually)
8	3	M	Hanging	Mixed	Mother
9	3	M	Hanging	Indo-Guyanese	Father
10	4	M	Pesticide	Mixed	Friend
11	3	M	Pesticide	Indo-Guyanese	Mother, father (group)
12	3	M	Hanging	Mixed	Mother
13	4	M	Pesticide	Indo-Guyanese	Son, daughter-in-law (individually)
14	3	M	Hanging	Indo-Guyanese	Son, daughter in law (group)
15	3	M	Hanging	Indo-Guyanese	Mother, father (group)
16	3	M	Pesticide	Mixed	Mother
17	5	M	Hanging	Indo-Guyanese	Wife, father-in-law, mother-in-law (group)
18	5	M	Pesticide	Indo-Guyanese	Mother, father (group)
19	3	M	Hanging	Indo-Guyanese	Mother
20	4	M	Hanging	Indo-Guyanese	Mother

Table 1: **Study subjects.**

Interpersonal conflict

Many of the people who died by suicide were experiencing interpersonal conflicts within family or spouse relationships. Conflict in these primary relationships appears to have caused much distress and suicide was sought before any significant attempts at mediation or problem solving. Three subordinate themes were identified: Domestic Abuse, Marital Separation, and Financial Disputes.

Domestic abuse

Some of the women were experiencing domestic abuse from their respective spouses when they died. As one family member described: "He's violent with she, physically abuse she and two time she go to the police to report he and he is locked up, put in for the night or couple of days, but they don't process it, just let he cool up" [He is violent towards her, physically abusive and twice she went to the police to report him and he was 'locked up', just put in for the night or couple of days, but they didn't process it (charge him), just let him cool up (calm down)] (Father, group interview, Person #6). This woman drank poison in front of her spouse during an argument, seemingly as an act of rageful communication: *"She and she husband were fighting, he was holding the baby, she went upstairs, got the poison, come back downstairs and drank it in front of he"* [She and her husband were fighting, he was holding the baby, she went upstairs, got the poison, came back downstairs and drank it in front of him] (Mother, group interview, Person #6).

Marital separation

Some of the deceased men had experienced estrangement from their children after a marital separation which led to heartache and suffering. Their ex-spouses had relocated overseas with promise to facilitate their husband's emigration but had instead married other men overseas. Despite much effort, the men were refused or provided only limited phone contact with their children. As one informant described: *"He gat one daughter wit she. Deh carry dis child, unknowing tah he, he nah know. He suppose tah sign fah dis child, and dem nah, me nah know wha dem do, and he no sign fah dis child, he daughter. And when de gal go, 'im nah know and when he hear, since dat he study cry cry fah dis gal. And since de, he life no de same."* [He has one daughter with her [his wife]. She carried the child [overseas] without him knowing, he didn't know. He is supposed to sign [consent] for this child, his daughter. But when the girl left, he didn't know, and when he heard, since then he study [contemplate] and cry, cry for this girl [his daughter]. And since then, his life was not the same] (Mother, group interview, Person #18).

For these men, it appeared that they grieved most for the loss of contact with the children, rather than the break-up of the marriage. One man had re-partnered, however was still constantly grieving for the loss of his children: *"Cause he children and he wife gon over deh. He frustrated de children dem nah talk tah he"* [Because his children and his wife went over there. He was frustrated that the children did not talk to him] (Mother, group interview, Person #11). Both men turned to alcohol after their marital separation and estrangement from their children.

One man was experiencing constant conflict with his spouse and then experienced shame and

embarrassment after an incident with her at a rum shop. When he returned home his partner was packing to leave with his child and this was experienced as overwhelming. His mother reported: *"Passion, yah know. It's passion. She go and embarrass he at de shop, and den he come home, he hear she pack up and move out, and den she want tah carry de baby, so it's de passion. He can't control he self. Like he get de passion fah go an do dat"* [Passion, you know. It's passion. She went and embarrassed him at the shop, and then when he came home, he heard her packing up and moving out, and then she wanted to carry [take] the baby, so it's the passion. He could not control himself. Like he got the passion to go and do that] (Mother, individual interview, Person #7). The man was drunk at the time and drank pesticide during the conflict.

