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Attitudes Among the Australian Public Toward AI and CCTV in Suicide Prevention Research: A Mixed Methods Study

Rebecca C. Hardy, Kate Glastonbury, Sandersan Onie, Natasha Josifovski, Adam Theobald, and Mark E. Larsen
Black Dog Institute, University of New South Wales

Research is underway exploring the use of closed-circuit television (CCTV) cameras and artificial intelligence (AI) for suicide prevention research in public locations where suicides occur. Given the sensitive nature and potential implications of this research, this study explored ethical concerns the public may have about research of this nature. Developed based on the principle of respect, a survey was administered to a representative sample of 1,096 Australians to understand perspectives on the research. The sample was aged 18 and older, 53% female, and 9% ethnic minority. Following an explanatory mixed methods approach, interviews and a focus group were conducted with people with a lived experience of suicide and first responders to contextualize the findings. There were broad levels of acceptance among the Australian public. Younger respondents, females, and those declining to state their ethnicity had lower levels of acceptance of CCTV research using AI for suicide prevention. Those with lived experience of suicide had higher acceptance. Qualitative data indicated concern regarding racial bias in AI and police response to suicidal crises and the need for lived experience involvement in the development and implementation of any resulting interventions. Broad public acceptance of the research aligns with the principle of respect for persons. Beneficence emerged in the context of findings emphasizing the importance of meaningfully including people with lived experience in the development and implementation of interventions resulting from this research, while justice emerged in themes expressing concerns about racial bias in AI and police response to mental health crises.

Public Significance Statement
The current findings help shape suicide prevention research using CCTV and AI and provide support for the meaningful involvement of people with lived experience in the development and implementation of interventions.

Keywords: suicide prevention research, closed-circuit television, artificial intelligence, bias, lived experience

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Rebecca C. Hardy https://orcid.org/0000-0003-4953-273X
Kate Glastonbury https://orcid.org/0000-0003-3520-2043
Sandersan Onie https://orcid.org/0000-0003-2147-8102
Natasha Josifovski https://orcid.org/0000-0002-9692-0682
Adam Theobald https://orcid.org/0000-0002-7666-4992
Mark E. Larsen https://orcid.org/0000-0002-0272-2053

Rebecca C. Hardy is now at School of Population Health, University of New South Wales. Mark E. Larsen is now at Centre for Big Data Research in Health, University of New South Wales.

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Correspondence concerning this article should be addressed to Kate Glastonbury, Black Dog Institute, University of New South Wales, Hospital Road, Randwick, NSW 2031, Australia. Email: kate.glastonbury@blackdog.org.au

Rebecca C. Hardy

Suicide is a leading cause of death globally, with approximately 700,000 deaths each year, and it is estimated that there are at least 20 times as many suicide attempts (World Health Organization, 2021). Coronial data from the United Kingdom and Australia suggest that approximately 30% of suicide deaths occur in public places (Owens et al., 2009; Too et al., 2019), and these suicides can have significant traumatic impacts on first responders and bystanders. There is also the possibility of contagion effects, leading to increases in future suicide attempts and the emergence of specific locations frequently used for suicide ("suicide hotspots"; Beautrais, 2007). Suicide prevention efforts in public places are therefore of considerable importance. These interventions have broadly been classified as: (a) restricting access to means (e.g., installing fencing), (b) encouraging help-seeking (e.g., through help-seeking signage), (c) increasing the likelihood of third-party intervention (e.g., through the use of closed-circuit television [CCTV] cameras), and (d) encouraging responsible media reporting of suicide (Pirkis et al., 2015).

CCTV is increasingly prevalent in many countries (Thomas et al., 2022). A recent review found that CCTV data has been used in suicide prevention research for three main activities: (a) understanding risk factors (e.g., screening for depression from facial features), (b) forensic applications (e.g., determining suicidal intent vs. other causes of death), and (c) to support suicide prevention interventions (Onie et al., 2021). This latter category includes research to automatically identify when a suicide attempt has been made, for example, when a person has jumped from a railway platform onto the tracks (Mukherjee & Ghosh, 2017), when someone is hanging (Bouachir et al., 2018), or after someone has jumped from a bridge (J. Lee et al., 2016). Further research has described observable behaviors preceding a suicide attempt on the Montréal metro (Mishara et al., 2016) and London Underground (Mackenzie et al., 2018). Onie and colleagues as well as Mishara and colleagues recommended for future work to examine methods to automatically identify behaviors that may indicate a person is in crisis in real time. Ongoing work has commenced to assess the feasibility of such an automated approach using artificial intelligence (AI)-supported computer vision algorithms (Li et al., 2022; Reid et al., 2018). These studies show promising results in detecting suicide attempts in real-world settings, although further work is still required to determine if attempts can be detected in real time with sufficient accuracy and advance warning to be practicable.

There are several potential benefits documented in the literature for using AI in this way. First, such an approach potentially allows many more camera scenes to be monitored than would be possible by continuous manual observation of footage, with greater accuracy than humans alone (Zaman et al., 2019). Second, it could potentially aid in a faster response than relying on human judgment to identify, alert, and dispatch help in a crisis; in medicine, decision-support tools are already being used to expedite treatment (Challen et al., 2019). Third, it could possibly prevent human bias from interfering with the assessment of someone in crisis because it applies a systematic and theoretically unbiased algorithm to the assessment of human behavior (Panch et al., 2019).

However, there is debate about the extent to which CCTV and AI, though ubiquitous, benefit and harm different members of society (Panch et al., 2019). AI has been criticized for bias in that many algorithms either do not take gender, ethnic, or cultural differences into account or take them into account inappropriately, and this has had negative impacts as a result (Ntoutsi et al., 2020). This can have profound implications when using these technologies for something as sensitive as suicide prevention.

Any suicide prevention research is subject to complex ethical challenges (Barnard et al., 2021), which are further complicated by varying public attitudes toward AI and further impacted by place-based differences. Two nationally representative surveys in Australia have identified competing factors relevant to this approach—such as generally low levels of public awareness and understanding about AI but higher levels of support for health-related AI systems compared with applications in other domains (Lockey et al., 2020). Concerns about surveillance and loss of data privacy are common (Selwyn et al., 2020), but universities and research organizations are trusted to develop and use AI systems and to oversee the governance of these systems (Lockey et al., 2020). The public also has different expectations around how different types of data are used for different purposes (Karampela et al., 2019) and can respond to the nuances of data protections and consent options associated with complex data usage scenarios, for example, as demonstrated through perceptions associated with health and administrative data linkage studies (Xafis, 2015).

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Given these interrelated factors, it is important to understand the acceptability of, and challenges with, the application of AI in particular contexts for suicide prevention research and intervention. These attitudes are likely to be unique to this particular context and may differ from other approaches, such as using smartphone sensors or wearables to understand suicide risk (Torous et al., 2018).

