

Association Between Loneliness and Suicidal Behaviour: A Scoping Review



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ABSTRACT

Objective: Suicide is a public health issue, and there are several factors leading to suicide, like mental illness and psychosocial stressors. Actual loneliness (living alone) and subjective loneliness (feeling of being alone) and different suicidal behaviors have been reported to have some link. This scoping review aimed to assess the association between loneliness and suicidal behaviour by exploring the existing literature.

Methods: A scoping review was conducted implementing the appropriate framework and in accord with the PRISMA-ScR extension. A PubMed database search was made using a combination of terms to find publications in English from 2011 to 2021. Studies were included if they reported quantitative outcomes of the association between loneliness and suicidal experiences, including suicidal thoughts, plans, and/or attempts. Screening and data charting of the published literature was conducted by a panel of authors. The accuracy and clarity of extracted data was checked by three reviewers.

Results: Among 421 articles found, 31 full texts were evaluated based on exclusion and inclusion criteria, out of which, 18 papers that reported quantitative outcomes of the association between loneliness and suicidal experiences were included. We found that association between loneliness and suicidal behaviour is determined by individual, social and cultural factors. Co-existing mental illness, substance use disorder and economic hardship play an important role for the completion of suicide.

Conclusion: Loneliness is correlated with suicide, and the knowledge about this association could assist in the identification of suicidal individuals or those at elevated risk of suicidal behaviour. Future studies should focus on loneliness and its relation to suicidal ideation in individuals with different mental health disorders and personalities.

Keywords: Suicide, loneliness, mental disorders, stress, psychological

INTRODUCTION

Suicide is the deliberate act of ending one's life. It makes up 1.4% of deaths worldwide (Bachmann 2018). Suicide attempts are more common among females, while deaths due to suicide are more prevalent among men (Freeman et al. 2017). Common methods of suicide include exsanguination, poisoning, asphyxiation, falls from height, firearms, and electrocution. The prevalence of methods used varies according

to situational factors such as the availability of firearms, access to tall buildings, and unique geographical features. Firearm suicides are considered to be the most prevalent method in the United States and Europe, as it is common for people to own firearms at home, which, in turn, influences the number of suicides (Vladeta et al. 2008). Poisoning was found to be common in South Asian countries, with ingestion of pesticides frequent in India (Rane and Nadkarni 2014, Arafat et al. 2021).

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Several mental health disorders are known to be associated with suicides. The suicide risk has been estimated to be 5–8% for depression, alcoholism, and schizophrenia (Inskip et al. 1998, Nordentoft et al. 2011). A study by Shoib and colleagues reported that the majority of the cases of completed suicide are primarily associated with mental illness (Shoib and Kim 2019). In a US-based study, Brown and colleagues found that individuals diagnosed with mood disorders such as major depressive disorder and bipolar disorder had a three to ten times higher risk of suicide-related deaths (Brown et al. 2000). In another US-based study involving veterans (Ilgen et al. 2010), it was revealed that anxiety disorder, bipolar disorder, depression, and schizophrenia spectrum disorders were related to a two to three times higher risk of suicidal death. However, the evidence underlying these claims states that the correlation to mental disorders differs from the socio-cultural context. Certain countries such as India may not see a strong correlation between mental disorders and suicide. However, poverty and suicide are more closely related (Rane and Nadkarni 2014, Shoib et al. 2021). Other factors leading to suicide or possibly triggering suicide attempts include life stressors, adverse life events, psychological trauma, and poor social support (Kumar and George, 2013, Shoib et al., 2020).

Loneliness is one of the known stressors experienced by people at risk of suicide (Stravynski and Boyer 2001). The feeling of loneliness is determined by how individuals perceive their social support and not by the number of social connections or emotional ties. Feelings of hopelessness, meaninglessness, and anhedonia often accompany loneliness. Research shows that loneliness peaks in late adolescence, gradually reduces during middle adulthood, and rises in late adulthood (Luhmann and Hawkey 2016). Wang et al. (2018) found an association between patients' perception of loneliness and worsened outcomes of mental disorders, which could explain the positive correlation between loneliness and suicide. Further, beyond diagnostic categories, loneliness was associated with low life satisfaction and low resilience (Zebhauser et al. 2014). A 9-year cohort study found loneliness to be a predictor of suicide and self-harm, with a positive correlation between increased loneliness and lethality of suicide in men (Shaw et al. 2021).