Financial disputes

For others, the interpersonal conflict was between adult children and parents. These conflicts were related to money and intergenerational distribution of wealth. One of the men was living at home with his parents, however they felt that he did not contribute enough to the living expenses. As his friend stated: *"Yeah, he live home, but dey always get in situation dat de mudda, the fudda and de chirren are quarrellin all de time. If it's nah fah money, if it's nah fah some boarding fah food or some issue like dat"* [Yeah, he lived at home, but they always had a situation whereby the mother, the father and the children were quarrelling all the time. Usually about money for boarding or food or some issue like that] (individual interview, Person #10). Whereas for others the conflict was related to the distribution of inheritance amongst siblings and this stress became too great for some family members.

The people who died by suicide who were experiencing interpersonal conflict all used pesticide poisoning as the means of death. Some drank the pesticide impulsively directly during or after an argument, often in front of the family member with whom they had the conflict. For these people, passion was described by the informants as a factor leading to the impulsive suicide. Whilst others planned their death and pre bought the pesticide for the purpose of suicide. All informants described a build-up of frustration and conflict which culminated in the suicide. Data analysis revealed that most of the people whose suicide was triggered by an interpersonal conflict had previously expressed suicidal ideation.

Trauma

For some people who died, life had been beset by much tragedy and trauma. It appeared that a long sequence of traumatic events had led them to a sense of hopelessness regarding their future. One adolescent provides an example of chronic hardship and trauma experienced by some. As a child they were present for the suicide of their parent. The parent attempted homicide, by giving them pesticide too and promised them grapes and ice apples in heaven. This was a non-lethal dose and the child survived, however the parent died. They were then rejected by their surviving parent and sent to live with another relative. In the years preceding death, this adolescent lived in extreme poverty, survived a house fire, and experienced romantic rejection. Once school closed for COVID-19, life became unbearable. As their grandmother reported: *"Because it been close tah September when school been fah close. Den a whole term. De nex year, all body seh school gon open school gon open, but school nah open. Like dey must a fed up deh home like, because remember yah can't send dem nowhere"* [Because it was close to September when the school closed [Covid lockdown]. Then a whole term. The next year, everybody said that school is going to open, school is going to open, but school did not open. Like they must have been fed up there at home like, because remember you can't send them anywhere] (individual interview, Person #5).

Some men who died by suicide had experienced significant childhood trauma and subsequently developed alcoholism in adulthood. As one mother reported: *"Yeh, 'e stepfather brudda beat 'e bad, hold he by 'e foot an gat de head down in de trench, bubblin 'e. Yeh, all a dat he does talk about an 'e does say when 'e been small, people beat 'e, people bubble 'e, hold he by he foot, gat dah head down in da trench fah stifle 'e, for kill 'e"* [Yes, his stepfather's brother beat him bad, held him by his foot and put his head down in the trench, bubbling [holding someone's head underwater] him. Yes, stuff like that he used to talk about, and he used to say that when he was small, people beat him, people bubbled him, held him by his foot, put his head down in the trench for stifle him, for kill him] (Mother, individual interview, Person #12).

In addition to this child abuse, his mother abused alcohol since he was born, and they lived in extreme poverty for all his life. He went on to develop alcoholism and died while under the influence of alcohol. Another example was a man who experienced significant child abuse perpetrated by his father, who abused alcohol. One of his siblings later died by suicide. This man also developed alcoholism and died while under the influence of alcohol. These examples illustrate the impact of trauma and intergenerational alcoholism on suicide and the challenge of processing trauma and grief for men in Guyana.

Health

The theme Health includes subordinate themes of Physical Health and Mental Health.

Physical health

For some people who died, suicide followed a protracted period of physical ill health, including diabetes and neurological concerns. They sought treatment for these chronic health conditions, however, did not experience

relief from the symptoms. This appears to have led to frustration and the development of mental health concerns. As one informant stated: *"But after you constantly drinkin de tablet der and it no work he done get frustrated for dat. So, to me like he get frustrated after he get the sick and he no get no relief"* [But after you're constantly drinking the tablet and it doesn't work, he got frustrated about that. So, to me like he got frustrated after he got the sick and he didn't get any relief] (Son, group interview, Person #14).

A number of these families organised a head scan to investigate a potential physical cause for their relative's depression symptoms or suicidal ideation. As one mother said, *"me carry she a doctor, me do MRI, me do CT scan, all thing right in Guyana here, but the doctor here say they no see nothing wrong wit she brain"* [I carried her to a doctor, I did an MRI, I did a CT scan, all right here in Guyana, but the doctor said they don't see anything wrong with her brain] (individual interview, Person #1). During these physical health investigations, it appears that the people who died by suicide were not assessed for mental health.

