

Assessing the Risk Factors for Suicide and Appropriate Intervention as a Prevention Method Among Older Adults: A Systematic Review

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Abstract

Suicide rates among the older population are observed to be the highest worldwide. This systematic review presents the risk factors and prevention measures concerning suicide in the older adult population.

A comprehensive literature search was conducted using the following databases: PubMed Central, Embase, Cochrane Library and CINAHL plus. This systematic review used the preferred reporting items for systematic reviews and Meta-Analyses (PRISMA) guidelines for systematic reviews to identify and analyse research selected from the searches.

The older adult population holds its own set of risk factors that are unique to them. The common themes presented were a history of

mental health, chronic illnesses and marital issues, all of them strong risk factors for suicide in this population group. It identified the importance of the research focusing on personality and how this can affect people in different ways and at different stages in older adulthood, including the rationale behind suicide. Alongside personality, it also considered feelings of being a burden and the impact of feelings behind belongingness when assessing for suicidal risk.

This systematic review found a unique set of relevant risk factors for this population group. This demonstrates the importance of appropriate support for effective prevention measures, such as telephone helplines or therapy.

Keywords: Suicide, elderly, preventions, predictors, systematic review.

Avaliando os Fatores de Risco para o Suicídio e a Intervenção Adequada Como Método de Prevenção Entre Idosos: Uma Revisão Sistemática

Resumo

As taxas de suicídio da população idosa são as mais altas do mundo. Esta revisão sistemática apresenta os fatores de risco e as medidas de prevenção do suicídio na população idosa.

Realizou-se uma pesquisa bibliográfica abrangente, utilizando as seguintes bases de dados: PubMed Central, Embase, biblioteca Cochrane e CINAHL plus. Esta revisão sistemática

usou os itens de relatório preferidos para revisões sistemáticas e as diretrizes de meta-análises (PRISMA) para as revisões sistemáticas, de forma a identificar e analisar as pesquisas selecionadas. A população idosa possui o seu próprio conjunto de fatores de risco que lhe são exclusivos. Os temas comuns apresentados - uma história de saúde mental, doenças crônicas e os problemas conjugais - constituíram fortes fatores de risco para o suicídio neste grupo populacional. Identificou-se a importância da pesquisa com enfoque na personalidade e a forma como isso pode afetar as

pessoas de diferentes maneiras e em diferentes fases da idade adulta, incluindo a lógica por trás do suicídio. Para além da personalidade, foram considerados também, ao avaliar o risco de suicídio, a sensação de se verem como um fardo e o impacto dos sentimentos aliados ao sentido de pertença. Esta revisão sistemática encontrou um conjunto único de fatores de risco que são relevantes para esse grupo populacional. Isso demonstra a importância de um suporte adequado, como linhas telefônicas de ajuda ou terapia, de forma a que medidas de prevenção eficazes sejam implementadas.

Palavras-chave: Suicídio, idosos, prevenções, preditores, revisão sistemática.

INTRODUCTION

Each year, there are more than 700,000 suicides worldwide, and many more people will attempt to end their lives (WHO, 2021). Evidence reports that many people end their lives due to mental health difficulties, which can include a diagnosis of depression. Furthermore, suicide may be impulsive, possibly due to secondary difficulties in coping with significant life issues such as financial or relationship difficulties (WHO, 2019). Worldwide, suicide rates are higher in people 70 years and older (WHO, 2020).

Ageing is considered a period when individuals may experience becoming biologically and socially dependent on others or systems (Yilmaz & Karaca, 2019). The ageing population is growing worldwide and is viewed as a significant public health problem, which presents different challenges to the health care setting. It is thought that between the years 2000-2050, the population of people over 60 years old is set to increase from 10% to 21% (WHO, 2014). Older people are likely to experience additional issues, which the younger generation may not. The problems they may face include changes in their social roles, physical illnesses including chronic health conditions, dependencies on others, loneliness, loss of economic status, conflict relating to changes in society, loss of skills and retirement (Altimoç, et al., 2018).

The topic of suicide in older people should be considered a significant public health problem (Shah, et al., 2016). Suicide in older adults demonstrates methods of suicide by using lethal means, increasing the fatal outcomes for this population group, and

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demonstrating strong evidence of intent behind the act (Almasi, et al., 2020). The risk factors for all groups in suicide can include hopelessness, isolation that provides for difficulties in accessing appropriate services (Centre for Disease Control and Prevention, 2021). Suicide among the older adults can also have its additional risk factors, which are a loss of function due to ageing, poor physical health, terminal and chronic illness or chronic pain; all these are thought to be unique risk factors for the older adults when discussing suicide (Calati, et al., 2018).