Research in the Australian context is guided by the The National Health and Medical Research Council (2018), with principles derived from the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). The key values of the National Statement relate to research merit and integrity (justifiable potential benefits and undertaken by competent researchers), justice (inclusion and exclusion of participants is fair, with burden and potential benefits fairly distributed), beneficence (the likely benefits justify any potential risks), and the overarching need for respect (recognizing and honoring the intrinsic value of human research participants). Based on these principles, this study sought to understand whether the public and stakeholders who are likely to be most affected by this research found the degree of consent obtained, especially for those individuals in distress, and the degree of anonymity obtained acceptable. Furthermore, the study sought to understand whether the use of AI to analyze such footage was considered respectful and acceptable.

The aim of the present study was to understand the Australian public's perceptions of the acceptability of CCTV research using AI for suicide prevention. Additional aims were to understand the perspective of those with lived experience of suicide bereavement and first responders, as these populations are more closely impacted by suicide than the general public and therefore are well-positioned to offer their nuanced perspectives to the study. As it was an explanatory study, no specific hypotheses were generated. However, the broad research questions were as follows:

1. To what extent does the Australian public find CCTV research using AI for suicide prevention and associated ethical implications acceptable?

2. To what extent do people with lived experience of suicide bereavement find CCTV research using AI for suicide prevention and associated ethical implications acceptable?

3. To what extent do first responders who respond to suicides find CCTV research using AI for suicide prevention and associated ethical implications acceptable?

Method

An explanatory mixed method design was used for the study, whereby the quantitative data collected in Phase I were further explained by qualitative data in Phase II (Creswell & Plano Clark, 2017). The study design allows for each method to augment the other methods; therefore, any potential constraints of each method (e.g., small sample sizes in interviews and focus group) are mitigated by the synthesis of findings from all methods. Supplemental Figure 1 displays the mixed methods design. The study was approved by the Human Research Ethics Committee at the University of New South Wales (HC210256).

Transparency and Openness

The survey, interview, and focus group protocols used in the study are available in the Supplemental Materials. A description of the study design and analysis plan is available from the researchers upon request. Due to the inclusion of personally identifying information and the sensitive nature of the subject matter, the researchers assured participants that their data would not be used for secondary analyses. Therefore, the data set and associated syntax are not directly available.

Quantitative Data Collection and Analysis

In Phase I of the study, the research team developed a survey examining five "domains" related to the Australian National Statement principles, including degree of consent, degree of anonymity, acceptability of use of CCTV footage for suicide prevention, acceptability of use of findings, and acceptability of use of AI in the analysis of the footage. There were 23 closed-ended questions using a 5-point Likert scale, ranked from 1 (*strongly disagree*) to 5 (*strongly agree*). An open-ended

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question was included at the end of the survey to give respondents the opportunity to provide additional comments or to state any possible confusion with the survey. Feedback on the suitability and relevance of the survey questions was sought from a lived experience advisory group hosted by the Institute where this study was conducted. The survey was finalized with feedback from a multidisciplinary team within the Institute.

A market research company was engaged to recruit a nationally representative sample of the Australian population based on gender, age, and state of residence. Participants were first presented with the participant information sheet and consent form, and those who agreed to proceed were presented with a brief video explaining the purpose of the proposed research, along with a definition of AI in the context of the suicide prevention research. They were then directed to the survey questions; participants were permitted to skip any question to discourage survey abandonment. Participants were compensated for their participation through the market research company's internal rewards scheme.

Survey data were cleaned, descriptive statistics were produced using Microsoft Excel, and statistical analyses were conducted using SPSS v26 (IBM Corp., 2017). The open-ended question was analyzed using content analysis (Vaismoradi et al., 2013).

A total of 1,096 individuals completed the survey; however, given the nature of the questions, we allowed participants to skip questions; the number of responses per question ranged from 879 to 1,088.

Qualitative Data Collection and Analysis

Phase II of the study consisted of interviews with individuals who are bereaved by suicide and a focus group with police officers who regularly respond to suicides at a suicide "hotspot." The semistructured interview and focus group protocols were based on the research questions; the focus group protocol also inquired about participants' experience of responding at hotspots, ideas about alternate crisis response options, and what public awareness campaigns should be implemented, if any, regarding crisis behaviors at suicide hotspots. These questions were included based on the findings from the quantitative data and interviews, which indicated a desire for participants to discuss the implications of the research. Both protocols were reviewed by the Institute's lived experience advisory group before data collection commenced.

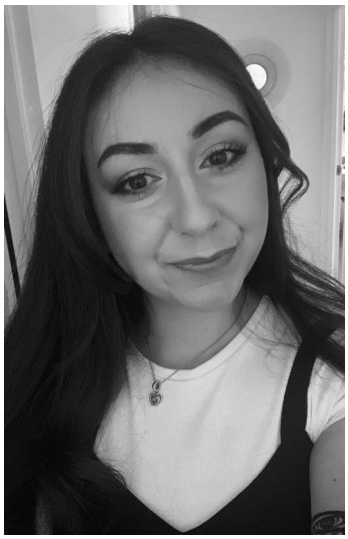
Interviews

Participants were recruited through the Institute's Lived Experience Network, a network of people who identify as having lived experience of mental ill health or suicide that provide advice and participation in research conducted by the Institute. The interview format was appropriate to be able to gather sensitive information in a safe environment (i.e., one on one). Individuals in this network who identified as having been bereaved by suicide were provided information about the study and provided written consent to take part in an hour-long online interview. Interviews were conducted by a member of the research team (KG). Six interviews were conducted with people with lived experience of suicide bereavement.

Focus Group

One online focus group discussion was conducted with seven police officers from a precinct that covers a known suicide hotspot in Sydney, Australia, which has been the focus of previous Black Dog Institute research. The officers were recruited specifically because of their experience in responding to mental health crises in the location where the CCTV research is conducted. A focus group format was appropriate to allow officers to share their experiences in a setting where they could speak with others who had similar experiences as themselves. Officers were informed of the study through an existing relationship with a member of the research team. Officers provided written consent to participate in the focus group. The discussion was held online for 90 min and was cofacilitated by two investigators (KG and RH). Three additional officers from the police mental health unit observed the focus group but did not contribute to the data.

Both interview and focus group participants were offered gift vouchers to the value of AUD$90 as per the Institute's paid participation policy. Both groups were provided with information regarding mental health support if needed, and the interviewer debriefed with participants at the end of the discussion. In addition, a lived experience advisor called interview participants before and after the interview to check in and advise them that psychologists from the Black Dog Institute's Clinic were available if necessary. Focus group



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participants were informed that the second investigator involved in the study could be privately messaged if a participant became distressed and wanted to speak to someone.