Mental health

For others, their death was precipitated by mental illness in the absence of physical illness. One person who died by suicide experienced repeated psychosis self-harm episodes, which the family attributed to evil spirits. Many families reported people who died by suicide as having significant trouble sleeping, some of which were taking Valium®. One man who was experiencing trouble sleeping had been researching depression on the internet and his phone indicated that he called the suicide helpline service three times preceding death. The family believe that he was promised a call back, but this was not provided: *"Yes me daughter tell me three times, three days he call. And he never get a response. Dey pick up the phone, tell em dey gon talk to em, you know? Call back em and whatever. Never get back"* [Yes, my daughter told me that three times, three days he called. And he never got a response. They picked up the phone, told him they were going to talk to him, you know? They will call him back and whatever. Never get back] (Mother, individual interview, Person #19).

Many people who died by suicide had a history of non-fatal suicidal behaviour. One man slit his throat and required medical attention. When his family carried him to hospital, they lied about the cause of the injury to avoid legal prosecution: *"Yes, I had tah carry he tah hospital and me had tah tell de hospital people how people go fah beat he up and tek he bicycle and dey slit he throat because dem going fah put he on probation and enough runnin around, sah me had tah lie. Me had tah lie"* [Yes, I had to carry him to hospital, and I had to tell the hospital people that people beat him up and took his bicycle and that they slit his throat, because they [the hospital people] were going to put him on probation and enough running around, so I had to lie. I had to lie] (Mother, individual interview, Person #12). One adolescent had received medical attention for non-fatal suicidal behaviour three times, however never received a psychiatric referral. Few people who died by suicide were receiving psychiatric treatment at the time of death.

Whilst mental health concerns were not always apparent, most of the informants observed that the deceased experienced "confusion", "passion", or "frustration" prior to death:

"Ders ups and downs in every relationship, sometimes you feel passion. Tings can settle down, but like she got confused" [There's ups and downs in every relationship, sometimes you feel passion. Things can settle down, but like she got confused] (Father, group interview, Person #6).

"He had accident on a motorbike an he die. He bruk up into pieces. And dat been get she frustrated when she husband die." [He had an accident on a motorbike and he died. He broke up into pieces. And that frustrated [upset] her, when her husband died] (Mother, group interview, Person #4).

"Yeah, he seh it better he dead, when he get passion like. Seh better he dead and done. That's how he does der. Me does tell em, you don't got nothin for talk. But, you know..." [Yeah, he used to say it better he dead, when he get passion like. He would say better he dead and done. That's how he was. I told him, you don't got nothing for talk. But, you know...] (Father, group interview, Person #15).

These terms, confusion, passion, and frustration are used colloquially to indicate emotional distress and behaviour influenced by emotionality.

Unknown reasons

There were some men for whom family members could not account for their death in any way. The death was reported as completely unexpected and to have no identifiable cause or trigger. One informant stated: *"Up to now we can't know exact cause dat he tek he own life. Abi still a figure out, the father still a figure out. No one knows the cause"* [Even now, we don't know the exact cause for why he took his own life. Abi [matriarch of the house] is still trying to figure it out, the father is still trying to figure it out. No one knows the cause] (Father-in-law, group interview, Person #17). Another reported: *"So whatever stress 'e had, 'e keep it within heself. He never say am to nobody...Tah be honest wit you, if he had one problem, nobody don't know"* [So whatever stress he had, he kept it within himself. He never told anybody...To be honest with you, if he had a problem, nobody knew] (Father, individual interview, Person #9). These families reported that everything appeared fine with the person who died by suicide and then they died very unexpectedly with no history of suicidal ideation or stress.

For the people who died by suicide who were experiencing stressful life events, such as interpersonal conflict, many of the informants still made a comment related to a lack of insight into the emotional concerns or mental state of their relative who died:

"But me nah know what cause and if she had any problems or anyting, I don't know. Yah know? I can't seh." [But I don't know what caused it or if she had any problems or anything, I don't know. You know? I can't say] (Grandmother, group interview, Person #3).

"But then you not know the inside of a man, for know. Sometimes me gat one problem, and me not want tell you." [But then you don't know the inside of a man, to know. Sometimes I have a problem, and I don't want to tell you] (Son, group interview, Person #14).

"Everyting comfortable, me nah know wha come over he mind, me can't seh wha come over he mind fah dat couple days. Me nah know why. All corner me try me try, to understand wha mek he do dis." [Everything was comfortable, I don't know what came over his mind, I can't say what came over his mind for that couple of days. I don't know why. All corner I try, I try, to understand what made him do this] (Mother, individual interview, Person #19).

