Socio-economic and Environmental Determinants of Suicide

Background Paper

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Suicide Prevention Australia

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Introduction

Addressing the social determinants of suicide is critical in efforts to help people before they reach a point of suicidal crisis. Although suicide is a complex human behaviour and suicides cannot be reliably predicted, a focus on social determinants targets those who are likely to become at increased risk of suicidality. Despite the importance of this, there has been little work to comprehensively set out the social determinants of suicide. A number of organisations have produced different lists of social determinants of suicide, but there is not an authoritative list, or an authoritative definition that is sufficiently precise to determine a list. Even the commonly used term “social determinants” does not capture the range of determinants that have been identified by evidence as contributing to suicide risk. Economic factors, such as unemployment or poverty, and environmental factors, such as extreme heat and the impacts of natural disasters, are frequently included in lists of determinants. For this reason the term “socio-economic and environmental determinants of suicide” and its abbreviation “SEDS” is used here.

The purpose of this paper is to aid government and community sector organisations that are undertaking strategic planning on addressing suicide. A comprehensive list of SEDS will be set out, giving for each a brief description and a summary of evidence of links to suicide. By providing a comprehensive overview of SEDS it shows the range of areas where work can be undertaken to reduce the risk of suicide. This list will provide the basis for a final report in this project which will set out key recommendations for each SEDS as well overarching recommendations.

This list is based on both a review of the research and extensive consultations with 116 organisations across the range of relevant sectors, and with those of lived experience of suicide. The research and consultations that ensure the list of SEDS is both theoretically and practically grounded is set out in a methodology section.

This paper will also briefly examine and clarify some of the imprecisions in the definition of SEDS and show how it relates to, and is distinct from, other factors that impact on suicide risk. A summary of the key points on the conceptualisation of SEDS is given here, and more detail is provided in the methodology section.

Conceptualisation Key Points

In the course of the research and consultations to develop the list of SEDS a number of key conceptual issues became apparent. It is critical when considering the list to understand how these issues were addressed. So brief summaries of the key issues are given here before the list is presented. However, there is significant complexity in each issue, and so further detail is discussed in the “Conceptualisation and definition” section below.

The interlinkage of SEDS:

All the SEDS are heavily interlinked and potentially overlapping, so any attempt to list them risks being arbitrary. To address this, a pragmatic approach is taken of categorising the SEDS in alignment with aspects of the Australian service system. It should be noted that while the list of SEDS is intended to be comprehensive based on current research, it is not intended to be definitive. That is, it is acknowledged that there are other ways of categorisingthe SEDS, and so this list is not definitive but aims to be a useful framework. The intention isthat this list will aid in directing recommendations under each SEDS to the relevant area of government and community services.

Priority populations:

There are significant links between SEDS and priority populations. Some cohorts are populations purely by virtue of experiencing a determinant. (Examples of this includes those experiencing homelessness, those in poverty, and those experiencing unemployment.) These are addressed by the list of determinants. Other priority populations are populations inthemselves. (Examples of these include Aboriginal and Torres Strait Islander people, LGBTIQ+ communities, and those of CALD backgrounds). These populations experience determinants in different ways and to different degrees. The report will highlight ways in which these populations experience the SEDS.

Life events:

For this paper a distinction has been made between SEDS and life events. SEDS are an ongoing/chronic state or experience, whereas life events are a point in time risk factor. Theyare closely connected in that life events can result in or be the result of SEDS (such as a case where experiencing relationship strain results in a life event of relationship breakdown which in turn causes a person to experience homelessness). A focus on SEDS facilitates looking at structural issues. Life events will usually be crises and so focusses recommendations on the point of crisis. Because many life events will be proceeded by experiencing a SEDS, a focus on SEDS allows “upstream” recommendations to be made.

Exacerbating factors:

A number of factors were raised in consultations as potential determinants that do not, in and of themselves, cause harm. However, they can act to exacerbate the harms of SEDS.These include the lack of access to services, harms from social media and technology, commercial factors, and access to means. Examples include a lack of access to financial counselling making financial distress more acute, social media widening the reach of bullying, and commercial practices increasing the consumption of alcohol in the home.
Although they are not determinants of suicide, they represent important areas for action asthe operate across multiple determinants, significant exacerbating factors are described below in the “Conceptualisation and definition” section.

List of SEDS

Based on research and consultations the following list of SEDS is proposed:

- Bullying and harassment
- Chronic pain and health conditions
- Contact with the justice system
- Damage to cultural continuity/connection
- Discrimination and stigma
- Domestic, family, and sexual violence
- Educational disruption
- Employment distress
- Environmental degradation
- Family and other relationship dysfunction
- Financial distress
- Food insecurity
- Harms of alcohol and other drugs
- Harms of gambling
- Housing insecurity and homelessness
- Impacts of adverse childhood experiences
- Impacts of environmental disasters
- Impacts of the changing climate
- Impacts of traumatic events
- Intergenerational/transgenerational trauma
- Isolation
- Loneliness

Descriptions and evidence

Below each of the SEDS, a brief description is given and a summary of evidence of links with suicide is set out.

The descriptions are intentionally high-level, only outlining the key aspects. In many cases there is extensive debates on definitions in the literature concerning the SEDS. It would not be possible to cover this adequately in this paper. Thus, high-level broad descriptions, rather than exact definitions, are given for the SEDS.

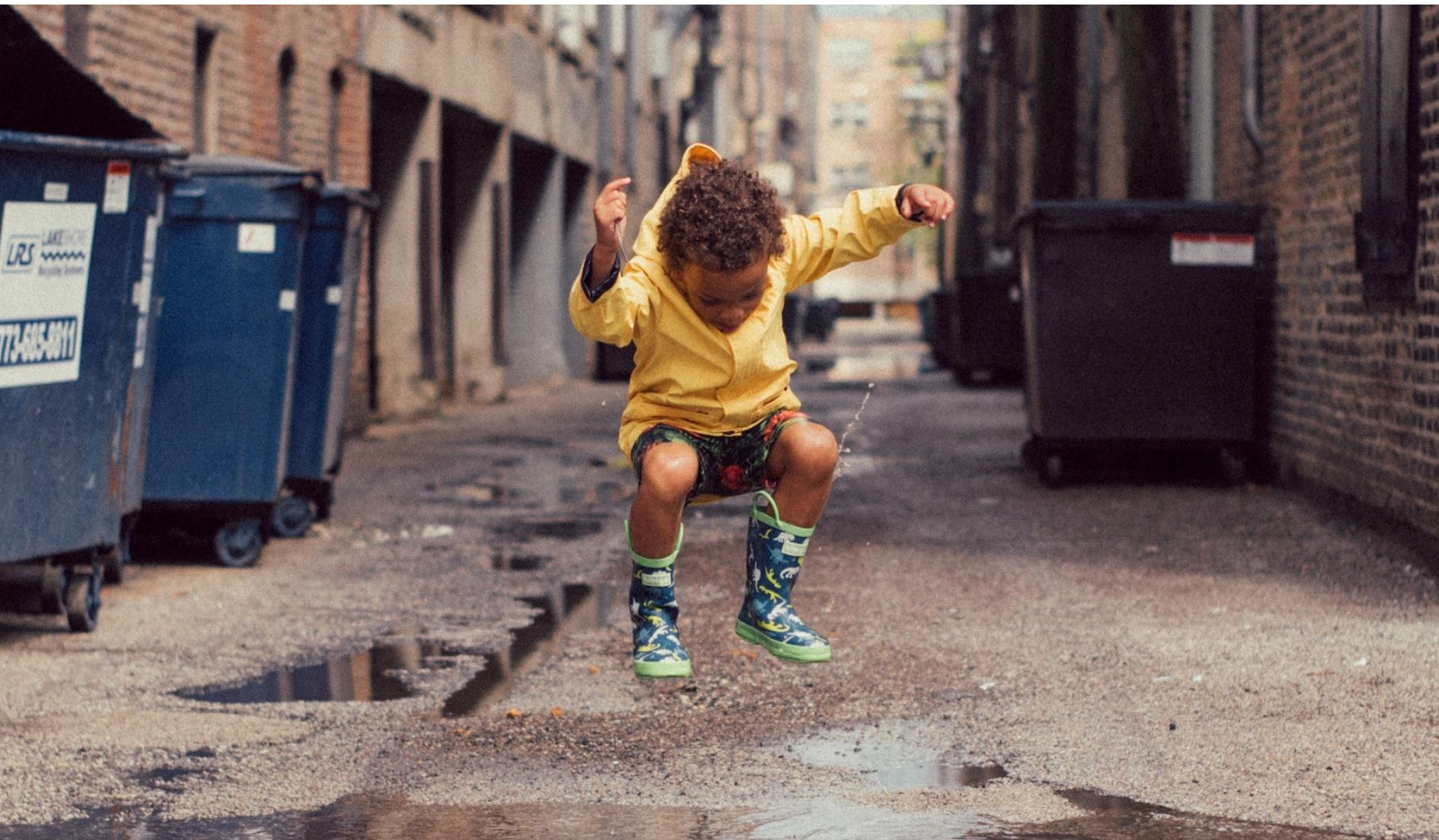
The summaries of evidence cannot be fully comprehensive in the space of this paper. Instead, sufficient evidence is given to demonstrate the clear link with suicide. In many cases the extent of Australian research on a SEDS may be relatively limited. This does not necessarily mean a link does not exist, it may mean that further research is needed. To address this the evidence is set out to show the broader international research demonstrating a link, and then show the Australian research indicating that this applies in an Australian context.

Bullying and harassment

Brief description: Behaviour that offends, humiliates, intimidates, or abuses power to cause distress and risk to wellbeing, in any context such workplaces, schools, or online.