This systematic review (SR) aims to identify the risk factors for suicide in the older adults and consider the prevention measures available to support them worldwide. Due to the complex nature of suicide and the statistics relating to the older population, it warrants the need for the topic to be explored further using this SR when it has been completed. Finally, this SR considers if the prevention methods available, considering the risk-identified review, are appropriate or if further interventions should be available for this population group.

METHODOLOGY

Search strategy

Initially, a literature review was undertaken to identify the need for this systematic review per the centre for review and dissemination (CRD) 2009 guidelines (CRD, 2009). The first step was to search the Cochrane database of systematic reviews to ascertain if a previous SR had been completed or if one was currently in process. There was no current SR found during this search. Once ruling out that no present SR was undertaken or available, a literature search was conducted using PubMed Central, Cochrane, EMBASE and CINAHL plus. This research used the preferred reporting items for systematic reviews and Meta-Analyses (PRISMA, 2009) guidelines to identify and analyse research presented from these searches. The literature search used multiple databases and did not restrict research by countries to be thorough in the searching process, not miss relevant articles and minimize bias. PICO tool was used to develop the research questions and provide the search terms; however, the comparison was not found to be needed for this topic (Brown, 2019) (*See Table 1*).

Table 1
PICO Table

PICO Format	Components
Population	Population of older adults from 60+, worldwide.
Intervention	Review of the risk factors and understanding of the interventions available
Comparison	Not present/used.
Outcome	Reducing the risk of suicide in older adults with consideration of appropriate prevention measures.

The search process included Boolean operators to focus the search and narrow the results found. The search terms were identified in a table (*See Table 2*) and the term *elderly* in atria was used to collate articles that included terms such as older adults, old people and over 65s. Furthermore, the term AND was used to link suicide and *elderly* together. Additionally, terms used were older adults, predictors or risks and prevention. The search limits included English-language articles and full text to narrow the results. Following this process, the references from articles taken forward were harvested for any additional articles that may not have been present in the search process. The results were then analysed for duplicates during the screening process and removed at this stage. The process found initially that there were 72 articles taken forward from screening and six additional from harvesting the references (*See figure 1 for Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2009 flow diagram*).

