Why Loneliness Matters in Clinical Practice: A Primer for Clinical- and Neuro-Psychologists

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Abstract
Aims: Loneliness has an adverse impact on mental health, yet it is often overlooked in psychological services. To inform clinical practice, we provide an overview of research hotspots on loneliness and mental health, the 'state of the art' in assessment and treatment, and workforce implications. **Methods:** Narrative synthesis. **Results:** Loneliness occurs in all age groups, with peaks in younger and older adults. It is a well-established risk factor for mental ill-health, neurodevelopmental and neurodegenerative disorders, and other problems prompting people to seek psychological care. A variety of psychometrically sound self-report measures are available for assessment purposes, though some lack structural or cross-cultural validity. The most promising interventions use cognitive-behavioural therapy to change maladaptive social cognitions. Recent studies are focused on identifying mechanisms of change, the role of social networks, and the use of digital technologies to augment treatment. The stigma of loneliness can prevent clients and healthcare professionals from talking openly about it, but the best strategies for combating loneliness stigma are unclear. **Conclusion:** Loneliness and mental ill-health are mutually reinforcing; hence, loneliness should be routinely considered in clinical practice. Psychological interventions are moderately effective at alleviating loneliness but further research and practice-based evaluation of solutions for loneliness is needed.

Keywords loneliness; assessment; treatments; cognitive behaviour therapy; professional practice

Loneliness is defined as a subjective unpleasant or distressing *feeling* of a lack of connection to other people, along with a desire for more, or more satisfying, social relationships (Badcock et al., 2022). A distinction is often drawn between transient (momentary or state-like) and chronic (or trait-like) loneliness. Transient loneliness may be a normative and adaptive experience that prompts people to repair or rebuild their connections with others (Cacioppo & Cacioppo, 2018; Tomova et al., 2020) but is also accompanied by a range of cognitive-behavioural biases that can hamper social reconnection. When loneliness becomes frequent, intense or persistent (i.e., chronic), it is associated with an increased risk of mental (and physical) health problems (Leigh-Hunt et al., 2017; Park et al., 2020) and may also lead to higher use of healthcare services (Badcock, Di Prinzio, et al., 2020; Christiansen et al., 2020). Feeling lonely is a subjective and unwanted experience; therefore, it differs from objective social isolation, which refers to an observable reduction in social connections (including the number, type, or frequency of social contacts), and from solitude, which is a chosen state of being alone (Nguyen et al., 2018). See Table 1 for a glossary of related terms and how they differ from the concept of loneliness.

Our mental map of the social world can be conceptualized in layers, ranging from our strongest and closest relationships (e.g., with intimate partners, family members or our closest friends) to our looser connections – or weak ties – (e.g., to our neighbours, acquaintances, clients) that help us to feel part of the local community (Van Lange & Columbus, 2021). Similarly, feeling socially *dis*connected can be conceptualized in layers, comprising individual, interpersonal, and collective loneliness (see Figure 1).

Table 1. A brief glossary of common terms and measurement instruments.

Term	Definition	Selected examples of measures
Loneliness	A subjective unpleasant or distressing feeling of a lack of connection to other people, along with a desire for more, or more satisfying, social relationships.	University of California-Loneliness Scale (Russell, 1996) De Jong Gierveld Loneliness Scale (de Jong Gierveld & Kamphuls, 2016)
Social Isolation	Objectively having few social relationships, social roles, group memberships, and infrequent social interaction.	Lubben Social Network Scale (Lubben et al., 2006; Lubben, 1988)
Solitude	A state in which an individual spends time alone with themselves rather than with a deliberate focus on an externally focused activity or with the (potentially influential) presence of other persons (Nguyen et al., 2018). Solitude can be described as a state of being alone, without feeling lonely. Whilst loneliness is a negative experience, solitude is a desirable and savoured state, that can be used for relaxation and personal growth.	Preference for Solitude Scale (Burger, 1985)
Belonging	Loneliness and lack of belonging differ, since belonging is considered a broader construct than loneliness. Belonging refers to a perception of quality, meaning and satisfaction with social connections, but may also relate to a sense of affinity to a place or an event. Whilst a low sense of belonging and loneliness may co-occur, improving the sense of belonging does not guarantee that feelings of loneliness will be reduced (Lim et al., 2021).	General Belongingness Scale (Malone et al., 2012)
Depression	Loneliness and depression share some characteristics but are not equivalent. Whilst loneliness is a negative feeling, depression refers to a more global disturbance in mood, including persistent feelings of sadness and hopelessness along with loss of interest in activities that were previously enjoyed. Increased loneliness is a predisposing factor for depression. However, bidirectional effects are also present (Nuyen et al., 2020).	Beck Depression Inventory (Beck et al., 1996)
Shyness	Shyness is the tendency to feel awkward, worried or tense during social encounters. People may feel shy in social situations, but not necessarily lonely. Similarly, people may feel lonely but are not shy (American Psychological Association, 2022).	Revised Cheek and Buss Shyness Scale (Hopko et al., 2005)