Evidence: There are a number of international studies showing links between bullying and suicide. A study in the United Kingdom with children aged 10-13 years found that children involved in bullying, either victims or bully's themselves, are at an increased risk for suicide ideation and suicidal behaviour in preadolescence.[1] A study with 9th and 12th grade students in New York found that frequent exposure to victimisation or bullying others was related to suicide attempts compared with adolescents not involved in bullying behaviour.[2] Infrequent involvement in bullying was related to increased risk of suicidality among girls. A systematic review also found that any participation in bullying increases the risk of suicidal ideation and suicidal behaviour in a broad spectrum of youth.[3] Another meta-analysis found that any involvement in bullying is associated with suicidal ideation and behaviour.[4] Many of the studies focus on children and young people,[5,6] especially in schools[7] and in online contexts.[8,9] Cybervictimisation conferred a 2-4 times higher risk of concurrent suicidal ideation/attempt compared to those who had not been victimized online, even after adjusting for face-to-face victimization and other key confounders.[10] There is also research on older populations especially in workplaces.[11,12]

Australian research linking bullying and suicide also focusses on young people.[13,14,15] A report by the Australian Human Rights Commission indicates that there are incidents of young people dying by suicide following cyberbullying.[16] There is also research undertaken with older adults aged 52-58 which shows that current and past experiences of workplace bullying increases risk of suicidal ideation.[17] Coronial reports also indicate that bullying in the workplace can cause suicide. A 2008 coroner's report for Brodie Panlock and a 2018 report for Paula Schubert found that workplace bullying was a key factor in their suicide deaths.[18,19]



Chronic pain and health conditions

Brief description: Persistent and long-lasting physical health conditions, pain, and sleep disruption

Evidence: There is robust international evidence showing that pain, chronic illness, sleep complaints, sleep disturbance and insomnia are important risk factors for suicide. A comprehensive review found that chronic pain regardless of type is an independent risk factor for suicidality.[20] A study undertaken in Korea with adult participants found that those with cardiovascular disease, ischemic heart disease and renal failure are more likely to attempt suicide compared to the broader population.[21] Another study undertaken in Korea found that people living with lung cancer or cervical cancer are ten times more likely to attempt suicide.[22] The study found that living with pulmonary tuberculosis increased the likelihood of attempting suicide twelvefold, while renal failure increased the risk of suicide fivefold. A systematic review found that for older adults aged 65 and above, living with a functional disability or a chronic health condition increases the risk of suicide.[23] There is also research showing that children, adolescents and young people living with chronic disease are more likely to experience suicidal behaviour.[24,25,26] In particular, a study with young people aged between 15-30 found that the likelihood of experiencing suicidal thoughts and behaviours is far greater among those living with a chronic illness.[27]

Regarding sleep complaints, a study found that among young people living in the United States aged 6-24 those living with a sleep disorder were three times more likely to present to an emergency department due to experiencing suicidal ideation.[28] A study undertaken with American adultsfound that sleep complaints such as trouble falling asleep, early morning awakening and hypersomnia are associated with an increased risk of attempting suicide.[29] Two systematic reviews also found that sleep disturbance is a significant risk factor for suicide.[30,31] A study undertaken in the United States found that people who experience insomnia symptoms weremore likely to experience suicidal thoughts.[32] Gender may increase risk, as a study with people aged 15 and above in Taiwan identified that insomnia is a risk factor for suicide particularly among females aged 25-44.[33] While another study found that among adults with insomnia experiencing nightmares increase the risk of suicide.[34] Research shows that experiencing frequent nightmares is linked to a fourfold higher risk of suicide attempts by men and a threefold increase among women.[35]

There is also Australian research showing a link between chronic pain and health conditions and suicide. In particular Australian research found that among people aged 16-85 years the odds of lifetime and past 12-month suicidality were two to three times greater in those living with chronic pain.[36] Another study which analysed coronial data found that in 2014 nearly 15% of people aged 18 and above who died by suicide where living with chronic non cancer pain.[37] In particular, it was identified that older people aged 65 and above where more likely to die by suicide. Data by the Australian Institute of Health and Welfare (AIHW) also indicates that compared with those without long-term chronic conditions, those living with multiple chronic conditions aged 18 and above experience significantly high or very high levels of psychological distress.[38] Among Australian adults, sleep disturbance has also been found to increase the risk of suicidal behaviour.[39] A study which examined coronial data

found that suicides are more likely to occur overnight and are associated with nocturnal wakefulness.[40] In addition, a report by the AIHW on the topic of 'sleep problems as a risk factor for chronic conditions' notes that evidence shows that there is a link between insomniaand suicide.[41]

Contact with the justice system

Brief description: Includes contact with the criminal justice system, all forms of incarceration (including forensic mental health), and family law and custody disputes.

Evidence: There are a significant number of international studies linking contact with the justice system and suicide. A study which examined data from Wales and England found that the suicide rate for males under supervision in the community is six times higher than the general population, and nearly four times higher between males incarcerated and the broader community.[42] The study also found that females incarcerated or under probation supervision are significantly more likely to die by suicide compared to the general community. A study which assessed suicide risk over three decades among Danish people processed by the national criminal justice system found that nearly a third of all males who died by suicide had a criminal justice history.[43] Risk of suicide was particularly high among those with recent or frequent contact and for those charged with violent offences. Research undertaken in Sweden shows that experiences of violent and non-violent offending was linked to a significantly higher risk of odds of suicide.[44] Another study undertaken in England and Wales found that 13% of people from the general population who died by suicide were in community justice pathways before death.[45] Suicide risk was greatest for those who received police cautions and those with recent or impending prosecutions for sexual offences. A systematic review also found that people on probation are a very high-risk group for completed suicide.[46] Deaths in prison custody data found that males incarcerated in England and Wales were nearly four times more likely to die by suicide compared to the broader community.[47] Another study conducted over a 17-year period found that one third of all deaths in Belgium prisons were due to suicide.[48] A study undertaken in the United States found that people exposed to police violence also report experiencing suicidal thoughts and attempting suicide.[49] Young people who are in prison are more likely to report suicidal behaviour.[50] LGBTQ youth in correctional facilities are at an elevated risk of experiencing suicidal behaviour compared to the general population.[51]

There is also a large body of Australian research focused on contact with the justice system and suicide.[52] Research undertaken with people incarcerated in the Australian Capital Territory's only adult prison found that nearly half of the people involved in the study reported lifetime suicidal ideation and that over a quarter had attempted suicide.[53] Another study found that people who have been incarcerated are at an elevated risk of suicide in the immediate post-release period.[54] The study also found that men who were admitted to a prison psychiatric hospital were three times more likely to die by suicide compared to non-admitted men both in prison and after release. Australian research also shows that experiencing trouble or contact with the police is a significant risk factor for suicide.[55,56] There are also several population groups that are at higher risk of suicide. A study found that among a sample of young people in detention, one third reported previous self-harm while

12% reported at least one suicide attempt.[57] Another study found that nearly 64% of Indigenous males in custody experienced lifetime suicidal ideation, and over half had attempted suicide.[58] A study undertaken in New South Wales identified that female young offenders report higher rates of suicidal behaviour compared to men.[59] Further research undertaken in New South Wales indicates that one-third of people incarcerated experience lifetime suicidal ideation and one-fifth had attempted suicide.[60] In particular women and people who identified as Aboriginal were more likely to report a suicide attempt. Data for prison suicide in 24 countries found that compared to Nordic countries and Western Europe, Australia has a lower suicide prisoner rate.[61] AIHW data shows that problems related to legalcircumstances is a frequently occurring psychosocial risk factor in coroner-certified suicide deaths in Australia.[62] This is a common risk factor for males aged 25-54 and connected with more than 10% of suicide deaths. Over six times as more male suicides are linked to legal circumstances compared to female suicide deaths. Between 1980-1998 nearly half of all deaths in prison custody were from suicide, between 1998-2013 this reduced to a third, andfrom 2004-2013 suicide caused a quarter of all deaths.[63] During 1998-2013, 80% of deaths in prison in Western Australia by Indigenous people were due to suicide, compared to 42% of Indigenous prisoner deaths in New South Wales and 22% in Queensland.[64] Research undertaken in Australia also suggests that lesbian, gay, bisexual, and same-sex attracted people who are incarcerated are more likely to experience suicidal behaviours.[65]

Damage to cultural continuity/connection

Brief description: Loss of connection to culture and identity including shared common values.

Evidence: There is international evidence suggesting that damage to cultural continuity/connection is a risk factor for suicide. Cultural identity loss increases the likelihood of suicide among First Nations communities.[66,67] Research undertaken in British Columbia found that for Indigenous communities rates of suicide are lower where people are engaged in community practices to restore and protect the cultural continuity of these groups.[68] Another study undertaken in Canada found that in Aboriginal communities there are no incidences of youth suicide in communities where at least half of the members report a conversational knowledge of their own native language.[69]

There is also Australian evidence which shows an association between cultural connectedness and suicide for Aboriginal and Torres Strait Islander peoples.[70] A report by the AIHW on Indigenous mental health and suicide prevention indicates that protective factors for mental health, wellbeing and suicide include connection to land, culture, spirituality, ancestry, kinship networks, family, and community.[71] A study found that suicide risk for Aboriginal men reduced followed engagement in a traditional art program, a culture-specific therapy for Aboriginal people.[72] Research has also found that among young Aboriginal and Torres Strait Islander peoples who are living in communities experiencing the most disadvantage there are lower rates of suicide in areas which have high levels of cultural connectedness such as cultural social capital and indigenous language use.[73]

Another report by the AIHW notes that in 2013, Aboriginal Elders suggested that high rates of youth suicide may be due in part to a lack of exposure to Indigenous cultural knowledge and language.[74]

Discrimination and stigma

Brief description: Includes all forms of stigma, racism, discrimination, and prejudice.