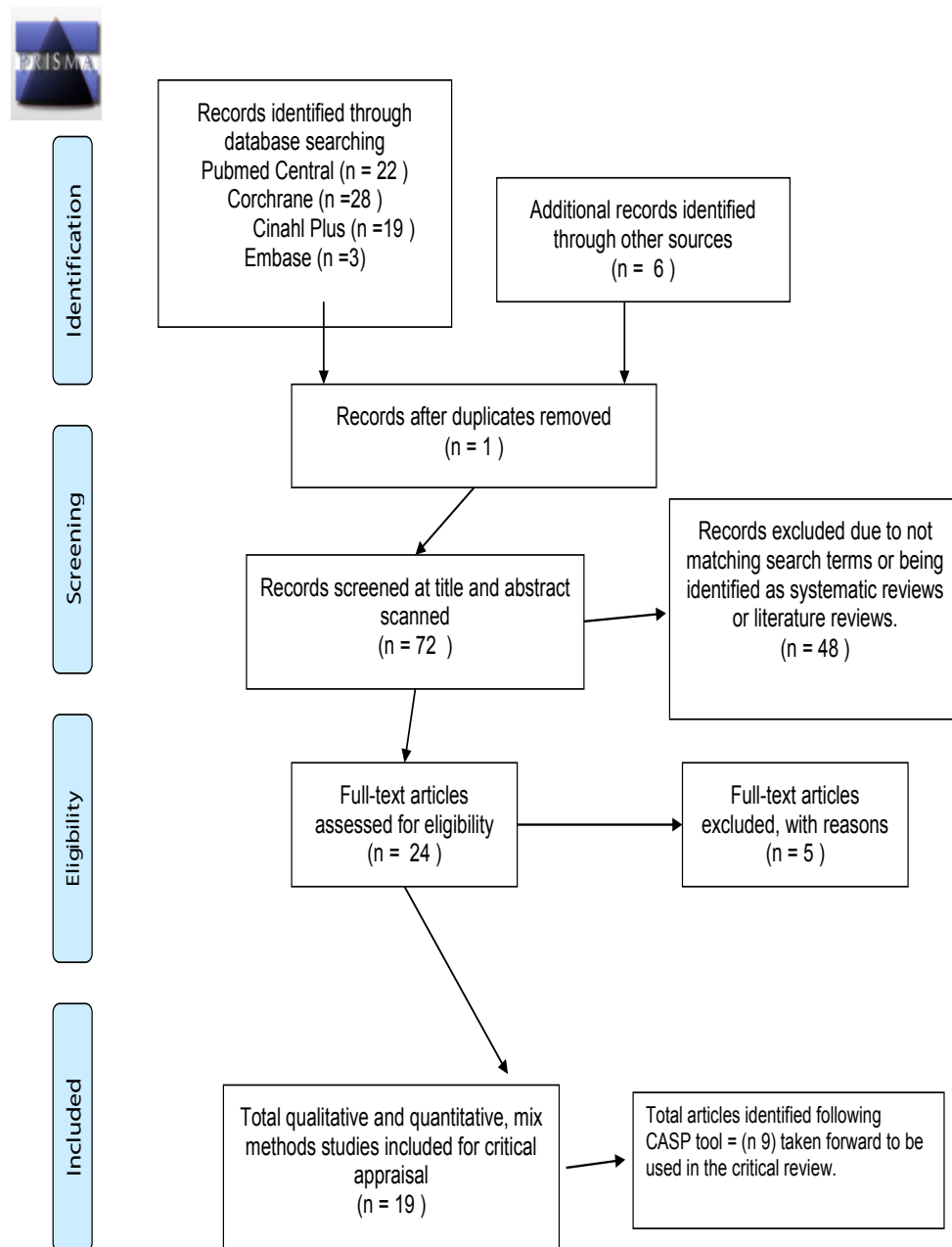
Table 2
Keywords List

Search terms, Boolean terms and truncations	
Suicide	Suicide AND *older adults*
Older adults	Elderly AND Suicide OR predictors
Elderly	Suicide AND *elderly*
Risk	Older adults AND suicide preventions OR
Predictors	intervention
Prevention	
Intervention	

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Figure 1

PRISMA 2009 Flow Diagram



Inclusion and exclusion criteria

The inclusion criteria used in the search process were the English language, in the last five years, Global locations, over 60 years old, suicide risk factors, predictors and prevention, and intervention measures. The exclusion criteria applied during the search process was Covid 19 related due to the specific and emerging situation concerning this topic, Nursing home/Hospital setting, which is due to the unique experience this presents, under 60's unless it's used as a comparison only. Additionally, articles that were previous to the last five years were excluded, and studies that were related to suicide methods only (*Please refer to table 3 for the inclusion and exclusion table*). As there were not excessive amounts of results following the inclusion and exclusion criteria, duplicates were screened post identification. Ref works were used to store references and aid this process.

Table 3

Inclusion and Exclusion Criteria

Inclusion	Exclusion
➤ English language,	➤ COVID 19 related
➤ Research articles from the last five years	➤ Under the 60s
➤ Global	➤ Nursing home/hospital setting
➤ Over 60's	➤ Post the last five years
➤ Suicide risks/predictors	➤ Literature reviews
➤ Preventions/interventions	➤ Relating to methods of suicide only

From the beginning of the search, articles were processed and selected based on the inclusion and exclusion criteria matching their titles and by reviewing the study design. Following this, if the article was chosen, it was moved to abstract scanning to review the title and the abstract and methods used, including study designs including interviews, questionnaires, mixed methods, qualitative or quantitative. During this stage, inappropriate articles were removed, which may have included exclusion criteria. Once the abstract stage had been passed to include the relevant inclusion and exclusion criteria, the articles chosen were taken forward for critical review using the Critical Appraisal Skills Programme (CASP, 2018) (*see table 4*).

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Data abstraction and analysis

Microsoft Excel was used to input the relevant findings to organise the data. This included study design, age ranges, study sizes, risk factors found, or prevention identified. Furthermore, this was also used to collect the results from the included studies. There was no meta-analysis for this systematic review as the data collected contained both qualitative and quantitative research; therefore, this was not an appropriate measure. To analyse the data that was extracted, Microsoft Excel was used to arrange and review details. Following this, a narrative synthesis is provided on the findings.

Critical appraisal

Following the above steps, 19 selected articles were taken forward for critical appraisal to examine the studies for reliability, to ensure biases were not present, the validity of the research, the methodology used and the strengths and weaknesses of the articles. This process also allowed for further reading and consideration of the article to ascertain if it was going to provide substance to the question of this SR. For the articles to be appraised correctly depended on if they were qualitative or quantitative pieces of research. The CASP tool was used for all qualitative research and quantitative research methods for this systematic review (CASP, 2018) (*see Table 4*) and all cross-sectional articles were appraised by the AXIS tool (Downes, et al., 2016) (*Please see Table 5*). During the reviews, articles considered ethical appraisal to ensure there were no discrepancies with the ethics process relating to each article.