Discussion

The WHO estimates[20] show that Guyana's suicide rates have ranked in the top ten globally for at least two decades, however little is known about the lives of Guyanese people who have died by suicide. Therefore, the aim of this study was to better understand the context and life experience of people who have died by suicide in Guyana using a qualitative psychological autopsy method. A total of 31 close relatives and friends (informants) were interviewed regarding the suicide deaths of 20 Guyanese people. The superordinate themes identified were Interpersonal Conflict, Trauma, Health, and Unknown Reasons.

The theme of interpersonal conflict included subordinate themes of Domestic Abuse, Marital Separation, and Financial Disputes. Interpersonal conflict has previously been identified as the most significant precipitant for suicide in neighbouring Trinidad and Tobago.[21] This theme supports the finding of an American psychiatrist who interviewed suicide attempt patients at a Guyanese hospital in 1965.[22] He concluded that the suicide attempts were an act of interpersonal communication, spawned by familial conflict. It was his hypothesis that many of the patients had repressed anger and rage towards others that they redirected towards themselves. In the present study, "passion" was referred to in the interviews regarding interpersonal conflict, and in Guyana the word "passion" approximates anger or rage. Guyana is thought to be a collectivistic society,[23] which values social cohesion and family bonds, therefore interpersonal conflict can lead to much distress.

Whilst pesticide poisoning has previously been identified as the most common method of suicide in Guyana,[6] the overall sample contained a balance of hanging and pesticide poisoning deaths. However, pesticide poisoning was the method used by Guyanese people whose suicide was triggered primarily by interpersonal conflict. Similarly, in neighbouring Suriname, a psychological autopsy study reported that people who died by pesticide poisoning either drank the pesticide in front of a family member or told someone immediately after drinking it, whereas those who died by hanging did so privately.[24] Research from China has found that suicide by pesticide poisoning is most common in low planned (impulsive) suicides.[25] Low planned or impulsive suicide attempts are associated with lower intent to die.[26] Therefore it has been argued that the intentional ingestion of pesticide is often an act of self-harm rather than suicide and that people ingesting pesticide are motivated to gain attention, get revenge or express distress, rather than wanting to die.[27] Research from Sri Lanka further supports this theory, as pesticide ingestion patients reported they chose the closest available poison to ingest, with little knowledge of its lethality.[28] Based on this evidence, reducing the availability of lethal poisons has been the target of effective population level suicide prevention interventions across multiple countries.[29]

Another superordinate theme identified was trauma. Some of the people who died by suicide had experienced much tragedy and trauma throughout their lives. For the men who had experienced much tragedy, it appeared that they turned to alcohol to manage their emotional pain before eventually dying by suicide. Childhood abuse[30] and alcohol abuse[31] are both associated with an increased risk of suicide. Furthermore the self-reliance associated with masculinity has been implicated in suicidal thinking.[32] Research has suggested that traditional masculine norms are linked to heightened suicide risk because masculinity prohibits support seeking or emotional disclosures.[33] Therefore the relationship between masculinity and emotionality in Guyana warrants investigation.

Health was identified as a superordinate theme including both Physical and Mental Health. This theme detailed the impact of chronic health conditions and mental illness for people who died by suicide in Guyana. Informants discussed multiple interactions with healthcare professionals, for symptoms such as low mood and low appetite comorbid with a chronic physical illness such as diabetes, however no mental health assessment was reported. For those people who were experiencing symptoms of mental illness in the absence of physical illness, their families did not attribute these symptoms to mental health nor seek treatment,

including psychosis. Furthermore, those treated for non-fatal self-harm were not referred for psychiatric treatment either by their families nor attending doctors. This lack of referral may be due to the legal status of suicide attempts at that time, limited availability of mental health care in Guyana, and/or limited mental health awareness and literacy of both families and healthcare professionals. Notably one person who died was unable to access support via a suicide helpline service despite their attempts to reach out to them.

The final superordinate theme which emerged was Unknown Reasons, which relates to the people who died seemingly 'out of the blue' and the gaps in information presented by informants more generally. It is possible that the people who died did not share their stressors or inner experience with their families and close friends. This may be due to limited emotional intimacy within families or the influence of shame or stigma. Mental health stigma has been previously identified in Guyana.[8,34] Another explanation might be that the limited number of informants identified for each person who died has impacted the depth of information gathered. A further possibility is that the informants were not sharing the information with the interviewer due to cultural differences or concerns of stigma or shame, however this seems unlikely due to the voluntary recruitment strategy. In neighbouring Suriname, psychological autopsy researchers observed a reluctance by informants to communicate about problems and feelings in general.[24] This was also observed in Guyana, with informants presenting a somewhat limited representation of the person who died by suicide.