Evidence: There are a number of international studies showing links between discrimination and suicide. Several studies indicate that experiencing gendered racism or race-based everyday discrimination increases the risk of suicidal behaviour. [75,76,77] A study with Asian American women found that experiencing gendered racial microaggressions is a likely risk factor for suicide.[78] Experiencing gendered racial microaggressions stress increased the odds of experiencing suicidal thoughts threefold. Another study with African American people found that perceived racial discrimination increases vulnerability to suicide.[79]

Research has found that for Black adults but not White adults perceived discrimination increases suicide risk.[80] A study undertaken in the United States also found that experiencing LGBTQ-based discrimination has an indirect effect on suicidal thoughts through mental health.[81] An international study which found higher rates of suicide among people who identity as transgender theorised that this is due to minority stress where people experience prejudice for who they are.[82]

There are also numerous studies linking suicide with different types of stigma such as weight stigma,[83] mental illness stigma,[84] self-stigma[85] and LGBTQI+ stigma.[86,87,88] In particular, among lesbian, gay and bisexual youth stigma anddiscrimination experiences are associated with increased suicidality.[89] Research also finds that HIV positive gay and bisexual men experience significant levels of stigma which increases the risk of suicide.[90] For people who are suicidal and suicide attempt survivors, suicide stigma can also increase suicidality.[91,92]

Comparatively, there is limited Australian research on suicide stigma, and racism. A study found that for young Aboriginal people aged 16-20 experiencing racism increased suicide risk.[93] Research by SBS suggests that racism is a contributing factor in youth suicide for Indigenous Australians.[94] Another study found that among Chinese and Australian university students suicide stigma may have an impact on help-seeking intentions and suicide.[95] Australian research also finds that younger Australians, people of male gender and from culturally diverse backgrounds have more stigmatising attitudes towards people who die by suicide.[96]

Among Australian medical students it has been found that less exposure to suicideis linked to greater stigma, and that students who normalised stigma have significantly lower intentions of obtaining held for suicidal ideation.[97]

Domestic, family, and sexual violence

Brief description: Includes all forms of domestic, family, and sexual violence (DFSV), such as coercive control, sexual coercion, and physical, emotional, and sexual abuse. Both DFSV perpetration and victimisation is associated with suicidality. DFSV can also involve threats of suicide by the perpetrator, and the phenomenon of murder-suicide.

Evidence: There is a large body of international research which indicates a link between suicide and domestic, family, and sexual violence. International research indicates that consistent risk factors for suicide attempts include intimate partner violence (IPV) and having a mother who experienced IPV.[98] Studies show that suicidal behaviour is prevalent among partner-violent men.[99] A study undertaken in the United States which examined IPV related suicides found that most were males who perpetrated nonfatal intimate partner violence. [100] The study suggests that IPV may be associated with 6% or more of all suicides.

Another study found that among racially and ethnically diverse female survivors of IPV one in five had threatened or attempted suicide.[101] Regarding coercive control research finds that dominance/intimidation and hostile withdrawal are types of emotional abuse which can lead to suicidal ideation in dating couples.[102] There is also international research on murder-suicide.[103] A study undertaken in the United States found that two-thirds of perpetrators of murder-suicide had made either verbal or written threats prior, and that the majority where men undergoing separation or who were dependent on substances.[104]

There is limited Australian research in comparison. But there are coronial reports which reference instances of murder-suicide.[105,106] Research by the Australian Institute of Criminology found that the most common type of murder-suicide in 2006-2007 involved a parent killing their child, followed by intimate partner homicide.[107]

A report by the Queensland Government indicates there are incidences of First Nations peoples dying by suicide which is linked to experiences of domestic and family violence.[108] A study which examined suicides which occurred in Victoria between 2009 and 2012 found that 42% of women who died by suicide had experienced IPV and that 16% had experienced sexual abuse.[109] The study also identified that many men who died by suicide had experience IPV,or had perpetrated violence within 6-weeks of their death by suicide.

Data by the AIHW found that people who have had a hospital stay due to family and domestic violence where twice as likely to die by suicide compared to a comparison group.[110] The majority of murder-suicides which occur in Australia take place in intimate and/or family relationships.[111]

Educational disruption

Brief description: Includes study stress, school refusal, educational disengagement, toxic study environment, lack of education, poor academic performance, and academic burnout.

Evidence: A number of European and US studies show a relationship between lower educational achievement or academic performance with increased suicide risk. Research indicates that in the United States people aged under 25 years who have a college degree record the lowest suicide rates while people with only a high school degree exhibit the highest rates.[112] The study found that compared to men with a college degree, men with a high school degree were twice as likely to die by suicide. Another study found that in European populations aged 35-79, those with less education are approximately two times more likely to die by suicide.[113] A longitudinal cohort study of people aged 18-33 found that poor school performance predicts suicide attempts among young adults.[114]

Another study found that poor school academic performance at aged 16 increases suicide attempt risk in young adulthood.[115] Poor performance by men at the age of 18 in intelligence tests significantly increases the risk of suicide.[116] It was identified that risk of suicide is greatest among those whose parents were well-educated. Research also suggests that experiencing academic stress can increase suicidal ideation.[117] Among Chinese graduate students a studyfound that graduation pressure and academic pressure were leading causes of suicide.[118] Another study found that among college students experiencing school burnout was a predictor of suicidal ideation.[119] Certain population groups such as medical students may be at higher risk of suicide. A study found that approximately 50% of medical students in the United States experience burnout and that 10% experience suicidal ideation during medical school.[120]

Australian studies show similar results. Data by the AIHW shows that suicide risk is greater for people with fewer years of education.[121] In particular, males with no education or only secondary school education are twice as likely to die by suicide compared to males with a university degree. The AIHW data shows that among males with only secondary school or no education the risk of suicide is over three times higher compared to females with the same education. A study undertaken with children at a South Australian high school found that those who perceived themselves to be failing academically were five times more likely to attempt suicide compared to those who perceived their academic performance to be above average.[122]

Employment distress

Brief Description: Includes unemployment, underemployment, insecure employment, occupational maladjustment, and workplace conditions and stress.

Evidence: Several international studies indicate employment problems can increase suicide risk.[123] A meta-analysis shows that experiencing unemployment increases the risk of suicide.[124] In particular, a study undertaken in New Zealand found that unemployment is strongly associated with suicide death among men aged 18-24.[125] A meta-analysis found that longer duration of unemployment poses a greater risk.[126] A study undertaken in Korea found that for middle-aged adults insecure employment and shift work increases the risk of experiencing suicidal ideation.[127] Another study found that young people aged 18-37 who are insecurely employed or who have unfavourable employment characteristics are significantly more likely to experience suicidal behaviour.[128]

A meta-analysis suggests that job characteristics including low job control, occupational stress and the physical work environment are linked to suicide.[129] The study identified that specific occupations experience higher suicide rates including medical professionals, military members, veterans,police officers, firefighters and blue-collar workers. Another study found that physicians are an at-risk profession, with women particularly at risk.[130] Research suggest that work-related burnout may mediate the relationship between experiencing work-related stress and suicidalideation.[131] Research found that during the 2007-11 recession in Europe male suicides rose and this was associated with increases in unemployment.[132]

There is similar Australian research which indicates that certain occupations are at high risk of suicide. In particular, a study of suicide deaths of veterinarians in Western Australia and Victoria estimates that the rate of suicide is four times that of the broader population.[133] An Evidence Check by the Sax Institute suggests that farming and agriculture, veterinarians, medical practitioners, nursing and midwifery, paramedics, firefighters, law enforcement, construction mining, transport industry may be higher risk occupations.[134] However, research suggests that among construction workers there has been a decline in the rate of suicide between 2001 and 2019.[135] Junior doctors report that conflict between study/career and family/personal responsibility, and workplace bullying are factors which increase suicidal thoughts.[136] Another study which used predictive modelling indicates that 9.5% of the 32,000 suicides reported in Australia during 2004 and 2016 may have resulted due to labour underutilisation including unemployment and underemployment.[137]

Suicide Prevention Australia's Community Tracker has found that unemployment and job insecurity are causes of elevated distress in the Australian community.[138] The AIHW have published data which shows that for males of working age in Australia who are between 25-54 years and are not employed, the risk of suicide is nearly three times greater compared to males who are employed.[139] For females in Australia who are unemployed the risk of suicide is also nearly three times higher than females who are employed. Males not in the labour force are at increased risk of suicide compared to females. The AIHW data shows that a man not in the labour force is over four times as likely to die by suicide compared to a woman not in the labour force. The risk for men is nearly twelve times higher than an employed woman.

Further data by the AIHW shows that problems related to employment and unemployment are key risk factors for those in the working age population.[140] Australian research has also found that for men, an increase in the unemployment rate increases the suicide rate.[141] Research has also found that for Australian men psychosocial job stressors such as low jobcontrol, job insecurity, and unfair pay is linked to greater likelihood of experiencing suicidal ideation.[142] A study undertaken in Victoria has also identified that work stressors linked to suicide include business difficulties, recent or previous work injury, unemployment or redundancy and conflict with supervisors/colleagues including workplace bullying[143].

Environmental degradation

Brief Description: Includes air pollution, loss of green spaces, lack of access to natural environments, and the impacts of population density, environmental noise, and congestion.

