

Initial Evidence Review: Strategies for encouraging psychological and emotional resilience in response to loneliness

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REPORT FOR CAMPAIGN TO END LONELINESS

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Executive Summary

It is now widely accepted that loneliness is influenced by a combination of psychological factors, including attitudes to participating in social interactions and mental health problems, as well as environmental factors such as living far from family and friends and life events and transitions such as bereavement and moving away from home. Despite increased recognition of the importance of individual-level processes and meanings that influence the experience of loneliness, there is a gap in our knowledge of how best to address the psychological factors that contribute to chronic loneliness. In this report, we aim to synthesise information from a range of sources in order to identify the psychological pathways to loneliness and relevant psychological barriers to accessing strategies which target social isolation. The report highlights promising interventions that have potential to target the psychological aspects of loneliness. It makes a series of recommendations to improve understanding and delivery of effective psychological interventions to address loneliness and how the interaction between such strategies and community-based interventions.

We conducted an extensive scoping review of the academic literature, including online database searches and broader searches reviewing conference abstracts and reports from the Third Sector. We obtained expert opinions by speaking to relevant stakeholders including people with lived experiences of loneliness, charitable organisations working with people who are experiencing chronic loneliness, and those involved in developing and evaluating interventions to tackle loneliness. Much of the work focused on older adults but we also looked at interventions delivered across the age range. We report the findings from this work, including an overview of the wide range of psychological factors which might explain why some people who are chronically lonely struggle to engage with community strategies and other sources of support that are available. These factors include having mental health problems, personality characteristics and having unhelpful beliefs and behaviours related to social interactions.

We recommend that interventions that target either the psychological or social aspects of loneliness should not be provided in isolation, and that multi-modal interventions are likely to be most successful. Further research evidence is needed to evaluate the feasibility, acceptability, effectiveness and cost-effectiveness of delivering psychological interventions in conjunction with community-based strategies. Social prescribing is a potential opportunity for the successful delivery of psycho-social interventions. For example, integration of psychological and community-based support could be promoted by including directories of psychological support in guides to community based resources, and by connecting social prescribing link workers with their local improving access to psychological therapies services. The social psychological approaches such as the Groups 4 Health model (Haslam et al., 2019; Haslam, Cruwys, Haslam, Dingle & Chang, 2016) show promise and potentially could bridge psychological and social understandings of loneliness.

There is preliminary research evidence that interventions that address the psychological factors involved in loneliness can be successful, and there are various approaches to addressing these factors across the UK, although many initiatives have not yet been fully evaluated. The strongest research evidence was found for cognitive behavioural interventions, and there are some promising developments, including digital initiatives which are designed to change individuals' thoughts and feelings about loneliness, that are worthy of further evaluation. We would also recommend that acceptance and commitment therapy is formally evaluated as an intervention for loneliness.

We noted that the research base in this area is still underdeveloped and more work is needed to demonstrate which interventions are most accessible to people who are chronically lonely and can feasibly be delivered within NHS and community settings. Research into the potential adverse effects of psychological interventions, individual differences in responsiveness and the longer term impact on loneliness is also needed. It is likely that including measures of loneliness in evaluations of interventions for social anxiety and grief and in routine work with older adults in improving access to psychological therapies services would yield data that will contribute

to the growing evidence base in this area. We hope that bringing together the research evidence and expert opinion in this report will increase awareness of the wide range of psychological factors implicated in loneliness and lead to further provision of psychological interventions for loneliness, in combination with community based support for social isolation.

Glossary

Terms highlighted in **green** throughout this report are explained in the glossary. These definitions are taken from the literature and include terms that overlap to different degrees.

Acceptance and commitment therapy: An evidence based psychotherapy that uses mindfulness, acceptance and values-based methods

Attributional styles: The way individuals interpret and internally or externally explain life events and situations

Cognitive behavioural therapy: A psychological talking therapy that focuses on negative thoughts, beliefs and attitudes and how they affect behaviour and emotion

Coping styles: Ways in which people manage and confront stressful or difficult situations, in order to deal with them

Group/Social identity: An individual's sense of belonging and identity from being part of a social group

Existential loneliness: A subtype of loneliness characterised by immediate awareness of being fundamentally separated from other people and from the universe, and typically, because of this awareness, experiencing negative feelings, that is, moods and emotions (Sjöberg, Beck, Rasmussen & Edberg, 2018)

Loneliness: 'A subjective, unwelcome feeling of lack or loss of companionship. It happens when we have a mismatch between the quantity and quality of social relationships that we have, and those that we want' (Perlman & Peplau, 1982)

Mindfulness: a technique designed to reduce stress and improve well-being by paying attention to the present moment, thoughts and feelings

Model: A theory-based framework that explains the development or maintenance of behaviours, feelings or other health-related outcomes

Implementation: The process of applying and promoting research findings for use in real-world settings

Interpersonal psychotherapy: A structured, time limited psychological therapy that focuses on improving symptoms by improving interpersonal functioning and relationships

Reminiscence therapy: A psychological approach where groups or individuals recall past events, thoughts and feelings to develop self-awareness and an increased feeling of identity

Resilience: Individuals' capacity to maintain stable mental well-being following stressful life events

Scalability: The capacity for an intervention or initiative to successfully function in larger or different contexts than initially developed

Self-efficacy: An individual's belief that they have the ability to succeed and accomplish tasks and goals

Social isolation: An objective measure concerning the low number of social contacts an individual has

Social prescribing: A means of health professionals or local agencies to refer people to a range of social community activities to improve physical and mental health

Social wellbeing: The basis for social equality, social capital and social trust and the antidote to racism, stigma, violence and crime

Sustainability: The long-term continuation of the delivery of an intervention or of its positive effects

Theory of change: The process in which complex interventions achieve long-term outcomes through other meaningful sequential short-term outcomes

Introduction

Loneliness is one of the most pressing current health concerns faced in the UK, with research demonstrating the significant impact of loneliness and social isolation on both physical and mental health (Cacioppo, Hughes, Waite, Hawkley & Thisted, 2006; Hawkley, Thisted, Masi & Cacioppo, 2010). Loneliness is associated with a 29% increase risk of death (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). Loneliness is common, particularly in the over 65 age group. There are 1.2 million chronically lonely older people in the UK with this number set to reach two million by 2025/6 (Age UK, 2018). There is clearly an urgent need to develop a comprehensive, evidence-based understanding of loneliness and the best ways to reduce it.

What is loneliness?

Guided by the Government's Strategy, the definition used by the Campaign to End Loneliness and Research by Perlman and Peplau (1981), loneliness is defined within this report as:

'A subjective, unwelcome feeling or lack or loss of companionship. It happens when we have a mismatch between the quantity and quality of social relationships that we have, and those that we want.'

Loneliness is likely to be triggered by a combination of one or more internal factors including psychological factors such as attitudes to participating in social interaction, and/or external factors including environmental factors such as living far from family and friends, and life events such as bereavement.

In this report, loneliness is not viewed as a mental health problem and psychological factors are considered as individual, internal factors aspects arising in the mind and related to thoughts and feelings.

Background to project and its role within the wider programme

The Campaign to End Loneliness has a broad portfolio of activities to improve the lives of nine million people in the UK experiencing loneliness, including evidence based campaigning to commissioners, facilitating learning on the front line and building the research base on loneliness. These activities include a focus on older people, who comprise 45% of those experiencing chronic loneliness (Jopling & Howell, 2018), and programmes to enhance and facilitate social support and connection. Such programmes are necessary but not sufficient for tackling loneliness, as loneliness is inherently a subjective, aversive experience stemming from a perceived discrepancy between the desired and the actual social situation (Perlman & Peplau, 1982). Loneliness and social isolation are correlated, but only moderately ($r=0.39$) (Matthews et al, 2016), emphasising the importance of individual factors in the experience of loneliness, including understanding both the internal and external pathways to loneliness (Campaign to End Loneliness, 2011; Goodman, Adams & Swift, 2015).

Despite the recognition of the importance of individual perception and subjective experience, previous work by the Campaign to End Loneliness programme (Jopling, 2015) demonstrated highly variable provision of interventions to reduce loneliness by addressing psychological factors. **However, there is a gap in knowledge of evidence based strategies that address the individual, internal, psychological factors that contribute to chronic loneliness (Goodman, Adams & Swift, 2015).**

There is increasing agreement over the need to recognise both the social and psychological factors that contribute to loneliness and the relationship between them. However, to date there has been less of a focus on psychological strategies than on addressing social networks or social skills training (Mann et al., 2017). The purpose of the current project is to synthesize the evidence from a range of sources to inform policy and practice with regard to effective strategies to address these psychological factors contributing to chronic loneliness.

The report's focus on psychological, internal factors will help contribute towards a comprehensive understanding of the problem of loneliness, including the interplay between subjective and contextual factors associated with loneliness. Understanding the mechanisms underlying strategies for encouraging psychological and emotional resilience in response to loneliness is critically important since loneliness and psychological health are closely related. Lonely people in the general population appear more vulnerable to developing psychological problems, most robustly demonstrated in prospective studies for depression (Cacioppo et al, 2006) and social anxiety and paranoia (Lim, Rodebaugh, Zyphur, & Gleeson, 2016). Rates of loneliness and social isolation are considerably higher among people with mental health problems including depression, anxiety, psychosis, and eating disorders, than in the general population (Campaign to End Loneliness, 2014; Meltzer et al., 2013). Loneliness is also associated with poorer prognosis among people with established mental health problems, again with evidence being particularly robust for people with depression (Wang et al, 2018). An individual with these psychological difficulties may be unable to take advantage of initiatives to enhance connectedness unless such psychological factors are also addressed. A full understanding of both the psychological and contextual perspectives, and their interaction, will enable organisations such as the Campaign to End Loneliness, commissioners and services to tackle the problem from a broad perspective and provide a comprehensive approach to ending loneliness.

It is essential to recognize that the report is in response to the commissioning brief, which required a focus on the psychological factors. However, such a focus does not imply that such internal factors are more important than social factors. The aims of the report are to better understand the internal perspective and thus explore ways in which the psychological and societal perspectives can work together to improve the lives of the millions of people experiencing loneliness.

The project is the first of three stages in a programme of work funded by the National Lottery Community Fund. The findings from this first project will inform the subsequent two projects and hence the project is limited in time and scope.

The role of psychological factors in loneliness cannot be considered in isolation from other frameworks. Two key pieces of work that have influenced this report are:

1. The Government's Strategic Framework '[A connected society: a strategy for tackling loneliness](#)' published in October 2018
2. '[Promising approaches to reducing loneliness and isolation in later life](#)' by the Campaign to End Loneliness and Age UK

[Role of psychological factors within the Government's Strategic Framework](#)

In 2018, the Government made its first major contribution and commitment to long-lasting action to tackle the problem of loneliness, building on previous work by many organisations and individuals. Of the Government's three overarching goals to guide its work on loneliness, the first is a commitment to improving the evidence base to better understand what causes loneliness, its impacts and what works to tackle it. The Government's 2018 strategy uses a model to understand loneliness that features underlying ('predisposing') factors such as social and cultural influences and personality. These factors intersect with life events or life stage triggers ('precipitating') factors, such as retirement or bereavement. In turn, personal thoughts or feelings (examples of psychological factors) may be 'perpetuating' factors that maintain loneliness as they can shape how people view their situation and their emotional and behavioural response. Within that framework, the focus of the current report is primarily on the personal thoughts or feelings that maintain loneliness and may act as a barrier to the individual from forming meaningful social connections. Within this report we therefore define psychological factors as *individual-level processes and meanings that influence the experience of loneliness*. Although psychological factors can also be predisposing and perpetuating factors, interventions that are most successful tend to focus on perpetuating factors and are therefore the primary focus of this report.

The Government's first commitment was to improve the evidence base for understanding the health impacts of loneliness and which interventions are effective at reducing loneliness. As part of that commitment, the 'What Works Centre for Wellbeing' ([Victor et al., 2018](#)) was commissioned to conduct a rapid review of the evidence on effective interventions for loneliness. Rather than duplicate work already done, the aim of the current report is to build on existing work by focusing on the findings from existing reviews, reports and syntheses and updating them with more recent findings and any promising approaches that have come to light since their publication. Furthermore, the current focus is exclusively on the intra-individual factors that influence loneliness and a review of psychological interventions rather than a review of effective interventions more broadly, as this has been done in previous work.

A key emphasis of the Government's strategy is the measurement of loneliness when assessing the effectiveness of relevant interventions. It is recommended that loneliness be assessed in studies of both psychological and community-based interventions using the same measure (ONS, 2018). The suggested tool comprises:

- A single, direct question: 'How often do you feel lonely? With the following response categories: "often/always", "sometimes", "occasionally", "hardly ever" and "never".
- The University of California Los Angeles (UCLA) 3-item scale for adults (Hughes, Waite, Hawkley & Cacioppo, 2004): 'How often do you feel that you lack companionship? How often do you feel left out? How often do you feel isolated from others?', with the following response categories: "hardly ever or never", "some of the time", and "often".

Encouraging people to use the same measure of loneliness is helpful, as it allows for direct comparison of initiatives and research, which will strengthen the evidence base into the factors that influence loneliness. The Government measure should be considered necessary but not sufficient for comprehensive measurement of loneliness, as it does not make any distinction between forms of loneliness. Other measures such as the de Jong Gierveld 11-item loneliness scale (De Jong Gierveld and Kamphuis, 1985) have both emotional and social subscales that capture Weiss's 1973 distinction between social and emotional loneliness, and these may be useful to employ alongside the Government recommended tool above, particularly for research studies that wish to better understand the nature of loneliness and optimal ways to address it.

The Government's strategy also includes recommendations about social prescribing to improve access to community-based support for people experiencing loneliness. The investment in connecting people with community support to restore social contact is the cornerstone of the strategy and is part of the Government's work to prevent ill-health. For social prescribing to be effective in building meaningful connections for people who feel lonely, any psychological barriers to connectedness must be identified and addressed. **The aim of the current report is to identify possible psychological barriers and how they can best be addressed. It draws on both the literature and the experience of people with lived experience of loneliness, charitable organisations working with people with loneliness, and those involved in developing and evaluating interventions.**

The Government's strategy also highlights the importance of **social wellbeing**. It is recognised that personal relationships and social support networks are key to happiness, comfort and resilience and therefore an essential component of wellbeing (HM Government, 2018; ONS, 2017). In this sense, psychological strategies that promote wellbeing in general have implications for loneliness. Relatedly, the Government's strategy draws attention to its commitment to reducing the stigma attached to loneliness so that people feel better equipped to talk about their social wellbeing. Ensuring that people have the necessary social support, particularly during stressful life events, can help mitigate against the potential ill effects of those events and promote resilience. The recent '[review of reviews](#)' commissioned by the Government as part of its strategy addresses social wellbeing and interventions focused on social factors. As well as psychological factors and individual social circumstances, broader societal factors which are beyond the scope of this report also play an important role in loneliness, and should be considered. It is therefore advisable to read this current evidence synthesis in

conjunction with the previous reviews focusing on external factors in order to provide a holistic and comprehensive approach to tackling loneliness.

Role of psychological factors within the 'Promising Approaches' framework

The Campaign to End Loneliness has set out a framework for understanding how to tackle loneliness, drawing on both practical experience and academic evidence (Jopling, 2015). One of the conclusions of the 'Promising Approaches' framework (Jopling, 2015) was that the academic literature is limited in quality and that evidence exists on a spectrum spanning five levels: Level 1: Developing a theory of change that provides a coherent description of how and why a service will have the desired impact through to Level 5: evidence that the service can be scaled up and operated elsewhere whilst continuing to have the positive outcomes demonstrated. The 'Promising Approaches' report was commissioned to address a gap between what constitutes a 'loneliness intervention' as described in the academic literature, and the experience of delivering interventions on the ground. For the framework, experts from a range of disciplines were asked about promising interventions and those interventions were subsequently considered in light of available evidence. The framework considered there were three main categories of loneliness interventions, which were (1) services to support and maintain existing relationships, (2) services to foster and enable new connections, and (3) services to help people change their unhelpful thinking and beliefs about their social connections. The current report focuses on the third of these categories – psychological approaches to help people change their thinking about their social connections, as this was identified by the experts as a particular need. The review of Masi et al. (2011) was cited in the framework, as well as a case study in Warwickshire.

Project scope and aims

The current report builds on the existing reviews and recent developments in the UK government Improving Access to Psychological Services (IAPT) for Older Adults programme. The IAPT programme began in 2008 and has transformed treatment of adult anxiety disorders and depression in England. IAPT services aim to implement NICE guidelines for common mental health problems and deliver evidence-based treatments for people with anxiety and depression. Such therapies are as effective for older people as for those of working age, yet older people are underrepresented amongst those accessing services. This report builds on the recent developments to improve access to IAPT services for older adults, and like the 'Promising Approaches' framework, is not solely reliant on either academic literature or expert opinion, but aims to integrate the two in order to reach conclusions that have practical implications for improving the lives of people with chronic loneliness.

Given the relative paucity of existing research evidence, the project was commissioned to draw on a variety of evidence sources and aimed to address a series of related objectives, including the following:

1. To provide a concise overview of the 'state of the art' academic literature focused on psychological factors contributing to loneliness
2. To identify initiatives and approaches that have an implicit or explicit theory of change focused on changing individuals' thoughts and feelings about loneliness more generally i.e., identification of initiatives and approaches that include interventions
3. To summarise and classify those initiatives and approaches in terms of underlying model, how they are described, target population, provider, etc.
4. To identify any formal evidence of effectiveness, cost-effectiveness (if available) and broader learning around process, implementation, sustainability and scalability
5. To develop the evidence base around which forms of provision appear to work best for whom, and in what circumstances
6. To consider the links between loneliness and other adverse experiences common in older age, such as depression and bereavement, and how psychological therapies might impact on or disrupt such connections

7. To identify promising approaches to engaging 'hard to reach' groups or those experiencing more chronic or debilitating forms of loneliness, and assess the challenges of using one-to-one or talk-based approaches in this context
8. To identify current and potential ways in which such provision can most effectively work alongside and complement other strategies for addressing loneliness

Much of this work has been conducted with older people, although insights from literature and experiences relating to people across the age range and with a range of difficulties have been considered. In addition, the report primarily focuses on those for whom loneliness is a persistent experience that warrants an intervention rather than a transient state. However, note that there is not yet a consensus among researchers on the upper limit for transient periods of loneliness.

What this report will not focus on

The report does not make a distinction between different types of loneliness. Loneliness has been divided into emotional and social subtypes based on Weiss's early work (Weiss, 1973) and subdivided even further in some reports. Such subtyping could be helpful as shown by a recent epidemiology study in the US showing that those with both social and emotional loneliness are characterised by the highest level of psychological distress (Hyland et al., 2018). Relatedly, the definition of loneliness used is unidimensional; other, multidimensional conceptualisations and definitions of loneliness have been proposed that emphasise the emotional and social subtypes (e.g., De Jong Gierveld, 1998) that could also be of potential utility. There is also interest in **existential loneliness**, a negative experience of being disconnected from life (Sjoberg et al., 2018) which has not been an explicit focus of the report as there is some evidence that this may be distinct other forms of loneliness (McHugh Power, Dolezal, Kee, & Lawlor, 2018). However, we have not made these distinctions given that the distinction between the different types of loneliness is not consistently used in studies or by the Third Sector, or in the Government's Strategic Framework.

Work that is focused primarily on social isolation or on mental health disorders, is not within the scope of the current review, nor are community-based interventions to tackle loneliness. The recent review of reviews from the '[What Works Centre for Wellbeing](#)' is a broad review that provides an excellent synthesis of what is known about loneliness, and effective ways to tackle it. It incorporates findings of specific reviews such as the review by Mann and colleagues on interventions to reduce loneliness in people with mental health disorders (Mann et al., 2017) and the previous reviews by What Works Centre for Wellbeing on [social relations and wellbeing](#) and of interventions to boost social relations through [improvements in community infrastructure](#).

Broader reviews of approaches to promoting mental wellbeing and tackling loneliness outside the health sector have previously been conducted and are also relevant to understanding the broader context of work in this field. The review by McDaid and colleagues (2015) comprised 86 studies and focused on empirical studies on the effectiveness of interventions to improve/protect the mental wellbeing and/or independence of older people (including retired people over 55) without physical, mental or social care needs, focused on positive mental wellbeing outcomes and measures of social participation.

There has not been an evidence synthesis focusing specifically on psychological strategies for loneliness, hence the need for the current report. However, the current report focusing on psychological strategies should be considered within the context of previous evidence syntheses and reviews that incorporate social prescribing approaches, community-based interventions, and public health approaches to promoting psychological wellbeing.

Overarching design/methods

There have been multiple aspects to the information gathering that forms the content of the report.