Table 4
CASP Tool for Qualitative and Quantitative Studies

CASP Tool	Was there a clear statement of the aims of the research?	Was the methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	How valuable is the research?
Lee, Seo, & Kim, 2018	✓	✓	✓	-	✓	✓	✓	✓	✓
Flett, Gordon, & Heisel, 2016	✓	✓	✓	✓	✓	✓	✓	✓	-
Ng, Wu, & Yeh, 2020	✓	✓	✓	✓	✓	✓	✓	✓	✓
Erlangsen, Fastboom, Hedna, & Waern, 2021	✓	-	-	✓	-	-	✓	✓	-
Chan, Wong, & Yip, 2018	✓	✓	✓	✓	✓	✓	✓	✓	✓
Jia, Ma, Zhou, & Wang, 2019	x	-	-	x	✓	x	-	✓	-
Altinoz, Oner, & Yildiz, 2018	✓	✓	✓	✓	✓	✓	✓	✓	✓
Yilmaz & Karaca, 2020	✓	✓	✓	-	✓	-	✓	✓	✓
Eades, Segal, & Coolidge, 2019	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ding et al., 2018	✓	✓	-	✓	✓	x	x	x	x
Freidl et al., 2016	-	✓	-	x	-	✓	-	-	x
Lee and Lim, 2018	✓	-	-	✓	✓	✓	✓	✓	-
Choi et al., 2020	X	✓	-	✓	✓	x	✓	✓	-
Heisel, Flett and Neufeld, 2016	✓	✓	✓	✓	✓	-	✓	✓	✓
Dombrowski, et al., 2020	✓	✓/x	✓/x	✓	✓	-	✓	✓	-
Lutz, et al., 2020	✓	✓	✓	✓	✓	-	✓	✓	✓

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Table 5
Appraisal Tool for Cross Sectional Studies (AXIS)

	Lee, Seol, & Kim, 2018	Dombrowski et al., 2020
<i>Were the Aims/Objectives of the Study Clear?</i>	✓	X
<i>Was the Study Design Appropriate for the Stated Aim(s)?</i>	✓	✓
<i>Was the Sample Size Justified?</i>	✓	✓
<i>Was the Target/Reference Population Clearly Defined? (Is It Clear Who the Research Was about?)</i>	✓	✓
<i>Was the Sample Frame Taken from an Appropriate Population Base So That It Closely Represented the Target/ Reference Population under Investigation?</i>	✓	-
<i>Was the Selection Process Likely to Select Subjects/Participants That Were Representative of the Target/Reference Population under Investigation?</i>	x	-
<i>Were Measures Undertaken to Address and Categorize non-Responders?</i>	x	-
<i>Were the Risk Factor and Outcome Variables Measured Appropriate to the Aims of the Study?</i>	✓	✓
<i>Were the Risk Factor and Outcome Variables Measured Correctly Using Instruments/Measurements That Had Been Trialled, Piloted or Published Previously?</i>	✓	✓
<i>Is It Clear What was Used to Determine Statistical Significance and/or Precision Estimates? (e.g. ,p-Values, Confidence Intervals)</i>	✓	✓
<i>Were the Methods (Including Statistical Methods) sufficiently Described to Enable Them to Be Repeated?</i>	✓	✓
<i>Were the Basic Data Adequately Described ?</i>	✓	✓
<i>Does the Response Rate Raise Concerns about -non Response Bias?</i>	x	X
<i>If Appropriate, Was Information about -non Responders Described?</i>	N.A	N.A
<i>Were the Results Internally Consistent?</i>	✓	✓
<i>Were the Results Presented for All the Analyses Described in the Methods?</i>	✓	✓
<i>Were the Authors' Discussions and Conclusions Justified by the Results?</i>	✓	✓
<i>Were the Limitations of the Study Discussed.</i>	✓	✓
<i>Were There Any Funding Sources or Conflicts of Interest that May Affect the Authors' Interpretation of the Results?</i>	x	X
<i>Was Ethical Approval or Consent of Participants Attained?</i>	✓	✓

RESULTS

Characteristics of the studies included

This systematic review included nine studies following the completion of the CASP tool. Studies included worldwide research and were from the following countries: USA, Canada, Hong Kong, Turkey and China. Age groups used were all over the age of 60 apart from one study that started at 50; however, it worked with age brackets upwards and the mean age in the study was 65. Additionally, this study used comparisons between the younger older adult and the older group. Only two of the studies focused on prevention measures and these studies were from Hong Kong and the USA. Furthermore, two studies focused on personality traits of older adults who experienced suicidal ideation or committed suicide. Lastly, five studies solely considered risk factors relating to suicide in older adults using databases, interviews, and questionnaires.

Sources of information relating to suicide risk factors in older adults and prevention measures

The data collected was from direct sources and from official databases. This included studies with various sources including different demographics; however, all sources included in the results the age of 60 years or more, unless in comparisons. Data used in the results included information from official databases. A limitation to this perhaps could be that this does not capture details relating to the individual's background. However, the data that did not rely on databases included relevant information about an individual, which may have benefited and enhanced the context. Most of the research focused on risk factors, personality traits and appropriate prevention measures. The main themes are: 1) risk factors = mental health (MH) diagnosis, physical health and widowers/bereavement; 2) personality/lifestyle, being a burden, lacking personality traits similar to younger people experiencing SI, loneliness, feeling a burden and lacking reasons for living; 3) preventions, benefits of problem-solving therapy for older adults experiencing SI beneficial in the prevention, telephone helplines can be helpful; however, necessary in considering patterns of calls, early detection and early warning signs are all important to be captured at this time. Please see the chart for all the result details (*see Table 6*).