Social isolation is defined as the absence of social interactions, contacts, and relationships on an individual level and society on a broader level (Berg and Cassells 1992). On the other hand, loneliness is not necessarily about being alone; it is a state of mind with the perception of being isolated (Tiware 2013). Living alone per se was not associated with loneliness; however, limited social relationships and a smaller social network indicated loneliness in all genders (Zebhauser et al. 2014). Trout (1980) proposed that social isolation strongly correlates with suicide. This notion is supported by findings from multiple researchers that loneliness, one's social standing,

and level of social organisation correlate to suicidal ideation and the individual being progressively isolated (Jacobs and Teicher 1967).

Although there have been multiple studies that show a positive association between loneliness and suicide, these studies are mostly conducted in a Western socio-cultural context and may not represent other settings in the world. Personal traits also influence the relationship between loneliness and suicide (Abdellaoui et al. 2019). There is a need to study the connection between loneliness and suicide further, and it should be established and distinguished from the quantity and quality of one's social support networks, especially concerning modern times (Killgore et al. 2020). This review aims to compile an updated picture of how loneliness correlates to suicide in males and females across diverse cultures and contexts. Our review may help identify individuals at considerable risk of suicide.

METHODS

In this scoping review, the literature was searched with PubMed, using the search terms 'loneliness' OR 'lonely' AND 'suicide' OR 'suicidal'. Suicidal behaviour includes suicidal ideation, suicide attempts, and completed suicide (Esposito-Smythers et al. 2011). The search was limited from July 2011 to July 2021, and publications written in English. The PRISMA chart in Figure 1 shows the shortlisting process. Studies were included if they reported quantitative outcomes of the association between loneliness and suicidal experiences, including suicide thoughts, plans, and/or attempts. Qualitative studies, case series, case studies, position papers, reviews, dissertations, theses, and those that did not provide necessary data for the review were omitted. The relevant studies were identified by scanning the titles and articles' abstracts by a panel of consultant psychiatrists. All studies were scrutinised, and data were then entered into a spreadsheet designed in line with the aims of our study. Country of study, study design, methods of assessment, focused domains of the study, mean age of the respondents with the standard deviation, and prevalence were included. Three consultant psychiatrists' authors checked all information for clarity and accuracy in the spreadsheets and publications.

RESULTS

The search found 421 papers, and after deleting 154 duplicates and excluding 227 studies based on the title and abstract, 31 full-text articles were evaluated for inclusion. Of these, 12 papers failed to meet the eligibility criteria and were subsequently excluded, and 18 articles were included in this scoping review (Figure 1). Table 1 summarises findings from these studies in terms of type of study, country, population, gender and