- 1) Scoping review of the academic literature. We have conducted online database searches of systematic reviews of psychological factors affecting loneliness and psychological interventions aimed at reducing loneliness and published between April 2011 and April 2019. This date range was chosen as pilot searches did not identify any relevant reviews prior to April 2011. The following electronic databases were used: CINAHL, PsycINFO, Scopus, PubMed, and Web of Science. Reviews were selected as the type of document searched for in each database. The same searches were conducted for recent primary research studies to update the findings since the last published review. All study designs were included including qualitative studies and single case designs.
- 2) Broader searches by reviewing conference abstracts (British Association of Behavioural and Cognitive Psychotherapies Annual Conference, World Congress of Behavioural and Cognitive Therapies and British Psychological Society conference proceedings, to identify relevant unpublished psychological research) and an online search of reports from the Third Sector (particularly charities involved with the care of Older Adults). Additionally, we searched websites that share best practice in innovation, implementation and evaluation, such as 'NHS Evidence', 'NICE Shared Learning Awards' and 'Normalisation Process Theory'.
- 3) Contacting individual experts in the field (see Appendix 1 for a list of expert contributors) and inviting comments from participants at a specific Stakeholder Event (see Appendix 2 for a list of participants who registered for the event and consented for their information to be shared). This all-day event was held to consult with stakeholders on the findings from the scoping search and to identify other initiatives and outcomes to encourage psychological and emotional resilience in response to loneliness.
- 4) Obtaining expert opinions through reaching out to clinical, research and Third Sector experts for their perspective. A call for evidence was sent to all (approximately 200) members of the Loneliness and Social Isolation in Mental Health Network, asking them to email us if they knew of community/NHS initiatives aiming to reduce loneliness either directly or indirectly by targeting internal factors such as thoughts or feelings. These could be group or individual initiatives and with/without a formal theoretical base. We also sought opinion by posting a series of tweets from @UCL_Loneliness asking people to email us examples of community initiatives that reduce loneliness in older adults by tackling directly or indirectly, internal factors. The network website also included details of the call for evidence. (see Appendix 3 for the list of experts who contributed opinions)
- 5) Advisory Board members sending papers and information of interest.

Chapter 1: 'State of the art' Academic Literature on Psychological Factors Affecting Loneliness

The search of the academic literature yielded seven recent systematic reviews (Cohen-Mansfield et al, 2016; Courtin & Knapp, 2017; Deckx van den Akker, Buntinx & van Driel, 2018; Erzen & Çikrikci, 2018; Lim et al, 2018; Michalska Da Rocha et al 2018; Spithoven, Bijttebier & Goossens, 2017) and more than 22 additional papers since 2016. Additional papers that contributed to objective 1 and/or 2 were received by:

- Professor Catherine Haslam, University of Queensland, Australia, who provided us with her work (currently under review) on Social Identity.
- Dr Anton Käll, Linköping University, Sweden, who provided us with his work (in press and in preparation) on cognitive behavioural theory and therapy for loneliness.
- Dr Michelle Lim at Swinburne University, Australia, who provided us with her work on understanding loneliness in the 21st century where she provided an update on factors driving loneliness (currently under review).
- Guy Robertson from The Campaign To End Loneliness Advisory Board who provided us with his synthesis of psychological factors affecting loneliness.

The above sources have informed the findings below. The studies identified utilised a range of quantitative and qualitative methods and encompassed different age-groups, populations and nationalities; the majority included a focus on those aged over 55 years. A list of the reviews, papers published since the reviews and reports, identified through the multiple information gathering processes, are found in Appendix 4.

Key psychological factors

Different studies have taken different approaches to understanding the psychological aspects of loneliness, and therefore the following factors that have been identified from the literature overlap to various degrees. The following factors are those which, when present in an individual, can predispose to, precipitate, and perpetuate the experience of loneliness and act as barriers to accessing community-based services. However, it should also be noted that many factors can, conversely, protect against the experience of loneliness and serve to promote resilience. For example, as described below, having poor self-efficacy is associated with loneliness but conversely having a belief in one's ability to succeed and change situations will protect against loneliness. The factors are presented alphabetically and are synthesised from a range of sources. Example references are given for each factor. The strength of research evidence for each factor was variable, with a range of methodological strengths and weaknesses. Overall, it is considered that the research evidence is considered strongest for mental health problems and social cognition, as supported by the Mann et al (2017) review and Masi et al (2011) meta analysis.

- **Attributional style** - has been identified as a key psychological factor associated with loneliness. The construct of attributional style arose from work in depression and describes how people tend to, often unconsciously, explain various life events to themselves. Some of the earliest work indicated that lonely college students ascribed interpersonal failures to unchangeable characterological defects in themselves (e.g., a lack of ability) rather than changeable, external aspects (Anderson, Horowitz & French, 1983). People with a tendency to make changeable, external attributions are likely to be more resilient to the experience of loneliness (e.g., "I am lonely at the moment but it is just the situation – it will pass") than those with an attributional style characterised by internal attributions (e.g., "I will always be lonely, it's just the type of person I am").
- **Avoidance** – both behavioural (e.g. avoiding social situations) and emotional (e.g. avoidance or suppression of negative emotional states) avoidance is likely to play a role in predisposing, precipitating, and perpetuating loneliness (Shi et al, 2016). Avoidance is the hallmark behaviour associated with a range of mental health problems, including anxiety and depression.
- **Cognitive function and impairment** - cognitive impairment has a significant impact on loneliness and has been found to moderate the effect of social resources on loneliness. Conversely, loneliness can predict accelerated cognitive decline. Specifically, loneliness is associated with higher risk of dementia (Sutin et al., 2018). The relationship between cognitive function and loneliness may also need to take into account personality variables such as neuroticism, which has been found to mediate the relationship between loneliness and cognitive function (Schnittger et al., 2012).
- **Coping styles** – a systematic review of the association between loneliness and coping strategies found that problem-focused coping styles were associated with lower levels of loneliness and emotion-focused coping styles were associated with higher levels (Deckx et al., 2018). Problem-focused coping styles emphasise improving one's relationships, and emotion-focused coping styles focus on lowering one's expectations about relationships.
- **Emotion regulation** – a small amount of research has identified that emotion regulation should be considered in relation to loneliness. Of note, Kearns & Craven (2017) found that regulation of positive and negative emotions were associated with loneliness, and that using strategies such as *positive reappraisal*, *being present* and *negative mental time travel* were particularly important.
- **Group/Social identity and self identity** - work from social identity theory emphasises the importance of belonging to social groups. Increased identification with social groups has been found to impact loneliness positively and hence it is considered as an important psychological factor in understanding

loneliness. Self identity is also a relevant psychological construct with some suggestion that fear of losing a valued aspect of identity (such as a job or partner) can act as a barrier to accessing community services (Goll, Charlesworth, Scior & Stott, 2015).

- **Mental health problems** - are clearly associated with loneliness and have the strongest supporting research evidence. For example, loneliness is associated with depression and anxiety (particularly social anxiety), as well as eating disorders, suicidal ideation, sleep difficulties and psychosis (e.g., Domènech-Abella, Mundó, Haro & Rubio-Valera, 2019; Mann et al., 2017). Having mental health difficulties may lead to loneliness but there is also some evidence that loneliness can lead to mental health difficulties. Some of the earliest work by Baumeister and Tice (1990) proposed that social exclusion was a key factor in anxiety and Mark Leary (1990) developed this to consider social anxiety, jealousy, depression and self-esteem. Several studies have highlighted the relationship between loneliness and depression e.g. Cacioppo and colleagues (2006) who reported a bidirectional association between depression and loneliness over time. Some large-scale longitudinal work has highlighted that social anxiety is a particularly important risk factor for the development of loneliness (Lim et al., 2016) and multilevel meta-analyses of cross-sectional and longitudinal associations highlight the reciprocal relationship between social anxiety and loneliness both within and across time (Maes et al., 2019). Mental health difficulties are associated with unhelpful ways of thinking and behaving. One of the leading psychological treatments for mental health difficulties is 'cognitive behaviour therapy', which aims to address those unhelpful ways of thinking and behaving in order to change the emotional response of the individual to the situation. Similar interventions may be relevant for addressing chronic loneliness.
- **Personality traits or characteristics** - have a strong association with loneliness. 'Neuroticism' is an established personality characteristic defined by the tendency to easily experience psychological distress ('low emotional stability') and difficulties in emotion regulation. Neuroticism is associated with an increased risk of loneliness, with a recent study (Wang & Dong, 2018) indicating that people with high levels of neuroticism were more than 3.5 times more likely to feel lonely than those with low levels. Neuroticism is also associated with mental health difficulties, demonstrating a complex interplay between the psychological factors affecting loneliness. Other personality characteristics such as 'conscientiousness' and 'extraversion', have been found to protect against loneliness (e.g., Schermer and Martin, 2019). It is worth noting that the relationship between personality and loneliness is likely to be bidirectional, with personality characteristics serving as a risk factor for loneliness but loneliness also influencing personality ratings.
- **Purpose in life** - this psychological factor has been investigated in relation to loneliness. It has been found that those whose lives have subjective meaning and purpose are less likely to feel lonely. Much of the work has focused on social exclusion (e.g., Stillman et al., 2009) and illustrates the close relationship between external factors and psychological factors. Purpose in life and meaning has been examined in relation to religious factors and **existential loneliness** (Mayers, Khoo and Svartberg, 2002). Given the near universal experience of loneliness, understanding purpose in life can help explain why the majority of people experience loneliness as a transient phenomenon, but for others it becomes chronic.
- **Resilience** - the construct of resilience or hardiness has been investigated in some studies with mixed findings. For example, in a study of homeless youth, those experiencing higher psychological distress reported lower resilience scores (Perron, Cleverley & Kidd, 2014). However, levels of resilience were not associated with feelings of loneliness when taking into account levels of psychological distress. A larger study of 290 Italian older adults demonstrated that there is a complex interplay between resilience, mental health, loneliness and quality of life (Gerino, Rollè, Sechi & Brustia, 2017).
- **Social cognition** - social cognition refers to the way that information about other people and social situations is processed, stored and applied. It plays a central role in psychological approaches to loneliness. People experiencing loneliness vary in their social cognitions. While some express a fear of rejection ('I have nothing to offer people'), others are concerned about being a burden to others or express a distrust of other people. Loneliness is associated with negative information processing biases. Lonely adults have also been found to be more attentive to social rejection cues. Taken together, if an

individual is lonely, he/she is more likely to attend to, and process, information in a way that perpetuates the difficulty (Hawkley & Cacioppo, 2010). These biases are not within volitional (i.e. conscious) control. An influential integrative meta-analysis of loneliness reduction interventions (Masi et al., 2011) found that the most effective interventions addressed maladaptive social cognition.

- **Self-esteem, self-confidence, and 'self-efficacy'** - are associated with loneliness. 'Self-efficacy' refers to the belief in one's ability to succeed in specific situations or accomplish a task, for example, going out and making meaningful friendships (Bandura, 1977). In particular, recent systematic reviews found that social self-efficacy may be relevant to the experience of loneliness in people with psychosis (Lim et al., 2018) and in older adults (Cohen-Mansfield, Hazan, Lerman & Shalom, 2016).
- **Social skills** - the nature of the relationship between social skills and loneliness has been questioned from the outset of work on loneliness (Perlman & Peplau, 1984). Although loneliness is by definition subjective, it is nevertheless the case that there is an association with social skills and that people with social skills deficits (e.g., people with autism) are vulnerable to experiencing loneliness.
- **Stigma and self-stigma** – a scoping review has demonstrated that there is a stigma associated with feeling lonely (Mann et al., 2017) and this is likely to be one important reason that loneliness is difficult for people to discuss with their General Practitioners and other relevant people. In addition, related internalised ageism and negative aging stereotypes can be seen as barriers to making use of community-based interventions.

Summary of research

The above is not an exhaustive list of every psychological factor that has been identified as associated with loneliness, but rather these are the key psychological factors that have been identified repeatedly by the literature, experts and Stakeholders. Other psychological factors such as expectations of loneliness may also be influential (Pikhartova, Bowling & Victor, 2015), particularly in relation to stigma where expectations of loneliness in later life may be an example of internalised ageism. The evidence for the key psychological factors was heterogeneous, with the strongest research evidence being for mental health problems. Social anxiety in particular has been shown to implicate in loneliness, with a multilevel meta-analysis of 102 cross sectional studies of adolescents and young adults indicating that the relationship between social anxiety and loneliness is reciprocal both within and across time (Maes et al., 2019). This pattern has been found not just in childhood and adolescence but also to those over 18 and up to 87 (Lim, Rodebaugh, Zyphur & Gleeson, 2016).

Recommendation 1: Given the reciprocal relationship between social anxiety and loneliness, it is recommended that interventions for social anxiety routinely include a measure of loneliness and that measures of social anxiety are routinely included in interventions for loneliness.

Similarly the reciprocal relationship between depression and loneliness is strong (Cacioppo et al., 2006) and hence interventions for depression would also benefit from including a measure of loneliness and vice versa.

Adapted from Peplau and Perlman (1982), the Government strategy outlines how underlying factors, events or life stage triggers and personal thoughts and feelings can interact to lead to the experience of loneliness. Similarly, the psychological factors described above can be viewed as predisposing, precipitating or perpetuating factors and interact with one another. For example, a tendency to avoid close personal relationships, low cognitive function, neuroticism, pre-existing mental health problems (e.g. social anxiety), low self-esteem and low social self-efficacy and social skills deficits could be viewed as predisposing risk factors for developing loneliness. Avoidance of social situations, a decline in cognitive function or the onset or worsening of mental health symptoms can then trigger loneliness, which then is perpetuated by behavioural and emotional avoidance, attributional and copy styles, mental health symptoms which are associated with unhelpful ways of thinking, low levels of resilience, stigma and lack of purpose in life, leading to the experience of chronic loneliness.

The psychological factors are not independent of each other and work remains to be done to establish how their interactions affect the experience of loneliness. An example of the interaction of the psychological factors is shown below:

An example of how psychological factors can affect loneliness

Jonah, 73, described himself as 'extremely shy' and said that he had felt lonely 'all of my life'. He had been shy as a child, and experienced anxiety in social situations which he tended to avoid. He had left home to go University where he made a few friends but his social anxieties meant that he had avoided joining clubs and taking part in extracurricular activities, instead choosing to spend a large amount of time in his room studying. Although Jonah did well at university he lacked confidence in his abilities and turned down an opportunity to do a postgraduate degree. He worked as an archive librarian for the majority of his life, where he met his wife, and he continued to avoid social situations where possible and instead preferring to stay at home with his wife and watch documentaries. He had two children, both of whom had left home and lived a couple of hours drive away. Jonah had been devastated by the death of his wife five years previously and his sense of loneliness had intensified following this bereavement. Noticing other people with partners served only to highlight his own sense of loneliness and isolation.

Chapter 2: Initiatives and Approaches that have an Implicit or Explicit Theory of Change Focused on Changing Individuals' Thoughts and Feelings About Loneliness and Feeling Lonely

Chapter 1 summarised some of the key psychological factors which contribute to loneliness. In order to develop successful interventions to tackle loneliness, it is necessary to understand the mechanisms by which psychological factors perpetuate chronic loneliness. The same approach that was used to identify relevant psychological factors was followed to identify initiatives and approaches that have a theory of change i.e. a combination of a review of the academic and related literature (including conference proceedings and reports from third sector organisations) and consultation with experts in the field and other relevant stakeholders.

A variety of models have been developed to understand loneliness. Two key models that have focused on the psychological factors addressing thoughts and feelings about loneliness that have led directly to psychological strategies to reduce loneliness are those of Perlman and Pelau (1984) and Cacioppo (2015). These are described below.

[Key theories of change that have led to interventions to address thoughts and feelings about loneliness](#)

The seminal work by Perlman and Peplau (1981, 1984) gave rise to a highly influential psychological model of loneliness with implications for treatment. Their model highlights the importance of cognitions and attributions in the experience of loneliness and was being developed at around the same time as cognitive therapy for emotional disorders (Beck, 1979). Their approach led to the development of cognitive behavioural interventions for loneliness.

Other approaches have been developed by Cacioppo and colleagues, and take an evolutionary perspective to explain why some people experience loneliness only transiently while others experience loneliness more chronically (Cacioppo et al., 2015). According to the evolutionary approach, the aversive feelings associated with loneliness motivate individuals to reconnect with other people, and this has been referred to as the reaffiliation motive (RAM) (Qualter et al., 2015). For individuals who do not experience additional psychological or community-based barriers to reconnection, the loneliness may be temporary. However, for those with the psychological factors identified, reconnection is less straightforward.

Lim and colleagues have examined the relationship between psychological factors and loneliness over time in a large community sample from 18 to 87 years old (Lim et al., 2016). Their model indicated that over a six month time frame, early loneliness predicted emerging mental health symptoms including social anxiety, paranoia and depression, but that also early social anxiety was a predictor of future loneliness (Lim et al., 2016).

The field of **cognitive behaviour therapy** has moved on considerably in the past decade, with an increasing focus on 'modular' and 'transdiagnostic' approaches. Modular approaches are attempts to personalise interventions by ensuring that people only receive the aspects or modules of the interventions that are most relevant to them. Transdiagnostic approaches transcend the traditional mental health boundaries and so are suited to address difficulties such as loneliness. Käll and colleagues have developed a modular cognitive behavioural intervention for loneliness (Käll et al., 2019).

Unsurprisingly, other approaches have been developed from literature on mental health and cognitive function more broadly. Jon Kabat-Zinn developed the **mindfulness** based stress reduction programme which has been evaluated in multiple settings and contexts. Meta-analyses indicate that its strongest effects are through the reduction of cognitive and emotional reactivity (Gu, Strauss, Bond, & Cavanagh, 2015). Mindfulness based approaches have been applied to loneliness, although there is no specific mindfulness model of loneliness. Reminiscence therapy is a psychosocial intervention involving the discussion of past activities, events and experiences using tangible prompts and it has primarily been used for dementia (O'Philbin et al., 2018). It has been used to address loneliness and it can be considered to address the psychological factor of cognitive function. There is also growing interest in strengths-based positive psychology interventions for mental health (see Chakhssi, Kraiss, Sommers-Spijkerma, & Bohlmeijer, 2018) that are now being applied within the field of loneliness (Lim et al., 2016, 2019). Positive psychology interventions targeting loneliness focus on maximising the quality of relationships rather than quantity, but also focus on developing the person's capacity to build intimacy and practise helpful relationship nurturing skills. These are psychological approaches to address loneliness but there are many more, closely related, models of social isolation which are beyond the scope of this focused review.

Psychological interventions focusing on loneliness with an explicit theory of change

One of the earliest attempts to develop an intervention focused on 57 female university students in the US who were depressed and lonely (Conoley & Garber, 1985). Participants were assigned either to 'a reframing group' focused on ways to experience loneliness more positively by changing individual thoughts and feelings about loneliness, or a 'self-control' intervention that encouraged people to overcome loneliness, or a waitlist control. Of note, all participants, even those in the waiting list control group, became less lonely over time, but no treatment was more effective than another in reducing loneliness. Since that time, our five search methods outlined on pages 11-12 have identified over 20 studies which have implicit or explicit theories of change. Many of the interventions studied have been cognitive behavioural in nature. Despite suggestions that cognitive behavioural interventions could be enhanced for Older Adults (e.g., by incorporating work on wisdom, see Knight & Laidlaw, 2009), such suggestions do not appear to be widely used at present. Overall, there remains much work to be done in evaluating psychological interventions for loneliness and their interaction with community based initiatives.

Nature of studies found

The studies of interventions found in this review are shown in Table 1. Relevant published literature were identified from database searches from 2016 onwards, and from systematic and scoping reviews of interventions for loneliness in older adults (Gardiner et al., 2018; Franck, Molyneax & Parkinson, 2016; Poscia et al., 2018; O'Rourke et al., 2018), children, young people and adults (Masi et al., 2011) and people with mental health problems (Mann et al., 2017).

All of the included reviews looked at a wide range of psychological and non-psychological interventions for loneliness and predominately featured quantitative studies. The review by Gardiner and colleagues (2018) featured a range of study designs including qualitative literature, case control studies and quasi-experimental studies. Of note, the majority of studies that investigated a psychological therapy as defined by the authors of the studies, were randomised controlled trials. Randomised controlled trials are considered by many to be the 'gold standard' of research and they are prospective studies that measure the effectiveness of an intervention. They are the most robust method to establish the causal connection between an intervention and change in loneliness. However, randomized controlled trials also have limitations, including the expense, time taken to conduct them and the view that research participants can sometimes not be representative of the population being studied. A large number of the RCTs included were feasibility or pilot studies which may not have been adequately powered to detect statistically significant effects.