The interviews and focus group were recorded and then professionally transcribed by an external company. All transcriptions were read for accuracy and then analyzed using thematic analysis (Braun & Clarke, 2006) using both manual coding and NVivo (QSR International, 2020). A "reflexive" coding approach was used, whereby meaning-based themes were developed through an active, engaged, iterative process. This analytical process produced codes that then shifted and changed as the researcher engaged with the data through multiple rounds of data review. The initial codes were developed, through structural and descriptive coding processes Saldaña (2021), and were mapped, reviewed, renamed, and clustered together in a deliberate process to generate meaning-based themes. The researcher leading the qualitative analysis (KG) employed a rigorous reflective practice of note taking, reflecting on her own perspectives, and returning to the research questions, purpose of the research, and raw qualitative data in an iterative process. Data displays were used to check understanding with the Institute's lived experience advisory group and the CCTV research team. An outline of theme development is displayed in Supplemental Table 2 (interviews) and Supplemental Table 3 (focus group).

In accordance with an explanatory mixed methods model (Creswell & Plano Clark, 2017), the data were analyzed sequentially, with quantitative data first, followed by qualitative analysis to further contextualize the quantitative data.

Table 1 displays demographic data from the survey respondents; demographic data was not gathered from interview or focus group participants, as it was not anticipated that qualitative data would be analyzed by subgroup.

Results

Survey Results

The survey results showed broad public acceptance of the use of CCTV footage and AI for the purpose of suicide prevention research across a nationally representative sample. In this section, we use the terms "agree" to refer to those who endorsed "strongly agree" or "somewhat agree," and "disagree" to indicate "strongly disagree" or "somewhat disagree," and "neither agree nor disagree" as the third category. Overall levels of agreement for each question are presented in the Supplemental Materials.

The items with the highest levels of overall agreement were "Suicide prevention research using CCTV footage from public places is fine if it is ethically sound, complies with State and National privacy laws, and has all the relevant approvals from the governing university" with 82.41% agreement; "It is ok to use the footage from CCTV cameras in public places for suicide prevention research" with 82.15% agreement; and "If analysis of existing CCTV footage could result in automatic sending of emergency services and faster response times to those in distress, then this would be a good thing" with 79.81% agreement.

To explore demographic differences among survey respondents, a total acceptability score was calculated by summing the Likert score from each item across the entire instrument (n = 929, M = 90.95, SD = 18.1, minimum = 23 [*strong disagreement*], maximum = 115 [*strong agreement*]). Overall acceptability was examined in relation to gender, age, ethnicity, whether the respondent reported having a lived experience of suicide, and location. Kruskal–Wallis tests were

Table 1
Ethical Concerns in Suicide Prevention Research Utilizing Artificial Intelligence: Survey Sample Characteristics

Characteristic	*n* (%)
Age group	1,080 (100%)
18–24	128 (11.85%)
25–34	182 (16.85%)
35–44	220 (20.37%)
45–54	210 (19.44%)
55–64	152 (14.07%)
65+	188 (17.41%)
Gender	1,088 (100%)
Female	572 (52.57%)
Male	505 (46.42%)
Nonbinary or prefer to self-identify	10 (0.92%)
Prefer not to say	1 (0.09%)
Identify as ethnic minority	879 (100%)
No	751 (85.44%)
Yes	81 (9.22%)
Prefer not to say	47 (5.35%)
Aboriginal or Torres Strait Islander origin	917 (100%)
No, neither	881 (96.07%)
Yes, Aboriginal	26 (2.84%)
Yes, Torres Strait Islander	5 (0.55%)
Yes, both Aboriginal and Torres Strait Islander	5 (0.55%)

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conducted to determine differences between groups given the nonnormal distribution of total acceptability data.

For gender, the options "nonbinary" and "prefer to self-identify" were combined into one category. There was a significant difference in overall acceptability for gender, $H(2) = 10.41$, $p = .006$, with a mean rank score of 441.06 for females, 488.86 for males, and 255.10 for nonbinary/prefer to self-identify. Pairwise comparisons interpreted with a Bonferroni adjustment indicated a significant difference between females and males.

There was also a significant difference in overall acceptability for age, $H(5) = 39.42$, $p < .001$. The mean rank score was 353.54 for 18–24 years old, 405.15 for 25–34 years old, 496.90 for 35–44 years old, 481.05 for 45–54 years old, 479.50 for 55–64 years old, and 521.29 for 65 years and older. Pairwise comparisons indicated a significant difference between 18- and 24-year-olds and all other age groups except 25- and 34-year-olds, and between 25- and 34-year-olds and 45- and 54-year-olds and those aged 65 and older.

There was also a significant difference for ethnicity, $H(2) = 9.55$, $p = .008$, with those endorsing "Prefer not to say" having significantly lower acceptability scores than those who do or do not identify as belonging to a minority group. The mean rank for "prefer not to say" was 336.05, 442.68 for those who do not belong to an ethnic minority group, and 475.51 for those who do belong to an ethnic minority group.

Respondents with a lived experience of suicide reported significantly higher levels of acceptability than those who do not or preferred not to say, $H(2) = 21.19$, $p < .001$. Mean rank scores were 506.62 for those with a lived experience of suicide, 439.11 for those who did not, and 296.32 for those that preferred not to say. Tests for overall acceptability by location were not significant.

To provide respondents with an opportunity to give further comment, an open-ended question was asked at the end of the survey. A total of 652 responses were recorded, the majority of which were either positive and in support of the research (33%), or stated they had nothing else to add (42%). There were 163 remaining comments (25% of total comments), which were analyzed using content analysis. The following themes were identified—"concerns about the use of CCTV" (26 comments), "the use of AI" (20 comments), "the need for greater prevention efforts" (11 comments), and "concerns about lack of human connection" (four comments).

Comments suggested that monitoring hotspots through CCTV and using this for suicide prevention research and response is ultimately positive. For example, one respondent said: "People are recorded on CCTV cameras all day and have learnt to accept this. Use of the CCTV footage for this type of research can only be a good thing." Another stated: "If CCTV can be used to monitor suicide hotspots and identify/rescue one person it would be worth it. The only negative is when people become aware of monitoring and change the hotspot."

The use of AI in analyzing footage was seen as both potentially positive and negative. On the positive side, having 24-hr surveillance at a suicide hotspot allows for constant monitoring. For example, a response was:

> Having CCTV to see what can happen in hotspots is brilliant as it can inform you on an individual who may be in distress, and you can see if any further stress will happen with the person. An Artificial Intelligence is very much an added bonus when needed for a 24-hour eyes on situation to monitor areas to prevent an individual's presence before a stressful situation becomes a death.