Whilst loneliness is not a diagnosable disorder it is increasingly recognized as a significant problem for people with a mental illness – and for many without a diagnosis - who seek help from a mental health professional, including new z-codes planned for the International Classification of Diseases (ICD-11) to assist with reporting of factors influencing health status and contact with health services. It is vital, therefore, that clinical psychologists and neuropsychologists are equipped with the knowledge and skills required to meet their client's needs. Evidence-based practice in psychology (EBPP) entails "the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences" (APA Presidential Task Force on Evidence Based Practice, 2006). Given the burgeoning research on loneliness and its role in mental health and wellbeing it is difficult for practicing psychologists to stay up to date with the latest evidence. Consequently, the purpose of this narrative review , is to provide an overview and critique of recent advances in loneliness research to inform clinical practice. We focussed on peer-reviewed research on adults (prioritizing systematic reviews and meta-analyses where possible), published from 2016-2021. To maximize the practical relevance for professional psychologists, the paper is structured around five clinical themes: 1) research "hotspots", 2) assessment and measurement issues, 3) emerging treatments and interventions, 4) attitudes, culture and preferences, and 5) implications for training and practice.

Research "Hotspots"
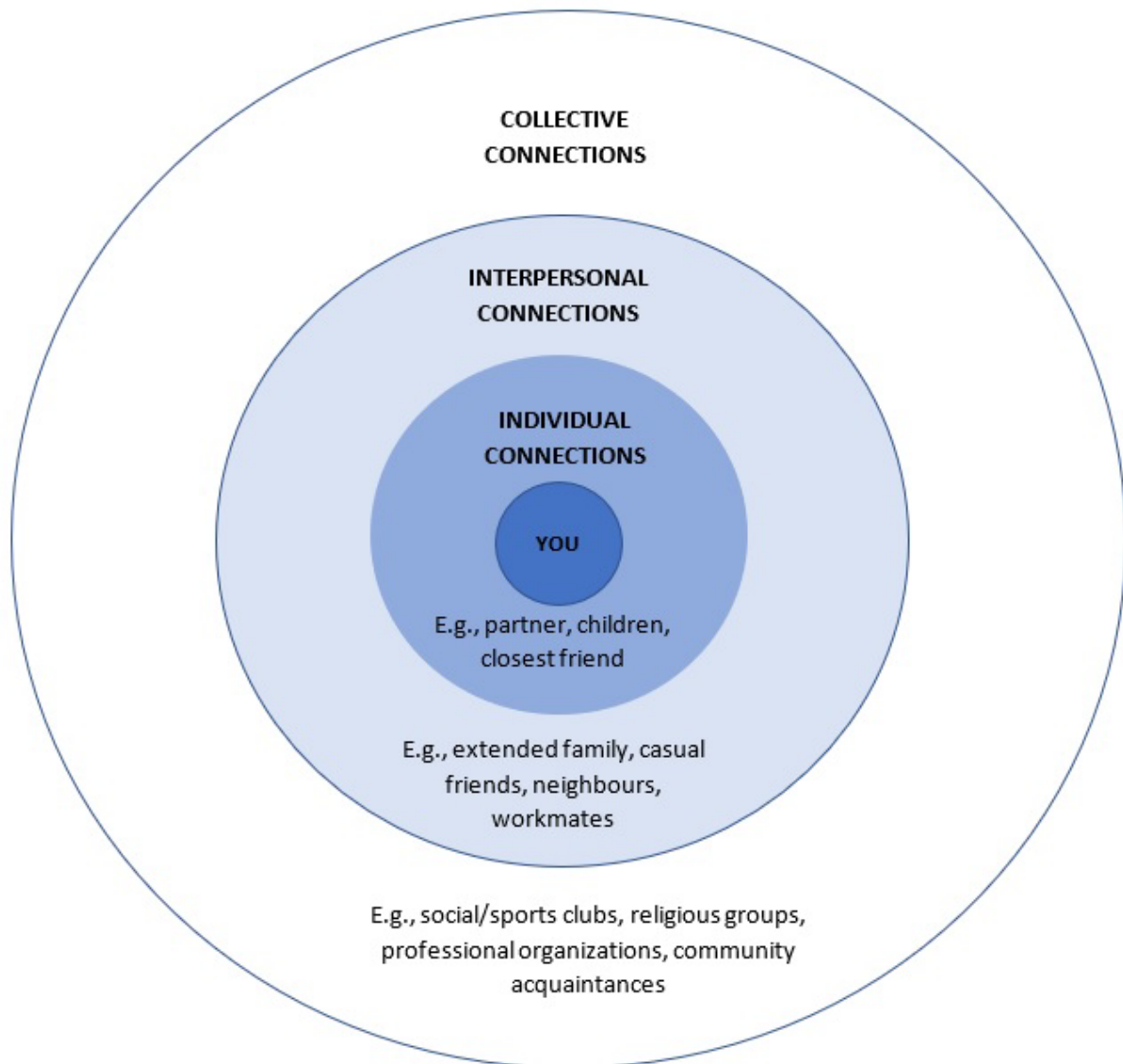
Demographics of Loneliness