Other research methods include experimental and quasi-experimental studies and the review of Franck and colleagues (2016) identified five of these. The systematic review conducted by Poscia and colleagues (2018) identified five qualitative studies and fifteen quantitative studies including randomised controlled trials, pre-post studies, pilot studies and quasi-experimental designed. Qualitative studies typically ask more in-depth questions of fewer participants than experimental studies or randomized controlled trials and so can answer different questions. O'Rourke and colleagues (2018) also identified five qualitative studies, and 39 quantitative studies. These quantitative studies consisted mainly of randomised controlled trials, case studies, pilot studies, single group designs and quasi-experimental studies. The Masi and colleagues (2011) meta-analysis featured quantitative studies only and included randomised controlled trials, non-randomised group comparison designs and single group pre-post studies. The Mann and colleagues (2017) scoping review featured a range of quantitative studies, with randomised controlled trials featuring as the most common study design.

Table 1: Initiatives and approaches that have an implicit or explicit theory of change focused on changing individuals' thoughts and feelings about loneliness (objective 2)

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
Alaviani et al., 2015 - The Effect of a Multi-Strategy Program on Developing Social Behaviors Based on Pender's Health Promotion Model to Prevent Loneliness of Old Women Referred to Gonabad Urban Health Centers	Iran	Elderly women (aged 60 to 74) with medium loneliness referred to Gonabad urban Health Centres	104	Quasi-experimental study	None	Group	UCLA loneliness scale – version 3 (20 items)	Based on health promotion model in which cognitive-perceptual factors (such as perceived benefits and barriers) influence involvement in health promotion behaviours; emphasis on self-efficacy	Intervention led to a significant decrease in loneliness and perceived barriers - and increase in perceived social self-efficacy and perceived benefits
Chiang et al., 2010 - The effects of reminiscence therapy on psychological well-being, depression, and loneliness among the institutionalized aged	Taiwan	Institutionalized elderly people aged 65 years and over	92	RCT	Waiting list control	Group	UCLA loneliness scale – version 3 (20 items)	Sense of self/ well-being/ increased awareness of feelings (interaction in groups important factor)	Reduction in loneliness in comparison to control (3-month)

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
Cohen-Mansfield, J., Hazan, H., Lerman, Y., Shalom, V., Birkenfeld, S., & Cohen, R. (2018). Efficacy of the I-SOCIAL intervention for loneliness in old age: Lessons from a randomized controlled trial .	Israel	Older adults aged 65 years and over who were not depressed, had adequate cognitive function and significant loneliness	89	RCT	No treatment	Group and individual	UCLA Loneliness scale – short form (8 items)	Addressing psychosocial barriers, such as low social self-efficacy	Significant difference in loneliness at the end of the intervention and at 3 month follow-up compared to control group
Conoley & Garber, 1985 - Effects of Reframing and Self-Control Directives on Loneliness, Depression, and Controllability	USA	University students - depressed and lonely females	57	RCT	self-control directives Waiting List Control	Individual	UCLA loneliness scale – version 3 (20 items)	Attributional styles – perceptions of loneliness	No difference in loneliness compared to control group
Creswell et al., 2012 - Mindfulness-Based Stress Reduction training reduces loneliness and pro-inflammatory gene expression in older adults: A small randomized controlled trial	USA	Healthy older adults aged 55–85 years.	40	RCT	Waiting list Control	Group and individual	UCLA loneliness scale – version 3 (20 items)	Distance from cognitions relating to social threat/distress and negative affect	Decrease in loneliness compared to waitlist control

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
Fatollahzadeh , Saadi , Ipchi , Saadati , & Rostami , 2017 - The effectiveness of Based on acceptance and commitment therapy education on reducing loneliness among the elderly with empty nest syndrome	Iran	Older adults with Empty Nest Syndrome	30	Quasi-experimental	None	Information missing	Information missing	Acceptance and commitment therapy	Decrease in loneliness Only abstract available in English
Gaggioli et al., 2014 – Intergenerational Group Reminiscence: a potentially effective intervention to enhance elderly psychosocial wellbeing and to improve children’s perceptions of aging	Italy	Older adults and students	32 older adults 114 students	Pre- and post-measures	None	Group	The Italian Loneliness Scale (ILS)	Intergenerational reminiscence; self-esteem Identity	Decrease in loneliness
Haslam et al., 2016 - GROUPS 4 Health: Evidence that a social-identity	Australia	Young adults – isolated or distressed	158	Non randomised control design	No treatment	Group	UCLA Loneliness scale –	Social identity	Experimental group – reduction in loneliness

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
intervention that builds and strengthens social group membership improves mental health							short form (8 items)		
Haslam et al. (under review) – GROUPS 4 HEALTH reduces loneliness and social anxiety in adults with psychological distress: Findings from a randomized controlled trial	Australia	Adults with social isolation, and a mental health diagnosis or symptoms of depression (mild or above)	120	RCT	Treatment as Usual	Group	UCLA Loneliness scale – short form (8 items)	Social identity	G4H produced a greater reduction in loneliness and social anxiety, fewer general practitioner visits at follow-up and a stronger sense of belonging to multiple groups
Hopps, Pepin & Boisvert, 2003 - The effectiveness of cognitive-behavioral group therapy for loneliness via	Canada	18 years old or older Chronically lonely people with physical disabilities	19	Non randomized Group Comparison Study	Waiting List Control	Online Group	UCLA loneliness scale – version 2 (20 items)	‘Negative or distorted cognitions and automatic thoughts pertaining to social situations’	Felt less lonely post-intervention compared to a waiting-list control group

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
interrelay-chat among people with physical disabilities									
Jarvis, Padmanabhanunni & Chipps, 2019 - An Evaluation of a Low-Intensity Cognitive Behavioral Therapy mHealth-Supported Intervention to Reduce Loneliness in Older People.	South Africa	Older adults aged 60 years and over experiencing loneliness.	29	RCT	Usual care	Online Group Individual	De Jong Gierveld Loneliness scale (6 items)	Psycho-education maladaptive cognition linked to loneliness, reflect on the cognitive distortion	Significantly improved cognition and a reduction in loneliness post-intervention (except social loneliness) and was maintained one month after the active intervention.
Käll et al., 2019. Internet-based Cognitive Behavior Therapy for Loneliness: A pilot Randomized Controlled Trial	Sweden	General population experiencing chronic loneliness	73	RCT	Waiting List Control	Individual (digital intervention)	Swedish version of UCLA Loneliness Scale - version 3 (20 items)	Cognitions and behaviours associated with loneliness	Felt significantly less lonely post-intervention compared to control waiting-list group

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
Kremers, Steverink, Albersnagle & Slaets, 2006 - Improved self-management ability and well-being in older women after a short group intervention	The Netherlands	Single women (55+ years)	63	RCT	No treatment	Group	De Jong Gierveld Loneliness scale (11 items)	Self-management ability	No difference in loneliness reduction compared to controls
Lim et al. (in press) - A pilot digital intervention targeting loneliness in youth mental health	Australia	Community young adults with social anxiety disorder and university students with no mental health issues. Both groups report loneliness	20	Uncontrolled single group; three time points with qualitative interviews	None	Individual (digital intervention)	UCLA loneliness scale – version 3 (20 items)	Positive psychology strengths-based approach using a digital smartphone tool	Decline in loneliness over time, but no comparison group
Lim, Penn, Thomas, & Gleeson (2019) - Is loneliness a feasible target in psychosis?	Australia	Early psychosis service users who report loneliness	18	Uncontrolled single group; three time points	None	Group	UCLA loneliness scale – version 3 (20 items)	Positive psychology/strengths-based approach using a six-week group therapy program	Decline in loneliness over time, but no comparison group
Lindsay et al., 2019 – Mindfulness training reduces loneliness and	USA	Community adults	153	RCT	Coping control (no mindfulness content)	Individual (smartphone app)	UCLA loneliness scale –	Acceptance toward present-moment experiences	Monitor and accept reduced loneliness

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
increases social contact in a randomized controlled trial						intervention)	version 3 (20 items)		significantly more than monitoring only or control condition
McWhirter & Horan, 1996 - Construct Validity of Cognitive Behavioral Treatments for Intimate and Social Loneliness	USA	Volunteers for a University Counselling Centre	44	RCT	Self-help group	Group	UCLA loneliness scale – version 3 (20 items)	Attributional styles	Social treatment condition - decreased feeling of intimate and social loneliness
Routasalo et al., 2009 - Effects of psychosocial group rehabilitation on social functioning, loneliness and well-being of lonely, older people: randomized controlled trial	Finland	Older adults aged 75+ with subjective feelings of loneliness	235	RCT	Usual Care	Group	UCLA loneliness scale – version 3 (20 items)	Empowerment, mastery over own lives, and support for their self-respect	Intervention - no improvement in loneliness but more likely to find new friends and improvement in well-being
Seepersad, 2005 - Understanding and helping the lonely:	USA	College students: moderate to	374 (16 in treatm	Non-Randomized Group	No treatment	Group Individual	UCLA loneliness scale –	Insecure attachment styles (including	Reduced loneliness compared to

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
an evaluation of the LUV program		chronic level of loneliness	ent group)	Comparison Study			version 2 (20 items)	dysfunctional cognitive patterns)	control group
Tarugu, J., Pavithra, R., Vinothchandar, S., Basu, A., Chaudhuri, S., & John (2019)- Effectiveness of structured group reminiscence therapy in decreasing the feelings of loneliness, depressive symptoms and anxiety among inmates of a residential home for the elderly in Chittoor district	India	People in residential care home (mean age 71 years)	27	Quasi Experimental	None	Group	UCLA loneliness scale – version 3 (20 items)	Cognitive function	30% reduction in loneliness
Theeke, L., A., Mallow, J., A., Moore, J., McBurney, A., Rellick, S., & VanGilder, R. (2016)- Effectiveness of LISTEN on loneliness,	USA	Chronically ill, older adults aged 65-89 years	27	RCT	Attention control	Group	UCLA loneliness scale – version 3 (20 items)	Rethinking the experience of loneliness to enhancing meaning and facilitate moving forward	Reduced loneliness compared to control group

Reference	Country	Participants	Sample Size	Design	Control Group	Format of intervention	Measure of loneliness	Psychological factor(s)	Effectiveness Results
neuroimmunological stress response, psychosocial functioning, quality of life, and physical health measures of chronic illness									
Zhang, Fan, Huang & Rodriguez, 2016 - Mindfulness training for loneliness among Chinese college students: A pilot randomized controlled trial	China	College students with elevated loneliness	50	RCT	No treatment	Group	Chinese college student loneliness scale	Maladaptive cognitive patterns/ de-identify with perceived social threat	Reduction in loneliness compared to control group

Note. G4H = Groups 4 Health; RCT = randomised controlled trial; UCLA = University of California, Los Angeles.

UCLA loneliness scale - version 3 (20 items; Russell, 1996); UCLA loneliness scale – version 2 (20 items; Russell, Peplau & Cutrona, 1980); UCLA Loneliness scale – short form (8 items; Hays & DiMatteo, 1987); De Jong Gierveld Loneliness scale (11 items; De Jong Gierveld & Kamphuis, 1985); De Jong Gierveld Loneliness scale (6 items; De Jong Gievelde & Van Tilburg, 2010). Not all measures of loneliness used in the studies are validated.

Synthesis of findings from Table 1

Our searches identified 22 studies of initiatives and approaches that have an implicit or explicit theory of change focused on changing individuals' thoughts and feelings about loneliness. The identified interventions were developed for and tested in a wide range of populations and ages. Nine of the studies were tested in an older adult/elderly population, six in young adults and students, five in adults or the general population and two in those with a mental or physical health condition. Due to the specificity of the populations, the developed interventions may only be suitable for the populations in which they were tested and the results may not be generalizable.

The majority of the studies focused only on psychological factors rather than attempts to integrate interventions from both a psychological and community based approach. The exceptions were the Groups 4 Health (Haslam et al., 2016, under review) and I-SOCIAL (Cohen-Mansfield et al., 2018) interventions, both of which can be seen as psycho-social interventions i.e. importantly bridging the two areas. **It is likely that interventions that combine both psychological and social approaches will show the most promise and further work is needed to understand how to best integrate the psychological and social factors of loneliness.**

In other areas of public health there has been recent focus on the use of digital interventions and apps, and use of such technology may be particularly relevant for psycho-social interventions. The most recently published large scale study on psychological strategies conducted by Lindsay and colleagues (2019) included 153 community adults (mean age 32 years) who received variations of a 2-week smartphone-based mindfulness training for reducing loneliness and increasing social contact in daily life. Researchers found acceptance-skills training may allow loneliness to dissipate and encourage greater engagement with others in daily life. However, there is a significant risk in extrapolating the findings from such a study to older adults as there were strong views from experts that older people do not use apps and there is also a growing literature on how to optimise such apps for older adults. However, a recent qualitative study of 13 older adults aged over 65 years in South Africa (82% of whom were female, aged 65-87 years) who received training in a smart app intervention and WhatsApp reported very positive feedback (for example that 'This phone saved my life') and perceived a reduction in perceptions of loneliness and isolation, thus facilitating social network building, enhancing self-efficacy, and improving cognitive flexibility (Jarvis, Chipps & Padmanabhanunni, 2019). There are roll-outs of masterclasses in technology currently being piloted (see Objective 8). *It is recommended that further research be conducted to understand the potential usefulness of digital and other initiatives to change individuals' thoughts and feelings about loneliness taking into account both individual psychological and community factors (Recommendation 2).*

The current evidence base, despite growing, is relatively small and our review features research of varying strength and robustness. Our search strategy identified twenty-two studies that investigated interventions focusing specifically on internal thoughts and feelings to reduce loneliness (see Table 1). Thirteen of these studies utilised a randomised controlled trial design, a research methodology considered to be the most scientific and rigorous approach for evaluating the effectiveness of psychological interventions. Robust randomised controlled trials typically feature one group (or more) of participants randomly chosen to receive the intervention(s) of interest, and at least one group receiving an 'active control' that controls for common non-specific factors of the intervention. Within the 13 randomised controlled trials, three tested a psychological intervention against an 'active control' group. The remaining studies featured either a waiting-list control, or treatment as usual, which can lead to an inflation of any observed effects that suggest that the psychological intervention is effectiveness. The other included studies, despite not being randomised controlled trials, still provide a valuable insight into what psychological approaches may work for addressing loneliness.

Another important aspect to consider regarding study design is the size of the sample. Some studies were trial or pilot studies of feasibility and acceptance and a substantial number featured small samples, and may not be sufficiently powered which means that it is not possible to draw any conclusions from a lack of a significant finding. Interventions that did not appear to reduce loneliness in studies with a small sample could still therefore

be promising and perhaps may be proven as an effective intervention in a larger, suitably powered, study. Furthermore, it is important to recognise that absence of evidence is not evidence of ineffectiveness.

Overall, it appears that there is consistent evidence for both group and individual interventions, delivered in a range of formats with different interventions including those addressing social identity, attribution, self-efficacy and other barriers to accessing community-based interventions. It is likely that a breadth of formats will be effective in addressing the psychological aspects of loneliness, ranging from one-to-one intensive support to broader public health campaigns. It is not possible to identify one intervention that 'stands out' above the others as the table illustrates that while there are some studies with good designs (randomised controlled trials), many have compared a psychological intervention against a waiting list control group so it is difficult to determine which of two different types of intervention may be better.

Psychological interventions with loneliness as a secondary outcome

Table 1 shows that there has been interest in psychological interventions that focus on addressing loneliness. However, while most of the relevant evidence involves strategies that directly target loneliness, loneliness can also be reduced through indirect strategies where a different variable is the primary intervention target. For example, what happens to loneliness if depression is successfully addressed? Understanding what happens to loneliness when it is not a direct target of treatment is important as it has implications for where to focus limited resources. Table 2 shows the impact of a range of psychological interventions that measured loneliness as a secondary outcome. The studies were identified using the same processes as were used to extract the information in Table 1. Seventeen additional studies were identified (12 randomised controlled trials). They include studies that addressed grief, depression, fear of falling, psychological distress associated with health related issues such as HIV/AIDS and cancer, and general distress.

Table 2: Psychological interventions with loneliness as a secondary outcome

Reference	Country	Participants	Sample Size	Design	Measure of Loneliness	Target of intervention	Effectiveness Results
Brodbeck et al. (2019) Evaluation of a guided internet-based self-help intervention for older adults after spousal bereavement or separation/ divorce: A Randomised Controlled Trial	Switzerland	Adults who had experienced spousal bereavement or separation/divorce	110	RCT	De Jong Gierveld Loneliness scale (6 items)	Prolonged grief symptoms	Compared to the control group, the intervention resulted in significant reductions in loneliness
Crisp, Griffiths, Mackinnon, Bennett & Christensen. (2014) - An online intervention for reducing depressive symptoms: secondary benefits for self-esteem, empowerment and quality of life.	Australia	18-65 years, Kessler Psychological Distress score of more than 22	298	RCT	UCLA loneliness scale – version 3 (20 items)	Online intervention to reduce depression	No significant effect of any intervention group over time, or difference between the control condition and any of the intervention groups at any of the assessment periods
De Vries et al., 1997 - Phase II Study of Psychotherapeutic Intervention in Advanced Cancer	US	Adults with a malignant neoplasm	96 (35 evaluated)	Single group design	De Jong Gierveld Loneliness scale (11 items)	Experiential-existential counseling: main goal to slow cancer progression	No change in loneliness at post-treatment compared to baseline
Duberstein et al., 2018 - Effectiveness of Interpersonal Psychotherapy-Trauma for Depressed Women	US	Women with current major depression and	162 (84 IPT-T. 78 Clinic psychology	RCT	UCLA loneliness scale – version 3 (20 items)	depression & PTSD symptoms via focusing on trauma-related	Greater reductions in PTSD symptoms/no difference in depression symptoms at 8-

With Childhood Abuse Histories		experience of sexual abuse before 18 using a community mental health centre				interpersonal patterns	months. IPT-T lead to larger reductions in loneliness at 8-months.
Heckman et al., 2006 - A Telephone-Delivered Coping Improvement Group Intervention for Middle-Aged and Older Adults Living With HIV/AIDS	US	Adults (50+) living with HIV/AIDS	90 (44 immediate treatment , 46 delayed treatment)	Lagged-treatment control group design.	UCLA Loneliness Scale (10-item)	Improvement of adaptive emotion-focused coping strategies	Immediate treatment group had reduced use of avoidance coping compared to delayed group. No effects on loneliness compared to delayed treatment. Delayed treatment group reported significant post-intervention reduction in loneliness
Hulsbosch, Nugter, Tamis & Kroon (2016) Videoconferencing in a mental health service in The Netherlands: a randomized controlled trial on patient satisfaction and clinical outcomes for outpatients with severe mental illness	The Netherlands	Adults with severe and enduring (at least 2 years) DSM-IV mental health disorders and associated impairment in daily functioning	93 (47 videoconferencing and 46 care as usual)	RCT	De Jong Gierveld Loneliness scale (11 items)	Patient satisfaction Reduction in service use	No statistically significant time by treatment interaction effect

Knowles, Stelzer, Jovel & O'Connor (2017) A pilot study of virtual support for grief: feasibility, acceptability and preliminary outcomes	US	Older adult widow(er)s	30 (18 Virtual Support and 12 grief website)	Controlled pilot study	UCLA loneliness scale – version 3 (20 items)	Reduced depression, grief intensity, grief cognitions, yearning, loneliness, perceived stress and improved sleep quality	Both the virtual reality (VR) support group and the grief website group showed significant rates of decrease in loneliness over the 3 study time points while controlling for relevant covariates ($p < 0.05$). The VR support group did not show a greater improvement in these outcomes compared to the active control grief education website.
O'Donnell, 2017 – Pilot RCT of Mindfulness-Based Stress Reduction (MBSR) Versus Progressive Muscle Relaxation (PMR) to Reduce Symptoms of Distress Among Elderly Dementia Caregivers: Results at One Year Post-Intervention	US	Older adults caring for someone with a neurocognitive disorder	29 (15 MBSR. 14 Progressive Muscle Relaxation)	RCT	UCLA loneliness scale – version 3 (20 items)	Reduced stress and improvement in emotional resilience	Group had no difference in outcomes of depression or loneliness at 1 year follow-up. Stress reduction was greater for PMR group
Parry et al., 2016 – Cognitive-behavioural therapy-based intervention to reduce fear of falling in older people: therapy	UK	Older adults (60+) with a significant fear of falling	415 (210 CBTi. 205 control)	Parallel-group patient randomised	De Jong Gierveld Loneliness scale (11 items)	Reduce fear of falling	Reduction in fear of falling – no impact on loneliness

development and randomised controlled trial – the Strategies for Increasing Independence, Confidence and Energy (STRIDE) study				controlled trial			
Pynnönen, Törmäkangas, Rantanen, Tiikkainen & Kallinen (2016) Effect of a social intervention of choice vs. control on depressive symptoms, melancholy, feeling of loneliness, and perceived togetherness in older Finnish people: a randomized controlled trial	Finland	Adults aged 75 to 79 with reported loneliness or melancholy	223 (129 intervention group, 128 control)	RCT	One item: <i>'Do you feel lonely?'</i> rated on a–3 point Likert scale	Depressive symptoms, melancholy, loneliness, and perceived togetherness	No reduction in depressed mood; positive changes in loneliness
Saulsberry et al., 2012 - Randomized Clinical Trial of a Primary Care Internet-based Intervention to Prevent Adolescent Depression: One-year Outcomes	US	Adolescents with depression	83 (43 internet program & motivational interview. 40 internet program & brief advice)	Phase II RCT	One item – <i>'I felt lonely'</i> – 4-point likert scale	Depression	Both groups had reduced depressed mood following intervention. Both groups also experienced a reduction in loneliness. Whole sample: reduced depression and loneliness at six-weeks and one-year
Schoenleber & Gratz, 2018 - Self-Acceptance Group Therapy: A	US	Trans-diagnostic outpatient clinical	35 (24 SAGT. 11 control)	Open trial design	UCLA loneliness scale –	Reducing shame and related psychological concerns and	SAGT completers: Improvement in self-acceptance & shame at post-treatment &