Concerns were expressed about the use of AI and the need for humans to still be involved in the implementation of the research to provide a response. One respondent stated, "The bit about AI has me a bit worried as it is not perfect, And I know that humans are not perfect either, but anything is worth a try to save the grief to all concerned with suicide."

Beyond consent and privacy issues with the use of technology, two additional themes were derived from the responses: the need for greater prevention efforts and the desire for human interaction.

While there was acknowledgment of the need for interventions in a mental health crisis and a desire for faster intervention, prevention was also deemed essential. For example, a respondent indicated: "I think that focusing on people who are already in crisis is an ultimately useless way of approaching the issue. We need systemic change to support people before they reach that point."

Human connection and interaction were viewed as vital for people who are suicidal. Respondents thought human input would still be needed at all stages of an intervention that emerged from the CCTV research. One respondent indicated, "The best thing to do is human contact. If we interact more with one another there would not be any suicide attempts."

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Respondents also indicated that the type of response following the detection of suicidal behavior was important. Concern was raised about having police as first responders. One quote was, "These systems would be much better if actual professionals were alerted instead of police, calling police on suicidal people puts them more at risk."

Demographic differences were explored in the responses to the open-ended question to determine differences by gender, age, ethnicity, location, and lived experience; there were no discernible differences in patterns of responses based on these demographics.

Overall, the survey results indicated high levels of acceptability of CCTV research for suicide prevention, with some variation in levels of acceptability among subgroups in the quantitative data. Open-ended feedback identified nuance around consent and privacy issues and acknowledged that prevention efforts and human interaction were necessary components to effective suicide prevention.

Interview Results

Interviews with those bereaved by suicide added further nuance to the data. There were three main themes derived from the interviews with those bereaved by suicide: "it is good if it saves lives," "checking bias and being aware of intersectionality," and "implementing with lived experience in mind." An overview of theme descriptions can be found in Supplemental Materials.

It Is Good if It Saves Lives

Interview respondents indicated a high level of acceptability for the research, including the use of CCTV footage and AI, regardless of the privacy and consent issues that were raised. Participants felt that CCTV cameras are commonplace in public locations and that they are typically placed there for good reason. Using footage for this research, even without explicit consent of those filmed, was seen to be acceptable. Further, participants felt that without clear images of faces in the footage, images would remain anonymous, and university ethical approval gave assurance that appropriate and rigorous ethical procedures had been followed. One respondent said, "I think that if it's used for like the, the right reasons in terms of like saving other people's lives and learning from previous data then I think it's overall a very good thing." Another stated, "CCTV cameras everywhere … and I haven't explicitly consented to them having that and having my video recording, but it's there for safety purposes."

Interviewees described an understanding that the CCTV cameras did not represent someone watching you but rather someone looking out for you, and that CCTV cameras represent safety and security. One interviewee said: "I think sometimes these things they mightn't be the—the greatest in terms of how we see our freedom, but actually it's freedom from, you know, a lot of worse things happening."

Interview participants reflected on the pain and suffering that being bereaved by suicide entailed; some participants wanted the research to be carried out so that others will not suffer as they have. One interviewee said, "in terms of someone that's bereaved by suicide, I would think this [research] would be a very beneficial thing."

Similarly, participants noted the perception of inevitability of CCTV using AI, especially in human research. A respondent described:

> I think it's kind of inevitable, that's just the changing nature of science and technology is, you know, if you can get a machine to do it for you, that reduces human error and it reduces, you know, someone who was programmed exactly what to look for rather than somebody being subjective about it.

Checking Bias and Being Aware of Diversity and Intersectionality

Despite strong support for the research, concerns were raised regarding inbuilt bias in AI and the use of CCTV cameras. Interviewees described how the intersecting identities of individuals in the footage, who may be in crisis, could expose them to overlapping discrimination and marginalization. While demographic data were not collected from the interview participants, those that spoke to these concerns were from non-White backgrounds and described having lived experience of such bias.

Participants who spoke on this theme described how people of color, women, and Indigenous people are treated differently in society due to race and gender identity, and how race, ethnicity, and gender of the individuals in the footage could lead to greater incidences of racism and bias both in the analysis of the footage, the use of AI, and any subsequent

interventions emerging from the research. One interviewee described,

> I personally find them, this is a very Catch-22 situation, as a person of colour, I'm not a fan of CCTV footage just because I feel like it exposes me a lot more and like there's a lot more bias when it comes to using a lot of that content.

Participants recounted experiences of racism following the use of CCTV footage by police and other first responders. They described how ongoing racism in societal structures and the institutions that both protect us and deliver justice can be stressful for people of color. They expressed wariness of the use of CCTV footage despite the checks and balances that may be present. One interviewee stated,

> Especially young men from different backgrounds, like especially ethnic cultural backgrounds or women or First Nations people. I think there's a lot of that. … I think there's also a lot of worry with CCTV footage, and I know, we work so hard on like privacy laws and keeping a lot of this secure, we do have security breaches, you do have things that get leaked, like it is a real issue.

There was also a sense that AI algorithms are already biased and that the resulting discrimination causes ongoing issues for certain groups based on their demographic backgrounds. As one interviewee said,

> Those training programs are actually written by a select population, which just happens to be a lot of straight white males of a particular demographic and unfortunately it's like a, it's a, it's an unfortunate product that like, you know, we can only make what we know with our, you know, our own experience and because these program developers are often of a certain demographic, they cannot actually see that lived experience.

Participants expressed worry that the discriminatory effects of AI could cause ongoing harm to individuals who are already suffering from suicidal ideation. A quote was,

> You have so much evidence out there that AI does discriminate, that AI, if not fed properly, like enough data sets and data points of culturally appropriate or, is not given that shared learning experience, where it understands like nuances. It can do a lot of damage.

There were also concerns regarding diversity of reactions to a suicidal crisis. Interviewees expressed that different people react differently to a suicidal crisis, which may make it challenging to reduce something as personal as suicide down to a set of prescribed behaviors. For example, "There's so many human behaviours, everybody reacts differently, everybody does everything differently. Like even the way people suicide is completely different."

Compounding the diversity of individual behaviors is diversity of place. Participants wondered how the findings could be applied to other locations where geography and setting might be very different to the suicide hotspot involved in the initial study. Interviewees expressed that people in distress will interact with their environments in different ways. From one interviewee:

> So I don't know how that translates to be honest I don't like using that like, a set of parameters to use in different individuals. Every location is unique and would have to be study involved. And I think every, like location would require like a demographic slice as well. Because I think if you generalise this, it could do more harm than like benefit in my opinion.