Limitations

There are limitations to this study which need acknowledging. The convenience sample is not representative of suicides in Guyana, notably not all regions or ethnic groups are represented. Males and people identified as Indo-Guyanese were overrepresented in our sample of people who died by suicide, however this is consistent with previous research findings.[6] Whilst the sample size is limited, it is considered appropriate for Interpretative Phenomenological Analysis.[18] Informants were interviewed between six months to five years after the suicide death, which introduces varying recall bias to the data, a limitation common amongst psychological autopsy studies.[35,36] Furthermore, the indirect snowball recruitment used to identify subsequent informants limited the number and type of informants for each person who died by suicide. There appeared to be reluctance to involve other family or friends in the study, with initial informants preferring for their interview to be definitive. Informant narratives can be biased depending on their perspective and relationship with the person who died by suicide.[37]

Implications and future direction

The findings illustrate the complexities of suicide in Guyana and the importance of adopting a bio-psychosocial perspective to suicide prevention. This involves considering the intrapersonal, interpersonal, and contextual experiences that contribute to suicidality. As such, there is a need for a multidisciplinary approach to suicide prevention, involving not only the health sector but also other social sectors including gender, community development, and cultural institutions. Furthermore, the initiation and support of community based psychosocial support groups, particularly focused on alcohol and men, would supplement the scarce human mental health resources currently available in Guyana. Mental ill health was not implicated for all the people who died by suicide in this study. Nonetheless, mental health and suicide literacy of medical professionals requires improvement so that mental health can factor into the physical health assessment process and referrals for mental health treatment provided. Promoting positive mental health and creating awareness to reduce stigma may also support suicide prevention. Favourably, community mental health projects,[38] mental health literacy of healthcare workers,[39] and activities focused on men[40] have all recently been initiated in Guyana.

The results of this study indicate that lethal pesticides are being used to die by suicide in Guyana, as has been reported previously.[6] Pesticide suicides are best prevented by restricting the importation of highly lethal pesticides and promoting less toxic substitutes.[41] This has been shown to be an effective population level suicide prevention strategy,[29] with no impact on agricultural yields.[42] For example, Sri Lanka achieved a 50% reduction in pesticide suicides within three years by banning the importation of three highly toxic pesticides (dimethoate, fenthion, and paraquat).[43] Therefore, it is recommended that Guyana institutes a ban on the importation of highly lethal pesticides. The Pesticides and Toxic Chemicals Control Board of Guyana is continually updating the list of prohibited pesticides and toxic chemicals however, more support is needed regarding enforcement and substitute promotion.

Further research is needed to better understand suicide in Guyana. Of priority is a generalisable psychological autopsy study. Furthermore a study which involves interviews with people who have survived a suicide attempt, such as research by Akotia, Knizek[44] is also encouraged, particularly to explore method selection and lethal intention. A media analysis is recommended to further develop an understanding of the cultural context of suicide and to investigate the potential impact of media reporting on the prevalence of suicide in Guyana.

Conclusion

This is the first psychological autopsy study to be published from Guyana. A total of 31 close relatives and

friends (informants) were interviewed regarding the suicide deaths of 20 Guyanese people. The results have identified themes of Interpersonal Conflict, Trauma, Health, and Unknown Reasons. The theme of interpersonal conflict included subordinate themes of domestic abuse, marital separation, and financial disputes. Pesticide poisoning was the method used by Guyanese people whose suicide was triggered primarily due to interpersonal conflict. There is a need for a generalisable psychological autopsy study and research into non-fatal suicidal behaviour. It is recommended that the National Suicide Prevention Commission focus on restricting importation of highly lethal pesticides, funding for community-based support groups, and suicide literacy training for healthcare workers.

Contributors

CS: conceptualization, investigation, project administration, formal analysis, data curation, writing-original draft; JS: conceptualization, writing-review & editing; TT: writing-review & editing; KK: conceptualization, methodology, validation, formal analysis, supervision, writing-review & editing.

Data sharing statement

The participants of this study did not give consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

Declaration of interests

The authors declare no competing interests.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.lana.2023.100570.

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