Transdiagnostic, Cognitive Behavioral Treatment for Shame		sample.(18+) with elevated trait shame			version 3 (20 items)	improving self-acceptance and quality of life	follow-up. Reduction in loneliness at follow-up
Soucy, Provencher, Fortier & McFadden (2018) Secondary outcomes of the guided self-help behavioural activation and physical activity for depression trial	Canada	Aged 18 to 65 and presence of mild to moderate depressive symptoms	60 (20 behavioural activation, 20 physical activity, 20 WLC)	RCT	Laval University Loneliness Scale	Depression	A negative overall effect across time was revealed for loneliness PA and BA interventions had comparable effects on loneliness over time.
Suveg et al., 2017 - Still lonely: Social adjustment of youth with and without social anxiety disorder following cognitive behavioral therapy	US	Children with a primary diagnosis of generalized anxiety disorder, separation anxiety disorder, and/or social anxiety disorder	92 (received traditional CBT or EBT program with emotion regulation content)	RCT: secondary analysis	Asher Loneliness Scale (16 items)	Regulation of fear & worry. Emotion regulation	Analysis of whole sample: significant decrease in loneliness
Tkatch et al., 2017 - A Pilot Online Mindfulness Intervention to Decrease Caregiver Burden and Improve Psychological Well-Being	US	Older adult Caregivers	40	Single group feasibility study; pre - post	UCLA Loneliness Scale (3-item)	Reduce burden/increase self-compassion	Reduction in care giver burden. Reduction in loneliness

van der Houwen, Schut, van den Bout, Stroebe, & Stroebe, 2010 – The efficacy of a brief internet-based self-help intervention for the bereaved	The Netherlands	Adults who had experienced the death of a first degree relative and were still significantly distressed by the loss	757	RCT	2-items (<i>'I feel lonely even if I am with other people'</i> and <i>'I often feel lonely'</i>) on a 7-point Likert scale	Prolonged grief symptoms. feelings of emotional loneliness. increased positive mood	Results showed that writing decreased feelings of emotional loneliness and increased positive mood, although it did not affect grief or depressive symptoms.
Westerhof, Korte, Eshius & Bohlmeijer, 2018 - Precious memories: a randomized controlled trial on the effects of an autobiographical memory intervention delivered by trained volunteers in residential care homes	The Netherlands	Older adults living in residential care	86 (42 Precious Memories intervention. 39 control)	RCT	De Jong Gierveld Loneliness scale (11 items)	Depression via increasing specific positive memory retrieval	Reduction in depression symptoms and loneliness found in both groups – no difference between groups
Williams et al., 2004 - Psychosocial Effects of the Boot Strap Intervention in Navy Recruits	US	Navy recruits	801	Prospective design. Recruits at risk of depression allocated to receive BOOTSTRAP intervention	UCLA loneliness scale – version 3 (20 items)	Faulty thinking patterns/coping/ stress management to cope with stress of recruit training	Participants that received the BOOTSTRAP intervention used more problem-solving copings skills and experienced less loneliness at week 9

Note. DSM-IV = Diagnostic and Statistical Manual of Mental Disorders 4th Edition; IPT-T = Interpersonal psychotherapy for trauma; PTSD = Post-traumatic stress disorder; RCT = randomised controlled trial; UCLA = University of California, Los Angeles.

UCLA loneliness scale - version 3 (20 items; Russell, 1996); UCLA loneliness scale – version 2 (20 items; Russell, Peplau & Cutrona, 1980); UCLA Loneliness scale – short form (8 items; Hays & DiMatteo, 1987); De Jong Gierveld Loneliness scale (11 items; De Jong Gierveld & Kamphuis, 1985); De Jong Gierveld Loneliness scale (6 items; De Jong Gieveld & Van Tilburg, 2010); Asher Loneliness Scale (16 items; Asher, Hymel & Renshaw, 1984); Laval University Scale (20 items; Degrace, Joshi & Pelletier, 1993). Not all measures used in the studies are validated.

Synthesis of findings from Table 2

The evidence to support a positive impact of this heterogeneous group of psychological interventions on loneliness can be seen to be mixed; for example a guided internet-based self-help intervention for older adults after spousal bereavement or separation/ divorce found that the intervention impacted positively on loneliness (Brodbeck et al., 2019) whereas the intervention to address a fear of falling had no impact on loneliness (Parry et al., 2016). The mixed findings can be understood in terms of the wide range of impacts of the primary intervention (if a study targeting depression had no impact on depression then it is understandable that it has no impact on loneliness) and the varying degrees to which loneliness was a focus of the intervention itself. Overall we can conclude that it is worthwhile measuring the impact on loneliness when closely-related internal factors (such as mental health problems) and external factors (such as bereavement) are addressed, but no indirect approach to loneliness currently has a highly persuasive evidence base.

Synthesis and classification of the identified initiatives and approaches

Following our scoping review, we synthesised and classified the identified initiatives and approaches in terms of underlying model, how they are described, target population, provider, and other relevant variables. Table 3 provides a summary and taxonomy of the initiatives. The coding template was based on a logic model and followed the MRC framework for process evaluations of complex interventions (Moore et al., 2015). The initial classifications were developed collaboratively by the study team to ensure agreement and improve inter-rater reliability. In order to provide information about costs in relation to effectiveness, the table includes information about the nature of the intervention (duration, format) and professional level of the person providing the intervention. The table is colour coded based on the type of the psychological intervention. Cognitive behavioural interventions are highlighted in yellow, mindfulness interventions are highlighted in green, and studies of reminiscence therapy are highlighted in blue.

Example of how a mindfulness intervention can impact on loneliness

Philomena, 28, had been a twin in the womb but sadly her twin was miscarried in the 28th week of her mother's pregnancy. Philomena said that she always felt that part of her was missing and experienced a sense of chronic loneliness that she felt within her body. Although she had some good friends, she described herself as a 'homebody' who had never liked those noisy clubs. She had had some past intimate relationships but they hadn't worked out as her partner described her as 'too needy'. She had considered that when in an intimate relationship, partners should do everything together, be each other's best friend and nobody else was needed but she recognised that this could be quite off-putting. She was aware that there was a new cinema club starting in her local area, and she wanted to go but she felt that she should address her 'issues' so that she could go to the cinema club without 'baggage'. She decided to join a mindfulness group to help her relate better to people and feel less lonely so that she would be less 'needy' when she joined the cinema group. She found the mindfulness group very helpful, in particular with regard to the feelings of chronic loneliness within her body. She subsequently joined the cinema group where she made some friends and they all began to meet for a walk in the local park on a Sunday in between meeting at the cinema.

Table 3: Psychological interventions that directly focus on loneliness

Intervention inputs format e.g. weekly group mindfulness , weekly individual CBT	Provider i.e. who is delivering it	Population i.e. all the populations that the studies have covered	Intervention processes and actions i.e. changing social cognitions, exposure, removing psychological barriers to social engagement i.e. mechanism of change, relationship with thoughts. Mindfulness, stress reduction, social skills, relaxation, changing cognition, reminiscence/life review	Theoretical model	Immediate what is supposed to change (internally) Can merge internal and external e.g. decrease in negative social cognition for CBT	Intended outcome in addition to loneliness. Will be loneliness for everyone but some will have others e.g. improvement in health	Papers
Up to 10 individual sessions and up to 10 group sessions according to preference of participant	Graduate	Older people	Removing barriers to social engagement	Cognitive behavioural (including specific models of depression and loneliness)	Self-efficacy	N/A	Cohen-Mansfield et al. (2018)

Inter-relay chat in groups of 2-3 people (teletherapy)	Researcher	Chronically lonely people with physical disabilities	Changing cognitions and increasing goal-oriented behaviour	Cognitive behavioural (goal-oriented)	Cognitions	N/A	Hopps, Pepin & Boisvert (2003)
WhatsApp closed group four 90-min face-to-face sessions on factors underlying loneliness	non-psychologist	≥60 cognitively intact in residential care	Address maladaptive cognitions	Cognitive behavioural	Cognitions	Social cognition	Jarvis, Padmanabhanuni & Chipps, (2019)
Six, two-hour sessions in groups of 3-5	Counsellor	Students with chronic loneliness	Cognitive restructuring, role-plays, home-work in different loneliness domains	Cognitive behavioural	Attributional styles, social relationships	N/A	McWhirter & Horan (1996)
Eight weeks of CBT delivered by the internet with guidance	Researcher	General population	Formulation, cognitive restructuring, behavioural experiments, behavioural activation	Cognitive behavioural	Cognitions and behaviour	Quality of life, depression, worry, social interaction anxiety	Käll et al., (2019)
Two weekly 30 minute interviews	Researcher	Students	Reframe loneliness and improved self-control to overcome loneliness	Cognitive behavioural	Attributional Style	N/A	Conoley & Garber (1985)

Five, two hour sessions in group format	Researcher	Chronically ill older adults	Targeting stress mechanism linking health and loneliness	Cognitive behavioural	Encouraging rethinking the experience of loneliness to enhancing meaning and facilitate moving forward	salivary cortisol and DHEA, interleukin-6, interleukin-2, depressive symptoms, perceived social support, functional ability, quality of life, fasting glucose, blood pressure, and body mass index.	Theeke et al., (2016)
Seven weeks for 2 hours in structured group format	Researcher	General public	Programme information modules about loneliness, assignments, weekly discussions, journaling, and an online reference	Psychoeducation	insecure attachment styles (including dysfunctional cognitive patterns), poor social skills, and ineffective coping	Attachment styles, social skills, coping, depression, alcohol use, self-disclosure, self-esteem	Seepersad (2005)
Four sessions (two times in a week), four people in each group; each session was 1 hr	Researchers	Older people with loneliness	Removing barriers to social engagement	Health promotion	Self-efficacy/ positive self-evaluation	Variables related to Health Promotion Model - perceived benefits and barriers, self-efficacy, interpersonal effectiveness	Alaviani et al., (2015)
Six weekly meetings, 2.5 hrs each	Two female leaders	Single women above 55	Six key self-management abilities	Self-management	Self-efficacy and a positive frame of mind	Self-management and wellbeing	Kremers, Stteverink,

in groups of 8-12.			including cognitive abilities	and wellbeing theory			Albersnagle & Slaets (2006)
Eight weekly 120-min group sessions, a day-long retreat in the sixth or seventh week, and 30-min of daily home mindfulness practice	Mindfulness teacher	Older people	Meditation to change relationship with loneliness	Mindfulness Based Stress Reduction	Pro-inflammatory gene expression and protein biomarkers	Health related behaviour such as sleep quality and exercise	Creswell et al., (2012)
2-week smartphone based mindfulness training		Community participants	Orientation towards openness and acceptance of present-moment experiences	Mindfulness	Equanimity with feelings of loneliness and social disconnect	Increased social contact measured by ambulatory assessments	Lindsay et al., (2019)
8 weekly sessions, two hours	Mindfulness teacher	College students with elevated loneliness	Meditation to change relationship with loneliness; psychoeducation about loneliness	Mindfulness	De-identify with perceived social threat	N/A	Zhang et al., (2016)
Groups of 5-9 participants;	Two provisionally	Adults with social isolation	Social group belonging	Social identity hypothesis and	Social identity	Social anxiety, depression, GP visits and sense of belonging to multiple groups	Haslam et al. (2016; under review);

five sessions of 60-90 minutes	registered psychologists	and mental health needs		identification hypothesis			
Smartphone application delivered over 6 weeks	Material developed by psychologists and further co-produced by consumers	Lonely young people with or without a social anxiety disorder	Strengths-based approach	Positive Psychology Interventions	Improving capacity to build personal and social relationships	App material found to be highly acceptable and feasible Likely to benefit young people in terms of reducing loneliness	Lim et al., (2019)
Group Therapy Program conducted over 6 weeks Optional booster session	Psychologist, provisionally registered psychologist, mental health nurse, occupational therapist, researcher	Lonely young people with psychosis	Strengths-based approach	Positive Psychology Interventions	Improving capacity to build personal and social relationships	Significant reductions in loneliness and other mental health (social anxiety, depression, paranoia) and significant improvements in psychological wellbeing from baseline to post-treatment	Lim et al., (2019)
Psychosocial group rehabilitation	Nurse	Older adults	(i) art and inspiring activities, (ii) group exercise and discussions or (iii) therapeutic writing and group therapy to facilitate	None specified but general benefits of groups, potentially via group identity	Empowerment, peer support and social integration	Empowerment and self-esteem	Routasalo et al., (2009)
Six sessions of 1 hr, groups of 15;	Nurse/researcher	Older adults	Remembering school days, jobs, family and relationships	Reminiscence therapy	Cognitive function	Generalized Anxiety	Tarugu et al., (2019)

Reminiscence therapy			and favourite items		Increasing: sense of purpose Sense of belonging		
Three weekly meetings, 2 hrs; 2 seniors and 6-8 pupils	Psychologist	Older adults and students	Sharing personal stories and materials, writing, uploading to website	Intergenerational reminiscence therapy	Increase in self-esteem Identity	Children's perceptions of aging; quality of life	Gaggioli et al., (2014)
Eight sessions, group format, 90 mins	Researcher	Older people	Ego-integrity, mastery, meaning of life, and social integration	Reminiscence therapy	Increased sense of belonging, Psychological well-being including mental health	Reduced negative feelings and depression	Chiang et al., (2010)

Note: Yellow = cognitive behavioural interventions; green = mindfulness interventions; blue = reminiscence therapy.

Synthesis of evidence of effectiveness, cost-effectiveness and learning around process, implementation, sustainability and scalability

Formal evidence of effectiveness is given in Table 1. These studies indicate that there are some effective psychological interventions for loneliness. These interventions address a range of different factors including attributions, social cognition, self-efficacy and group identity. The interventions have been evaluated in several randomized controlled trials conducted by different research groups across the world, although not all these trials are based on suitable sample sizes, limiting the conclusions that can be drawn. However, with the exception of Groups4Health and I-SOCIAL there have been relatively few interventions that do try to address both psychological and social factors, and the studies on psychological strategies have often compared the intervention to a waiting list control rather than an active intervention.

One additional important point is that none of the studies report adverse events from the psychological intervention. Psychological interventions can have adverse events (Rozental et al., 2016) and it may be the case that for some individuals specific interventions do some harm. For example, reminiscence therapy could exacerbate the sense of loss; cognitive behaviour therapy could make the person feel as though it is all their fault that they are unable to form meaningful relationships, and group based interventions may paradoxically increase a sense of loneliness if the person feels unable to connect to others in the group (who all seem to be getting along). Understanding who does not complete the interventions and the reasons why can be difficult to research but it is important to make attempts to do so. *It is recommended that psychological therapies for loneliness report adverse events and individual differences in responsiveness to interventions alongside group effects (Recommendation 3).*

It is also noteworthy that evidence of effectiveness was largely confined to a relatively short follow-up period and that long-term studies examining the impact of such interventions on loneliness were lacking. This is particularly important given the adverse life events such as bereavement that can trigger loneliness and such interventions are designed to improve resilience to such life events. Time-frames of at least one year, preferably five years, would help understand the natural course of loneliness in response to such events. Such studies should also ensure that they have sufficient samples to be able to draw conclusions about the impact of the interventions. *It is recommended that longer-term evaluations of the impact of psychological treatments on loneliness are conducted (Recommendation 4).*

There was a noticeable relative absence of 'acceptance and commitment therapy' as an intervention for loneliness. Research into this approach with loneliness would be of interest given that acceptance and endurance are key themes in loneliness, and that important components of this are accepting what people could live with, enduring some things that are harder to live with and accepting what they have learnt from previous experiences of transient loneliness. It also has a great deal of face validity in terms of acceptance of adverse life events that can precipitate loneliness, and such an intervention is a first-line intervention for chronic pain which commonly co-occurs with loneliness due to ill-health. The study from Lindsay et al. (2019) illustrated the potential importance of acceptance within a mindfulness based intervention and there is some interesting preliminary work in other areas (Fatollahzadeh, Saadi, Ipchi, Saadati & Rostami, 2017). It is important to emphasise that such an approach is not simply passive resignation of an unhappy fate but rather a re-evaluation of their current situation.

It is recommended that the efficacy of acceptance and commitment therapy be formally evaluated as an intervention for loneliness, and that existing trials of acceptance and commitment therapy consider evaluating its impact on loneliness (Recommendation 5). It should also be noted that such studies should have pilot trials that assess feasibility and acceptability and involve people with lived experience at all stages.

Additional searches specifically relating to cost-effectiveness, learning around process, implementation, sustainability of psychological interventions were conducted alongside the additional input of experts. The key report in the field continues to be McDaid, Bauer and Park (2017). However, much of the information focuses on social and health-related costs rather than the cost-effectiveness of psychological interventions and this is a gap that needs to be filled. A further recent review of 12 studies of the economic costs of loneliness and social isolation has been conducted, but inconsistencies in terminology and measurement prevented the authors from drawing firm conclusions about the economic burden of loneliness and the cost-effectiveness of interventions, and further research is needed (Mihalopoulos et al., 2019). More generally, a 2015 review concluded that it was promising that guided internet interventions were cost effective compared to other interventions but more data were needed (Donker, Blankers, Hedman, Ljotsson, Petrie, & Christensen, 2015). However, for lonely individuals and older adults in particular, it cannot necessarily be assumed that internet and app-delivered interventions, although they cost less, are more cost-effective than those delivered in person. This is because such interventions may have high attrition rates and effectiveness may be lower as well as the cost. Similarly, little information exists in terms of **implementation, sustainability and scalability** although app-based interventions and those that are more 'guided self-help' delivered via the internet are intrinsically more scalable than those that require highly qualified, specialised experts to deliver. It is worth mentioning that the most scalable psychological interventions are those associated with the 'Improving Access to Psychological Therapies' programme (IAPT). This Government initiative began in 2008 and focuses on delivering evidence-based interventions for anxiety and depression. Given the strong influence of mental health on the experience of loneliness, addressing depression and anxiety directly is likely to have a significant positive impact on loneliness. However, statistics indicate that only 7% of those over 65 years accessed IAPT in 2015-16 despite reported recovery rates of 60% which are higher than the rest of the population (46%). Furthermore, completion rates for such psychological therapies are 74% compared to 68%. Services are seeing two-thirds less older people than expected (Burns, 2017), and those aged 85 years and over are five times less likely to be referred to IAPT than those aged 55-59 years (Walters, Falcaro, Freemantle, King & Ben-Shlomo, 2018). Although older adults can self-refer to such services, there is clearly a 'catch-22' situation with people lacking in self-efficacy being less likely to refer themselves. There are some promising initiatives to try to improve uptake of such services (see chapter 3). IAPT services operate within a 'stepped care' model in order to optimise cost-effectiveness, and the average cost of a course of low intensity psychological therapy is £493, with high intensity treatment costing £1,416 (Prina et al., 2014, Radhakrishnan et al., 2013). *It is recommended that locally available psychological therapies services, including those delivered by IAPT and the third sector, are encouraged to include a measure of loneliness for all work with Older Adults (Recommendation 6).*

Such data would allow an in-depth understanding of the clinical and cost-effectiveness of psychological treatments for depression and anxiety in addressing loneliness within a scalable model. There are some current projects working on the measurement of cost-effectiveness such as SHAR in Sheffield 'Extending the QALY', in which they are trying to develop a health economics measure that takes better account of loneliness alongside other health and social outcomes. *It is also recommended that research is commissioned to evaluate the measurement of cost-effectiveness of psychological interventions for loneliness (Recommendation 7).* Such research would require stakeholder input to selecting and adapting the most promising psychological interventions.