Figure 1. Conceptual structure of loneliness.

Loneliness is a common problem, affecting around 10 - 47% of the general community (Beutel et al., 2017; Lasgaard et al., 2016), with higher rates in people with mental health conditions (Alasmawi et al., 2020) which means it is important to understand the risk factors involved. These risk factors can be classified into those related to *person* (e.g., age, sex, ethnicity), *place* (e.g., population density, median household income) and their interaction, though much current attention is focused on the relative importance of age (Shovestul et al., 2020). Whilst, feeling lonely has often been thought of as a problem for older adults, it clearly occurs across all age groups (Australian Psychological Society, 2018; Luhmann & Hawkley, 2016). Prior research on the distribution of loneliness with age has been highly variable, with some finding a linear decline with age and others showing complex, non-linear trajectories (Lee et al., 2019). Recent large-scale studies suggest

that rates of loneliness are highest in younger (< 30 years) and older (> 70 years) adults, with an additional peak for those age 50-60 years (Hawkley et al., 2020; Mund et al., 2020; Nicolaisen & Thorsen, 2017). The reasons for these inconsistencies include the use of different definitions and measures of loneliness, the lack of age-based measurement invariance of these tools (Panayiotou, Badcock, Lim, Banissy & Qualter, 2021), different methods of recruitment (in-person, web-based etc.), and under-recruitment of older participants (Shovestul et al., 2020). Together, however, the evidence shows that clinicians need to be aware of, and respond to, loneliness and its negative impact, in clients of all ages (Barreto, Victor, et al., 2021; Bruce et al., 2019; Donovan & Blazer, 2020; Park et al., 2020). Furthermore, loneliness has been amplified by COVID19 (Ernst et al., 2022; O'Sullivan et al., 2021) and linked to the development of mental

health problems in this context (Loades et al., 2021). Therefore, identifying and addressing loneliness will be critical in the longer-term recovery from the pandemic (Cunningham et al., 2021).

Why loneliness is unevenly distributed across adulthood is unknown. Some studies point to differential risk factors across the decades. For example, Nguyen et al. (2020) report that loneliness is uniquely associated with decisiveness in the 50s and with education, and memory complaints in the 60s. However, smaller social networks, not having a spouse/partner, lower prosocial behaviour, greater sleep disturbance and lower self-efficacy were significant predictors of loneliness for all ages. Others have found no evidence of age-specific risk factors, but a range of "universal" predictors of loneliness (e.g., household income, frequency of socializing), relevant across all stages of life (Hawkley et al., 2020). Together these findings highlight numerous points for psychosocial intervention to alleviate loneliness.