Evidence: There are several international studies indicating a link between environmental factors and suicide. Research undertaken in Taiwan and South Korea indicates that exposure to air pollutants can increase suicide risk.[144,145,146] A US-based study also found that short-term air pollution exposure elevates the risk of suicide.[147] Research undertaken in Canada found that mercury exposure is linked to the high youth suicide rates in an Indigenous community.[148] The study found that sustained exposure to the toxic metal has resulted in a suicide rate three-fold higher than other Indigenous communities in Canada. Research also finds exposure to green spaces may impact suicide and a study undertaken in the Netherlands found that locations with a large or moderate proportion of green space showed a reduced suicide risk in contrast to areas with less greenery. [149]

A study in South Korea found that adults living in areas with less parks and green areas had a 16-27% greater likelihood of experiencing suicidal behaviour compared to those living in areas withthe largest number of parks and green areas.[150] This is supported by further research conducted in Taiwan which suggests that maximising green space, and minimising fragmentation and patch distance may reduce the suicide rate. [151] Research in Hong Kong also indicates the built environment can impact suicidal behaviour as it was found that higherpopulation density is associated with a higher suicide rate.[152] Numerous studies also suggest that exposure to environmental noise impacts suicide risk.[153,154] In particular, a longitudinal, nationwide cohort study undertaken in Spain found a robust link between exposure to road traffic noise and railway noise and suicide.[155] Further research conducted in Spain indicates there is a connection between exposure to traffic noise and suicide.[156]

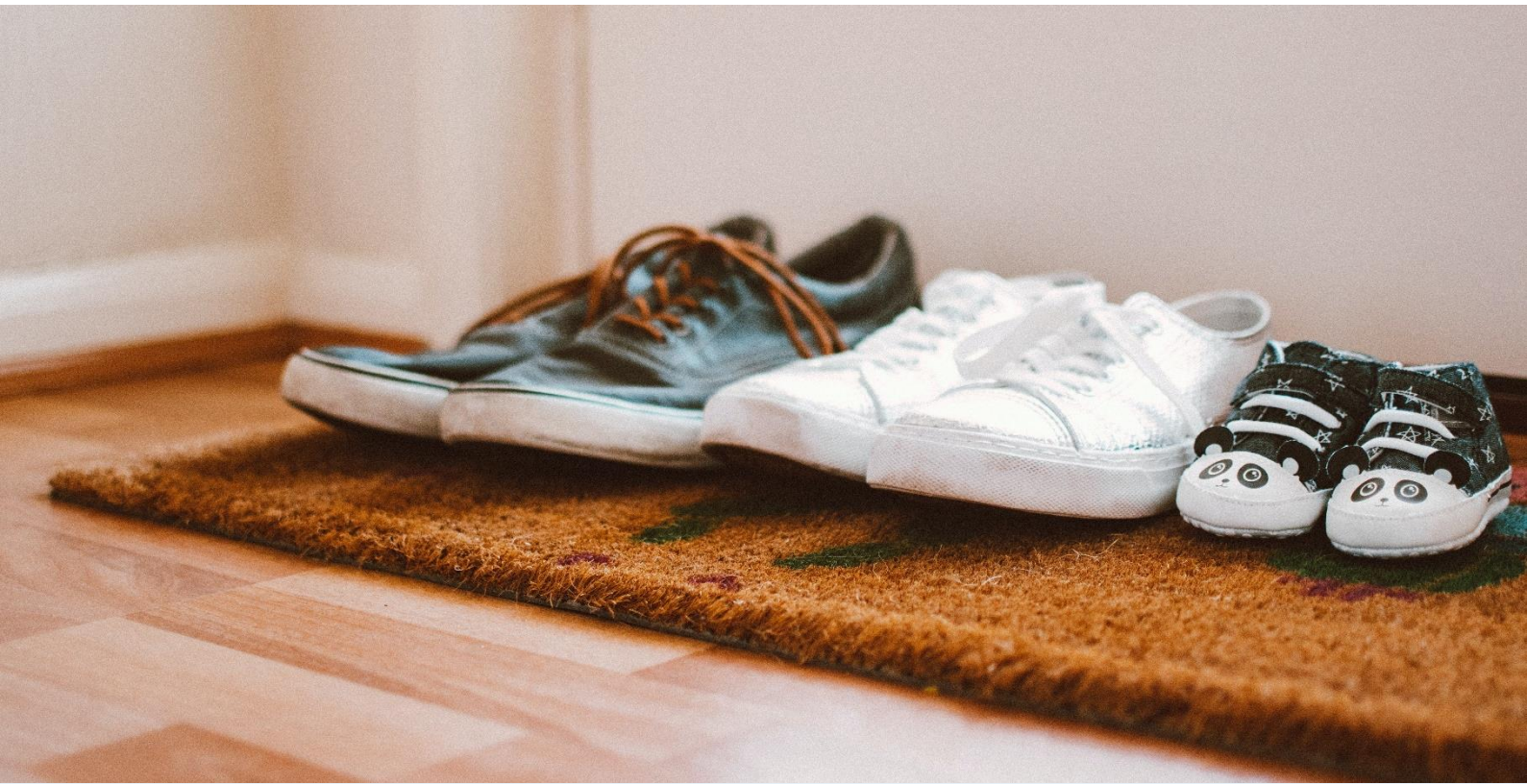
There is limited Australian research suggesting a link between environmental factors and suicide. However, Suicide Prevention Australia's Community Tracker indicates the environment and climate change (including drought and natural disasters) are causes of elevated distress in the Australian community.[157] While a report by the Department of Health states that exposure to environmental noise can lead to an acute-stress response, and long-term effects include chronic stress.[158]

Family and other relationship dysfunction

Brief Description: Strain, poor communication, and loss of trust across all types of close relationships.

Evidence: A number of international studies show that a lack of warm, supportive family relationships can increase the risk of suicidality. A study with adolescents found that lack of parent support can predict suicidal ideation.[159] Another study with adolescents found that family discord, troubled mother-child relationship, and familial lack of warm can increase risk of suicide.[160] This is supported by a longitudinal study undertaken in New Zealand with young people aged 15-21 which found that those who experienced poor parent-child attachment were more likely to experience suicidal behaviour. [161] A study undertaken in the United States also found that parent-child relationships can impact suicidality and that lack of warmth can predict adolescent suicidality.[162] Another study found that among youths aged 11-15 relationship problems, particularly with parents is a common suicide antecedent.[163] Black transgender and nonbinary young people who report having high social support from their family are 47% less likely to report a suicide attempt.[164] Difficulties in relationships with a partner are also linked to suicide. One study found that the period up to four years before a separation was a time of increased risk for suicidal thoughts and behaviours.[165]

Comparatively there is limited Australian research showing a link between family and other relationship dysfunction and suicide. The AIHW includes ‘problems in relationship with spouse or partner’ and ‘disruption of family by separation and divorce’ in the most frequently occurring psychosocial risk factors in coroner-certified suicide deaths.[166] A report by the AIHW also indicates that Indigenous Australian children who die by suicide are more likely to live in a non-parental residence. [167] The report also emphasises that strong and healthy connections to family and kin protect Indigenous Australians from suicide-related behaviour.



Financial distress

Brief Description: Includes income inadequacy, poverty, low income, low socio-economic status (SES), income uncertainty, debt burden, cost of living strain and impacts of the global economy.

Evidence: There is a large body of international research linking suicide and a range of financial difficulties. A study undertaken in South Korea with older adults aged over 65 found that low socioeconomic status is associated with an increased risk of suicidal ideation.[168] Another longitudinal study with older adults aged 60-119 years found that those living in poverty were more likely to die by suicide compared to the high-income group.[169] A systematic review found that low income and financial difficulties are risk factors for all suicidal behaviour.[170] In addition, a Canadian study found that in late adolescence experiencing neighbourhood poverty is linked to experiencing suicidal thoughts and attempts.[171] Another study conducted in the United States found that higher county-level poverty is connected with an increased suicide rate among youths aged between 5 and 19.[172] Research indicates that increasing the minimum wage by US$1 can noticeably decrease the suicide rate among people aged 18-64 with a high school education or less.[173] Another study undertaken in Japan suggests that likelihood of suicidal ideation reduces as annual household income increases to a threshold of approximately US$77,000.[174] Debt burden has also been strongly linked to suicide.[175] A meta-analysis found that there is a significant relationship between severe debt and suicidal behaviour.[176] The global economy can also influence suicide rates. Research shows that after the 2008 global economic crisis rates of suicide increased in European and American countries, particularly among men.[177] Research also suggests that in high-income countries, experiencing a rise in economic uncertainty is connected to an increased suicide rate.[178]

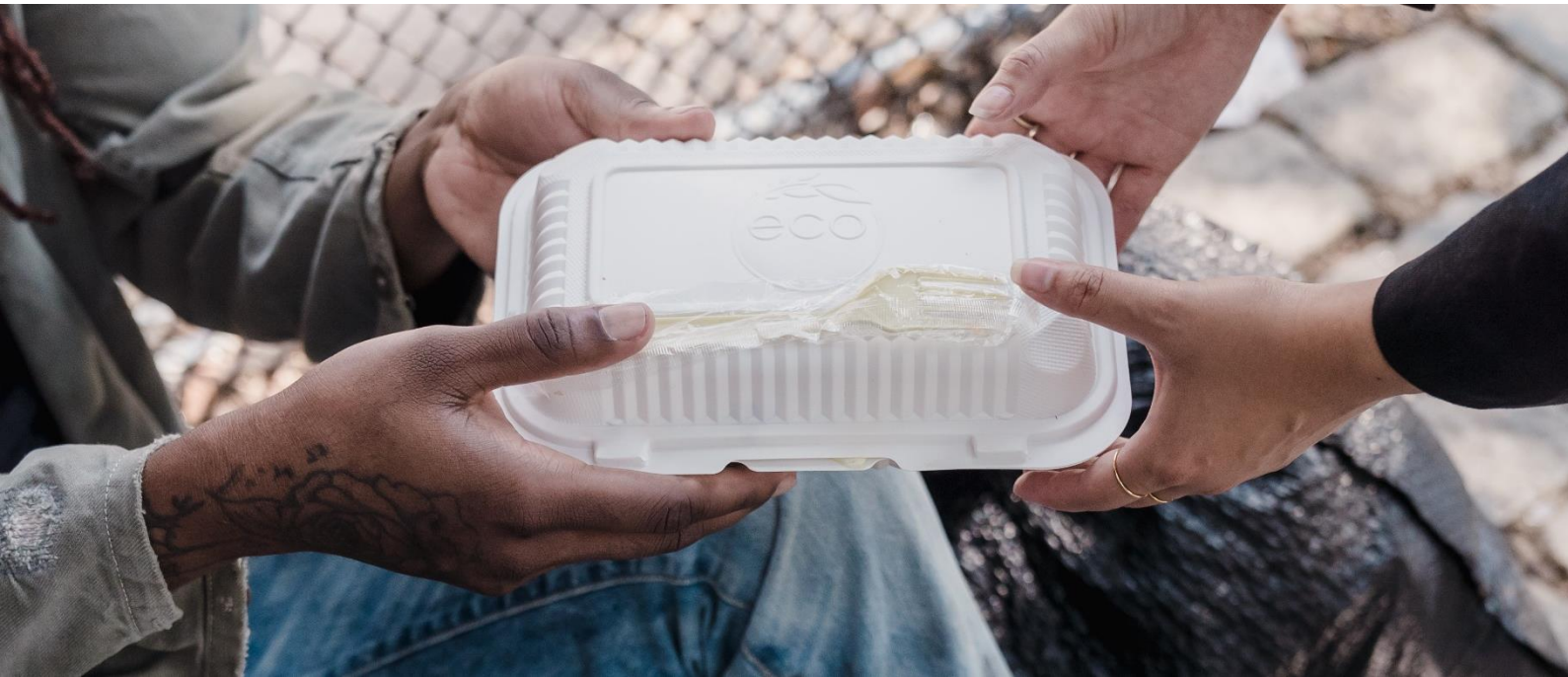
There is also Australian research showing a link. AIHW data shows that between 2012 and 2016 the likelihood of dying by suicide was higher among Australians in the lowest income group compared to those in the highest income group.[179] Those with higher income uncertainty also had higher probability of dying by suicide relative to those with lower income uncertainty. Australian research shows there was an increase in suicide among both the unemployed and employed during the global financial crisis.[180] Research commissioned by the Salvation Army also suggests that cost of living and financial strain are significant drivers of distress among lower socioeconomic groups and the general population.[181] Among Australian young males research finds that there was a marked increase in the occurrence of suicide in low socioeconomic areas between 1979 and 2013.[182] This finding is supported by further research which found that risk of suicide among males in lower socioeconomic groups is greater compared to those in the highest socioeconomic group.[183] AIHW data also shows that risk of suicide is highest among males from disadvantaged backgrounds.[184] The data also shows that between 2010 and 2021 suicide rates were highest for Australians who lived in the lowest socioeconomic areas.[185] In addition, there is data which shows that between 2017 to 2021 ‘problems related to housing and economic circumstances’ was a common risk factor among males aged 35-64.[186] The Suicide Prevention Australia Community Tracker indicates cost of living and personal debt are key causes of elevated distress in the Australian community.[187]