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Table 6
Extracted Data for Included Studies

Reference	Study design/ Methodology	Context	Is the aim specific to older adult suicide/ prevention	Aim of study	Source	Key findings	Limitations	Misc
Ng, Wu, and Yeh, 2020	Case-control, Retrospective, Quantitative	Taiwan, People over 65.	Yes	To investigate how psychiatric and physical health are related to the suicide of older adults in Taiwan.	Two thousand five hundred twenty-eight older adults died by suicide between 2010-2012. Official Databases used.	Suicide mortality was 33.7 per 100 000. Mental health diagnoses, including depression, and schizophrenia, increase the risk of suicide. Cancer also increases the risk. Men in rural areas were also of increased risk.	Three recognised limitations: It may be that older adults with mental health symptoms may have been misdiagnosed. Databases do not provide details on the severity. Databases do not provide other risk factors and history.	N/A
Ahinoz, et al., 2008	Quantitative, Data detailing.	Turkey, older adults 65+	Yes	Compared causes/ methods of suicide between 2002- and 2013 within three separate age groups, including from 60 years upwards.	Data on causes, methods and sexes explored which was taken from the official statistical database.	In all groups found that, suicide rates were more common in men. In both sexes, the most common reason for suicide was mental illness. In the group of 65-49 years men, financial difficulties were noted. Difficulties for women it was were relationship related.	The increase in suicide rates in 2008 in Turkey may have been due to the country's financial issues, which fell within this studies timeframe. Database-focused means you may miss important personal data, which may be crucial.	N/A
Yilmaz and Karaca, 2020	Quantitative	Turkey, over 65 years	Yes	To understand the prevalence of depressive symptoms and related factors and draw attention to the suicide probability in the elderly without evidence of a significant disabling disease	Individuals over 65 were randomly selected from a primary care clinic. Three hundred twenty-three individuals enrolled—interviews completed via home visits. The geriatric depression scale (GDS) and Suicide Probability Scale (SPS) were used to assess and evaluate the risk of the occult.	Females were at increased risk of suicide if they were bereaved/widowed. Negative perceptions of health were a significant risk factor for both sexes and most ages. Education of less than six years for males and females was a risk. Chronic physical health problems in men in the 80's and women in the 60s and 70s. The negative perception of health. Drinking was also a risk factor.	Cognitive function is not taken into account, which can have an impact on health; however, dementia was ruled out. As home visits were conducted, reliability was put onto patients regarding physical health status and no clarification was gained from GP. risk factor.	N/A
Lee, Seol, and Kim, 2018	Qualitative, Interviews	Male and females over 60 years old living in Chungeongnam	Yes	It analyses age and sex differences within socio-demographics that may relate to suicidal ideation/attempts in the older adults.	Data from a program conducted by a mental health centre located in a set area and used GDS scale in which scores of 5 and over were considered high risk. Interviewing face to face. Total number was 93 151.	Males and females in their 60s and 70s and females in their 80s living in rural areas were identified as risk factors. Negative perceptions of their health was a significant risk factor for females in their 60s.	It may not represent an entire population as it was set in one region. They only worked on a volunteer basis, so potentially healthier people put themselves forward. Used closed questions only.	N/A
Drombrowski, et al., 2020	Mixed Methods	Pittsburgh, USA	No	Improve understanding of personalities against suicidal ideation that may present in later life.	200 people. Separated into five groups: early-onset attempters, late-onset attempters, suicidal ideation, depressed group, and healthy controls. Interviews were conducted, which were structured for DSM-IV (Diagnostic and Statistical Manual) Personalities—a five-factor inventory used for self-reported personality types. Hamilton rating scale for depression was used.	All of the groups that were clinical displayed with maladaptive traits compared to healthy subjects. Late-onset suicidal ideations lack similar traits that younger people may have experienced, such as neuroticism and cluster b personality symptoms. In contrast, older adults had a higher level of orderliness.	It does not allow for consideration over a long time of changes in personality that may happen naturally due to life experiences. Does not allow for a review of completed suicides vs attempts.	The age range started from 50 years old; however, the mean age was 65.
Eades, Segal, and Coolidge, 2018	Quantitative, 5 questionnaires.	Colorado, USA.	No	Explored the role of personality and self-esteem in older adults within two established risk factors identified for suicidal ideation: feelings of belongingness and being perceived as a burden.	Recruited participants to complete five questionnaires. Participants over 60 year old. 102 participants. Offered a \$25 visa gift card to participate. Five factor model and DSM were both used.	All Five-figure model participants and the majority of PD (Personality Disorder) traits were significantly related to suicidal ideation, perceived burden and thwarted belongingness. Self-esteem evidenced a strong negative relationship with suicidal ideation, thwarted belongingness and perceived being a burden.	More women than men in the study. Potentially a group of people not diverse enough to be representative.	N/A
Heisel, Flett, and Neufeld, 2016	Quantitative	Toronto, Canada	Yes	Understand the importance of feelings relating to reasons for living and the meaning of life pertaining to good MH and well-being against suicidal ideation in older adults.	173 community-residing older adults from older adult groups, places of worship, public areas and included advertising.	Reasons for living presented a significant variance in suicidal ideation, managing for age, sex, depression symptoms and being lonely. Meaning in life significantly connected to the reason for living and suicidal thoughts. Demonstrates the importance of understanding these two factors in risk assessing for suicidal ideation.	Recruitment was mainly for healthy people. More women than men. Not a diverse group of people included. A more extensive study may have been more helpful.	N/A
Lutz, et al., 2019	Qualitative, Case study	USA	Yes	To established if problem-solving therapy reduces the risk of suicidal ideation and anxiety.	Two sources were recruited by a flyer and then screened for appropriateness.	Both cases demonstrated a significant reduction in suicidal risks and anxieties following six sessions of PST. Risk factors identified - Males: males, living alone, history of MH. Identified the importance of phone call patterns, early identification, and warning signs that should be implemented in the helplines to act as a prevention measure.	Very small study.	N/A
Chan, Wong and Yip, 2018	Quantitative, Databases	Hong Kong	Yes	To understand whether a general telephone helpline can be helpful for an older adult in suicide prevention.	106, 583 users during 2012-2015.		Secondary data.	N/A