Loneliness, Mental Health, and Well-Being

Chronic loneliness has been consistently associated with poor physical and mental health (Erzen & Cikrikci, 2018; Holt-Lunstad, 2021; Leigh-Hunt et al., 2017); though the impact on the latter is larger than other health outcomes (Park et al., 2020). Importantly, studies have repeatedly shown that loneliness is related to a range of common mental disorders (CMD), such as mood and anxiety disorders, substance-use problems and suicide risk (Erzen & Cikrikci, 2018; Ingram et al., 2020; Lim et al., 2016). In fact, a recent study of more than 100 risk factors for depression highlighted loneliness as an important, modifiable treatment target (Choi et al., 2020). But, the majority of prior studies have been cross-sectional in design, therefore, the causal direction of the relationship is unclear. However, a recent meta-analysis of data from 20 longitudinal studies (the majority involving older adults) concluded that increased loneliness at baseline is associated with subsequent new onset of depression (OR: 2.33; 95% C.I. 1.62 - 3.34) and anxiety (Mann et al., 2021). Conversely, longitudinal data also points to bidirectional effects, whereby non-lonely adults with severe CMD at baseline are at an increased risk of developing loneliness at follow-up (Nuyen et al., 2020). Similarly, longitudinal evidence confirms that loneliness is associated with suicidal behaviour in select populations, with depression acting as a mediator in this pathway (Correll et al., 2017; McClelland et al., 2020). These data suggest that regular screening and intervention to reduce loneliness could prevent the development of mental illness in those without CMD, and contribute to better outcomes in those with ongoing CMD.

Over the last few years, the scope of research on loneliness and mental health has also widened. Whilst previous research has been dominated by studies of loneliness in older adults, recent research has targeted younger populations. For instance, a study of 2232 young adults in the UK (Matthews et al., 2019) showed that lonelier 18 year-olds were more likely to meet diagnostic criteria for a range of mental health problems (depression, anxiety, ADHD, conduct disorder, alcohol and cannabis dependence, to have self-harmed and to have attempted suicide); to have adopted more negative coping strategies to manage stress; and to have sought help for mental health problems in the past year (see also: Lim, Eres, et al., 2019). Similarly, alongside studies of CMD there has been substantial growth in research on other mental health conditions. For example, loneliness is now recognized as a major problem for people with psychotic disorders, with prevalence rates between 73 - 94% depending on diagnostic category (Badcock, Adery, et al., 2020; Lim et al., 2018). However, despite the growing awareness of the links between loneliness and poor mental health, translation of this evidence into clinical practice and improved service provision does not appear to be occurring. For example, evidence in Australia suggests there has been a sharp decline in access to evidence-based psychosocial interventions for people with serious mental illness, which is likely to have an adverse impact on recovery (Morgan et al., 2021). Recent studies have also explored the role of loneliness in personality disorders (Ikhtabi et al., 2022), sleep disorders (Hom et al., 2020), bereavement (Vedder et al., 2022), gender diverse (Eres et al., 2021) and neurodiverse samples (Hymas et al., 2022). For instance, loneliness has been found to be significantly higher in autistic children and adults compared to neurotypical samples (Ee et al., 2019; Hymas et al., 2022; Kwan et al., 2020), and plays a mediating role in the experience of anxiety and depression (Schiltz et al., 2021). Such findings challenge common assumptions of social disinterest in these clients (Moseley & Sui, 2019) and, though longitudinal research is still lacking, suggest that assessing and intervening to reduce loneliness is likely to be important for promoting mental health and wellbeing in autistic adults.

Loneliness and Dementia

Another current area of interest concerns the relationship between loneliness and dementia. Globally, the number of people living with dementia is estimated to be around 50 million, which is expected to increase threefold by 2050 (Patterson, 2018). Consequently, identifying factors that may help or hinder people from 'living well' with dementia has become a priority (Clare et al., 2019). Notably, recent data from a large (N = 1445) sample of adults with mild

to moderate dementia showed that around 30% were moderately lonely, whilst 5.2% were severely lonely – with those experiencing social isolation and depression, or living alone, being more likely to report feeling lonely. Thus, people with dementia experience loneliness at a similar rate to those aged 65+ in the general population. It is important to note, that the majority of studies have focussed on Alzheimer's disease; however, loneliness and social isolation are common in people with other forms of dementia (Larsson et al., 2019; Prenger et al., 2020). These findings highlight the need for more routine psychosocial assessment for people with dementia in clinical practice, along with a need for effective loneliness interventions to improve the quality of life, and health outcomes, of these clients.