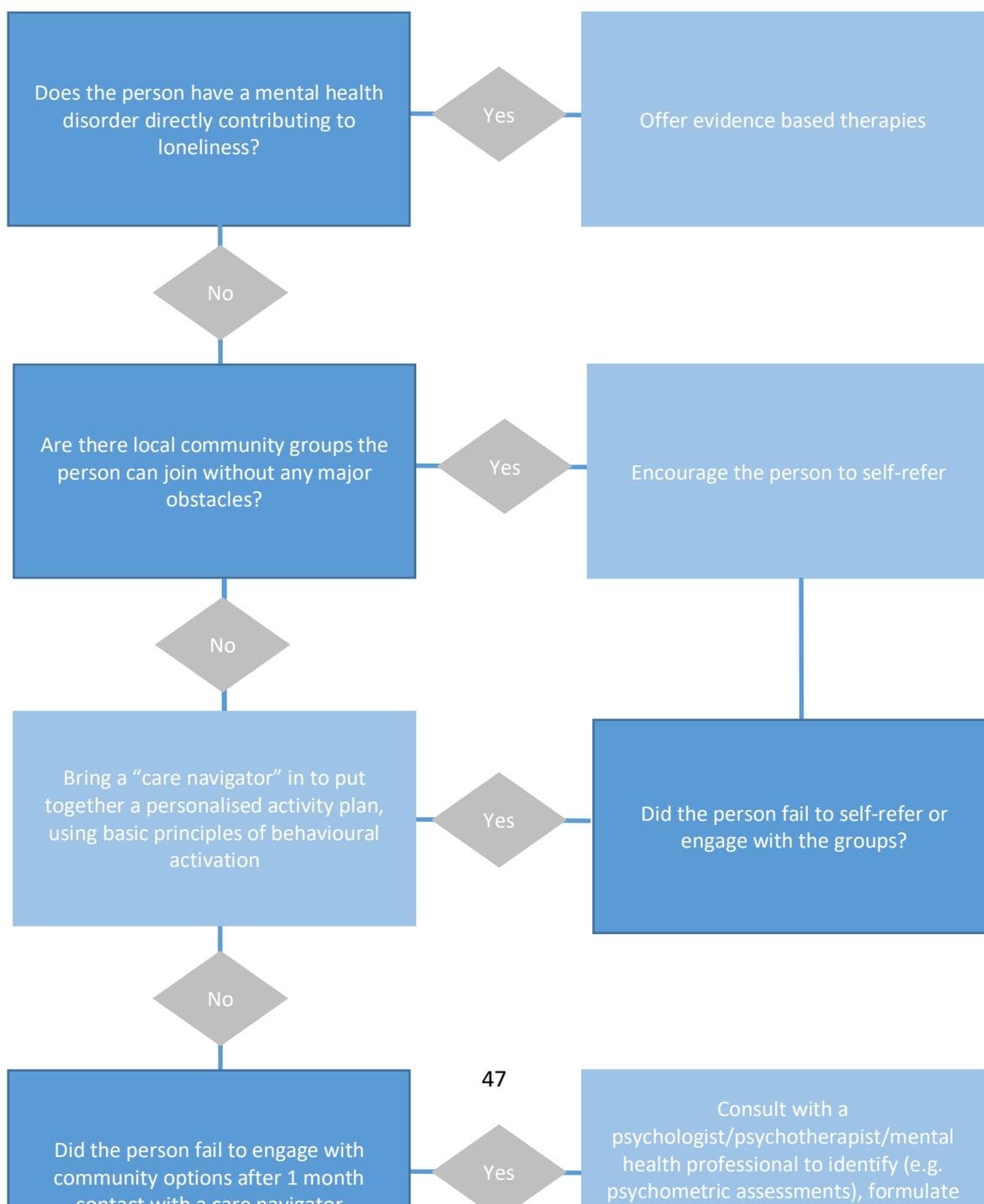
Chapter 3 - What Works Best For Whom Under What Circumstances

Given the range of psychological factors influencing loneliness, as well as the underlying environmental factors, life events and societal influences, it is not surprising that there is significant variation in treatment response across psychological therapies. There is a great deal of research across medical specialities to understand why some people respond to an intervention when others don't. Would it be the case that some people are better suited to one psychological treatment rather than another one? If so, how can we predict what will work for whom, under what circumstances? These questions have been applied more broadly in the field known as 'Precision medicine' or 'treatment selection'. A literature and internet search indicated that no studies had been

conducted with findings as applied to loneliness although Vinal Karania, Research Manager at Age UK highlighted the need for ‘further evidence for what works in reducing loneliness, for whom and how, is needed to help those supporting lonely people to more effectively use the resources available’ (Karania, 2018).

Consultation with the experts in this field on psychological treatment for mental health in general emphasised that the premise that individuals respond differently to treatment, and that these differences can be studied and characterized, and can be applied to loneliness. Such approaches involve using large scale data sets to identify variables that predict differential response to interventions. For such work to take place, it is necessary to use the Government’s recommended measure of loneliness across all studies in future. Consultation with Drs. Zachary Cohen (UCLA), Josh Buckman (UCL/Camden and Islington NHS Foundation Trust) and Jaime Delgado (University of Sheffield) together with input from the Stakeholder Event formed the basis of suggestions for how to move forward in applying personalised interventions to loneliness.

As highlighted in chapter 1, mental health problems are clearly associated with loneliness. Dr. Delgado suggested the following decision rule, which could usefully be applied to people with a mental health problem and loneliness **who have not previously received any psychological therapy**. As a first step, evidence based therapies should be offered to those with a mental health problem directly contributing to loneliness, and then should be supported to access local community groups and activities.



For people with mental health problems and loneliness who have already received some treatment for their mental health, it may be appropriate to consider intervening with loneliness directly using some of the interventions described earlier as the mental health problem may improve if loneliness was successfully addressed.

Dr. Cohen drew a helpful distinction between psychological interventions compensating for deficits (such as social skills training) compared to the strengths-based approach that capitalise on existing skills. The use of data to predict treatment outcome is a good way forward but there is substantial heterogeneity in the methods used which can give rise to different findings. Within personalised treatment, there will be very few factors that work on their own. Problems, including loneliness, have many different manifestations. An approach that models these many variables ('multivariate modelling') may be the best approach within big data sets to address these complex interactions. Within the field, however, there are many different approaches to such modelling, all of which are dependent on the variables that are being measured. The ultimate goal would be to produce something like the [Leeds Risk Index](#) or Personalised Advantage Index (deRubeis et al., 2014) for loneliness.

This approach has the potential to be a bridge between internal and external factors affecting loneliness. For example, both the development and maintenance of loneliness could be caused by or maintained by internal factors such as social cognition/fear, lack of interpersonal skills, as well as external factors such as decreased social support, poor physical health, bereavement, or living in residential care. When thinking about how to help people struggling with loneliness, when we have treatments that work and target different mechanisms (some target internal and others target community), then a multivariate model that looks at those factors together will help determine whether the targets/mechanisms of interventions can be matched to the patient's reality.

A key stage in personalising interventions is conducting a thorough assessment that can consider individual needs. Such assessments may include 'ecological momentary assessment' which involves repeated sampling of current behaviours and experiences in people's natural environments. The advantage of this methodology is that it focuses on the person's state emotions and reduces the risk of retrospective bias.

Finally, as complex as the question 'what works for whom under what circumstances' may be, it is also important to add 'and for how long'. Understanding what alleviates loneliness across all life stages and in the short- and long-term is critical for the success of a comprehensive intervention. It may be 'one intervention at one time' is not suitable even if that person were able to receive the optimal intervention for them since individual circumstances and psychological characteristics can change over time, highlighting the dynamic nature of loneliness within individuals.

Chapter 4: Potential Impact of Psychological Therapies on Loneliness and Related Adverse Experiences

There is a large literature addressing the topic of how psychological therapies might reduce loneliness and the distress associated with adverse events, particularly focusing on separation, life transitions and bereavement. Consideration of predisposing, precipitating and perpetuating factors is a particularly helpful framework for addressing this topic. Predisposing factors (i.e. underlying factors that put someone at risk of becoming lonely) that impact on the connection between loneliness and adverse experiences include partner status,

socioeconomic status, social network, health (physical and mental) and living situation as well as factors identified in relation to Objective 1. The quality of the existing social network and relationship with the deceased (e.g., was it the partner who was primarily responsible for the social arrangements) are considered by experts as key predisposing factors that contribute to loneliness.

Precipitating factors would be regarded as life transitions and adverse life events (e.g., illness, bereavement, retirement) that can trigger chronic loneliness. Longitudinal studies tracking how loneliness changes across time, have found that older adults who experience the death of a spouse demonstrate a greatest increase in loneliness, even compared with those who enter residential care (e.g. Dykstra, Van Tilburg & Gierveld, 2005). A large population-based study in the UK (Brittain et al., 2017) indicated that loneliness is strongly driven by the length of widowhood, with the most recently widowed reporting greatest loneliness. Transitions between key life stages (such as going to university, retirement, becoming a parent) can also trigger feelings of loneliness, despite being viewed as positive life events. Factors identified as increasing someone's risk of loneliness include marital status, increases in time spent alone in previous decade, poor current health, poorer health in old age than expected, and mental health problems (Victor et al., 2005).

Major life events can impact the range of psychological factors described earlier including an individual's identity, beliefs, capabilities, and behaviour (Robertson, 2016). Perpetuating factors (i.e. factors that determine whether someone becomes chronically lonely, and those that impact on the intensity of the experience) include both the availability and accessibility of appropriate social networks and activities. How one makes use of these depends on one's pre-existing psychological factors and coping style. Qualitative studies have explored potential explanations for the links between bereavement and loneliness, and participants have suggested factors like loss of a key attachment figure, different coping styles and uncertainty about the future. Future qualitative research should explore the response of social networks to someone who has experienced divorce, separation, bereavement, specific illnesses (lung cancer, HIV), life transitions or job loss, investigating how stigma might influence perceived available support, and how both these factors might influence loneliness.

As reported in Objective 1, mental health is a key psychological factor that influences, and is influenced by, loneliness. For example, loneliness and depression seem to have a complex two-way relationship (Cacioppo et al., 2010, Fried et al., 2016). Studies following people over time suggest loneliness and depression are somewhat separate, but in combination particularly tend to result in reduced wellbeing in older adults (Cacioppo et al., 2006, Luo et al., 2012). How resilient people are seems to partly explain varying vulnerability to being depressed when lonely (e.g. Gerino et al., 2017, Zhao et al., 2018). Objective 5 highlighted the importance of personalised approaches, which are tailored to individual needs. This is supported by interesting findings from longitudinal work by Böger et al (2018) that suggests that the reciprocal relationship between loneliness and low mood appears to grow weaker with increasing age.

Experts considered that there was an insufficient distinction in interventions between those aged 55 years and over and those over 75 or 80 years. Experiences of loneliness and needs are likely to be different in those aged 55-65, for example, and over 75 who experience more bereavement and health problems than their younger counterparts. Understanding loneliness in the 'oldest old' and how it changes over time as physical health declines is important.

As shown in table 2, some loneliness interventions have been developed specifically for those who are bereaved, recognising that loss of a key confidant(e) compounds the burden of grief and that the death taboo limits availability of social support. For example Knowles et al (2017) conducted a controlled pilot study evaluating an online interactive 8-week virtual reality support (VR) group for widow(er)s. Widow(er)s in the VR support group showed a significant improvement in depression over time compared to the control group. There were no differences between groups in grief severity, grief cognitions or loneliness across time. Similarly van der Houwen et al (2010) assigned bereaved individuals to an internet-based writing intervention or a waiting-list control. Results showed that writing decreased feelings of emotional loneliness and increased positive

mood, although it did not affect grief or depressive symptoms. Although not directly tackling loneliness, a recent systematic review and meta-analysis of 31 randomized controlled trials addressing psychological interventions for grief in adults found psychological interventions (including CBT, IPT, complicated grief therapy and grief support groups) to be effective both in the short- and longer-term (Johannsen et al., 2019). There was some indication that the most promising interventions were those delivered in an individual format, although the heterogeneity of the included studies and variability of study quality limited the conclusions that could be drawn (Johannsen et al., 2019). No data about loneliness was included in this review and further research is needed to understand the complex relationship between grief, depression and loneliness. As with the recommendation relating to the objective about personalising treatment and establishing cost-effectiveness of interventions, *it is recommended that research conducted on grief and other relevant life transitions includes a measure of loneliness, with repeated measures where possible, to establish how loneliness is affected by such interventions and how this relates to reductions in other adverse outcomes (Recommendation 8).*

Chapter 5: Approaches to Engage ‘Hard to Reach’ Groups

Many of those who are experiencing the highest levels of loneliness and isolation are often not engaging with any type of help. This may be due to stigma, lack of recognition of loneliness, or other health or personal circumstances which make it difficult for services and organisations to reach and engage with them.

For example, research has identified higher rates of loneliness among older lesbian, gay, bisexual, and transgender (LGBT) people than in the general population (Hughes, 2017). This may in part be due to health inequalities. For example, a recent report on health inequalities experienced by older LGBT people in the UK reported how the early experiences of older gay men and transgender women were characterised by physical and mental violence which have shaped later behaviour including patterns of access to health care (Beach, 2019). Current as well as historic discrimination and exclusion are likely to be important factors in loneliness. Carers of people with dementia are also highly vulnerable to feeling lonely and may not have the time or resources to access traditional services so combining support for the caregiver with support for the person with dementia as a complete ‘package of care’. Web-based resources such as the [toolkit from NIHR](#) designed to increase participation of Black Asian and Minority Ethnic (BAME) communities in research are valuable and could be adapted to increase engagement of such communities in initiatives to tackle loneliness. Understanding the individual’s perspective, personal experiences and addressing any cultural as well as individual concerns is essential to engaging those that are hard to reach. As before, it may be the case that hearing about the perspective of someone who has shared a similar experience or comes from a shared culture is particularly helpful in encouraging the person to benefit from psychological and/or community services.

It is likely that ‘hard to reach’ groups will vary across areas, but older adults, males, people from BAME backgrounds, those with mental and physical health needs, and LGBT people are vulnerable groups who often experience high levels of loneliness which is left unaddressed (Age Better Sheffield, 2018). There is no specific information on how to modify psychological approaches to loneliness in specific ‘hard to reach groups’ although there are helpful resources designed for some specific groups (e.g., <https://q42.org.uk/loneliness/>) and useful reports on loneliness and diversity (<https://www.campaigntoendloneliness.org/wp-content/uploads/CEL-Alone-in-the-crowd.pdf>). As the work on ‘what works for whom under what circumstances’ develops, it is anticipated that further helpful information will be obtained to identify specific approaches to engage those that are hard to reach. In the meantime, there are a number of promising approaches that may be relevant and helpful in engaging those that currently find it difficult to engage with psychological and/or community interventions. The factors that explain why ‘hard to reach’ groups are difficult to engage (stigma, geographical/time/financial barriers) underline the importance of conducting qualitative work in specific groups to explore how the needs of each group can be met most appropriately. Similarly, investment in well-designed pilot studies is important to ascertain the uptake of a newly-designed intervention prior to a full trial.

Promising approaches identified from within earlier objectives

It is also notable that some of the research studies described earlier highlight promising approaches to engage hard to reach groups, including those with additional physical and mental health needs. Many of these are technology-based (e.g., use of virtual reality and apps), for example forming 'WhatsApp' groups (Jarvis et al., 2019) but others combine social networking opportunities and psychological intervention in a person-centred and flexible manner. For example, the I-SOCIAL intervention by Cohen-Mansfield (2018) combines both individual and group sessions to optimise and personalise interventions to address unique challenges, whilst at the same time maximising opportunities to form a positive group social identity. The focus on older adults and, relatedly, chronic long-term health conditions within the national Improving Access to Psychological Therapies programme offers an exciting new opportunity to provide focused interventions to change thinking that can complement existing approaches. Again, it is important to note that promising approaches should be co-produced with the key stakeholders and assessed for feasibility and acceptability before any full scale evaluation.

Other promising approaches

Some of the simplest interventions appear to have significant promise. For example, there is promising work on the role of animals in reducing loneliness (Krause-Parello, Gulick & Basin, 2019) via addressing both external factors (such as exercise) and internal ones (such as depression). There is a great deal of work on digital interventions and in March 2019, [Vodafone](#) completed a report about how digital technology can help tackle loneliness among the over 50s. They also launched their techconnect scheme to provide 20 masterclasses in using digital technology across the UK. As with psychological treatments, the emphasis is on digital technology as one of the potential strategies to address loneliness that needs to be used in conjunction with community-based interventions. 'Web of Loneliness' is a Facebook group where people can support each other and highlight helpful psychological and community-based services. Other very welcome initiatives include 'Wavelength', a charity that 'fights loneliness' by providing televisions, radios and tablet computers to vulnerable and isolated people living in poverty, with the aim of reducing loneliness and social isolation. Accompanied by appropriate training in the use of the technology, such tablets and communications will facilitate the use of psychological support services. For example, the 'Find your local IAPT' service is a website address in which postcodes are entered. Trying to find such services in the absence of digital technology for those that are hard to reach with physical mobility issues would be significantly more difficult. Nevertheless, many people are resistant to technological interventions, and even among people who are willing to give them a try, their use is often not sustained. Despite the cost and convenience implications of the internet, the face-to-face element of individual and group social interactions should not be undervalued. Technology would optimally be used to supplement such interactions and guide individuals towards such support, but it should not be used as a replacement for real face-to-face interactions. The University of Bath is conducting a Loneliness in the Digital Age (LiDA) project to work with different communities experiencing different types of separation and social isolation, for example students leaving their home country or town to study in a UK university, remote workers, and informal carers providing full time care for a spouse, partner or other relative. The qualitative project will examine different episodes of loneliness and the potential role of empathy and trust in both mitigating and preventing such experiences (e.g., Vasileiou et al., 2017). The project will seek to develop new digital technologies to support new modes of facilitating empathy and trust between people, and evaluate the effects of the digital interventions developed.

It may be helpful for those with lived experience to be closely involved in all aspects of the design and delivery of support both because of their unique insights but also because it may be helpful to their own experiences. Provision of a loneliness resource guide can also be impactful as shown by a study in which a random sample of 50,000 individuals enrolled in a Medicare Advantage plan, by a national health and wellbeing company was scored using a model to predict propensity for loneliness (Song et al., 2019). The top 20% ($n=10,000$) of the sample, predicted to be most lonely and not eligible for Medicare before age 65 because of disability, was randomly assigned to an intervention ($n=5,000$) and control group ($n=5,000$). The intervention group was mailed

a loneliness resource guide that described loneliness, educated participants on related risk factors, and directed individuals to appropriate resources. Dissemination of the loneliness resource guide was associated with a reduction of ‘unhealthy days’ when compared to the control group. *It is recommended that community-based resource guides include a directory of psychological support, thus helping to integrate psychological and community-based support and vice-versa. More broadly, there should be more research and development on linking and integrating psychological and social approaches, both in assessment and in the help people are offered (Recommendation 9).*

Other simple initiatives include ‘No Isolation’ – a prototype tool for elderly people that enables families to log in and upload videos and photos for their elderly relatives to access. This has promise, but it is also important to bear in mind that some figures indicate that in the EU, 87 percent of people aged 75 years and over have never been online (Eurostat, 2018). Even initiatives that seem purely community based – such as ‘Men’s Sheds’ – have psychological benefits such as improvements in self-esteem and can give people the opportunity to share experiences of formal and informal psychological strategies to address loneliness. Such an intervention is a good example of the benefit of embedding initiatives within local communities to make them attractive and engaging rather than stigmatised. Such initiatives can act as a gateway to psychological as well as social interventions and may engage people who would not want to address their loneliness in a healthcare context. Understanding men’s experience of loneliness, as has been done in a qualitative study conducted by Age UK and the University of Bristol (Willis, Vickery, Hammond, Symonds, Jessiman & Abott, 2019) helps ensure an understanding of the varied psychological and social contributors to loneliness in older men and those groups particular at risk, and has led to practical guidance. For example, one-to-one interventions should be offered alongside group approaches and mixed generational groups may be particularly beneficial as these mirror social interactions in everyday life (Willis et al., 2019). There are a plethora of exciting initiatives, with 46 alone listed on the Age UK website, totalling £11m of funding. Many of these initiatives are community based (e.g. weekly friendship calls and afternoon tea groups) but complement psychological approaches and together can form an integrated holistic approach to tackling loneliness.

Promising interventions not specifically targeting loneliness

There are interventions that already exist that may contribute to alleviating loneliness but they are not specifically targeted at loneliness e.g. bereavement counselling, the “5 ways to wellbeing” programme, psychological interventions aimed at reducing mental health problems such as social anxiety, depression, and psychosis. Understanding the impact of these interventions on loneliness by including the Government’s measure of loneliness will enable identification of the most promising interventions, particularly for those who are experiencing additional problems such as bereavement, divorce or mental health difficulties.