Food insecurity

Brief Description: Incudes inadequate or irregular access to nutritionally adequate and safe foods.

Evidence: There is international evidence showing an association between food insecurity and suicide. An analysis of national survey data from three Canadian provinces found that suicidal ideation was associated with moderate and severe food insecurity.[188] Another study with adolescents from 44 countries found that food insecurity is associated with suicide attempts.[189] Among adolescents in the United States a study identified that among those who report that the family sometimes or often did not have enough to eat a higher likelihood of attempting suicide.[190] Another study undertaken in the United States with young adults aged 24-32 found that those who were food insecure were more likely to report experiencing suicidal ideation in the past 12 months.[191] Supporting this research, another study found that being at risk for food insecurity increases risk of suicide.[192] The study identified that food insecurity can lead to perceives stress and social isolation which can lead to an increased risk of suicide. A study with older adults aged over 65 found that those who are food insecure are more likely to experience suicidal ideation compared to those who are food secure.[193] Research shows that impacts on suicide of food insecurity remain even after otherSEDS, such as employment status and household income, have been statistically accountedfor.[194]

The association between food insecurity and suicide in Australia remains understudied. A fact sheet by Dieticians Australia indicates that food insecurity is associated with a higher likelihood of experiencing suicidal ideation.[195] There is also research which shows that Aboriginal families in urban and regional Australia experience food insecurity on a regular basis and that mild to moderate food insecurity is associated with poor mental health in both children and adults.[196] A report by the AIHW notes that for Aboriginal and Torres Strait Islander communities' food insecurity increases psychological distress.[197] Another report by the Australian Institute of Family Studies indicates that food insecure children and adults are more likely to experience poor mental health and lower wellbeing.[198] While a study undertaken in Tasmania found that among young people who attended a mental health service there was a high occurrence of food insecurity demonstrating a link between poor mental wellbeing and food insecurity.[199]



Harms of alcohol and other drugs

Brief Description: Includes dependency and all harms from use of alcohol and other drugs, impacts on family and friends, and the effects of withdrawal.

Evidence: There is a significant body of international research demonstrating a link between alcohol and other drugs (AOD), and suicide. A meta-analysis found that alcohol use is a potential risk factor for suicide. [200] People who engage in heavy alcohol consumption are also more likely to die by suicide.[201] While a longitudinal population-wide study in Sweden found that alcohol use disorder elevates the risk of suicide among men and women.[202] Research also shows that all categories of substance use disorders are linked to an increased risk of suicide, particularly among women. [203] The risk of suicide increases for people living with multiple substance use disorders. A review of the literature indicates that the likelihood of suicide among people living with a substance use disorder is 10-14 times higher than the broader population. [204] Among people aged 14 and above a study has found that people who use cannabis and cocaine are 31.5% and 40% more likely to report experiencing suicidal thoughts.[205]

A meta-analysis also found that for young people aged 11-21 that cannabis smoking significantly increases suicidal behaviour.[206] Another meta- analysis found that for young people aged under 18 years smoking tobacco heightens suicide risk.[207] Another meta-analysis found that females who smoke tobacco have a nearly three-fold increase risk of death by suicide and males were twice as likely to die by suicide compared to non-smokers.[208] It has been found that the risk of suicide grows by 24% for each increment of ten cigarettes consumed per day.[209] Certain prescription medications including drugs used to treat insomnia has been found to increase suicidal thinking and behaviours.[210] Another study found that the use of sleeping pills or other sedatives may increase the risk of suicide attempt three-fold.[211] A study undertaken in the United States suggests that antidepressant initiation, dosing change and discontinuation of use increases the risk of a suicide attempt.[212] An analysis of the literature also indicates that benzodiazepines can be used as an instrument of suicide, and that withdrawal is associated with suicidality.[213] Research suggests that specific population groups may be at higher risk ofsuicide. A study in the United States found that a current substance use disorder increases suicide risk.[214] The study found that this relationship was more pronounced for women.

There is a smaller body of Australian research on alcohol, other drugs, and suicide. The research shows that chronic AOD use and acute AOD intoxication can increase the risk of suicide.[215] Further, data from the AIHW shows that alcohol use was the second main risk factor among males aged 15 and over for suicide in Australia in 2019. [216] In 2021 acute alcohol use was present in 21% of all deaths. [217] While psychoactive substances were a risk factor in 15.2% of suicides. Data for all suicide deaths in Australia for people aged 15 and above shows that between 2010-2015 nearly 27% of people who died by suicide were intoxicated.[218] Research undertaken in Victoria found that among adults experiencing alcohol and/or other drug problems elevated the risk of suicide.[219] While a study conducted in New South Wales found that among a sample of current cocaine users that 31% had made a suicide attempt.[220] Within this cohort, injecting cocaine users were more likely to attempt

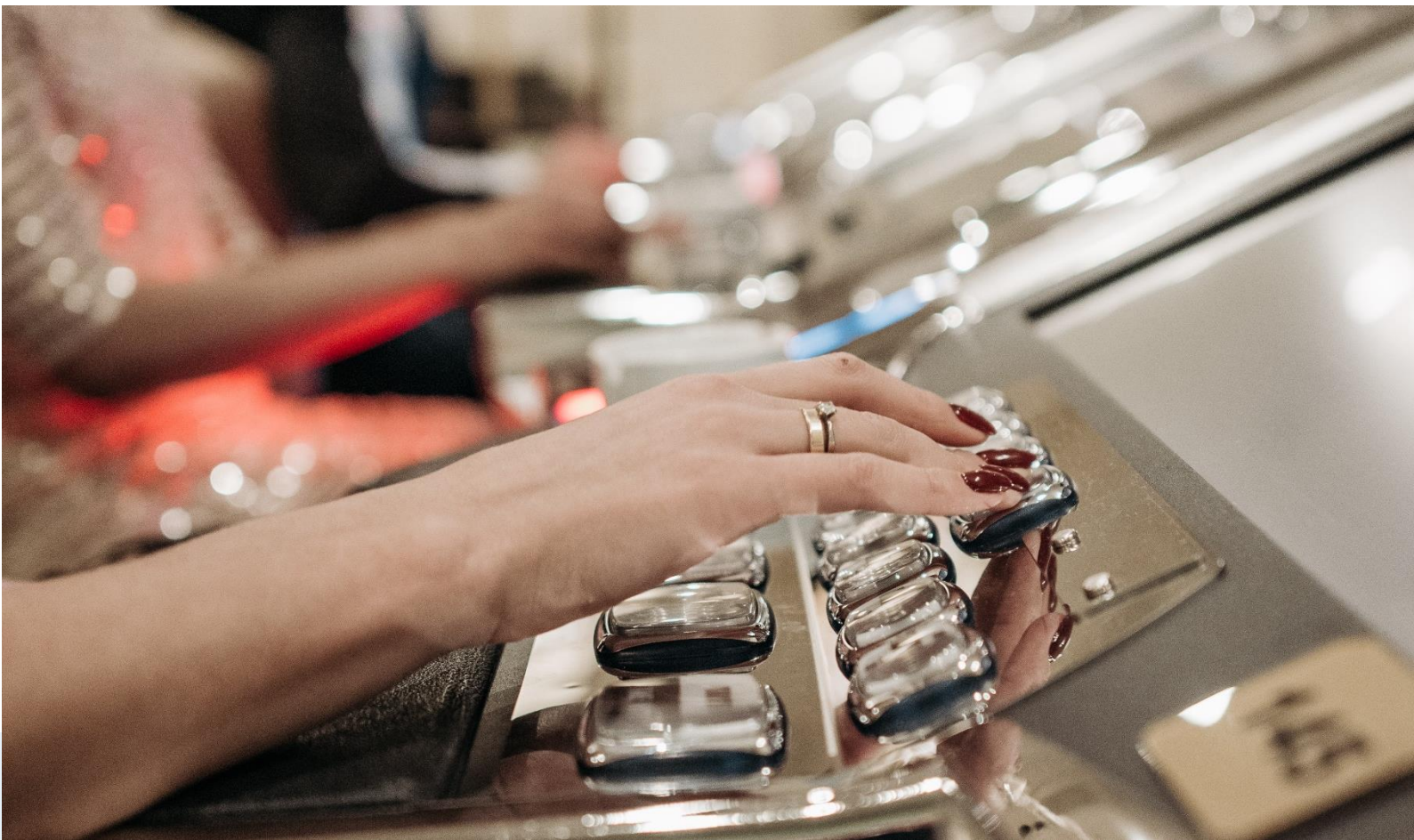
suicide than noninjecting cocaine users. The Suicide Prevention Australia Community Tracker indicates alcohol and other drugs (including personal use/someone close) are key drivers of elevated distress in the Australian community.[221]

Harms of gambling

Brief Description: Distress caused by gambling, includes both in-person and online/electronic forms of gambling.