Interviewees expressed major concern that first responders may be directed to someone who is not suicidal if behavioral cues are miscategorized or misinterpreted. Again, the implications of such a response are disparate for different groups of people, and in some instances could have lasting consequences. For example,

> All of a sudden you've got police knocking on your door and telling you, you're sick, you're trying to commit suicide, and you're like, "No, I was just upset, I was just sitting there having a whinge, like that's it, there's nothing wrong, I'm okay now. I've had my nap now, I'm fine, let me sleep." All of a sudden you have that because AI has told you, this person is about to commit suicide.

Implementing With Lived Experience in Mind

This theme reflects the sentiment that some of the challenges and concerns can be mitigated if lived experience is embedded in every part of the research project and the subsequent development and implementation of interventions. It was acknowledged that the acceptability study itself represented an attempt to embed lived experience in the research, but the project should go further. From one interviewee:

> I cannot highlight enough the importance of embedding that sort of lived experience in every single part of the project, not just these consultations, but the scripting of it, like the programming and the coding as well as the reporting and the people that disseminate the data.

Interviewees spoke about how the results of studies such as this one should also be meaningfully translated into practice, through authentic codesign with people with lived experience. This was especially important if the findings were to be applied to other suicide hotspots. From one interviewee:

> There are suicide hot spots unfortunately for a reason and I think if we can help save lives in that way, in a meaningful and safe way, then yeah, absolutely apply everywhere and anywhere that we can but only if it's done like really, really safely and co-designed genuinely.

There was additional concern with the use of AI being used to trigger an emergency response, noting that human review was needed between the AI analysis and the actual intervention. One interviewee stated, "Like I can see why it's there for like a monitoring purpose, but I don't think it should do anything in like a responsive purpose whatsoever."

Participants also described the possibility of using this technology to generate a different type of response; police as

first responders was seen to be problematic. An interviewee stated, "I just in general do not like the police getting involved, like I get why the police need to do that, but I just don't like police being involved in situations like this."

Participants described that ideally, a team of professionals should respond to a person in distress, including social workers and/or local council members who have a better idea of how to support someone in crisis and understand local cultures and customs. They also described potential levels of crisis response based on severity. Interviewees described the importance of human connection in these circumstances. For example,

> If there is a response being taken there has to be a mental health or a social worker there, and it can't just be like public service officers because that's much worse. And like historically it's not even hidden well for people of colour, and I do not like the sound of that whatsoever.

Additionally,

> I think if this system was in place, the system would work with local councils, local government councils and what it would do is it would identify these hot spots with these council officers and rangers and people in those areas.

Focus Group Results

There were three main themes derived from the focus group with first responders: "ethical considerations of the research," "what will this look like in practice," and "communicating to the public."

Ethical Considerations

Ethical issues relating to privacy and consent did not emerge as a primary concern for the police officers. Police officers described how individuals in the area are in a public place and, as such, should expect to be filmed, indicating that the cameras are obvious and there are signs alerting the public to their existence. One officer said, "I think it's signposted that there's CCTV there. It's quite an obvious thing. They're in a public place … people get filmed all the time." Police explained that they rely on CCTV footage for their work, which perhaps explains why they were more comfortable with the use of CCTV footage for the purposes of the research without individual consent. They also seemed less familiar with formal research governance and ethics processes, and prompting these topics did not generate extensive discussion.

Officers were asked about their assumptions about those in crisis and their views on consenting to the CCTV footage being used for the purpose of research. Police officers discussed that, if given the opportunity at an appropriate time, they imagined that people in crisis and those bereaved by suicide would be in favor of the research. One officer described, "in better part of their lives might say, yes this is a fantastic initiative and something like that, but given the, you know, their current mental state, it also might not be appropriate."

What Will This Look Like in Practice?

Police officers were more vocal about the future implementation of the research findings and the possible implications this could have for their policing work.

Use of Technology in First Response

The police officers expressed concerns about what a response would look like if technology replaced what is now done by humans. Currently, when viewing the footage on the TV screen at the station, police can independently verify if someone who has crossed the "threshold" appears in distress versus behaviors that are consistent with those who might be on a "sightseeing expedition." Police gave the example that they may see people in pairs taking photos, or they may see someone alone, pacing backwards and forwards, removing their shoes, and appearing "vacant" or "without emotion," with the latter initiating a response. Currently, the police have a detailed description of a person before they reach the location and would be able to easily identify them on arrival, allowing them to call back to the station to confirm details. Police expressed concern that, if AI replaces human review, crucial details of appearance and behavior may be missed. An officer questioned: "how do we get a description of what they're wearing, where their last direction was, where they are now? All that kind of stuff is generally done by a human with us at the moment."

Officers questioned what sort of behaviors detected by the AI would trigger a response, expressing concern that something as small as a facial expression or one or two behaviors in isolation would mean more false alarms. For example,

> What's the outcome for police …. If we're going up there because somebody's got an expression or doing some kind of other behaviour, like, we're going to be flat off our feet. Like it's going to be really, really hard for us to do any other kind of work if we're basing our response on those kinds of things.

Officers acknowledged that the cameras could be used more effectively at suicide hotspots. Currently, the cameras point to the cliff face or "threshold" to detect someone who steps over the erected barrier. If focused on a broader area, like all entrance points to the park, an earlier intervention could be possible. One officer described, "There are black spots, and we do go to certain jobs where members of the public have seen someone on the wrong side of the fence, and it hasn't—we haven't been notified of it at all." Further, while the specific location that is the focus of current research is comparatively well-patrolled and highly frequented, there are large areas of coastline that are more isolated. Police questioned the ability of cameras to cover such large tracts of land. For example, "You know, but again, at other areas where … there's such a vast space. I know the [location removed] for example, there's cliff lines all the way along

from [location removed] and to [location removed]. It's a long area."

Police expressed concern about the technology failing, exposing police to blame for not providing a fast enough response. One officer said,

> In case we're involved in a critical incident where someone does commit suicide would that be a tool that could be potentially used against us and brought up as in, you know, why didn't you notice these things? If someone was distressed, how come you didn't respond earlier and then we're criticised more and more.

Coordinated First Response

Officers seemed aware that they were not always the most popular first responders for mental health incidents and acknowledged that sometimes a police response can make matters worse. Officers referred to efforts in the community to defund the police and remove resources away from their ability to respond to individuals in crisis. While somewhat sympathetic to some of these views, officers discussed how they currently have the greatest capacity to respond to a crisis in the most efficient manner. One officer said,

> Sometimes we make things worse, but, I mean, until you can get an ambulance, a car, with lights and sirens that can do 100k's up [location removed] to get there quicker … it's going to have to be us.