Risk factors

Identified risk factors such as MH diagnosis, physical health and being a widow/bereaved were strong themes within multiple articles. In several articles, it is evident that past or present diagnosis of mental illness was a risk factor for suicide. Altinoz, et al. (2018) found that on exploring data detailing the causes of suicides that had been completed between 2002 and 2013 for the ages of 65-69, 70-74 and >70 years found that in both males and females the most common reason documented as a cause was mental illness. Although the study by Altinoz, et al. (2018) does not indicate what specific MH diagnosis is present in their results, a study by Ng, Wu and Yeh (2020) considered how mental and physical illnesses are linked to suicides in older adults and found that older adults who experienced depression and schizophrenia were significantly higher than their control group. Furthermore, Ng, Wu and Yeh (2020) found that people with bipolar disorder demonstrated a lower risk of depression and schizophrenia; however, the results were still significantly higher for older adults relating to suicide. In contrast, Karaca and Yilmaz (2019) investigated people over 65 years old by using the geriatric depression scale (GDS) for the prevalence of suicide and depression and then the SPS for risk of suicide and found no statistical significance for people with or without depression symptoms relating to MH treatment past or present. However, essential to note that the study found independent factors predicting the presence of depression, which could contribute in the long term to needing MH treatment (Yilmaz & Karaca, 2019).

Physical health, including chronic health conditions, perceptions and illnesses such as cancer, have been identified as risk factors in older adults with suicidal ideation and/or attempts on their life. Research conducted by Lee Seol and Kim (2018) found that chronic illness was a risk for suicidal ideation for men in their 80s and females in their 60s and 70s. Furthermore, perceived health concerns were identified as a risk factor for males and females except for the females in their 60s (Lee, Seol & Kim 2018). Ng, Wu and Yeh (2020) support claims of poor health being a risk factor and found that people with cancer were at significantly higher risk than their control group and less of a risk of cancer but still demonstrating a significant risk were those diagnosed with chronic obstructive pulmonary disease, strokes, kidney disease, hypertension, and diabetes.

Not only were difficulties from a medical perspective associated with being a risk factor in older adults, but also were marital issues, including being bereaved or separated. Altinoz, et al. (2018) reported that after evaluating the reasons for suicide in

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women between the ages of 65 and 69 years, a common cause was marital conflict and did identify that this could be due to loss of family/husband, feelings of hopelessness due to being alone, widowed and also due to economic reasons they may experience. However, in more depth, Lee, Seol & Kim (2018) reported that men in their 60s and 70s who divorced and men in their 80s who were widowed increased the related risk factors for suicide. Lee, Seol & Kim (2018) also went on to identify those women being divorced in their 60s and widowed when they were in their 70s increased the risk of suicide ideation; however, they found that for women in their 80s if they became widowed this was a protective factor. When considering women in their 80s, the study by Lee, Seol & Kim (2018) considered that they had been undergoing caregiving roles or that they consider the loss to the family as significant, and understand the importance of their position within the family acting as a protective factor.