Overcoming challenges

The Improving Access to Psychological Therapies programme focuses on older adults and provides interventions such as guided self-help that can be delivered in people’s homes, via the telephone. People can self-refer, which can reduce some of the stigma associated with seeing a GP about loneliness. Pure self-help (i.e. independently working through self-help materials without regular support from a practitioner) may also be an option but findings from other areas indicate that it is harder to persist with such programmes in the absence of external support. It is important that the psychological wellbeing practitioners and therapists as part of the IAPT programme fully understand the nature of loneliness in older adults. Simple ‘behavioural activation’ – an established treatment for depression that is part of the repertoire of interventions of such therapists – may be a useful technique as sedentary behaviour is linked to loneliness (Vancampfort et al., 2019). However, it is unlikely to be successful without understanding individual variability. For example, some older people do not like to spend time with other older people, so suggesting community-based interventions for older adults is unlikely to be well-received. It is important that they understand that older people want to do what they have always done throughout their life, and that their hobbies and interests don’t dramatically change after a particular age. They need to appreciate that there may be anxiety about accessing such services due to the

stigma associated with loneliness or admitting that they need help. They may be concerned that seeking such support will have consequences, for example, being viewed as unable to cope and being forced to go into a care home. They may also not believe that ‘talking therapy’ can be helpful for situations such as bereavement or divorce, and that a ‘stiff upper lip’ is more appropriate. Interventions focusing on ‘acceptance’ rather than active change can work on changing attitudes to solitude and may therefore be beneficial, as demonstrated in the Lindsay et al. (2019) study.

Self-help

Facebook groups are also being used to help people who are hard to reach in traditional ways. One such group is ‘Web of Loneliness’. The group has a separate chatroom and appears to serve a range of functions including a space to express feelings of loneliness and to gather information. One recent post shared an article written by Dr. Kurt Smith entitled ‘6 things to try when you feel lonely and alone’ from ‘belief.net’. The strategies included ‘change your opinion of yourself’, ‘find common ground’, ‘give of yourself’ and ‘talk to people’. While certain psychological factors are likely to be a barrier to following those suggested strategies among those with chronic loneliness, such suggestions may be helpful for those who feel transient loneliness.

Promising approaches for hard to reach groups being investigated in research trials

A search of the [clinical trials registry](#) identified multiple randomized controlled trials addressing loneliness, some of which are still in progress and will hopefully contribute further to the evidence base in due course. These include trials of computerized interventions, group-based behavioural interventions, stress management, laughter therapy and reminiscence therapy.

Centre for Loneliness

[The Centre for Loneliness](#) lists 46 projects on its website that include the evaluation of promising approaches for loneliness. The Centre for Loneliness published a report in May 2019 entitled ‘[Exploring how to develop effective services to reduce loneliness](#)’. The report provides six key lessons in setting up a new service, the first of which is to ‘think about who you want to help’ since their experience was that men, LGBT and BAME groups respond well when interventions are tailored to their needs. They emphasise the importance of the Age UK Loneliness Heat Map to help identify neighbourhoods with a high proportion of people at risk of being lonely. However, they do not consider how this may best be integrated with psychological services. Their other tips were to:

- Think about who you want to help
- Consider what you plan to offer
- Use appropriate marketing and language
- Capture your learning
- Factor in sufficient lead in time
- Measure and celebrate success.

Case example of the complexities of loneliness in hard to reach groups

Fasina, 73, was the primary carer for her husband of 50 years who had been diagnosed with dementia three years previously. Fasina and her husband were part of the Windrush generation and they had been under terrible stress and uncertainty about their rights to healthcare. Over the past three years Fasina had slowly lost contact with her friends as she was unable to leave her husband and when she did socialise she felt that her friends did not understand the physical and emotional demands that caring placed on her. Fasina often felt cut off from everyone, and everything. She did not want to burden her children with her own loneliness as they were worried about their father, and she felt strongly that it was her role to be the primary carer and that accepting help would be seen as a sign of failure and a dereliction of her duty. When she took her husband to his various appointments, she was often asked by kindly young nurses how she was, and was told to ‘take care of yourself too’ but Fasina didn’t think much of this. She lived in fear of the day that her husband

would no longer be able to be at home and frequently cried herself to sleep with loneliness and anxiety about the future.

Chapter 6: How can Psychological Approaches for Loneliness Work Alongside Existing Strategies?

It is clear from the accumulative body of research into loneliness that addressing individual psychological factors is likely to be necessary, but not sufficient alone, for addressing loneliness. Such provision needs to complement community-based and public health strategies for addressing loneliness. The initiatives in the area of provision of psychological support, described in relation to the previous objectives, do not exist in isolation and are primarily focused on removing barriers to accessing social support and building networks to reduce social isolation and loneliness. Individual psychological interventions can only be effective if people have the opportunity to connect with others.

The ‘Promising Approaches’ framework has been highly influential and already led to exciting initiatives to address loneliness such as the one run by [Age UK](#). Over 1000 older people have been supported by 8 participating local Age UKs and had their loneliness scores measured. The interventions included responding to individuals’ needs and providing practical and emotional solutions to build confidence and resilience, and empowering local health and community services to be aware of loneliness and the support that Age UK can offer in order to increase reach. Their new and existing approaches can be seen to target all levels of loneliness within the ‘Promising Approaches’ framework including Foundation services (i.e. services designed to address one or more of the key challenges faced in working with lonely individuals), Direct interventions (i.e. services and groups that have traditionally been thought of as loneliness interventions) , Gateway services (i.e. those that play a critical role in directly enabling existing relationships) and Structural enablers (i.e. transport and technology services that support the development of new structures within communities). Their testing of the ‘Promising Approaches’ framework is reported as increasing a person-centred approach and cross-referrals between teams and activities. This aims to generate more appropriate referrals of lonely older people due to embedding an ‘eyes on the ground’ approach and provision of information about loneliness to key people to improve confidence in signposting and referral older UK people to local Age UK organisations for support.

Third sector organisations can act as a bridge between the community and psychological services as they are aware of what is available ‘on the ground’ and are highly trusted. However, it is considered that more awareness and training to identify loneliness and evaluate the impact of interventions is required both within community organisations but also within primary care services. The GP contract makes explicit mention of loneliness with funding for a social prescribing link worker to deliver by 2020 on the commitment in the Government’s Loneliness Strategy that all local systems will have implemented social prescribing connector schemes (British Medical Association & NHS England, 2019). **Social prescribing is a potential opportunity for the successful integration of psychological and social approaches and ensuring that the new social prescribing link workers have an understanding of psychological strategies to address barriers to accessing community-based services is essential** – a simple solution would be for local low intensity psychological therapies services and training schemes to provide some bespoke training. Such training would also facilitate a better understanding of the psychological services available. *It is recommended that new social prescribing link workers are connected to their local low intensity psychological therapies services at the beginning of their role and receive training in working with people who are experiencing chronic loneliness (Recommendation 10).*

It was the view of the Stakeholders that Third Sector organisations were often using psychological strategies such as the strengths-based approach with little training and so were using different terminology such as ‘wellbeing’ strategies. Consistent, non-stigmatising terminology would help identify where community and psychological approaches are being integrated and their impact. The use of co-design (the involvement of stakeholders in the design process) and co-production (innovations involving stakeholders in the provision of

services) is essential to ensure that the integration of community and psychological approaches is meaningful and appropriate to the range of needs within the population experiencing loneliness. Although loneliness is a Government priority, lack of funding and resources represent huge barriers to service delivery and integration of different approaches, with community organisations being compelled to focus on their core activities as opposed to extended activities and evidencing impact. Similarly, the reduction in social care and home visits by staff working in health and social care is inconsistent with the drive to reduce loneliness. There is a need to balance the integrated service delivery with demands of measurement although the brief measure of loneliness recommended in the Government’s Strategy will minimise questionnaire burden and provide consistent assessment across psychological and community services.

The issue of the use of social media, apps and digital technology has already been discussed within the context of hard to reach groups. Such technology also has the power to help ensure integration between psychological and community based approaches, although over-use of social media is also identified as a factor that can increase loneliness at both individual and community levels. In their analysis of loneliness-related disclosures on Twitter, Mahoney and colleagues found that people both sought support for loneliness, but also provided psychological support and an increased sense of social connectedness for others (Mahoney et al., 2019).

Case Studies: Aging Better and Learning not Lonely

In terms of interventions focused primarily on changing thinking within the ‘Promising Approaches’ framework that work alongside community based interventions, the work of Aging Better is notable. [Sheffield MIND](#) is running a counselling service specifically aimed at reducing loneliness in Older Adults as part of a region wide, co-ordinated initiative. Adults aged 50 years and over are offered a minimum of six 50 minute sessions with a trained counsellor with the goal of reducing psychological barriers to accessing community-based interventions to reduce loneliness. Data on the initiative have not yet been published.

This is part of “Age Better in Sheffield”, a £6 million investment programme funded by the National Lottery Community Fund and led by South Yorkshire Housing Association. The aim is to provide opportunities that reduce loneliness and isolation for people aged 50 and older. The team co-produce and co-deliver a range of different projects with partners across the city including Sheffield Mind, Ignite Imaginations, Reach South Sheffield, SOAR Community, PWLC, Lai Yin Associations and Age UK Sheffield. These projects provide opportunities to connect with others either as participants or volunteers and to address the psychological factors that influence loneliness. Visits to address these factors can be done in people’s homes, as otherwise such talking therapies would be difficult to access. For those with chronic and debilitating forms of loneliness, mental health and psychological factors can also be addressed, thus removing barriers to accessing the social networking opportunities on offer. There is a strong emphasis on addressing psychological factors in order to enable the individual to take advantage of community-based initiatives, for example initiatives such as the [University of the Third Age](#), whose report “Learning not Lonely” demonstrates the positive impact of learning on wellbeing, confidence and self-esteem while recognising that particular psychological factors may act as initial barriers to accessing learning.

Chapter 7: Summary of Findings

The aim of this report was to integrate research evidence and expert opinion to identify how best to address the psychological factors that contribute to chronic loneliness. A summary of the objectives and the main findings of this report are described in the box below. The research base in this area is still emerging. The current available evidence indicates psychological therapies are effective. Cognitive behavioural therapy and mindfulness interventions have been widely researched and show success in targeting the psychological aspects of loneliness. The research to date suggests that interventions that integrate the psychological and social aspects of loneliness are promising. More robust research investigating psychological strategies to address loneliness and their integration with community based interventions is warranted.

Summary of objectives

1. To provide a concise overview of the 'state of the art' academic literature focused on psychological factors affecting loneliness. *The academic literature, together with other sources, identified a range of psychological factors affecting loneliness including mental health, self-efficacy, personality characteristics, social identity and coping style.*
2. To identify initiatives and approaches which have an implicit or explicit theory of change focused on changing individuals' thoughts and feelings about loneliness more generally. *22 intervention studies were identified with an implicit or explicit theory of change focused on changing thoughts and feelings about loneliness.*
3. To summarise and classify those initiatives and approaches in terms of underlying model, how they are described, target population, provider, etc. *A taxonomy of the initiatives and approaches were identified. Key approaches are cognitive behavioural, mindfulness and reminiscence therapy, but mode of delivery varied between the studies.*
4. To identify any formal evidence of effectiveness, cost-effectiveness (if available) and broader learning around process, implementation, sustainability and scalability. *Formal evidence of effectiveness was identified but there is little information on cost-effectiveness or broader learning around process, implementation, sustainability and scalability.*
5. To develop the evidence base around which forms of provision appear to work best for whom, in what circumstances. *Although there is no work in loneliness, work in other areas on 'treatment selection' suggests that taking a 'big data' approach may help identify which forms of provision work best for whom, under what circumstances **and for how long.***
6. To consider the links between loneliness and other adverse experiences common in older age, such as depression and bereavement, and how psychological therapies might impact on or disrupt such connections. *The links between loneliness and adverse life experiences are commonly observed in older age, and such adverse experiences lead to loneliness. We have highlighted throughout the report those interventions that may mitigate loneliness among those who have experienced such adverse events, most commonly in the context of bereavement, however currently there is not substantial evidence in this area.*
7. To identify promising approaches to engaging 'hard to reach' groups or those experiencing more chronic or debilitating forms of loneliness, and assess the challenges of using one-to-one or talk-based approaches in this context. *There are a range of exciting projects to engage those that are hard to reach. Digital based interventions needs further evaluation on the ground as they may not be acceptable or feasible for Older Adults.*
8. To identify current and potential ways in which such provision can most effectively work alongside and complement other strategies for addressing loneliness. *Integrating psychological and community-based strategies has been recognised as important and it is recognised that addressing psychological barriers to accessing community based services is a key part of the work to address loneliness.*

Strengths

The strength of this project is its focus on psychological factors associated with loneliness and related strategies to improve loneliness. In addition to traditional systematic academic literature searches, reports have been included, the views of experts considered after conducting semi-structured interviews, personal contact made with key researchers in the field and a 'call for evidence' has been made, and the perspectives of multiple Stakeholders' views (including those with lived experience) have been included. We have also used a logic model approach to present an innovative novels of the components of strategies of interest. The report

therefore provides a balance of the evidence from the research data with the views and experiences of those tackling the problem on the ground.

Limitations

Much of this report focuses on loneliness in majority communities within Western societies. Loneliness in other communities may be more likely to be seen as a community failure. Furthermore, the loneliness experienced by refugees and asylum seekers whose social network is hugely disrupted along with their psychological wellbeing has not been a focus of the review. Factors such as race, culture, poverty, social skills, and intergenerational factors are all likely to influence the psychological factors identified in this report as well as the community-based services but are beyond the current evidence-synthesis. The English Longitudinal Study of Aging demonstrated that loneliness does increase with increasing age (Pikhartova & Victor, 2015). Although in some places we have been able to draw a distinction between older adults aged 55 and those above 75, older adults are a highly heterogeneous group and this makes generalizations difficult to make. As previously noted, the quality of the current research base is variable, with some studies of small sample sizes and lacking active control groups.

This report necessarily focused on psychological factors but studies on social isolation and the key psychological factors themselves (such as self-efficacy, mental health) are also relevant. **We remind readers to consider these psychological factors in the broader context of the work on both loneliness and psychological strategies.**

Summary of recommendations

Throughout the report we have made ten recommendations for research and service delivery. **As we have previously highlighted, the research base in this area is emerging and overall the strength of the available evidence was variable, with study design and quality varying considerably.** Therefore, we have made the following recommendations for further research.

- Further research should be conducted to understand the potential usefulness of digital and other initiatives to change individuals' thoughts and feelings about loneliness taking into account both individual psychological and community factors (recommendation 2).
- Psychological therapies for loneliness should report adverse events and individual differences in responsiveness to interventions alongside group effects (recommendation 3).
- Longer-term evaluations of high methodological quality of the impact of psychological treatments on loneliness should be conducted (recommendation 4).
- The efficacy of acceptance and commitment therapy should be formally evaluated as an intervention for loneliness, and that existing trials of acceptance and commitment therapy consider evaluating its impact on loneliness (recommendation 5).
- Research should be commissioned to evaluate the measurement of cost-effectiveness and actual cost-effectiveness of psychological interventions for loneliness. Research on the most effective ways of integrating psychological and social interventions is also needed (recommendation 7).
- Research conducted on grief and other relevant life transitions should include a measure of loneliness, with repeated measures where possible, to establish how loneliness is affected by such interventions and how this relates to reductions in other adverse outcomes (recommendation 8).

Research will also be needed to evaluate the impact of the ten recommendations made in this report. We have made the following recommendations for services working with people who are experiencing chronic loneliness:

- Given the reciprocal relationship between social anxiety and loneliness, it is recommended that interventions for social anxiety routinely include a measure of loneliness and that measures of social anxiety are routinely included in interventions for loneliness (recommendation 1).
- Locally available psychological therapies services, including those delivered by IAPT and the third sector, should be encouraged to include a measure of loneliness for all work with Older Adults (recommendation 6).
- Community-based resource guides should include a directory of psychological support, thus helping to integrate psychological and community-based support and vice-versa. More broadly, there should be more research and development on linking and integrating psychological and social approaches, both in assessment and in the help people are offered (recommendation 9).
- It is recommended that new social prescribing link workers are connected to their local low intensity psychological therapies services and receive training in working with people with chronic loneliness at the beginning of their role (recommendation 10).

Approaches for potential development

This report has highlighted the need to recognise the important role that psychological factors play in the development and maintenance of chronic loneliness. Taken together, the findings of our scoping review and knowledge from key stakeholders highlighted a broad range of psychological factors that should be considered in understanding and addressing an individual's loneliness. **The strongest research evidence was for mental health problems, and social anxiety in particular**, which may play a role in predisposing, precipitating and perpetuating loneliness. We have suggested that for people experiencing chronic loneliness with existing mental health problems, the first line treatment should be an evidence based psychological treatment for the mental health problem (e.g. social anxiety, chronic pain, depression etc.) rather than treating the loneliness *per se*. For those people who are not able to access an evidence based mental health problem, or whose loneliness persists despite mental health treatment, or for those who do not have mental health difficulties, the research evidence reviewed in this report indicated that cognitive behavioural therapy is a successful intervention for chronic loneliness. However, other interventions such as mindfulness also appear effective, and interventions such as Groups4Health or I-SOCIAL are particularly welcome as they bridge psychological and social interventions. **However, it is important to caveat that these recommendations are based on the available research evidence, and that absence of evidence of effectiveness does not necessarily imply that an approach or intervention is not effective in targeting loneliness. Instead it indicates that further research is needed.**

We would suggest that cognitive behavioural and mindfulness based interventions are purely psychological interventions that hold promise when delivered in a range of formats and should be further evaluated, both in research trials with comparison with other interventions, and in the 'real world', with organisations providing practice based evidence for their effective implementation.

In addition, we have highlighted the importance of linking social and psychological interventions. Two approaches that show promise in this regard are Groups 4 Health and ISocial, both of which have been evaluated in randomised controlled trials (Cohen-Mansfield et al., 2018; Haslam et al., under review). Both should be considered for potential development, in the context of the recommendations outlined above. Understanding the relationship between the interventions is the first step to optimising them and personalising the intervention to suit the individual and his/her evolving circumstances. Conceptual models of loneliness that integrate psychological and social factors are an important part of providing a comprehensive public health intervention. Such an approach has already been taken within regard to social isolation in the field of mental health, suggesting a model with five domains: social network—quantity; social network—structure; social network—quality; appraisal of relationships—emotional; and appraisal of relationships—resources (Wang et al., 2017). Integrating such a conceptual model with other approaches to incorporate psychological and community-based approaches is likely to be a helpful step in the development of personalised, holistic

interventions. Consideration of different types of loneliness and changes in loneliness over time is also likely to play an important role in personalising approaches.

Summary

It is recognised that psychological factors and interventions play an important role in loneliness and there is a clear need for psychological and community-based interventions to work in harmony together. **The research base in this area is still emerging but the current available evidence indicates psychological therapies are effective. Cognitive behavioural therapy and mindfulness interventions have been widely researched and show success in targeting the psychological aspects of loneliness. The research to date suggests that interventions that integrate the psychological and social aspects of loneliness are promising. More robust research investigating psychological strategies to address loneliness and their integration with community based interventions is warranted.** Such robust research, coupled with rich qualitative information on the effectiveness of approaches to loneliness that integrate the individual psychological approaches with community-based interventions should target those that are hard to reach, and take account of individual differences and preferences in addressing loneliness. It is recognised that much of the implementation of the strategies to address loneliness is done by the Third Sector, and continued partnership working between researchers, clinicians, charities, policy-makers and those with lived experience is essential to developing interventions that personalised as well as effective.

We hope that this report makes a significant contribution to existing work by highlighting the important role that psychological factors and interventions have to play in tackling loneliness.

References

- Age UK Oxfordshire and Campaign to End Loneliness. (2011). *Safeguarding the convoy: A call to action from the Campaign to End Loneliness*. The Campaign to End Loneliness: London.
- Age UK (2018). *All the lonely people: Loneliness in later life*. Retrieved from <https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/reports-and-briefings/loneliness/loneliness-report.pdf>. (accessed 23 May 2019).
- Alaviani, M, Khosravan, S, Alami, A, Moshki, M. (2015). The effect of a multi-strategy program on developing social behaviors based on Pender's health promotion model to prevent loneliness of old women referred to Gonabad urban health centers. *International Journal of Community Based Nursing and Midwifery*, 3, 132-140.
- Anderson, C.A., Horowitz, L.M., & French, R.D. (1983). Attributional style of lonely and depressed people. *Journal of Personality and Social Psychology*, 45, 127-136.
- Asher, S.R., Hymel, S., & Renshaw, P.D. (1984). Loneliness in children. *Child Development*, 55, 1456-1464.
- Bagnall, A., South, J., Di Martino, S., Mitchell, B., Pilkington, G., & Newton, R. (2017). *Systematic scoping review of reviews of the evidence for "what works to boost social relations" and its relationship to community wellbeing*. What Works Centre for Wellbeing: London.
- Bagnall, A, South, J, Di Martino, S, Southby, K, Pilkington, G, Mitchell, ... Corcoran, R. (2018). *A systematic review of interventions to boost social relations through improvements in community infrastructure (places and spaces)*. What Works Centre for Wellbeing: London.
- Bandura, A. (1977). Self-efficacy: Towards a unifying Theory of Behaviour Change. *Psychological Review*, 84, 191-215.
- Baumeister, R. F., & Tice, D. M. (1990). Point-counterpoints: Anxiety and social exclusion. *Journal of Social and Clinical Psychology*, 9, 165-195.