Officers described how in crisis situations ambulance staff wait until the police response is underway before responding themselves. One officer said,

> My concern is if we're going there for someone on the wrong side [of the barrier], if we ask for ambulance as we're driving there, they're not very likely to come. They want to wait until we're there speaking to someone because, you know, they're—they're pressed for resources just like we are, but the way it's looked at, at the moment, by them is that we're the default and we—we get there first and do what we can.

Given that police are currently the first responders on the scene, they were supportive of the use of AI if it can help them get there faster. They expressed a desire for a mental health worker or social worker embedded in their team. It was acknowledged that more resources would be needed to embed a mental health professional, but that it would assist in dealing with someone in crisis. One officer described, "If we had a PACER (Police, Ambulance, Clinician Early Response), this might be a different response because we would have a clinician that was with us."

Communicating to the Public About Suicide Prevention

Officers noted that when suicides at the location are reported in the media, there appears to be an increase in suicides. For example,

> I think as far as [the location] is concerned, sometimes speaking about it to the general public it's better to do it, you know, the least. I know when they used to talk about it on the news, it would increase more because people would get the idea of it. For other things, like train stations and stuff it might work, but there could be issues at [the location] for that reason.

They also described concerns that communicating to the public about the types of behaviors that are being monitored would also be difficult. For example,

> I guess, because obviously if your whole research is … focused on, these 10 behaviors or what not, and then you say, put a big sign at [the location] saying, look for these 10 behaviors. Then the people aren't going to do them and the whole AI isn't going to pick up these people's behaviors.

Officers suggested that targeted campaigns could be helpful, aimed at rideshare or taxi drivers who bring individuals to the location. Officers described how clearly distressed individuals often arrive at times outside normal sightseeing or exercising periods. A phone call to alert police on such occasions could potentially enable an earlier intervention. Officers described how community members will often assist by bringing their attention to a person who appears distressed at the site. From one officer:

> If they see someone (the public) who they think is in distress, they call us and they just generally kind of sit back and stay on the phone, and they don't approach them, but they just watch them until we get there and then we speak to them.

Police suggested a similar relationship could be established with drivers through targeted communications. A summary of the main findings by method can be found in the Supplemental Table 5.

Discussion

This study examined attitudes related to the use of CCTV and AI for suicide prevention research using a mixed methods approach. The quantitative data showed broad levels of acceptance of CCTV research using AI for suicide prevention, with good acceptance across all questions related to the Belmont principles and National Statement. There was some variation in levels of acceptance based on gender, age, ethnicity, and lived experience of suicide. The study was carried out in the Australian context, where CCTV cameras are common in public places and the public is familiar and comfortable with their presence.

Though the survey indicated higher levels of support for the research from members of ethnic minority groups as compared to those who did not self-identify, concerns were documented about how bias in AI and policing may impact people of color in harmful ways. Respondents expressed interest in ensuring that any interventions emerging from this research are developed and implemented with meaningful input from people with lived experience.

While the present study demonstrated broad public acceptability, there were still concerns raised around the use

of these technologies for research and their application in the real world. Findings from people with lived experience of suicide bereavement indicated that they believed that the research is good if it ultimately saves lives. However, they also flagged the importance of being aware of bias and intersectionality in the research as well as any resulting interventions, and that any interventions must be implemented in concert with people with lived experience. These concerns came mainly from people with lived experience of the bias that they noted is already present in AI, and in the racial discrimination that people of color and Indigenous people may experience when interacting with police. Additionally, the survey data indicated that people who identified as female, younger, and those who did not state their ethnicity reported lower acceptability; these groups may also be more impacted by bias. People of color and Indigenous people with lived experience of a mental health issue may be at even greater risk, given the vulnerabilities produced by their intersecting identities and experience (Coley et al., 2021).

Police officers were primarily concerned with the real-world application of this research in their work, endorsing the use of CCTV and AI in general, identifying a concern for how the research will translate to practice, and what the implications are for communicating to the public. They expressed that, currently, police must be relied upon for crisis response, but suggested that responses that involve other stakeholders in the community could potentially be beneficial. The findings have implications for future research on using CCTV and AI for suicide prevention.

The research is broadly acceptable, and even those with concerns about its impact on people of color and indigenous people agreed that the research is beneficial if it leads to saving lives. However, concerns about bias in AI and police response to mental health crises have been widely documented (Bailey et al., 2022; N. T. Lee, 2018; Ntoutsi et al., 2020), and the findings of this study are consistent with those concerns. Researchers using AI for suicide prevention should be especially cognizant of how bias may be implicit at each stage of the algorithm design, development, and implementation and should take steps to minimize such bias. There is burgeoning literature regarding decolonization of technology (Mohamed et al., 2020), antiracist practice in academic research (Raque et al., 2021), and even participatory action research (Katell et al., 2020) in the development and application of AI that speak to the ability to move closer to true respect, beneficence, and justice for all peoples in this work. In addition to research, the findings point to the need for a considered approach to designing interventions and implementing any findings from this type of research. Though the acceptability of any resulting intervention or its implementation was not assessed in the present study, concerns about the real-world impact of CCTV and AI research for suicide prevention emerged and should be considered in future research and resulting interventions.

First, the voices of people with lived experience of suicide should be meaningfully centered in the design and implementation of any interventions that utilize CCTV and AI. To minimize potential harm to people who may be disproportionately affected by such interventions, their ongoing and meaningful input and buy-in should be a primary goal of any processes that emerge from this research.

Second, those designing interventions based on this research must consider a broad range of potential interventions that do not simply recreate a typical police response, but faster. There is an opportunity to design interventions that do not place the onus on one stakeholder group (i.e., law enforcement), but rather take a community responsibility approach to suicide response. Models that integrate clinicians, peer workers, and others into crisis response could be considered (Balfour et al., 2022), as well as interventions that target local stakeholders such as rideshare drivers or community residents. These types of interventions would require prioritization and investment from policymakers.

Immediate next steps for potential research could be first, to review current CCTV research and ensure that all aspects of the research are accounting for potential bias in AI and ensure the voice of lived experience is embedded throughout all phases of the research. Frameworks such as Suomi et al. (2017) can serve as a starting point to appropriately engaging people with lived experience in research.

Second, future review of how the CCTV research and any resulting interventions will be implemented should ensure that responses to someone in crisis are compassionate and comprehensive and do not replicate existing bias. Finally, further studies into how specific groups, particularly populations most vulnerable to suicide, view such research and how can their lived experience be incorporated at an earlier point.

Overall, this study affirms that CCTV research using AI for suicide prevention is seen as broadly acceptable by the population at large, those bereaved by suicide, and first responders. However, concerns remain about the impact of bias in AI, research, and crisis response intervention. Meaningful involvement of people with lived experience can help inform ongoing research as well as the development and implementation of resulting suicide prevention interventions relevant to the Belmont principles of beneficence, respect, and justice.