Evidence: There is a body of international research linking suicide and gambling.[222] Research undertaken in Great Britain found that among young people aged 16-24 problem gambling significantly increases the risk of suicide.[223] Further research conducted in England identified that past year suicidality was reported in nearly 20% of problem gamblers compared to approximately 5% of the general population.[224] A retrospective study found that among those seeking treatment in Hong Kong for gambling 20% reported experiencing suicidal thoughts.[225] Another study found that among people who had received a diagnosis of pathological gambling, 80% experienced suicidal ideation and 30% reported one or more suicide attempts in the preceding 12 months.[226]

There is also Australian research on gambling and suicide. Victorian research found that one in five people presenting with suicidality experience harm with their gambling.[227] New South Wales data indicates that of those who seek help for gambling harm, as many as 11% attempt suicide and nearly 37% experience suicidal ideation.[228]



Housing insecurity and homelessness

Brief Description: Includes housing insecurity, and issues with housing access and affordability, as well as primary homelessness (people without conventional accommodation), secondary homelessness (people who move frequently between temporary accommodation), and tertiary homelessness (boarding house residents).

Evidence: There is a large body of international evidence demonstrating a broad link between suicide, housing insecurity and homelessness. A meta-analysis found that suicidal ideation and suicide attempt is significantly higher among people who are homeless compared to the general population.[229] Another study undertaken in the United States found that people 21% of people who were experiencing homelessness reported a past-year suicide attempt compared to 6.3% who were never homeless.[230] Another study undertaken in Canada found that experiencing childhood homelessness of at least one week without family members and periods of homelessness longer than six months increases likelihood of experiencing suicidal thoughts.[231] A study undertaken in the United States which examined eviction and foreclosure related suicides found that the majority of suicides occurred before the actual housing loss in response to eviction or foreclosure, indicating that housing insecurity due to the prospect of eviction impacted suicide risk.[232] The study found that in response to the United States subprime mortgage crisis eviction and foreclosure related suicides double. There are certain population groups at higher risk. Research undertaken with veterans found that those unstably housed or at imminent risk of housing stability are more likely to die by suicide.[233]

There is also Australian research linking homelessness and housing insecurity with suicide in Australia. Research commissioned by the National Suicide Prevention Research Fund found evidence that housing affects suicide through three channels.[234] Firstly, protracted financial stress due to the cost of housing; secondly loss of security due to eviction, insecure housing, and homelessness; and thirdly through the impact of adverse life events on children and young people on their present and future mental health. The study also found a link between risk of foreclosure and living in high foreclosure neighbourhoods and suicide. Economic recessions, increased foreclosure and evictions are correlated with increases in poor mental health and suicide rates at the population level.

Research undertaken in Queensland found that people experiencing homelessness were twice as likely to die by suicide compared to the general population.[235] The study found that those experiencing homelessness were often male, of young age and unemployed. A study with young people aged 12-17 found that who were homeless or had experienced periods away from home in the preceding twelve months that 45% had attempted suicide.[236] Another study found that the rate of suicide among men who are homeless in suicide is elevated.[237] Data by the AIHWshows that problems related to housing and economic circumstance is one of the most frequently occurring psychosocial risk factors in coroner certified suicide deaths.[238] In particular, the AIHW data shows that problems related to housing and economic circumstances is a common risk factor for men aged 35-64 and linked to 9% of suicides within this age group. Male suicide is four times more likely to be associated with economic and housing circumstances compared to female suicide deaths. The Suicide Prevention Australia Community Tracker data shows that housing access and affordability are causes ofelevated distress in the Australian community.[239]

Impacts of adverse childhood experiences

Brief Description: The ongoing trauma that results from abuse during childhood by family, institutions, contact with childhood protection system, physical, sexual, emotional deprivation, exploitation, and neglect.

Evidence: A significant number of international studies address the association between adverse childhood experiences and suicide. A study undertaken with people aged between 14-35 found that experiencing any type of early trauma increases the risk of suicide.[240] In particular, the Adverse Childhood Experiences study which was undertaken in the United States found that adults who were exposed to four or more adverse childhood experiences in childhood were twelve times more likely to attempt suicide compared to those who did not have adverse childhood experiences.[241] The study shows that there is a graded relationship between the extent of exposure to adverse childhood experiences or household dysfunction and risk of suicidality. Research also indicates that physical, sexual and emotional abuse can increase the risk of suicide by 1.4 to 2.7 times for suicidal behaviour.[242] There is also a well-established link between being a survivor of child abuse and suicide in adulthood.[243, 244] Childhood maltreatment has also been found to increase the risk of suicide in young people.[245] Several studies show that experiencing childhood sexual abuse is a strong risk factor for suicidal behaviour.[246,247] In particular, research shows that after controlling for the effects of other forms of childhood maltreatment sexual abuse in childhood increases the risk of experiencing suicidal thoughts.[248]

In comparison there is minimal Australian research on adverse childhood experiences and suicide. Although, data by the AIHW shows that in 2019, abuse and neglect during childhood was the leading risk factor contributing to the burden of suicide.[249] It was linked to 33% of female suicide deaths and 24% of suicide deaths in males aged 5 and above. A Victorian Parliamentary Inquiry into the Handling of Child Abuse by Religious and Other Organisations in 2012 heard numerous instances of abuse by catholic clergy which were linked to suicide or suicidal behaviour.[250]

Impacts of environmental disasters

Brief Description: Includes drought, bushfires, floods, and epidemics.

Evidence: There are several international studies indicating a link between environmental disasters and suicide. Research undertaken in the United States suggests that exposure to a major natural disaster leads to an increase in the rate of suicide.[251] The greatest increase in the rate of suicide is 2-years post disaster. A systematic review also suggests that there is a delayed rise in suicidal behaviours post disaster.[252] There are also studies linking epidemics and suicide.[253] Research indicates that during the COVID-19 pandemic there was an upward trend in suicidal ideation and suicide attempts.[254]

There are also a considerable number of Australian studies discussing the impacts of

environmental disasters and suicide. A study which estimated the number of suicides attributable to drought under climate change scenarios found an increase in deaths among rural men aged 10-29 and 30-40.[255] A study undertaken in New South Wales found that between 1970 and 2007 the risk of suicide for rural males aged 30-49 increased by 15% when the drought index rose from the first quartile to the third quartile.[256] The Suicide Prevention Australia Community Tracker indicates that the environment and climate change (including drought and natural disasters) are causes of elevated distress in the Australian community.[257]

Another study found that in New South Wales a reduction in precipitation by 300mm would increase the suicide by approximately 8%.[258] Qualitative research undertakento explore men's experiences following the Black Saturday bushfires shows that several experienced suicidal thoughts following the disaster or knew of others who died by suicide they believed was a result of the disaster experience or the additional pressure of the aftermath. [259] In addition, a survey of volunteers and emergency service personnel involved in the Black Summer bushfires identified that nearly 5% of volunteers and employees experienced suicidal ideation in the year following the fires.[260] A study undertaken in New South Wales in 2017 following extensive flooding found that 7% of people surveyed reportedsuicide thoughts following the flood event. People who had their homes, farm or businesses inundated were between two to three times more likely to report suicidal ideation.[261] Another study which compared the prevalence of suicides after the 2011 Queensland floods to eleven years prior found there was no difference in the rate of suicide six months after the floods.[262] It was suggested this may be due to increased levels of social support available during this period.

Impacts of the changing climate

Brief Description: Includes climate change anxiety, impacts of less predictable weather, and increased temperatures.

Evidence: There are several international studies which suggest that the changing climate is linked to suicide. Previous research undertaken in England and Wales found that above 18 degrees every 1 degree C increase was associated with a 3.8% rise in the suicide rate.[263] A systematic review also found that the risk of suicide increases during high temperatures.[264] In particular, research found that the suicide rate increased by 0.7% in the United States and 2.1% in Mexico when the temperature rose by 1 degree.[265] The study suggests that by 2050 there may be an additional 9,000-40,000 additional suicides in the United States and Mexico caused by rising temperatures. A systematic review indicates that suicide increases in communities impacted by extreme weather events.[266] Further, the changing climate may push people to move from sea level to higher elevations and international research shows that people who live in higher altitude areas are at higher risk of suicide.[267,268,269,270]

There is also Australian research showing that the changing climate may impact suicide risk. A report by Doctors for the Environment Australia indicates that suicide increases in communities impacted by extreme weather events.[271]A systematic review and meta-analysis which used data from Australia shows that suicide rates increase with increased annual temperatures.[272] Further research found that when the variance of the monthly average

temperature in the current month compared to the prior month increased by 1 degree there was a 3% increase in the rate of suicide in Brisbane and Sydney.[273] Research conducted in Queensland also identified that far north Queensland has a higher suicide incidence than south-western areas and that warmer temperatures was also a contributing factor.[274] Another study found that in Australia a 1 degree higher yearly average across local government areas increased the suicide rate by an average of 2.27 degrees.[275] The Suicide Prevention Australia Community Tracker indicates that the environment and climate change (including drought and natural disasters) are causes of elevated distress in the Australian community.[276] In addition a study found that in Melbourne there was an increased suicide risk in months with less rainfall, and that male suicides increase as sunshine increases in spring.[277]

Impacts of traumatic events

Brief Description: The ongoing trauma that can result from the experience of deeply distressing or disturbing events that overwhelms an individual's ability to cope.