Whether loneliness is a cause, or a consequence, of dementia is still a matter of debate (Victor, 2020). A sizeable number of longitudinal studies have concluded that loneliness is associated with an increased risk of dementia, especially Alzheimer's disease but not vascular dementia (Lara et al., 2019; Sundström et al., 2019). However, conflicting results have also been reported (Penninkilampi et al., 2018). These inconsistencies may be due to differences in study methodology (e.g., how loneliness was assessed), variations in diagnosing dementia, variable follow-up periods, and the range of covariates examined (Victor, 2020). Notably, longitudinal data from the largest sample to date (the Health and Retirement Study; N = 12,030) showed that loneliness was associated with a 40% increased risk of incident dementia, and remained significant when controlling for social isolation, clinical, behavioural, and genetic risk factors (Sutin et al., 2020). These findings suggest that loneliness is a modifiable treatment target that could reduce the risk of dementia. Studies are now aimed at getting a better understanding of the precise mechanisms through which loneliness contributes to cognitive decline and dementia (e.g., via increased stress, depression, poor sleep, elevated blood pressure or physical inactivity) (Kim et al., 2020; Wilson & Bennett, 2017).

Finally, it is important to remember that carers are experts in knowing the needs of those they care for with dementia. However, carers have their own social and emotional needs which must also be recognized and supported (National Guideline Centre [UK], 2019). Notably, a high proportion of caregivers experience moderate to severe loneliness, which is linked to increased objective isolation (Victor, Rippon, et al., 2021). Consequently, carers are also at increased risk of anxiety and depression, and reduced quality of life (Contreras et al., 2021). The evidence therefore suggests a need for a range of strategies, to improve the mental health of carers.

A Neuropsychological Perspective on Loneliness

Recent neurobiological studies of loneliness have used a range of neuroimaging techniques (including structural and functional magnetic resonance imaging, diffusion tensor imaging, positron emission tomography, and single-photon emission computed tomography) and offer important insights into how loneliness may contribute to mental (and physical) ill-health (Quadt et al., 2020). A recent systematic review of 41 studies (n = 16,771 participants), using a validated scale of loneliness, and measures of brain structure or function, showed that loneliness is associated with structural and functional differences in prefrontal cortex, insula (particularly anterior), amygdala, hippocampus, and posterior superior temporal cortex. Functional imaging studies also showed links between feeling lonely with activity in attentional and visual networks and the default mode network (DMN), whilst other studies showed that loneliness was linked to biological markers of Alzheimer's disease (Lam et al., 2021). The differing methodologies and cohorts examined makes synthesizing these findings difficult, but the results suggest that loneliness is associated with altered structure or activity in brain regions involved in emotion regulation, self-awareness, reward reinforcement, social cognition, and memory that are relevant to poor mental health, neurodiversity and neurodegenerative disorders (Li et al., 2021; Quadt et al., 2020). Importantly, activation of visual and attentional networks is consistent with previous proposals that loneliness evolved to improve our chances of survival through hypervigilance for social threat, which can set in motion a downward spiral of negative thoughts and behaviour associated with an increased risk of negative health outcomes (Cacioppo & Cacioppo, 2018). Lam and colleagues also noted that the brain regions involved in loneliness show significant overlap with those associated with wisdom (Lam et al., 2021), especially the component of compassion (Meeks & Jeste, 2009), which could inform new approaches for reducing loneliness. In addition, recent work suggests that the medial prefrontal cortex (a core node of the DMN) maintains a map of our social circles, based on our sense of connection (closeness) to them, which becomes distorted in lonelier individuals. Thus, the subjective experience of loneliness seems to be reflected in a "lonelier" representation of the self even at the neural level (Courtney & Meyer, 2020).