Personality and individual feelings

Dombrowski, et al. (2020) aimed to understand the personality in which suicidal ideations develop for people in later life in their cross-sectional study of 200 people with a mean age of 65 by using the five-figure model (FFM) and the Diagnostic and Statistical Manual of Mental Disorders (DSM). They found differences between those who had an early onset of older adults' suicide attempts and those who experienced a late-onset older adult's suicide. The late-onset group demonstrated a higher level of organisation than the early onset of a suicide group. Furthermore, the late-onset group presented to experience less antisocial, more extroverted, and less likely to exhibit maladaptive coping traits. This provides an argument that the suicide attempts could be rationale due to factors such as risk factors already explored in this SR. This research established that all participants in their depressed groups had experienced a form of trauma in childhood, which could provide reasoning for later life difficulties or choices (Dombrowski, et al., 2020).

Eades, et al. (2019) considered how an older adult's personality and self-esteem affected their suicidal ideation (SI) by reviewing risk factors that they identified, including feelings of belongingness and a burden. They did this using the FFM and the DSM, a similar approach to Dombrowski et al. (2020). Results helped to consider the importance of the role of personalities regarding the risk of SI in older adults. The study showed that the group FFM personality factors and most Personality Disorder traits had significant relationships with SI, feelings of belonging, and a burden.

Finding personality disorder traits linked with SI correlates with Drombrowski, et al. (2020) findings of its younger group of older adults. Self-esteem variables were strongly and negatively related to SI, Belongingness, and Perceived Burden. This supports that personalities and personal feelings are important factors when assessing the risk of SI in this population group.

In addition to personalities and personality changes, significant feelings should be explored which Heisel, Flett and Neufeld (2016) considered to be the importance of the reason for living and the meaning of life, relating to suicidal ideation and the suicidal risk among older adults. This study identified that the reasons for living and the meaning of life were significantly negatively connected to the following factors: SI, demographics, and psychological factors. They also established that meaning of life explained the association between reasons for living and SI. Providing a rationale for understanding the importance of feelings of reasons to live in assessing risk suicide in older adults (Heisel, Flett, & Neufeld, 2016).

Prevention

Prevention methods typically consist of psychiatrist assessments, medications, support within the community and psychological inputs (Yip, et al., 2014). Chan, Wong and Yip (2018) article explored if a general helpline in Hong Kong could be effective for suicide prevention among older adults. Doing this allowed for examining helplines as a prevention measure with potentially essential criteria to help support them. The number of people who accessed this service between 2012 and 2015 was 106,583, and the number of people who accessed the service and committed suicide was 145. The total population of Hong Kong that committed suicide within the studies periods and aged 65+ was 1,006. The findings identified from the call details to assess and identify preventative measures for suicide. It established that 41% of people lived alone and had chronic illnesses. A mental illness also presented as an increased risk, consistent with previous research (Altinoz, et al., 2018; Ng, Yeh, & Wu, 2020; Lee, Seol, & Kim, 2018). Additionally, men were more at risk and people contacting the service were more at risk of suicide in the early contacts, demonstrating that, over time, this service could be an effective prevention measure for older adults (Chan, Wong, & Yip, 2018). Reviewing the themes of the callers allows for the development of appropriate support and risk assessment of this prevention measure for it to be an effective tool for suicide prevention among older adults.

A less generic tool identified for suicide prevention in older adults was a case

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report completed by Lutz, et al. (2020), who considered how problem-solving therapy (PST) might benefit older adults with anxiety and aim to reduce suicidal risks within this group. PST is a cognitive behavioural approach that works to help an individual cope with possible stressful life events or changes experienced (Gerber, Nezu, & Nezu, 2019), arguing it would be beneficial for the ageing population. Both participants in this study received six sessions focused on the core skills needed. It used the GAD (General Anxiety Disorder) to review pre and post-diagnostics. This study only used two participants with different backgrounds and found that both significantly reduced their suicide risk, including additional reductions in other symptoms such as anxiety, depression, and feelings of worry. Both participants verbally expressed finding the PST beneficial alongside the GAD scores demonstrating significant improvements. Currently, all research around PST has focused on treating symptoms and considers SI a secondary component. This study indicates that monitoring and reducing SI could be valuable as a preventative measure in older adults.

It is considering that the help that can be provide by phone and the data that has been collected that identified risks will allow for the phone line support to be considered beneficial in the short term for older adults with SI. For older adults that may require ongoing or further help with their SI, a more practical tool such as PST may provide them with helpful tools in managing their difficulties and SI, therefore providing an effective prevention measure.