Evidence: Studies have shown links between trauma and risk of suicide in response to a range of negative events.[278] Research shows that common forms of trauma including physical or sexual abuse, physical injury, or witnessing violence or death can increase likelihood of suicide.[279] A study undertaken in Iceland found that experiencing traumatic life events is associated with suicidality especially among men.[280] A study in the United States with veterans found that military sexual trauma (sexual assault or repeated, threatening sexual harassment during military service) is a risk factor for suicide among both men and women.[281] Another study undertaken in the United States found a higher risk of suicide among previously deployed soldiers compared to those currently deployed.[282] Studies also suggest that certain kinds of combat experiences are linked to suicide.[283]

Research has found that combat veterans in the United States who witnessed others be killed or woundedin combat were more likely to experience suicidal ideation or attempt suicide.[284] LGBTQ youth who experience high levels of trauma are three time more likely to attempt suicide compared to those with no trauma symptoms or low-moderate trauma symptoms.[285] Pregnancy loss is also associated with suicide. A study found that women who had experienced miscarriage were 3.8 times more likely to die by suicide.[286] Further research has identified that women who have a still birth, miscarriage or termination of pregnancy within one year postnatally are more likely to attempt suicide or die by suicide compared to those who experience a live birth.[287] Another study, looking at adolescents, found that experiencing a miscarriage is associated with a two-fold increase in the likelihood of a later suicide attempt.[288]

Australian data also shows a link between trauma and suicide. Research undertaken in South Australia shows that experiencing a traumatic event increases risk of suicidal ideation.[289] AIHW data shows that suicide was one of the most common causes of maternal deaths in Australia between 2011 and 2020.[290]

Intergenerational/transgenerational trauma

Brief Description: Intergenerational trauma emerges when the effects of adversity, such as poverty, colonisation, displacement, neglect, and abuse, are passed from one generation to another. This can be highly prevalent in particular groups such as Indigenous peoples and refugees but can also occur in any family.

Evidence: There is international evidence that traumatic events, such as institutional abuse, can impact not just survivors, but their children as well. Research which examined the impact of colonisation policies and the Indian Residential School system in Canada found that trauma can be passed down inter-generationally. The study found that for First Nation adults having a parent or grandparent attend a residential school (a network of boarding schools for Indigenous peoples) increased their likelihood of suicidal behaviour.[291]

In Australia there is limited research on intergenerational trauma. However, research by the AIHW notes intergenerational trauma is a key risk factor impacting Indigenous Australians social and emotional wellbeing and that one-third of the Aboriginal and Torres Strait Islander community may be affected by intergenerational trauma.[292] Research also suggests that the higher rate of suicide among Aboriginal and Torres Strait Islander populations compared to non-indigenous populations may be due to the effects of colonisation, impacts of historical trauma and grief and burden of intergenerational trauma.[293,294] In addition, following the suicide deaths of a number of Indigenous children in the Kimberley region within a short period of time the investigating coroner found the deaths were caused by the effects of intergenerational trauma.[295,296]

Isolation

Brief Description: Includes geographical isolation (living in rural and remote areas), physical isolation (due to disability, immunodeficiency, etc.), and lack of community participation (poor social integration).

Evidence: There is a significant amount of international research linking social isolation with suicide. A systematic analysis indicates that marital status (being single, separated, divorced, or widowed) and living alone are strongly associated with suicidal behaviour.[297] Another systematic review found that that social isolation and a lack of close friends or family network increases risk of suicide among adolescents.[298] For men, the risk of suicide decreases with increasing social integration.[299] Research has also found that among women high levels of social integration is associated with a lower risk of suicide.[300] A study undertaken in Canada found that compared to those living in urban areas, those living in rural areas have an elevated suicide risk.[301] The study found that men living in rural areas where twice as likely to die by suicide compared to their urban counterparts. A qualitative study undertaken with Canadian men analysed the factors underpinning the link between suicide and social isolation. The study identified family dysfunction and estrangement and

marginality, feeling like misfits at school or work, alienation, and provisional acceptance of health care as elements contributing to the link between social isolation and suicide.[302] A systematic review found that among immigrants and newcomers social disconnection increases the risk of suicide in the anglosphere countries.[303] There is an association between suicide and living in remote or rural areas. A study undertaken in the United States found that there are higher rates of suicide in less urban areas and lower rates in more urban areas.[304] Another study which analysed suicide deaths in the United States between 1999 and 2016 found that suicide rates were higher and increased faster in rural rather than urban areas.[305]

There are several Australian studies which focus on suicide and social isolation. For Aboriginal and Torres Strait Islander peoples the majority of suicide deaths occurred outside capital cities.[306] A retrospective study of coronial data in rural New South Wales, South Australia, Queensland and Tasmania from 2010-2015 found that the suicide rate was 11% higher in rural areas and increased with remoteness.[307] Another study found that between 1997-2000 across Australia there were higher suicide rates for men in rural areas, and this trend was particularly evident for young men.[308] This is supported by a systematic review and meta-analysis which found that for people living in Canada, the United States, the United Kingdom and Australia that men living in rural areas are more likely to die by suicide.[309]

While another study found that social isolation is one of the most common risk factors identified by Australian men who have attempted suicide.[310] A study undertaken witholder Australian adults aged 60-101 found that poor social support and living alone is associated with suicidal ideation.[311] The Suicide Prevention Australia Community Tracker indicates social isolation and loneliness causes elevated distress in the Australian community.[312] The AIHW Burden of Disease study 2018 indicates that the rate of suicide ionAustralia rises with increasing remoteness.[313] AIHW data also shows that in 2021 the rate ofsuicide among those living in very remote areas was 2.3 times that of the rate for people living in major cities.[314]

Loneliness

Brief Description: Distress caused by the subjective feeling of being alone, unwanted or lacking social connections.

Evidence: There is a significant amount of international research linking loneliness with suicide. For school-going adolescents loneliness has been linked to suicide, particularly among males.[315,316,317] Research has also suggested that loneliness may have been a factor implicated in suicides among youth during the COVID-19 pandemic lockdowns.[318] Qualitative research undertaken to understand the meaning that suicide holds for street youths uncovered that loneliness was a key construct of suicide.[319] Research has also found that those who experience loneliness during middle childhood are more likely to engage in suicidal behaviour at 15-years of age.[320] Among adults, loneliness has also been found to be a risk factor for suicidal behaviour.[321,322] Prevalence of suicidal behaviour increases with the degree of loneliness.[323] A meta-analysis also identified that loneliness is a key predictor of suicidal ideation and behaviour.[324] Research shows that loneliness is also a risk factor for

suicide in older adults.[325,326]

There is limited Australian research which examines the link between loneliness and suicide.However, Data from Ten to Men: The Australian Longitudinal Study on Male Health found that men who report lacking close friends or relatives where two times more likely to experience suicidal ideation in the past 12 months.[327,328] The Suicide Prevention Australia Community Tracker also indicates that experiencing social isolation and loneliness can cause elevated distress in the Australian community.[329]

Methodology

In the initial research for this project, it was determined that the literature does not provide a consistent authoritative list of SEDS, or an authoritative definition that is sufficiently precise to determine a list of the SEDS.

To develop a list for this project two pieces of research were undertaken:

- A review of the broad range of literature examining the evidence linking particular social determinants with the risk of suicide
- A review of the literature giving lists of social determinants, including academic articles, grey literature, and websites of key organisations

The review of evidence linking suicide with particular social determinants, identified a large number of studies. This research has been incorporated into the summaries of evidence given above.

The review of literature giving lists of determinants, identified a number of pieces of relevant research. However, in most cases it was clear that these lists were not intended to be comprehensive; only a small number of references were given, and the lists were prefaced by caveating terms like “such as” or “including”, or stated that the list “is not meant to be exhaustive”.[330,331,332, 333] A number of pieces of research presented lists that were simply social determinants of health, rather than determinants of suicide specifically.[334,335] In some cases statistical data was given showing that a set of determinants related to suicide, but insufficient information was given on how the determinants statistically investigated were selected and whether these lists were comprehensive.[336,337]

Although the lists given by these sources contained a number of key commonalities, there was also considerable variation. The differences indicated a need for development of a list based on all these, grounded in the research on links with suicide, and informed by broad consultations with those with lived experience and those with service-provision expertise.

From the above two research reviews a draft list of SEDS was developed. Inclusion on this list was based on whether a SEDS had appeared on multiple other lists, and whether there was evidence linking the SEDS to suicide.

Following the creation of the draft list of SEDS, Suicide Prevention Australia undertook consultations with people lived experience representatives and representatives of 116

different organisations. The majority of these organisations were consulted with in individualonline meetings with one or two representatives of the organisation. In addition, two workshops were run with representatives from a number of organisations present. In these consultations, participants were presented with a summary of the research used to develop a draft list of SEDS, and they were asked to give input on the list.

As a result of this feedback the list was expanded to include a number of factors where research linking the factor to suicide was limited, but on-the-ground experience indicated a clear link to suicide. Also, a number of the initial proposed SEDS were also reconceptualised as two or more SEDS. For example, the proposed SEDS “Isolation and Loneliness” was split in “Isolation” and “Loneliness” as consultations indicated that the ways of address these issues could be quite different. Many of the SEDS were also renamed and had their descriptions re-worked to take into account feedback from the sector that addresses this issue. For example, the SEDS “Domestic and Family Violence” was changed to “Domestic, Family and Sexual Violence” based on input from organisations working in this area.