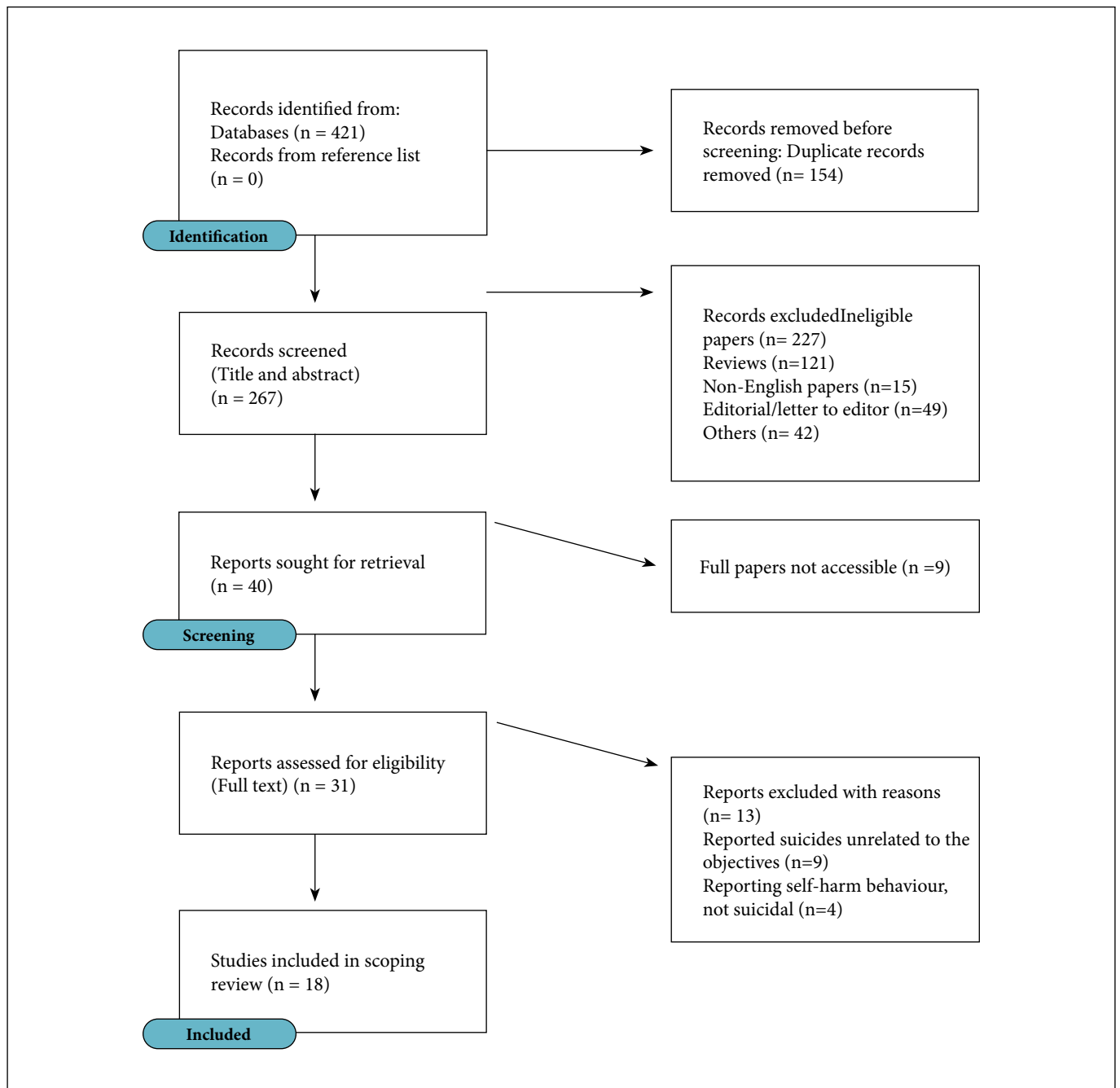


Figure 1. PRISMA flow diagram

findings. Of the included studies, six (33.3%) were from the USA, and seven (38.8%) were from Europe. Other studies were from Asia and the Pacific islands. Three longitudinal studies were analysed, and others were cross-sectional.

DISCUSSION

We assessed the association between loneliness and suicidal behaviour by analysing quantitative studies from the past decade. Several psychiatric and psychosocial factors were important for this association. In relevance to psychiatric disorders, Stickley and Koyanagi (2016) found that loneliness

is correlated with suicidal behaviour both in people with and without common mental disorders. However, lonely people diagnosed with a mental disorder have a heightened risk of suicidal ideation. Mushtaq and others (2014) mentioned specific mental disorders resulting from loneliness including depression, alcohol abuse, and personality disorders as risk factors for suicidal behaviour. Chang and others (2017) support this with the proposition that loneliness is a noteworthy predictor of suicide risk. It strongly correlates with suicidal behaviour, and the risk could be changeable if loneliness is addressed. Although hopelessness is not directly correlated to loneliness, it may be a mediator that