Study Limitations

There were some limitations to the study, including participants' interpretation of response categories in the survey. Respondents may have interpreted questions differently, especially with a complex topic such as suicide prevention. To overcome these limitations, we asked multiple survey questions regarding each domain (CCTV, AI, etc.) and ensured that the questions were always positively worded to avoid confusion. The survey was piloted to ensure the questions were clear, particularly with research terminology likely to be

unfamiliar to the public. An open-ended question at the end of the survey gave respondents the opportunity to state any possible confusion or misunderstandings about the subject matter; several respondents praised the quality of the survey, and no respondents reported negative comments.

The positive wording of questions may have created a further limitation by biasing responses in a positive direction; again, the open-ended question provided an opportunity to state any concerns in an unbiased manner. The explanatory mixed methods study design also allowed the researchers to further explore any possible negative survey findings through the qualitative data.

A brief video at the beginning of the survey was included to provide an explanation of the research, which did not conceal the identity of Institute conducting the research. Though questions were asked specifically about the research, it is unclear to what extent participant responses may be influenced by their perception of the Institute.

Recruitment for the interviews was conducted through the Institute's lived experience network, whose members are likely to already be familiar with the Institute's aims and values. Some interviewees were themselves researchers who would be familiar with research in the psychological sciences. This too may have biased them toward a favorable opinion on the CCTV research.

Constraints on Generality

Sample Characteristics

The interview and focus group samples were small; however, the very specific groups of focus limited the number of eligible participants. Also, participants needed to be ready and willing on the day to have these discussions, despite the potentially distressing nature of the conversation, which may have discouraged participation. However, high information power was still achieved across both qualitative methods (Malterud et al., 2016). The small sample sizes still allowed for rich data that were both internally consistent and consistent with survey findings.

Further, while it is difficult to draw conclusions related to minority groups within the small sample size, it is the view of the researchers that these views are valid and important. Psychological sciences have a history of discounting these views, so it is important to foreground them, particularly when the voices belong to the very groups that are at high risk of suicide, and at high risk of negative outcomes during crisis response.

The police officers involved in the focus group were first responders for a single location. However, due to high information power with this sample, the data produced were extensive and nuanced. Additional focus groups could be conducted with first responders at other locations where CCTV may be used to prevent suicide.

Australian Context

An additional constraint is that the study was conducted in Australia, where overall prevalence of CCTV use differs from other countries (Thomas et al., 2022). The breadth of its use may influence the public's opinion of it. In places where CCTV is less common, there may be more public resistance to its use for suicide prevention research, even if the research is seen as an overall good. In addition to CCTV, attitudes toward AI and suicide prevention research may differ in different contexts due to factors such as familiarity with AI and stigma about suicide.

Generalizability of Specific Implementations

It is noted that data collection focused on a highly generalized CCTV and AI implementation to elicit broad attitudes toward the concept and approach of this research direction. Attitudes and acceptability may vary toward specific implementations, for example, depending on the sensitivity and specificity of the algorithms and the volume or types of data analyzed.

Generalization of Findings to Other Contexts

We expect that our results about the Australian public's attitudes toward the specific area of research are generalizable to other suicide hotspots that use CCTV. However, we do not believe that these attitudes would persist for means of suicide in locations that do not use CCTV, for example, by using AI to explore a person's online activity and generate a response. In situations where a higher expectation of privacy would exist, we anticipate that support for this type of research might be lower.

Conclusion

To ensure the principle of respect, this study examined the acceptability of suicide prevention research using CCTV and AI. In terms of justice, it emerged that there is a need to consider the safety of vulnerable persons in the development of algorithms, the conduct of research, and the design and implementation of interventions arising from suicide prevention research using CCTV and AI. In alignment with the principle of beneficence, the findings of this mixed methods study suggest that a cautious and inclusive approach using CCTV and AI in public places appears to be well-supported by the Australian public.

References

Bailey, R. K., Barker, C. H., & Grover, A. (2022). Confluence of law enforcement, mental health, and race. *Behavioral Sciences & the Law*, *40*(4), 532–539. https://doi.org/10.1002/bsl.2567

Balfour, M. E., Hahn Stephenson, A., Delany-Brumsey, A., Winsky, J., & Goldman, M. L. (2022). Cops, clinicians, or both? Collaborative

approaches to responding to behavioral health emergencies. *Psychiatric Services*, *73*(6), 658–669. https://doi.org/10.1176/appi.ps.202000721

Barnard, E., Dempster, G., Krysinska, K., Reifels, L., Robinson, J., Pirkis, J., & Andriessen, K. (2021). Ethical concerns in suicide research: Thematic analysis of the views of human research ethics committees in Australia. *BMC Medical Ethics*, *22*(1), Article 41. https://doi.org/10.1186/s12910-021-00609-3

Beautrais, A. (2007). Suicide by jumping. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, *28*(S1), 58–63. https://doi.org/10.1027/0227-5910.28.S1.58

Bouachir, W., Gouiaa, R., Li, B., & Noumeir, R. (2018). Intelligent video surveillance for real-time detection of suicide attempts. *Pattern Recognition Letters*, *110*, 1–7. https://doi.org/10.1016/j.patrec.2018.03.018

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Challen, R., Denny, J., Pitt, M., Gompels, L., Edwards, T., & Tsaneva-Atanasova, K. (2019). Artificial intelligence, bias and clinical safety. *BMJ Quality & Safety*, *28*(3), 231–237. https://doi.org/10.1136/bmjqs-2018-008370

Coley, R. Y., Johnson, E., Simon, G. E., Cruz, M., & Shortreed, S. M. (2021). Racial/ethnic disparities in the performance of prediction models for death by suicide after mental health visits. *JAMA Psychiatry*, *78*(7), 726–734. https://doi.org/10.1001/jamapsychiatry.2021.0493

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research*. Sage Publications.