- Beach, B. (2019) Raising the equality flag: Health inequalities among older LGBT people in the UK. International Longevity Centre <https://ilcuk.org.uk/wp-content/uploads/2019/05/ILC-Raising-the-equality-flag.pdf>. (accessed 23 May 2019).
- Beck, AT. (1979). *Cognitive therapy of depression*. Guilford Press: New York.
- Böger, A., & Huxhold, O. (2018). Do the antecedents and consequences of loneliness change from middle adulthood into old age?. *Developmental Psychology, 54*, 181-197
- British Medical Association & NHS England (2019). *Investment and evolution: A five-year framework for GP contract reform to implement The NHS Long Term Plan*. www.england.nhs.uk/wp-content/uploads/2019/01/gp-contract-2019.pdf. (accessed 23 May 2019).
- Brittain, K., Kingston, A., Davies, K., Collerton, J., Robinson, L. A, Kirkwood, T. B, ... Jagger, C. (2017). An investigation into the patterns of loneliness and loss in the oldest old—Newcastle 85+ study. *Ageing Society, 37*, 39-62.
- Brodbeck, J., Berger, T., Biesold, N., Rockstroh, F., & Joerg Znoj, H. (2019). Evaluation of a guided internet-based self-help intervention for older adults after spousal bereavement or separation/divorce: A randomised controlled trial. *Journal of Affective Disorders, 252*, 440-449.
- Burns, A. (2017). *Older people are losing out on psychological therapy*. <https://www.england.nhs.uk/blog/alistair-burns-22/>. (accessed 23 May 2019).
- Cacioppo, S., Grippo, A. J., London, S., Goossens, L., & Cacioppo, J. T. (2015). Loneliness: Clinical import and interventions. *Perspectives on Psychological Science, 10*, 238-249.
- Cacioppo, J.T., Hawkley, L.C., Thisted, R.A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago Health, Aging, and Social Relations Study. *Psychology and Aging, 25*, 453-463.
- Cacioppo, J.T., Hughes, M.E., Waite, L.J., Hawkley, L.C., & Thisted, R.A. (2006). Loneliness as a specific risk factor for depressive symptoms: cross-sectional and longitudinal analyses. *Psychology and Aging, 21*, 140-151.
- Campaign to End Loneliness (2011). *Safeguarding the convoy: A call to action*. London: The Campaign to End Loneliness.
- Campaign to End Loneliness (2014). *Alone in the crowd: Loneliness and diversity*. London: The Campaign to End Loneliness.
- Chakhssi, F, Kraiss, J.T., Sommers-Spijkerman, M., & Bohlmeijer, E.T. (2018). The effect of positive psychology interventions on well-being and distress in clinical samples with psychiatric or somatic disorders: A systematic review and meta-analysis. *BMC Psychiatry, 18*, 211.
- Chiang, K.J., Chu, H., Chang, H.J., Chung, M.H., Chen, C.H., Chiou, H.Y., & Chou, K.R. (2010). The effects of reminiscence therapy on psychological well-being, depression, and loneliness among the institutionalized aged. *International Journal of Geriatric Psychiatry, 25*, 380-388.
- Cohen-Mansfield, J., Hazan, H., Lerman, Y., Shalom, V., Birkenfeld, S., & Cohen, R. (2018). Efficacy of the I-SOCIAL intervention for loneliness in old age: Lessons from a randomized controlled trial. *Journal of Psychiatric Research, 99*, 69-75.
- Cohen-Mansfield, J., Hazan, H., Lerman, Y., & Shalom, V. (2016). Correlates and predictors of loneliness in older adults: a review of quantitative results informed by qualitative insights. *International Psychogeriatrics, 28*, 557-576.
- Conoley, C.W., & Garber, RA. (1985). Effects of reframing and self-control directives on loneliness, depression, and controllability. *Journal of Counseling Psychology, 32*, 139-142.
- Courtin, E., & Knapp, M. (2017). Social isolation, loneliness and health in old age: a scoping review. *Health Social Care in the Community, 25*, 799-812.

- Creswell, J.D., Irwin, M., Burklund, L., Lieberman, M., Arevalo, M. J., Breen, E., & Cole, S. (2012). Mindfulness-Based Stress Reduction training reduces loneliness and proinflammatory gene expression in older adults: A small randomized controlled trial. *Brain, Behavior and Immunity*, *26*, 1095–1101.
- Crisp, D., Griffiths, K., Mackinnon, A., Bennett, K., Christensen, H. (2014). An online intervention for reducing depressive symptoms: secondary benefits for self-esteem, empowerment and quality of life. *Psychiatry Research*, *216*, 60-66.
- Deckx, L., van den Akker, M., Buntinx, F., van Driel, M. (2018). A systematic literature review on the association between loneliness and coping strategies. *Psychology and Health Medicine*, *23*, 899-916.
- Degrace, G.R., Joshi, P., Pelletier, R. (1993). The Laval University Loneliness Scale: Validation of the French Canadian version of the UCLA Loneliness Scale. *Canadian Journal of Behavioural Science*, *25*, 12-27.
- De Jong Gierveld, J., Kamphuis, F. (1985). The development of a Rasch-type loneliness scale. *Applied Psychological Measurement*, *9*, 289-299.
- De Jong Gierveld, J., & Van Tilburg, T. (2010). The De Jong Gierveld short scales for emotional and social loneliness: tested on data from 7 countries in the UN generations and gender surveys. *European Journal of Ageing*, *7*, 121-130.
- De Jong Gierveld, J. (1998). A review of loneliness: concept and definitions, determinants and consequences. *Reviews in Clinical Gerontology*, *8*, 73-80.
- DeRubeis, R.J., Cohen, Z.D., Forand, N.R., Fournier, J.C., Gelfand, L.A., & Lorenzo-Luaces, L. (2014). The Personalized Advantage Index: translating research on prediction into individualized treatment recommendations. *PLoS One*, *9*, e83875.
- De Vries, M.J., Schilder, J.N., Mulder, C.L., Vrancken, A.M., Remie, M.E., & Garsen, B. (1997). Phase II study of psychotherapeutic intervention in advanced cancer. *Psycho-Oncology*, *6*, 129-137.
- Duberstein, P.R., Ward, E.A., Chaudron, L.H., He, H., Toth, S.L, Wang, W, ... Talbot, NL. (2018). Effectiveness of interpersonal psychotherapy-trauma for depressed women with childhood abuse histories. *Journal of Consulting and Clinical Psychology*, *86*, 868-878.
- Dykstra, P.A., Van Tilburg, T.G., & Gierveld, J. (2005). Changes in older adult loneliness: Results from a seven-year longitudinal study. *Research on Aging*, *27*, 725-747.
- Domènech-Abella, J., Mundó, J., Haro, J.M., Rubio-Valera, M. (2019). Anxiety, depression, loneliness and social network in the elderly: Longitudinal associations from The Irish Longitudinal Study on Ageing (TILDA). *Journal of Affective Disorders*, *246*, 82-88.
- Donker, T., Blankers, M., Hedman, E., Ljotsson, B., Petrie, K., & Christensen, H. (2015). Economic evaluations of Internet interventions for mental health: a systematic review. *Psychological Medicine*, *45*, 3357-3376.
- Erzen, E., & Çikrikci, Ö. (2018). The effect of loneliness on depression: A meta-analysis. *International Journal of Social Psychiatry*, *64*, 427-435.
- Eurostat (2018). *Key figures on Europe: 2018 edition*. Imprimerie Bietlot: Belgium.
- Franck, L., Molyneax, N., & Parkinson, L. (2016). Systematic review of interventions addressing social isolation and depression in aged care clients. *Quality of Life Research*, *25*, 1395–1407.
- Fried, E.I., Bockting, C., Arjadi, R., Borsboom, D., Amshoff, M., Cramer, A. O, ... Stroebe, M. (2015). From loss to loneliness: The relationship between bereavement and depressive symptoms. *Journal of Abnormal Psychology*, *124*, 256-265.
- Fatollahzadeh, N., Saadi, F., Ipchi, S., Saadati, N., & Rostami, M. (2017). The effectiveness of Based on acceptance commitment therapy education on reducing loneliness amongst the elderly. *Iranian Journal of Geriatric Nursing*, *3*, 89-102.

- Gaggioli, A., Morganti, L., Bonfiglio, S., Scaratti, C., Cipresso, P., Serino, S., & Riva, G. (2014). Intergenerational group reminiscence: A potentially effective intervention to enhance elderly psychosocial wellbeing and to improve children's perception of aging. *Educational Gerontology, 40*, 486-498.
- Gardiner, C., Geldenhuys, G., & Gott, M. (2018). Interventions to reduce social isolation and loneliness among older people: an integrative review. *Health and Social Care in the Community, 26*, 147–157
- Gerino, E., Rollè, L., Sechi, C., & Brustia, P. (2017). Loneliness, resilience, mental health, and quality of life in old age: A structural equation model. *Frontiers in Psychology, 8*, 2003.
- Goll, J.C., Charlesworth, G., Scior, K., & Stott, J. (2015). Barriers to social participation among lonely older adults: the influence of social fears and identity. *PLoS One, 10*, e0116664.
- Goodman, A., Adams, A., & Swift, H.J. (2015). *Hidden Citizens: How can we identify loneliness in our communities?* The Campaign to End Loneliness: London.
- Gu, J., Strauss, C., Bond, R., & Cavanagh, K. (2015). How do mindfulness-based cognitive therapy and mindfulness-based stress reduction improve mental health and wellbeing? A systematic review and meta-analysis of mediation studies. *Clinical Psychology Review, 37*, 1-12.
- Haslam, C., Cruwys, T., Haslam, S.A., Dingle, G., & Chang, M.X.L. (2016). Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders, 194*, 188-195.
- Haslam, C., Cruwys, T., Chang, M.X.L., Bentley, S., Haslam, S.A., Dingle, G.A., & Jetten, J. (Under Review). Groups 4 Health reduces loneliness and social anxiety in adults with psychological distress: Findings from a randomized controlled trial. *Journal of Consulting and Clinical Psychology*.
- Hawkley, L.C., & Cacioppo, J.T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine, 40*, 218-227.
- Hawkley, L. C., Thisted, R. A., Masi, C. M., & Cacioppo, J. T. (2010). Loneliness predicts increased blood pressure: 5-year cross-lagged analyses in middle-aged and older adults. *Psychology and Aging, 25*, 132-141.
- Hays, R. D., & DiMatteo, M. R. (1987). A short-form measure of loneliness. *Journal of Personality Assessment, 51*, 69-81.
- Heckman, T.G., Barcikowski, R., Ogles, B., Suhr, J., Carlson, B., ... Garske, J. (2006). A telephone-delivered coping improvement group intervention for middle-aged and older adults living with HIV/AIDS. *Annals of Behavioral Medicine, 32*, 27-38.
- HM Government. (2018). *A connected society: A strategy for tackling loneliness – laying the foundations for change*. <https://www.gov.uk/government/publications/a-connected-society-a-strategy-for-tackling-loneliness>. (accessed 23 May 2019).
- Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspectives on Psychological Science, 10*, 227-237.
- Hopps, S.L., Pépin, M., & Boisvert, J.M. (2003). The effectiveness of cognitive behavioral group therapy for loneliness via inter relay chat among people with physical disabilities. *Psychotherapy: Theory, Research, Practice, Training, 40*, 136-147.
- Hulsbosch, A.M., Nugter, M.A., Tamis, P., Kroon, H. (2017). Videoconferencing in a mental health service in The Netherlands: A randomized controlled trial on patient satisfaction and clinical outcomes for outpatients with severe mental illness. *Journal of Telemedicine and Telecare, 23*, 513-520.
- Hughes, M.E., Waite, L.J., Hawkley, L.C., & Cacioppo, J.T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on Aging, 26*, 655-672.
- Hughes, M. (2017). Loneliness and the health and wellbeing of LGBT seniors. *Innovation in Aging, 1*, 606.

- Hyland, P., Shevlin, M., Cloitre, M., Karatzias, T., Vallières, F., McGinty, G., ... Power, J. M. (2018). Quality not quantity: Loneliness subtypes, psychological trauma, and mental health in the US adult population. *Social Psychiatry and Psychiatric Epidemiology*, *1*, 1-11.
- Jarvis, M.A., Padmanabhanunni, A., & Chipps, J. (2019). An evaluation of a low-intensity cognitive behavioral therapy mHealth-supported intervention to reduce loneliness in older people. *International Journal of Environmental Research and Public Health*, *16*, 1305-1319.
- Johannsen, M., Damholdt, M.F., Zachariae, R., Lundorff, M., & Farver-Vestergaard, I., & O'Connor, M. (2019). Psychological interventions for grief in adults: A systematic review and meta-analysis of randomized controlled trials. *Journal of Affective Disorders*, *253*, 69-86.
- Jopling, K. (2015). Promising approaches to reducing loneliness and isolation in later life. <http://www.campaigntoendloneliness.org/wp-content/uploads/Promising-approaches-to-reducing-loneliness-and-isolation-in-later-life.pdf>. (accessed 23 May 2019).
- Jopling, K., & Howells, A. (2018). *Connecting communities to tackle loneliness and social isolation*. British Red Cross and the Co-op: London.
- Käll, A., Jägholm, S., Hesser, H., Andersson, F., Mathaldi, A., Norkvist, B. T., ... & Andersson, G. (2019). Internet-based Cognitive Behavior Therapy for Loneliness: A Pilot Randomized Controlled Trial. *Behavior Therapy*.
- Karania, V. (2018). *Tackling loneliness – do we know what works?* <https://ageukblog.org.uk/2018/07/02/tackling-loneliness-do-we-know-what-works/>. (accessed 23 May 2019).
- Kearns, S. M., & Creaven, A. M. (2017). Individual differences in positive and negative emotion regulation: Which strategies explain variability in loneliness?. *Personality and Mental Health*, *11*, 64-74.
- Knight, B.G., & Laidlaw, K. (2009). Translational theory: A wisdom-based model for psychological interventions to enhance well-being in later life. In V. L. Bengtson, D. Gans, N. M. Pulney, M. Silverstein (Eds.), *Handbook of theories of aging* (pp. 693-705). Springer: New York.
- Knowles, L.M., Stelzer, E.M., Jovel, K.S., & O'Connor, M.F. (2017). A pilot study of virtual support for grief: Feasibility, acceptability, and preliminary outcomes. *Computers in Human Behavior*, *73*, 650-658.
- Krause-Parello, C.A., Gulick, E.E., & Basin, B. (2019). Loneliness, depression, and physical activity in older adults: The therapeutic role of human–animal interactions. *Anthrozoös*, *32*, 239-254.
- Kremers, I.P., Steverink, N., Albersnagel, F.A., & Slaets, J.P. (2006). Improved self-management ability and well-being in older women after a short group intervention. *Aging & Mental Health*, *10*, 476-484.
- Leary, M. R. (1990). Responses to social exclusion: Social anxiety, jealousy, loneliness, depression, and low self-esteem. *Journal of Social and Clinical Psychology*, *9*, 221-229.
- Lim, M.H., Gleeson, J.F., Thomas, N., & Penn, D.L. (2019). Is loneliness a feasible treatment target in psychosis. *Social Psychiatry and Psychiatric Epidemiology*, *54*, 1-6.
- Lim, M.H., Rodebaugh, T.L., Eres, R., Long, K.M., Penn, D.L., & Gleeson, J.F. (submitted). A pilot digital intervention targeting loneliness in youth mental health. *Frontiers in Psychiatry*.
- Lim, M. H, Gleeson, J. F, Rodebaugh, T. L, Eres, R, Long, K. M, Casey, K, Penn, D. L. (2019). A pilot digital intervention targeting loneliness in young people with psychosis. *Social Psychiatry and Psychiatric Epidemiology*, 1-13.
- Lim, M.H., Gleeson, J.F., Alvarez-Jimenez, M., Penn, D.L. (2018). Loneliness in psychosis: a systematic review. *Social Psychiatry and Psychiatric Epidemiology*, *53*, 221-238.
- Lim, M.H., Rodebaugh, T.L., Zyphur, M.J., Gleeson, J.F. (2016). Loneliness over time: The crucial role of social anxiety. *Journal of Abnormal Psychology*, *125*, 620-630.

- Lindsay, E.K., Young, S., Brown, K. W., Smyth, J.M., & Creswell, J.D. (2019). Mindfulness training reduces loneliness and increases social contact in a randomized controlled trial. *Proceedings of the National Academy of Sciences*, *116*, 3488-3493.
- Luo, Y., Hawkey, L.C., Waite, L.J., Cacioppo, J.T. (2012). Loneliness, health, and mortality in old age: A national longitudinal study. *Social Science Medicine*, *74*, 907-914.
- Maes, M., Nelemans, S.A., Danneel, S., Fernández-Castilla, B., Van den Noortgate, W., Goossens, L., & Vanhalst, J. (2019). Loneliness and social anxiety across childhood and adolescence: Multilevel meta-analyses of cross-sectional and longitudinal associations. *Developmental Psychology*. Advance online publication.
- Mahoney, J., Le Moignan, E., Long, K., Wilson, M., Barnett, J., Vines, J., Lawson, S. (2019). Feeling alone among 317 million others: Disclosures of loneliness on Twitter. *Computers in Human Behavior*, *98*, 20-30.
- Mann, F., Bone, J. K., Lloyd-Evans, B., Frerichs, J., Pinfold, V., Ma, R., & Johnson, S. (2017). A life less lonely: the state of the art in interventions to reduce loneliness in people with mental health problems. *Social Psychiatry and Psychiatric Epidemiology*, *52*, 627-638.
- Masi, C.M., Chen, H.Y., Hawkey, L.C., & Cacioppo, J.T. (2011). A meta-analysis of interventions to reduce loneliness. *Personality and Social Psychology Review*, *15*, 219-266.
- Matthews, T., Danese, A., Wertz, J., Odgers, C.L., Ambler, A., Moffitt, T.E., & Arseneault, L. (2016). Social isolation, loneliness and depression in young adulthood: a behavioural genetic analysis. *Social Psychiatry and Psychiatric Epidemiology*, *51*, 339-348.
- Mayers, A. M., Khoo, S. T., & Svartberg, M. (2002). The Existential Loneliness Questionnaire: background, development, and preliminary findings. *Journal of Clinical Psychology*, *58*(9), 1183-1193.
- McDaid, D, Bauer, A, Park, AL. (2017). *Making the economic case for investing in actions to prevent and/or tackle loneliness: A systematic review*. London School of Economics. http://cdn.basw.co.uk/upload/basw_51039-5.pdf. (accessed 23 May 2019).
- McDaid, D., Forsman, A.K., Matosevic, T., Park, A.L., & Wahlbeck, K. (2015). *Promoting mental wellbeing, tackling loneliness: a review of the effectiveness of actions delivered outside of the health sector*. In: Research showcase: Loneliness, prevention and wellbeing, 2015-04-17.
- McHugh Power, J. E., Dolezal, L., Kee, F., & Lawlor, B. A. (2018). Conceptualizing loneliness in health research: Philosophical and psychological ways forward. *Journal of Theoretical and Philosophical Psychology*, *38*(4), 219.
- McWhirter, B.T., & Horan, J.J. (1996). Construct validity of cognitive behavioral treatments for intimate and social loneliness. *Current Psychology*, *15*, 42-52.
- Meltzer, H., Bebbington, P., Dennis, M., Jenkins, R., Mc Manus, S., & Brugha, T. (2013) Feelings of loneliness among adults with mental disorder. *Social Psychiatry and Psychiatric Epidemiology*, *48*, 5-13.
- Michalska da Rocha, B., Rhodes, S., Vasilopoulou, E., & Hutton, P. (2017). Loneliness in psychosis: a meta-analytical review. *Schizophrenia Bulletin*, *44*, 114-125.
- Mihalopoulos, C., Le, L. K. D., Chatterton, M. L., Bucholc, J., Holt-Lunstad, J., Lim, M. H., & Engel, L. (2019). The economic costs of loneliness: a review of cost-of-illness and economic evaluation studies. *Social Psychiatry and Psychiatric Epidemiology*, 1-14.
- Moore, G. F., Audrey, S., Barker, M., Bond, L., Bonell, C., Hardeman, W., ... & Baird, J. (2015). Process evaluation of complex interventions: Medical Research Council guidance. *BMJ*, *350*, h1258.
- Office for National Statistics (2017). *Social capital in the UK: May 2017*. Office for National Statistics: London.
- Office for National Statistics (2018). *Measuring loneliness: guidance for use of the national indicators on surveys*. Office for National Statistics: London.