Table 1. Summarize of Studies

Author, Year	Country	Study characteristics	Sample	Male	Female	Mean Age (Years)	Findings
North America							
Chang EC et al., (2019).	United States of America	Observational study using regression analysis	156 Latino college students	35	121	19.78	Regression analyses results, after controlling for age and sex, showed that depression and loneliness were noteworthy predictors for suicide risk. Depression was a twofold stronger predictor of loneliness. A significant depression-loneliness interaction was found to be predictive of suicide risk. Dysphoric and socially isolated Latino students had the highest level of suicide risk.
Teo et al., (2018).	United States of America	Cross-sectional	301 primary care patients	251	50	55.4	Loneliness was linked with high levels of depression and suicidal ideation. Loneliness and lower help-seeking behaviours were also interlinked.
Chang EC et al., (2017).	United States of America	Cross-sectional	228 College Students	54	174	19.69	Loneliness was a significant predictor of suicidal risk. Presence of future orientation significantly heightened depressive symptoms and suicidal ideation, even after controlling for loneliness. Students who had higher future orientation reported significantly lower depression and suicidal ideation.
Lamis DA et al., (2014).	United States of America	Cross-sectional	207 undergraduate drug-using students	69	138	19.84	Drug use was found to be a potential mediator (indirect effect) in the loneliness-suicidal ideation link, after controlling for several covariates.
Hirsch JK et al., (2012).	United States of America	Cross-sectional	385 ethnically diverse college students	118	267	19.61	Loneliness was found to be a moderator between societal problem-solving aptitude and suicidal behaviours, particularly for African Americans, European Americans, and Asian Americans. For Hispanic Americans, life stress was a moderator.
Lutzman M et al., (2021)	United States of America	Cross-sectional	198 elderly men	198	0	76.14	Loneliness and social integration moderated the association between physical pain and suicidal ideation. This effect was significantly higher among single men.
South America							
Salvo GL et al., (2013).	Chile	Cross-sectional	763 high school students	374	389	14-19	Loneliness, female gender, impulsivity, and alcohol use were directly associated with suicidal behaviour and predicted 31% of the suicidal behaviour.
Europe							
Stickley A et al., (2016)	England	Cross-sectional	7403 household residents aged ≥16 years	3142	4061	44.78	Loneliness was associated with suicidal behaviour. Odds ratios for suicidal behaviour were similar for lonely individuals without common mental disorders (CMDs), and for individuals with CMDs who did not experience loneliness. Individuals with loneliness and CMDs had higher odds for suicidal ideation.
Ernst M et al., (2021).	Germany	Cross-sectional	633 adult long-term CCS	352	281	-	Loneliness predicted severe anxiety symptoms and suicidal ideation in childhood cancer survivors (CCS). Loneliness did not predict somatic and depressive complaints at follow-up (which increased with age).
Pitman AL et al., (2020).	Europe	Cross-sectional	3193 adults	607	2586	25.1	Among bereaved adults, loneliness was significantly related with suicidal ideation and suicide attempts. The link between loneliness and suicide attempt risk was alike whether respondents were bereaved by suicide or not.
Bennardi M et al., (2019).	Spain	Cross-sectional	2392 from general population	1103	1289	58.68	In 18-59-year-old individuals, lower positive affect was related to suicidal ideation. In 60 years and older individuals, loneliness was related to suicidal ideation.

continuation of Table 1

Gunzelmann et al., (2016).	Germany	Cross-sectional	795 elderly living without a partner	371	424	70	Elderly individuals, 80 years or older, who were living without a partner and experiencing a high degree of loneliness and hopelessness reported more suicidal ideation.
Creemers D et al., (2012).	The Netherlands	Cross-sectional	95 female undergraduate students at the College for Higher Education Arnhem/Nijmegen (HAN)	0	95	21.2	Explicit (not implicit) self-esteem was inversely related to depression symptoms, suicidal ideation, and loneliness. Hurt self-esteem (high implicit self-esteem combined with low explicit self-esteem) was steadily related to amplified levels of depression symptoms, suicidal ideation, and loneliness. Defensive or fragile self-esteem (high explicit and low implicit self-esteem), however, was not.
Middle East							
Stein JY et al., (2017).	Israel	Case-control	106 ex-POWs	-	-	53.4	Captivity, versus war, was associated with more post-traumatic stress syndrome (PTSS), worse loneliness, resulting in higher suicidal ideation (SI). Loneliness was not directly impacted by trauma type. Also, its relation to SI was not associated with subsequent PTSS.
China							
Niu L et al., (2020).	China	Case-control autopsy study	242 elderly suicide cases	136	106	74.4	Loneliness, hopelessness, and depression symptoms were connected to completed suicide. They also found a link between loneliness and hopelessness. Elderly, unemployed individuals, living alone, lesser subjective social support, experienced depression symptoms, showed advanced levels of hopelessness, significantly associated with raised suicide risk.
Zhang D et al., (2020).	China	Cross-sectional	538 residents from 37 nursing homes, aged > 60 years.	21	321	With suicidal ideation: 79.10 Without suicidal ideation: 77.96	Resilience partially mediated the relation between loneliness and suicidal ideation. Social support moderated the resilience on suicidal ideation, and indirectly affected loneliness on suicidal ideation.
Southeast Asia							
Yadegarfar M et al., (2013).	Thailand	Cross-sectional	190	-	-	Respondents 47.7% (n = 90): 15–19 yrs; 52.6% (n = 100): aged 20–25 years	The level of education significantly influenced depression, loneliness. Several sex partners significantly influenced sexual-risk behaviour and suicidal ideation, and age significantly influenced sexual-risk behaviour and suicidal ideation.
West Pacific							
Sharma B et al., (2017).	Western Pacific Islands	Case-control	4122 students	1876	2158	≤14 years (52%), ≥15 years (45.9%)	Individuals with higher exposure to bullying, fighting, and injury (highest odds for physical injury) had higher odds of loneliness, insomnia, suicidal ideation, and suicide attempt compared to the non-exposed group.