This revised list was presented at the National Suicide Prevention Conference 2023 to an audience of over 60 people including representatives from both government and community sector organisations in the suicide prevention and related sectors. Of those attending, 62 completed a survey during the presentation on whether they agreed with each of the SEDS. Following the presentation there was a discussion where audience members were given the chance to make comments on the list of SEDS overall and on individual SEDS. Contact details were also given so comments could be emailed later. Agreement in the survey with the list of SEDS was high, with 14 of the SEDS receiving over 95% of participants agreeing, and all SEDS receiving more than 60% agreement. The subsequent discussion, and emailed comments after the session, explored the views of those who disagreed with some of the SEDS, with issues in terminology, description and conceptualisation being raised. Additional SEDS were also suggested.

Following this consultation, further changes to the list of SEDS were made to address this feedback. The result is the list of 22 SEDS given above. Even with these further revisions it is likely that there will not be 100% agreement with all SEDS on the list. As stated above, the list is not intended to be definitive, and it is acknowledged that other lists are possible. The intention is to create a framework that aligns with the service system so that recommendations can be directed to the appropriate areas of the service system. The relatively high level of agreement with the list indicates that this has been achieved and given the complex nature of the topic is a higher level of agreement than was expected at the outset of this project.

In the individual online consultations, participants were also asked to advise on what are the key recommendations for government actions to address the relevant issue. Suicide Prevention Australia is currently working on the substantial number of recommendations received to identify overarching themes for inclusion in the final report of this project.

Conceptualisation and definition

As stated above, not only was there no authoritative list of determinants in the research, no authoritative definition of social determinants was identified. Common factors listed or described as “social determinants” of suicide included economic factors, such as unemployment or poverty, and environmental factors, such as extreme heat and the impacts of natural disasters. For this reason a broad terminology was adopted “socio-economic and environmental determinants of suicide” (SEDS).

The lack of a definition of SEDS meant that an important part of the work of determining the list of SEDS was conceptualisation of the term. SEDS had to be distinguished from each other, and from other risk factors for suicide.

The interlinkage of SEDS:

A challenge in conceptualisation for developing the list is that there is a lack of consistency in how particular SEDS are categorised and defined. Different terminologies and descriptions were given, and the different terms used resulted in contradictory overlaps. For example, “isolation”, “lack of contact with family”, “family problems”, “relationship strain”, “spousal conflict” and “domestic and family violence”, can all be regarded as separate SEDS or as a single SEDS. In this example there is clear overlap between some of the terms, and yet “isolation” and “domestic and family violence” were usually regarded as distinct determinants. Issues similar to this were present for many of the determinants. To address this, a pragmatic approach is taken of categorising the SEDS in alignment with aspects of the Australian service system and accepting that there will be some amount of overlap. For example, “isolation” and “domestic, family and sexual violence” are regarded as separate SEDS, as there are separate service sectors that address these issues. This is intended to facilitate one of the project’s key aims of working with sectors addressing these issues to develop advocacy points and recommendations to government.

It should be emphasised that there are multiple ways that the list of SEDS could be divided. Ultimately it is more important that all factors are included and addressed then whether any particular factor is combined with another or kept separate. It is hoped that the current division is practically useful.

Priority populations:

A further challenge in developing a list is the overlaps between SEDS and cohorts at risk of suicide, or priority populations. For this project priority populations were conceptualised as belonging to one of two types. One type are populations purely by virtue of experiencing a determinant (“determinant cohorts”). Examples of this includes those experiencing homelessness, those in poverty, and those experiencing unemployment. The needs of populations purely by virtue of experiencing a determinant are addressed by the recommendations for the determinant they are experiencing.

Other priority populations are populations in themselves (“inherent cohorts"). Examples of these include Aboriginal and Torres Strait Islander people, LGBTIQ+ communities, and those of CALD backgrounds. These populations are not inherently at risk of suicide, but may be at higher risk because of an increased likelihood of experiencing SEDS or other factors. They experience SEDS in different ways and to different degrees. The report will highlight

ways in which these populations experience these determinants and call for recommendations to be implemented with priority populations in mind. In this it will draw on previous work by Suicide Prevention Australia on identifying priority populations.[338]

An important reason to keep these two types of priority population separate is the fundamentally different aims for suicide prevention with regards to these two groups. For inherent cohorts the aims are around reducing this cohort's experience of factors that increase risk of suicide and ensuring that supports appropriate to this cohort's needs are available. For determinant cohorts the aims may include the above, but there is also a primary aim of reducing the numbers of people in this cohort.

Life events:

For this project a distinction has been made between SEDS and "life events". In this paper the reasons for drawing this distinction are pragmatically based on the fact that recommendations to address these two types of risk factors will differ significantly.

SEDS are an ongoing/chronic (though not necessarily permanent) state or experience. Life events are a point in time risk factor for suicide that is usually a loss of some kind, such as bereavement, relationship breakdown, job loss, financial crisis or eviction. (It should be noted that a suicide attempt is a point in time risk factor that is not a loss; and is also different from other life events in that it may be a result rather than a cause of suicide risk. Whether suicide attempts should be included with other life events or are another separate type of risk factor is beyond the scope of this paper.)

The two concepts of life events and SEDS are closely connected in that life events can result in SEDS, such as where a bereavement results in a person losing important social connections and becoming isolated. And SEDS can result in life events, such as relationship strain resulting in a life event of relationship breakdown. Indeed, the two types of risk factors can be part of the kinds of chain of events that lead to extreme suicide risk. For example, an unexpected job loss causing unemployment that then leads to financial strain, which in turn puts a relationship under strain and results in relation breakdown and then isolation.

Addressing both life events and SEDS are important, but the recommendations to address each will often be different. Life events will usually be crises and so focusses recommendations on the point of crisis. It is critically important in suicide prevention to take a situational approach and ensure that targeted supports are made available for those experiencing events known to impact on suicide.

By contrast, a focus on SEDS facilitates looking at structural issues. Because many life events will be proceeded by experiencing a SEDS, which is a chronic state, they represent a window of time to act well before a person reaches a point of crisis. This means a focus on SEDS allows "upstream" recommendations to be made. As mentioned above, the final report of this project will provide such recommendations.

Exacerbating factors:

During the course of consultations a number of factors were suggested for inclusion on the list of SEDS where research does not show a direct impact on suicide. Instead, the research shows these factors as exacerbating the impacts of other risk factors, but do not in themselves create risk. This is different from the case where one SEDS causes another. For example, the SEDS employment distress includes unemployment, underemployment, and

insecure employment, all of which can create financial strain. However, we know that these will not always create financial strain, such as where the person has significant savings or a partner with a high income. And research shows that even when impacts of financial strain are excluded, there is still increased risk off suicide. Employment is often important to self- worth, and so employment distress can damage self-worth impacting on suicide risk.

By contrast, exacerbating factors only increase the risk of suicide by causing or increasing other risk factors. In the absence of these other factors they do not impact suicide. This does not mean that exacerbation factors are not important or should not be addressed. However, they need to be considered separately as the way they are addressed, and the extent to which they need to be addressed, will be dependent on the presence of other factors. Below four important exacerbating factors are discussed.

Lack of access to services: In some consultations a lack of access to services was raised as a potential SEDS. And there are a number of international studies which show that lack of access to healthcare and mental health services impacts on suicide risk.[339,340,341] However, none of the research attempts to exclude the impacts of other risk factors. Indeed, we would expect that the impact would be entirely due to those who do not have access to services and need them because of the presence of SEDS or other risk factors. The extent to which there is a lack of services in a community is determined by the amount of services, but importantly it is also determined by the extent to which there is a need for services in the community. Different communities will have different needs which will be, at least in part, driven by the presence of SEDS in the community.

Harms of technology/digital environment: A frequently raised possible SEDS was the harms of technology. The was usually discussed in regards to social media, though some of those consulted with mentioned the internet broadly, or artificial intelligence (such as using text-to-text generative artificial intelligence to create a suicide note). Some studies have found a correlation between suicide risk and high levels of social media use,[342] or high levels of internet use / cyber addiction.[343] However, research also shows that social media or technology use may not be intrinsically harmful, it may depend on how social media is used.[344] And this aligns with comments made in a number of consultations that social media and other technologies can have potentially protective effects against suicide by facilitating social connections or aiding knowledge and access to supports. A number of pieces of research seem to indicate that harms from technology come from its facilitation of contact with other risk factors such as suicide-related content,[345] or bullying.[346]

Commercial determinants: In two consultations our attention was directed to the research on the commercial determinants of health: strategies and approaches used by some private sector organisations to promote products and choices that are detrimental to health.[347] This research does include findings that link business practices to suicide, but only through exacerbating other risk factors. For example, business practices that damage the environment and contribute to air pollution which can harm wellbeing and increase the likelihood of suicide,[348] or using the COVID-19 pandemic as a marketing opportunity to encourage people to consume more alcohol in their home.[349] This area warrants further research and better regulations, but cannot be regarded as a SEDS in its own right.

Increased access to means: A widely acknowledged risk factor for suicide is the extent of access to the means of attempting suicide. Conceptually this cannot be a SEDS in itself as access to means does not drive suicide, it facilitates suicide driven by other factors. Increased access to means represents the lack of a barrier that would otherwise prevent

suicidal behaviour, not a factor that drives suicide.

Conclusion

It should be emphasised that this paper does not claim that the above framework is the only way to conceptualise suicide risk factors. The aim of this paper is not to set out a model of suicide risk, instead it has a more modest goal of setting out a framework that is useful to guide actions to reduce suicides.

This framework stems from the often-made observation that suicide is a complex behaviour impacted by a broad range of factors. This means that reducing suicides requires action outside the suicide prevention and mental health sectors. It is critical that all areas of government and community services are addressing suicide, and that providing support is not only triggered by response to a mental health service contact, diagnosis, or crisis such as a suicide attempt. Because SEDS are experienced chronically they represent a window of time before a crisis point where suicide risk can be addressed, and so directing efforts to reduce the experience of SEDS is critical. To undertake this work, collaboration with the government and community service organisations that address SEDS is key, and so the SEDS framework is designed to align with how the service system is structured.

This framework on its own will not reduce suicides, but it is hoped that it will increase and guide efforts that target the SEDS. To help ensure such efforts occur, future work in this project will look at key recommendations for action in each SEDS and draw out overarching recommendations for action across all SEDS.

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