A complementary line of evidence on the role of specific brain regions in the experience of loneliness comes from studies of patients with brain lesions. People with acquired brain injuries are particularly vulnerable to loneliness and social isolation (Kumar et al., 2020). Recent data from the Vietnam Head Injury

study, which used voxel-based lesion-symptom mapping in patients with focal, penetrating traumatic head injury, showed that the right anterior insula (AI) and right prefrontal cortex (PFC) are key brain regions associated with loneliness (Cristofori et al., 2019). Of note, patients with selective lesions to the right AI and right PFC were less likely to report loneliness compared to those with selective lesions to the posterior cortex or to healthy controls, suggesting a causal relationship between these brain regions and the ability to perceive loneliness. Since loneliness predicts lower quality of life, and poorer mental health in people with a brain injury, it is clear that neuropsychologists working with this population need to give more attention to assessing and reducing loneliness as part of rehabilitation programs, to improve the mental health of their clients (Salas et al., 2021).

Assessment and Measurement Issues

Since loneliness is a subjective feeling about the inadequate quality and quantity of our relationships, assessments referencing solely objective/quantitative indices of social connectedness (i.e., how many social contacts one has) may not be accurate – as neither a sparse nor a replete social network is a good guide to whether someone will or will not feel lonely. The most common approach to assessing loneliness is via self-report. Several self-report scales of loneliness have been developed for adults – each of which appear to tap a common core construct (Mund et al., 2021). Popular examples include the University of California-Los Angeles-Loneliness scale (UCLA-LS; Russell, 1996) and the Rasch-Type Loneliness Scale (RTLS; de Jong Gierveld & Kamphuls, 2016; de Jong Gierveld & Tilburg, 2016), along with their various short forms. The main differences amongst these measures are: 1) the number of items they contain, 2) whether the tool was designed to assess loneliness as a single, global construct (e.g., UCLA-LS), or to capture multiple facets of loneliness (e.g., RTLS: social and emotional loneliness), and 3) whether the assessment uses a direct (the term lonely is used in the questions; e.g., How often you have felt lonely?) or indirect (the term lonely is not used in the questions; e.g., How often do you feel that you cannot get close to people?) approach. These widely used scales have a number of strengths. Importantly, they each have good reliability, as well as good convergent and construct validity. For example, they show similar patterns of correlations with external variables (demography, personality, life satisfaction), indicating overlapping nomological nets. In addition, rates of reporting loneliness are frequently higher when indirect rather direct measures of loneliness are used, which may be due to the social stigma of loneliness (see section 5) making people reluctant to describe themselves as lonely (Eccles et al., 2020; Shiovitz-Ezra & Ayalon, 2012). Thus, it may be helpful to complement direct measures with indirect measures of loneliness. However, it is also important to be aware of the potential weaknesses with these measures. For example, recent evidence indicates that the 20-item version of the UCLA-LS may lack full measurement invariance across countries (meaning it may be deficient in cross-cultural settings; Hudiyana et al., 2021) and age groups (Panayiotou et al., 2021). Other disadvantages include limited availability of norms; absence of agreed cut-off scores for clinically relevant levels of loneliness; limited data on sensitivity to change; and assessment focused on the frequency, but not intensity or duration, of loneliness – which is relevant to intervention planning.

A variety of single-item measures are also available, which are often direct measures of loneliness (e.g., Office for National Statistics, 2018). Single-item measures of loneliness have been criticized as unreliable and lacking standardization (i.e., they differ in wording, response choice and timeframe assessed) though recent evidence suggests that they often correlate highly with multi-item measures, and provide a valid and reliable index of loneliness (Mund et al., 2021). Nonetheless, single-item tools necessarily lack the nuance that is often required for clients seeking help for chronic loneliness. Consequently, they may be more suitable for research and evaluation, or screening, purposes. Conversely, in clinical practice, when time for assessment is often limited, a number of short tools are available with good psychometric properties (Hughes et al., 2004). For example, Panayiotou et al. (2021) argue that a 4-item version of the UCLA-LS provides a robust measure for reliably measuring loneliness in all adult age groups.

Another approach to assessing loneliness uses informant report. In many areas of psychological assessment multi-modal (e.g., both self-report and informant report) assessment is encouraged (Groth-Marnat, 2009). Several recent studies have explored self-informant (e.g., partners, friends, parents) agreement on loneliness. For example, Mund and colleagues report a generally high level of self-informant agreement for the RTLS (r = .61) and the UCLA-LS (r = .61), with lower convergence for a single-item, direct measure of loneliness (r = .49). Similar results have been reported elsewhere (Lee & Ko, 2017; Luhmann et al., 2016). These findings suggest that others (especially close others) can accurately evaluate another's loneliness and may add further perspective on the way in which lonely people are perceived by others.