Key: CMDs: common mental disorders; CCS: childhood cancer survivors; PTSS: post-traumatic stress symptoms; SI: suicidal ideation; CHAID: chi-square automatic interaction detection.

modifies the suicide risk in lonely individuals. McClelland and others (2020) also support loneliness as a predictor of suicide risk while proposing that depression is a mediator. They also found females to report a stronger relationship between loneliness and suicidal ideation. However, these findings are only applicable to selected populations. On the other hand, a longitudinal study in 2010 reported that loneliness correlated with depressive symptoms independent of gender; however, it did not predict suicide ideation when controlled for depressive symptoms (Lasgaard et al. 2011). Therefore, whether loneliness predicts suicide independently

is doubtful and would require further longitudinal studies for confirmation in non-depressed populations.

There seems to be a three-way association between loneliness and suicidal behaviour concerning anxiety. While acknowledging the research gap in loneliness in association with suicide due to its subjectivity, Zalsman (2020) concluded that living alone increases the risk of suicidal behaviour. He links loneliness to depression and anxiety, which results in a higher risk of suicide (Zalsman 2020). According to a study by Teo and others (2018), loneliness was associated with lower patient activation and help-seeking intentions

that limited mental health access. Social isolation is seen in depression and, coupled with loneliness, may be a risk factor for suicide rather than anxiety, perceived burdensomeness and hopelessness, as reported in a study by Hom and others (2017). In childhood cancer survivors, loneliness was predictive of more severe anxiety symptoms and suicidal ideation (Ernst et al. 2021). Further, captivity associated post-traumatic stress symptoms, loneliness, and suicidal ideations were seen in participants of a study from Israel (Stein et al. 2017). Moreover, Gallagher and others (2014) found that loneliness mediates the relationship between social anxiety and suicidality in adolescents, highlighting the triangular association between anxiety, loneliness, and suicidality.

There have been several studies on loneliness and suicidality in specific demographic populations. In relevance to older adults, Lutzman and others (2021) studied older men and found a relationship between physical pain and suicidal ideation, mediated by loneliness and social integration. In addition, Niu and others (2020) found that loneliness, hopelessness, and depressive symptoms were related to completed suicide in older adults. Nursing home residents had suicidal ideation linked to loneliness and poor social support (Zhang et al. 2020). Also, Gunzelmann and others found that loneliness with hopelessness predicted suicidal ideation in people over 80 (Gunzelmann et al. 2016). In younger populations, students who experienced dysphoria and social isolation had the highest risks of suicide. For adolescents in school, Sharma, Lee and Nam (2017) found bullying to cause loneliness and suicidal ideation, especially for students who were physically injured when they were bullied. Chang and others (2017) studied Latino students and found that although loneliness is correlated with suicide, depression was twice as highly correlated to suicide compared to loneliness. An earlier meta-analysis did not find any significant effect of age on the relationship between loneliness and suicide behaviour (McClelland et al. 2020). A recent online Slovenian study found that emotional loneliness is a significant factor in relation to suicidal ideation in all age groups they studied (Gomboc et al. 2022).