- O'Philbin, L., Woods, B., Farrell, E.M., Spector, A.E., & Orrell, M. (2018). Reminiscence therapy for dementia: an abridged Cochrane systematic review of the evidence from randomized controlled trials. *Expert Review of Neurotherapeutics*, *18*, 715-727.
- O' Rourke, H., Collins, L. & Sidini, S. (2018). Interventions to address social connectedness and loneliness for older adults: a scoping review. *BMC Geriatrics* *18*, 214.
- Parry, S.W., Bamford, C., Deary, V., Finch, T.L., Gray, J., MacDonald, C., McMeekin, P., ... McColl, E.M. (2016). Cognitive-behavioural therapy-based intervention to reduce fear of falling in older people: therapy development and randomised controlled trial—the Strategies for Increasing Independence, Confidence and Energy (STRIDE) study. *Health Technology Assessment*, *20*, 1-206.
- Perlman, D., & Peplau, L. A. (1984). Loneliness research: A survey of empirical findings. In L. A. Peplau & S. E. Goldston (Eds.), *Preventing the harmful consequences of severe and persistent loneliness* (pp. 13-46). National Institute of Mental Health: Rockville, MD.
- Perlman, D., & Peplau, L.A. (1982). *Loneliness: A sourcebook of current theory, research and therapy*. Wiley: New York, NY.
- Perlman, D., & Peplau, L. (1981). Toward a Social Psychology of Loneliness. *Personal Relationships*, *3*, 31–43.
- Perron, J.L., Cleverley, K., & Kidd, S.A. (2014). Resilience, loneliness, and psychological distress among homeless youth. *Archives of Psychiatric Nursing*, *28*, 226-229.
- Pikhartova, J & Victor, C. (2015). Loneliness and it's predictors in older age: Findings from the English Longitudinal Study of Ageing. *European Journal of Public Health*, *25*, S3.
- Pikhartova, J., Bowling, A., & Victor, C. (2015). Is loneliness in later life a self-fulfilling prophecy? *Aging & Mental Health*, *20*, 543-549.
- Poscia, A., Stojanovic, J., Ignazio La Milia, D., Duplaga, M., Gryzter, M., Moscato, U., ... Magnavita, N. (2018) Interventions targeting loneliness and social isolation among the older people: An update systematic review. *Experimental Gerontology*, *102*, 133-144.
- Prina, A.M., Marioni, R.E., Hammond, G.C, Jones, P.B., Brayne, C., Denning, T. (2014). Improving access to psychological therapies and older people: Findings from the Eastern Region. *Behaviour Research and Therapy*, *56*, 75-81
- Pynnönen, K., Törmäkangas, T., Rantanen, T., Tiikkainen, P., Kallinen, M. (2018). Effect of a social intervention of choice vs. control on depressive symptoms, melancholy, feeling of loneliness, and perceived togetherness in older Finnish people: A randomized controlled trial. *Aging & Mental Health*, *22*, 77-84.
- Qualter, P., Vanhalst, J., Harris, R., Van Roekel, E., Lodder, G., Bangee, M., & Verhagen, M. (2015). Loneliness across the life span. *Perspectives on Psychological Science*, *10*, 250-264.
- Radhakrishnan, M., Hammond, G., Jones, P., Watson, A., McMillan-Shields, F. & LaFortuna (2013) Cost of Improving Access to Psychological Therapies (IAPT) programme: An analysis of cost of session, treatment and recovery in selected Primary Care Trusts in the East of England region *Behaviour Research and Therapy*, *51*, 37-45.
- Robertson, G. (2014). *Transitions in later life: Scoping research*. Gulbenkian Foundation: London.
- Routasalo, P.E, Tilvis, R.S, Kautiainen, H., & Pitkala, K.H. (2009). Effects of psychosocial group rehabilitation on social functioning, loneliness and well-being of lonely, older people: randomized controlled trial. *Journal of Advanced Nursing*, *65*, 297-305.
- Rozental, A., Kottorp, A., Boettcher, J., Andersson, G., & Carlbring, P. (2016). Negative effects of psychological treatments: An exploratory factor analysis of the negative effects questionnaire for monitoring and reporting adverse and unwanted events. *PLoS One*, *11*, e0157503.

- Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, *66*, 20-40.
- Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology*, *39*, 472-480.
- Saulsberry, A., Marko-Holguin, M., Blomeke, K., Hinkle, C., Fogel, J., Gladstone, ... Van Voorhees, B.W. (2013). Randomized clinical trial of a primary care internet-based intervention to prevent adolescent depression: one-year outcomes. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *22*, 106-117.
- Schermer, J.A., & Martin, N.G. (2019). A behavior genetic analysis of personality and loneliness. *Journal of Research in Personality*, *78*, 133-137.
- Schnittger, R., Wherton, J., Predndergast, D., & Lawlor, B. (2012). Risk factors and mediating pathways of loneliness and social support in community-dwelling older adults. *Aging & Mental Health*, *16*, 335-346.
- Schoenleber, M., & Gratz, K.L. (2018). Self-acceptance group therapy: A transdiagnostic, cognitive behavioral treatment for shame. *Cognitive and Behavioral Practice*, *25*, 75-86.
- Seepersad, S.S. (2005). *Understanding and helping the lonely: an evaluation of the LUV Program* (pp. 1-129). (Unpublished doctoral dissertation). University of Illinois at Urbana-Champaign.
- Sheffield Mental Health. Age Better Sheffield. <https://www.sheffieldmentalhealth.co.uk/support/age-better-sheffield/>. (accessed 23 May 2019).
- Shi, R., Zhang, S., Zhang, Q., Fu, S., & Wang, Z. (2016). Experiential avoidance mediates the association between emotion regulation abilities and loneliness. *PloS One*, *11*, e0168536.
- Sjöberg, M., Beck, I., Rasmussen, B. H., & Edberg, A. K. (2018). Being disconnected from life: meanings of existential loneliness as narrated by frail older people. *Aging & Mental Health*, *22*, 1357-1364.
- Song, Y., Stevenson, S., Cordier, T., Shea, A., Clark, S., Steenhard, D., ... Renda, A. (2019). The association between a loneliness resource guide and health-related quality of life among a Medicare advantage population. *The American Journal of Geriatric Psychiatry*, *27*, S167-S168.
- Soucy, I., Provencher, M.D., Fortier, M. & McFadden, T. (2018). Secondary outcomes of the guided self-help behavioral activation and physical activity for depression trial. *Journal of Mental Health*, *3*, 1-9.
- Spithoven, A. W., Bijttebier, P., Goossens, L. (2017). It is all in their mind: A review on information processing bias in lonely individuals. *Clinical Psychology Review*, *58*, 97-114.
- Stillman, T.F., Baumeister, R.F., Lambert, N.M., Crescioni, A.W., DeWall, C.N., & Fincham, F.D. (2009). Alone and without purpose: Life loses meaning following social exclusion. *Journal of Experimental Social Psychology*, *45*, 686-694.
- Sutin, A.R., Stephan, Y., Luchetti, M., & Terracciano, A. (2018). Loneliness and Risk of Dementia. *The Journals of Gerontology: Series B*, *112*.
- Suveg, C., Kingery, J.N., Davis, M., Jones, A., Whitehead, M., & Jacob, M.L. (2017). Still lonely: Social adjustment of youth with and without social anxiety disorder following cognitive behavioral therapy. *Journal of Anxiety Disorders*, *52*, 72-78.
- Tarugu, J., Pavithra, R., Vinothchandar, S., Basu, A., Chaudhuri, S., & John, K.R. (2019). Effectiveness of structured group reminiscence therapy in decreasing the feelings of loneliness, depressive symptoms and anxiety among inmates of a residential home for the elderly in Chittoor district. *International Journal of Community Medicine And Public Health*, *6*, 847-854.

- Theeke, L.A., Mallow, J.A., Moore, J., McBurney, A., Rellick, S., & VanGilder, R. (2016). Effectiveness of LISTEN on loneliness, neuroimmunological stress response, psychosocial functioning, quality of life, and physical health measures of chronic illness. *International Journal of Nursing Sciences*, 3, 242-251.
- Tkatch, R., Bazarko, D., Musich, S., Wu, L., MacLeod, S., Keown, K., ... Wicker, E. (2017). A pilot online mindfulness intervention to decrease caregiver burden and improve psychological well-being. *Journal of Evidence-Based Complementary & Alternative Medicine*, 22, 736-743.
- The University of Sheffield (2019). Centre for Loneliness Studies Projects. www.sheffield.ac.uk/socstudies/research/centres/centre-for-loneliness-studies/projects. (accessed 23 May 2019).
- University of Bath (2019). Loneliness in the Digital Age. <https://www.bath.ac.uk/projects/loneliness-in-the-digital-age/>. (accessed 23 May 2019).
- Vasileiou, K., Barnett, J., Barreto, M., Vines, J., Atkinson, M., Lawson, S., & Wilson, M. (2017). Experiences of loneliness associated with being an informal caregiver: A qualitative investigation. *Frontiers in Psychology*, 8, 585.
- Vancampfort, D., Ashdown-Franks, G., Smith, L., Firth, J., Van Damme, T., Christiaansen, L., ... & Koyanagi, A. (2019). Leisure-time sedentary behavior and loneliness among 148,045 adolescents aged 12-15 years from 52 low-and middle-income countries. *Journal of Affective Disorders*, 251, 149-155.
- Van der Houwen, K., Schut, H., van den Bout, J., Stroebe, M., & Stroebe, W. (2010). The efficacy of a brief internet-based self-help intervention for the bereaved. *Behaviour Research and Therapy*, 48, 359-367.
- Victor, C., Mansfield, L., Kay, T., Daykin, N., Lane, J., Grigsby Duffy, L., ... Meads, C. (2018). *An overview of reviews: The effectiveness of interventions to address loneliness at all stages of the life-course*. https://whatworkswellbeing.org/wp/wp-content/uploads/woocommerce_uploads/2018/10/Full-report-Tackling-loneliness-Oct-2018.pdf. (accessed 23 May 2019).
- Victor, C.R., Scambler, S.J., Bowling, A.N.N., Bond, J., (2005). The prevalence of, and risk factors for, loneliness in later life: a survey of older people in Great Britain. *Ageing & Society*, 25, 357-375.
- Vodafone. (2019). Vodafone launch new report into technology and loneliness. <https://mediacentre.vodafone.co.uk/news/harnessing-technology-to-tackle-loneliness/>. (accessed 23 May 2019).
- Walters, K., Falcaro, M., Freemantle, N., King, M., & Ben-Shlomo, Y. (2018). Sociodemographic inequalities in the management of depression in adults aged 55 and over: an analysis of English primary care data. *Psychological Medicine*, 48, 1504-1513.
- Wang, J., Mann, F., Lloyd-Evans, B., Ma, R., Johnson, S. (2018). Associations between loneliness and perceived social support and outcomes of mental health problems: a systematic review. *BMC Psychiatry*, 18, 156.
- Wang, B., & Dong, X. (2018). The association between personality and loneliness: Findings from a community-dwelling Chinese aging population. *Gerontology and Geriatric Medicine*, 4, 2333721418778181.
- Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation*. MIT Press: Cambridge, MA.
- Westerhof, G.J., Korte, J., Eshuis, S., & Bohlmeijer, ET. (2018). Precious memories: a randomized controlled trial on the effects of an autobiographical memory intervention delivered by trained volunteers in residential care homes. *Ageing & Mental Health*, 22, 1494-1501.
- Williams, A., Hagerty, B.M., Yousha, S.M, Horrocks, J., Hoyle, K.S., & Liu, D. (2004). Psychosocial effects of the boot strap intervention in Navy recruits. *Military Medicine*, 169, 814-820.
- Willis, P., Vickery, A., Hammond, J., Symonds, J., Jessiman, T., & Abbott, D. (2019). *Addressing older men's experiences of loneliness and social isolation in later life*. Age UK: Bristol.

Zhang, N., Fan, F.M., Huang, S.Y., & Rodriguez, M.A. (2016). Mindfulness training for loneliness among Chinese college students: A pilot randomized controlled trial. *International Journal of Psychology, 53*, 373-378.

Zhao, X., Zhang, D., Wu, M., Yang, Y., Xie, H., Li, Y., ... Su, Y. (2018). Loneliness and depression symptoms among the elderly in nursing homes: a moderated mediation model of resilience and social support. *Psychiatry Research, 268*, 143-151.

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Appendix 2: List of Those Registered at Stakeholder Event who gave permission to list their names

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Appendix 3: List of Studies in Relation to Objective 1

Reviews of psychological factors in relation to Loneliness					
Reference	Type of study	Number of papers included	Population	Psychological factors	Key findings
Cohen-Mansfield, Hazan, Lerman & Shalom, 2016-Correlates and predictors of loneliness in older-adults: a review of quantitative results informed by qualitative insights	Literature review	38	≥50	Depression self-esteem self-efficacy cognitive deficits	Loneliness was associated with depression. cognitive deficit, poor self-esteem or self-efficacy were significantly associated with loneliness
Courtin & Knapp, 2017- Social isolation, loneliness and health in old age: a scoping review	Scoping review	12	≥50	depression	Loneliness is an independent risk factor for depression in old age
Deckx, Van Den Akker, Buntinx, & van Driel, 2018- A systematic literature review on the association between loneliness and coping strategies	Literature review	12	≥18	Coping styles: Instrumental Coping Emotional Coping Self-confident Optimistic Submissive Hopeless Seeking social support	Problem-focused coping styles were associated with lower levels of loneliness, and emotion-focused coping styles with higher levels of loneliness
Erzen & Çikrikci, 2018- The effect of loneliness on depression: A meta-analysis	Meta-analysis	88	≥18	depression	Lonely carers had greater depressive tendencies. Loneliness has a moderate effect on depression.
Lim, Gleeson, Alvarez-Jimenez & Penn, 2018- Loneliness in psychosis: a systematic review	Systematic review	10	≥18	Internalised stigma Self-esteem Self-efficacy Hopelessness Depression Anxiety Perceived discrimination	Loneliness was predicted by more severe internalised stigma. direct relationship between loneliness and paranoia. Lower generalised self-efficacy was directly related to higher loneliness, The relationship between internalised stigma and depression is contingent on loneliness severity. mental health symptoms, comprised of depression, psychosis, and anxiety and were related to loneliness.
Michalska Da Rocha, Rhodes, Vasilopoulou & Hutton, 2018-Loneliness in Psychosis: A Meta-analytical Review	Systematic review	13	All ages	Psychotic symptoms	There is a significant relationship between loneliness and psychotic symptoms

Spithoven, Bijttebier & Goossens, 2017- It is all in their mind: A review of information processing bias in lonely individuals	Literature review	84	All ages	Cognitive biases interpreted using The Social Information Processing Model	Loneliness is associated with negative cognitive bias in all phases of information processing. Unclear if negative bias developed after experiencing loneliness
Studies of psychological factors and loneliness post-2016					
Reference	Population	Psychological factors		Key findings	
Bangee & Qualter, 2018, Examining the visual processing patterns of lonely adults	Mean age 20 (UK)	attentional bias: hypervigilance towards social rejection cues		Lonely adults are more attentive visually to social threats that are linked to contextual social rejection.	
Beutel et al, 2017- Loneliness in the general population: Prevalence, determinants and relations to mental health	35-74	Depression Anxiety Suicidal ideation		Loneliness was associated with depression, generalised anxiety and suicidal ideation	
Burholt, Windle, & Morgan, 2017- A Social Model of Loneliness: The Roles of Disability, Social Resources, and Cognitive Impairment	≥65 (UK)	Cognitive impairment		Cognitive impairment had a significant impact on loneliness, and moderated the effect of social resources on loneliness.	
Chang, 2017-Perfectionism and Loneliness as Predictors of Depressive and Anxious Symptoms in African American Adults: Further Evidence for a Top-Down Additive Model	University students (USA)	Depression Anxiety Perfectionism		Perfectionism and loneliness associated with depression and anxiety	
Donovan et al, 2017- Loneliness, depression and cognitive function in older U.S. adults	≥65 (USA)	Cognitive functioning		Loneliness at baseline predicted accelerated cognitive decline over 12 years	
Foong, Hamid, Ibrahim & Haron, 2018- Mediating role of neuroticism in the association between loneliness and cognitive function among community-dwelling older adults	Older adults (Malaysia)	Neuroticism Cognitive function		Neuroticism fully mediated the relationship between loneliness and cognitive function.	
Gallardo, Martin-Albo, & Barrasa, 2018-What Leads to Loneliness? An Integrative Model of Social, Motivational, and Emotional Approaches in Adolescents	Adolescents (Spain)	Emotional repair (ability to regulate one's emotional states)		All social, motivation and emotional approaches predicted loneliness and interacted with each other. Activated emotion regulation, produced a decrease in future feelings of loneliness.	
Gerino, Rollè, Sechi & Brustia, 2017-Loneliness, resilience, mental health, and quality of life in old age: A structural equation model	65–90 years (Italy)	Anxiety Depression Self-efficacy Resilience		Loneliness influences mental and physical QoL via two pathways, with the impact of loneliness mediated by mental health and resilience dimensions.	

Gum, Shiovitz-Ezra & Ayalon, 2017-Longitudinal associations of hopelessness and loneliness in older adults: results from the US health and retirement study	≥50 (USA)	Hopelessness	Participants who were more hopeless tended to become lonelier four years later, but lonelier participants did not become more hopeless four years later.
Lim et al., 2016- Loneliness Over Time: The Crucial Role of Social Anxiety	General community sample aged 18–87 years old (USA)	Social anxiety, paranoia, and depression symptoms	Loneliness may be a potential antecedent to emerging mental health symptoms and that identifying and treating co-occurring social anxiety symptoms may reduce the severity of loneliness.
Ng & Lee, 2019-The mediating role of hardiness in the relationship between perceived loneliness and depressive symptoms among older	Older adults (China)	Hardiness (component of resilience)	Older people with higher level of perceived loneliness reported less hardiness. Lower levels of hardiness, in turn, correlated with increased self-reported depressive symptoms.
Segel-Karpas, Ayalon & Lachman, 2018- Loneliness and depressive symptoms: the moderating role of the transition into retirement	Adults (USA)	Depressive symptoms	Employment can be considered a protective factor, buffering the adverse effects of loneliness on depressive symptoms.
Tomstad et al, 2017-Who often feels lonely? A cross-sectional study about loneliness and its related factors among older home-dwelling people	≥65 years (Norway)	Sense of Coherence Anxiety depression feelings of incompetence difficulty in coping	Poor sense of coherence, and mental health associated with loneliness
Vanhalst, Gibb, & Prinstein, 2017- Lonely adolescents exhibit heightened sensitivity for facial cues of emotion	Adolescents (USA)	Facial emotion recognition	Loneliness significantly associated with sensitivity to sad and fear faces.
Vanhalst, et I, 2018- The Detrimental Effects of Adolescents' Chronic Loneliness on Motivation and Emotion Regulation in Social Situations	Adolescents (Belgium)	Motivation emotion regulation depression	Chronically lonely adolescents reported significantly higher levels of catastrophizing, self-blame, and rumination.
Van Winkel et al, 2017- Unraveling the Role of Loneliness in Depression: The Relationship Between Daily Life Experience and Behavior	18 to 61 years (Belgium)	Appraisal of Social Company Depression	Negative appraisal of social company associated with developing prolonged loneliness. Prolonged loneliness associated with depression.
Von Soest, Luhmann, Hansen & Gerstorf, 2018- Development of Loneliness in Midlife and Old Age: Its Nature and Correlates	40-80 yrs old (Norway)	Personality traits	People high in emotional stability and extraversion reported less loneliness and experienced steeper loneliness declines on one or both loneliness measures over 5 years. extraversion promotes changes toward experiencing less loneliness.
Ypsilanti, Lazuras, Powell, & Overton, 2019- Self-disgust as a potential mechanism explaining the association between loneliness and depression	University students & staff (UK)	Self-disgust Emotion regulation as predictors of depression	Self-disgust plays an important role in the association between loneliness and depressive symptoms. variations in emotion regulation strategies can explain the association between self-disgust and depressive symptoms.

Zeligman, Bialo, Brack, & Kearney, 2017-Loneliness as Moderator Between Trauma and Posttraumatic Growth	University students (USA)	Trauma symptoms Post traumatic growth	Both loneliness and trauma symptoms predicted levels of Post traumatic Growth, and loneliness moderated the relationship between trauma and PTG
Zhong, Chen, Tu, Conwell, 2017-Loneliness and Cognitive Function in Older Adults: Findings From the Chinese Longitudinal Healthy Longevity Survey	≥65 (China)	Cognitive function	Loneliness at prior assessment points was significantly associated with poorer cognitive function at subsequent assessments,
Zhao, Zhang & Ran, 2017-Positive coping style as a mediator between older adults' self-esteem and loneliness.	60 to 88 years	Self-esteem Coping style	Self-esteem was significantly and negatively correlated with loneliness. Positive coping was significantly and positively correlated with self-esteem and significantly negatively correlated with loneliness.