DISCUSSION

This systematic review demonstrates that suicide among older adults is a complex topic with many components that need to be addressed to support and prevent people who may be at risk of SI or suicide attempts. Risk factors are unique to this population group due to the changes they may experience and the higher chances of experiencing changes to their health, societal roles, and relationship status. Furthermore, a common theme was that people with MH history were more likely to be at risk of SI, and specific diagnoses included schizophrenia, bipolar disorder and depression (Ng, Yeh, & Wu, 2020). This is an essential factor and may hold multiple reasons for it. People who have a mental health history may have developed maladaptive coping strategies, this may be an additional burden on their current situations, and they may be experiencing burnout from a lifetime of experiencing MH symptoms. These

reasons possibly add different stressors to a person's ability to cope and therefore demonstrate the importance of recognising this as a risk factor when a person presents to a mental health service or a general practice.

Physical illnesses were also a common theme that ran through this systematic review which often saw chronic illnesses as the main risk factor for SI, including diagnoses such as cancer and heart failure (Ng, Yeh, & Wu, 2020; Lee, Seol & Kim, 2018). People with physical health issues may feel a burden to those around them (Saranggi, Sozan Fares, & Noha Eskander, 2021). They may experience pain or discomfort, affecting daily tasks. These individual factors, along with how a person may perceive the illness and life, can significantly impact an individual.

The relationships we have and the people we surround ourselves with in life are vitally important, and evidence suggests that people who are isolated or lonely may be at a higher risk of committing suicide (Calati, et al., 2019). This can demonstrate the importance of marital breakdown or loss of a loved one due to a person who may find itself suddenly isolated from a society that he or she once believed that belonged to or due to family breakdowns due to changes in the situation. A person may also be experiencing grief, changes in its role or isolation, all significant life stressors that count as a risk factor.

A person may experience many lifestyle changes, which can assist with how our personalities develop and change over time. This systematic review identified from Drombrowski, et al. (2020) that later life suicide may not present with the same personalities' traits and an early onset of older adult suicide attempt. This may demonstrate that the late-onset group itself had a rationale for suicide that they have justified. However, in regard to the results, it may be challenging to consider that an early onset among older adult is experiencing personality disorder traits as a factor of suicide (Drombrowski, et al., 2020). This means that although some differences have been noted, this does not change that an older adult, either early-onset or late-onset, will still need to manage significant life changes, which should be considered, and they may in themselves aid the development of personality changes.

Prevention measures for suicide are vitally important to reduce the numbers and ensure the proper support is provided for people. Prevention measures for an older adult should be viewed in unique ways due to the individual challenges they may experience. Telephone support may provide appropriate short-term support, and benefits to this include that it is accessible for all and potentially can be provided over a 24/7 period and can bridge gaps of loneliness and isolation. Furthermore, the benefits of

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telephone support are that if someone may require ongoing or more in-depth support, this measure could provide the opportunity to a signpost and refer on to other services potentially for therapy such as PST. PST may be important for those with ongoing SI, specifically older adult, as it can help them consider how they may change their situation and solve it, allowing them the tools to do so. It would benefit further studies into the prevention measures of older adults, including considering how telephone support can provide prevention specifically to this population. Furthermore, more extensive studies of appropriate therapies will be used to enhance the knowledge and understanding of prevention measures for older adults and suicide.

Considering how this SR will benefit professional practice, this evidence must be important to the relevant sectors. At times health professionals may assume that life events have given a person the tools he or she needs to survive and combat possible negative thoughts and feelings, perceiving older adults as a resilient group of people. However, on the contrary, it may be that this group should instead be considered with additional sensitivity that allows the professional to review the significant life events that they have experienced, such as illness, loss of a loved one or changes in their role in society. Furthermore, there are times when a physical condition may mask MH symptoms (NHS England, 2017), and both general practice and mental health services should pay close attention to this to ensure that this population group is being appropriately cared for, which could be done by joint working and/or further education on this for both settings.

STRENGTHS AND LIMITATIONS

The strengths of this SR are that it identifies a unique set of needs to its identified population group, which enhances the knowledge of suicide in older adults. Limitations to this SR could be limited research on prevention measures. However, this also indicates that more research should be focused on this area.

CONCLUSION

This SR concludes that the older adult people are at risk of suicide and that they carry their unique risks, which can be argued as assisting with their rationale for

suicide, which needs to be highlighted when this group has contact with both general and mental health services and need to be taken seriously. Prevention measures that are in place for this population group that is specifically targeted to older adults are often limited: befriending services and crisis support groups are benefits for the whole population. For this population group to have effective prevention measures in place, they must be taken seriously, and their unique risk factors are all considered, which will allow for appropriate onward support and referrals to be made on their behalf. Furthermore, there is a clear need for further research on older adult suicide prevention measures. A holistic approach is required for the more ageing adult population to reduce the number of suicides and to provide effective prevention measures for this group.

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