In relevance to grief, although bereavement may be intuitively linked to loneliness and suicide, Pitman and others (2020) found that the correlation between loneliness and suicide is independent of whether or not the subject is grieving. Interestingly, according to Shaw and others (2021), post-traumatic stress is not linked to loneliness and suicidal ideation. According to a follow-up study, social support does not necessarily help alleviate loneliness and suicidality, as loneliness depends on the individual's perception of their social circles and can manifest even though an individual has vibrant or supportive social circles (Bennardi et al. 2019). In addition, socio-cultural aspects such as living in extended

families, the role of grandparents, elderly participation in the workforce, and respect for older adults in society would also affect the relationship between loneliness and suicidality in diverse ethnoreligious settings (Barreto et al. 2021).

Concerning coping strategies, Zhang and others (2020) proposed that resilience is mediated by the correlation between loneliness and suicidality. Teaching resilience and coping strategies through therapeutic interventions could help lonely individuals cope with their loneliness and reduce their risk of suicidal ideation. Furthermore, Hirsch and others (2012) found that loneliness was a moderator between social problem-solving ability and suicidal behaviours. In addition, Creemers and others (2012) stated that damaged self-esteem was consistently associated with increased suicidal ideation and loneliness. Lamis and others (2014) found that substance use could be another potential mediator. Although drug use tends to complicate matters and may even lead to substance use disorders, it was found to help alleviate loneliness potentially.

All studies reviewed agreed that there was a positive association between loneliness and suicide, but with differing views on the possible contexts in which they could be correlated, as highlighted by some studies. As humans are social animals, socialisation is vital to our welfare and psychological wellness. Intuitively, loneliness and isolation would cause psychological instability, ranging from irritability to severe psychological damage such as trauma. The mechanism by which loneliness is linked to suicide is complicated, just as suicide itself. There have been insufficient studies on how they are interconnected in varying socio-cultural tabulations (Van Staden and Coetzee 2010). Our review will help understand the factors associated with loneliness across different age groups, cultures, and genders and how they are related to suicidal ideation and suicide attempts.

One viable way loneliness could result in suicide is by developing and worsening depression in the lonely individual. When one's social circles are inadequate to sustain them socially, they may develop depressive symptoms, which worsen over time, driving them towards suicidal behaviour. However, the loneliness could also have stemmed from depression, meaning the relationship between loneliness and depression is probably bidirectional. Likewise, other common mental disorders such as post-traumatic stress disorder and borderline personality disorder could cause loneliness, worsening the disorder and contributing to suicidal ideation (Nenov-Matt et al. 2020). The dynamics of loneliness and suicidal ideation in the presence of one or more mental disorders are not widely studied, mainly because most studies correlated depression with suicide or poor social networks with suicide instead of the feeling of loneliness that suicidal persons may feel.

Loneliness may also be more strongly correlated to suicide in more conservative countries, as expressing one's emotions may be taboo (Van Staden and Coetzee 2010). Countries with a strong stigma against mental disorders also worsen this issue as suffering individuals are dissuaded even further from expressing their emotions (Nawal 2021). This culture of containing one's emotions instead of confiding in another may lead to suppression of emotions, which predisposes one to emotional distress that could lead to suicidal ideation. Though loneliness in conservative countries has not been explored explicitly, this could be a critical step in improving measures to counter suicide and loneliness in such cultures. In such settings, religion and family relationships also play a major role in mediating loneliness with their psychological well-being (Wijesiri et al. 2019).

CONCLUSION

The scoping review revealed an association between loneliness and suicide, with a different manifestation of suicidal behaviours found in different sociodemographic populations (age, gender, race) and subgroups of individuals (patients with mental illness, elderly, students); with mitigating and mediating factors. As we understand, loneliness is correlated with suicide, and the knowledge about this association could assist in the identification of suicidal individuals or those at substantial risk of suicidal behaviour. We recommend that in dealing with at-risk individuals, perhaps addressing loneliness with greater emphasis could impact their suicidal ideation. Research gaps that should be filled could include studies focusing on loneliness and its relation to suicidal ideation in individuals with different mental disorders and different personalities. We also propose to form models to explain the correlation between loneliness and suicidal ideation in people with different personality styles, socio-cultural learnings, and life experiences.

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