IBM Corp. (2017). *IBM SPSS statistics for Windows* [Computer software]. https://ibm.com/spss

Karampela, M., Ouhbi, S., & Isomursu, M. (2019). *Exploring users' willingness to share their health and personal data under the prism of the new GDPR: Implications in healthcare* [Conference session]. 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Berlin, Germany. https://doi.org/10.1109/EMBC.2019.8856550

Katell, M., Young, M., Dailey, D., Herman, B., Guetler, V., Tam, A., Binz, C., Raz, D., & Krafft, P. (2020). *Toward situated interventions for algorithmic equity: Lessons from the field* [Conference session]. FAT* '20: Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency, New York, NY, United States. https://doi.org/10.1145/3351095.3372874

Lee, J., Lee, C.-M., & Park, N.-K. (2016). Application of sensor network system to prevent suicide from the bridge. *Multimedia Tools and Applications*, *75*(22), 14557–14568. https://doi.org/10.1007/s11042-015-3134-z

Lee, N. T. (2018). Detecting racial bias in algorithms and machine learning. *Journal of Information, Communication and Ethics in Society*, *16*(3), 252–260. https://doi.org/10.1108/JICES-06-2018-0056

Li, X., Onie, S., Liang, M., Larsen, M., & Sowmya, A. (2022). Towards building a visual behaviour analysis pipeline for suicide detection and prevention. *Sensors*, *22*(12), Article 4488. https://doi.org/10.3390/s22124488

Lockey, S., Gillespie, N., & Curtis, C. (2020). *Trust in artificial intelligence: Australian insights*. The University of Queensland and KPMG Australia. https://doi.org/10.14264/b32f129

Mackenzie, J.-M., Borrill, J., Hawkins, E., Fields, B., Kruger, I., Noonan, I., & Marzano, L. (2018). Behaviours preceding suicides at railway and underground locations: A multimethodological qualitative approach. *BMJ Open*, *8*(4), Article e021076. https://doi.org/10.1136/bmjopen-2017-021076

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research*, *26*(13), 1753–1760. https://doi.org/10.1177/1049732315617444

Mishara, B. L., Bardon, C., & Dupont, S. (2016). Can CCTV identify people in public transit stations who are at risk of attempting suicide? An analysis of CCTV video recordings of attempters and a comparative investigation. *BMC Public Health*, *16*(1), Article 1245. https://doi.org/10.1186/s12889-016-3888-x

Mohamed, S., Png, M.-T., & Isaac, W. (2020). Decolonial AI: Decolonial theory as sociotechnical foresight in artificial intelligence. *Philosophy & Technology*, *33*(4), 659–684. https://doi.org/10.1007/s13347-020-00405-8

Mukherjee, A., & Ghosh, B. (2017). *An automated approach to prevent suicide in metro stations* [Conference session]. Proceedings of the 5th International Conference on Frontiers in Intelligent Computing: Theory and Applications: FICTA, 2016, Volume 1, Singapore.

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1978). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. The Commission.

Ntoutsi, E., Fafalios, P., Gadiraju, U., Iosifidis, V., Nejdl, W., Vidal, M. E., Ruggieri, S., Turini, F., Papadopoulos, S., Krasanakis, E., Kompatsiaris, I., Kinder-Kurlanda, K., Wagner, C., Karimi, F., Fernandez, M., Alani, H., Berendt, B., Kruegel, T., Heinze, C., … Staab, S. (2020). Bias in data-driven artificial intelligence systems—An introductory survey. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, *10*(3), Article e1356. https://doi.org/10.1002/widm.1356

Onie, S., Li, X., Liang, M., Sowmya, A., & Larsen, M. E. (2021). The use of closed-circuit television and video in suicide prevention: Narrative review and future directions. *JMIR Mental Health*, *8*(5), Article e27663. https://doi.org/10.2196/27663

Owens, C., Lloyd-Tomlins, S., Emmens, T., & Aitken, P. (2009). Suicides in public places: Findings from one English county. *European Journal of Public Health*, *19*(6), 580–582. https://doi.org/10.1093/eurpub/ckp052

Panch, T., Mattie, H., & Atun, R. (2019). Artificial intelligence and algorithmic bias: Implications for health systems. *Journal of Global Health*, *9*(2), Article 010318. https://doi.org/10.7189/jogh.09.020318

Pirkis, J., Too, L. S., Spittal, M. J., Krysinska, K., Robinson, J., & Cheung, Y. T. D. (2015). Interventions to reduce suicides at suicide hotspots: A systematic review and meta-analysis. *The Lancet Psychiatry*, *2*(11), 994–1001. https://doi.org/10.1016/S2215-0366(15)00266-7

QSR International. (2020, March). *Nvivo* [Computer software]. https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home

Raque, T. L., Mitchell, A. M., Coleman, M. N., Coleman, J. J., & Owen, J. (2021). Addressing racial equity in health psychology research: An application of the multicultural orientation framework. *American Psychologist*, *76*(8), 1266–1279. https://doi.org/10.1037/amp0000888

Reid, S., Coleman, S., Kerr, D., Vance, P., & O'Neill, S. (2018, November). *Feature extraction with computational intelligence for head pose estimation* [Conference session]. 2018 IEEE Symposium Series on Computational Intelligence (SSCI), Bangalore, India. https://doi.org/10.1109/SSCI.2018.8628622

Saldaña, J. (2021). *The coding manual for qualitative researchers*. Sage Publications.

Selwyn, N., Gallo Cordoba, B., Andrejevic, M., & Campbell, L. (2020). *AI for social good? Australian attitudes toward AI and society report.pdf*. Monash University. https://doi.org/10.26180/13159781.v1

Suomi, A., Freeman, B., & Banfield, M. (2017). *Framework for the engagement of people with a lived experience in program implementation and research*. Black Dog Institute.

The National Health and Medical Research Council. (2018). *National statement on ethical conduct in human research 2007 (updated 2018)*. The Australian Research Council and Universities Australia.

Thomas, A. L., Piza, E. L., Welsh, B. C., & Farrington, D. P. (2022). The internationalisation of CCTV surveillance: Effects on crime and implications for emerging technologies. *International Journal of Comparative and Applied Criminal Justice*, *46*(1), 81–102. https://doi.org/10.1080/01924036.2021.1879885

Too, L. S., Mavoa, S., Law, P. C. F., Spittal, M., & Pirkis, J. (2019, May). *Identifying and prioritising suicide hotspots in Australia*. University of Melbourne.

Torous, J., Larsen, M. E., Depp, C., Cosco, T. D., Barnett, I., Nock, M. K., & Firth, J. (2018). Smartphones, sensors, and machine learning to advance real-time prediction and interventions for suicide prevention: A review of current progress and next steps. *Current Psychiatry Reports*, *20*(7), Article 51. https://doi.org/10.1007/s11920-018-0914-y

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, *15*(3), 398–405. https://doi.org/10.1111/nhs.12048

World Health Organization. (2021). *Suicide worldwide in 2019: Global health estimates*. https://www.who.int/publications/i/item/9789240026643

Xafis, V. (2015). The acceptability of conducting data linkage research without obtaining consent: Lay people's views and justifications. *BMC Medical Ethics*, *16*(1), Article 79. https://doi.org/10.1186/s12910-015-0070-4

Zaman, A., Ren, B., & Liu, X. (2019). Artificial intelligence-aided automated detection of railroad trespassing. *Transportation Research Record*, *2673*(7), 25–37. https://doi.org/10.1177/0361198119846468

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