Future Assessment Directions, Opportunities, and Challenges

Though feeling lonely is a common, and often serious, problem for people with psychological symptoms and disorders there are ongoing questions as to whether it should be assessed with generic self-report scales or tools modified for specific populations. Few studies have examined whether these measures are valid for use with specific mental health conditions. For example, Eglit et al. (2018) recently evaluated the measurement invariance of the UCLA-LS version 3 (Russell, 1996) in adults with schizophrenia and a non-psychiatric control group and concluded that it measures the experience of loneliness in an equivalent way across these groups. In contrast, a systematic review of the literature on loneliness among people with substance use problems noted that the UCLA-LS was valid for use in methadone maintenance settings but its validity across a broader range of substance dependence samples had not been determined (Ingram et al., 2020). Overall, the scarcity of evidence on the structural validity of loneliness measures poses an ongoing challenge for clinicians and highlights an important area of need for future research.

A further challenge relates to our lack of understanding on how levels of loneliness vary in the moment, and their role in predicting future chronic loneliness vs. social engagement. Consequently, there has been a growing interest in the use of high-resolution digital assessment methods (e.g., experience sampling methodology [ESM]) to gain a more fine-grained picture of daily fluctuations in loneliness or short-term flare-ups in response to specific triggers (Buecker et al., 2020; Reissmann et al., 2021; van Roekel et al., 2014). These studies open new opportunities for understanding the temporal dynamics of loneliness. However, despite advances in ESM software and application on mobile devices, their feasibility and utility in clinical settings requires further testing.

Emerging Treatments and Interventions

Given the high prevalence and impact of loneliness, and its high rates of comorbidity with a variety of mental health problems, evidence-based treatment approaches for loneliness are an important consideration for clinical practice. A number of treatment options have been developed, or adapted, for this purpose including techniques originally designed for assisting with other psychological difficulties (e.g., depression, social anxiety) thought to have common underlying mechanisms with loneliness. The evidence on the most effective intervention strategies is still unclear, but, the most promising can be broadly categorised into three types: (a) cognitive interventions targeting maladaptive social cognitions, (b) social skills training, and (c) facilitating opportunities for social engagement, connection or support (i.e., social prescribing) (Dingle & Sharman, 2021; Hickin et al., 2021; Ma et al., 2020; Mann et al., 2017).

Cognitive intervention programs for loneliness follow similar cognitive behaviour therapy (CBT) principles to CBT programs for other psychological difficulties, but tend to focus more heavily on social cognition. This is because such loneliness programs primarily stem from theoretical models that emphasise maladaptive social cognitions as a key factor underlying the development and maintenance of loneliness (Hawkley & Cacioppo, 2010; Qualter et al., 2015). In particular, Hawkley and Cacioppo's (2010) model of loneliness hypothesises that people with high levels of loneliness have perceptual cognitive biases that make them more hypervigilant for social threat (i.e., anticipating poorer social interactions or social rejection, excessively monitoring the environment for signs of such threat, and interpreting social stimuli more negatively). Such cognitive biases may contribute to avoidance of social situations, as well as driving one's behaviour in ways that are more likely to elicit negative social reactions from others (Hawkley & Cacioppo, 2010). As such, CBT for loneliness attempts to counter these cognitive biases via a range of techniques including cognitive restructuring, social behaviour activation, and psychoeducation. Current studies are now focussing on which specific practice elements of CBT for loneliness are essential and how change in loneliness is achieved (Kall et al., 2020).

Social skills training programs, in contrast, are based on the notion that loneliness may stem from underdeveloped (or lack of practice with) social skills, thus inhibiting one's ability to form or maintain meaningful or fulfilling social connections (Mann et al., 2017). Such programs often focus on practical education and training of conversational skills, the reading of tone and body language cues, and providing opportunities to practice social interactions with guidance or coaching from a therapist. The goal is to increase competency and confidence, such that future social interactions in daily life might be of higher quality and therefore have an optimised likelihood of positive outcomes. Social skills interventions may work better for some groups than others (e.g., people with autism; Matthews et al., 2018; Spain & Blainey, 2015) or when combined with other psychological approaches, such as CBT.

Relatedly, *social prescribing programs* aim to increase the quantity or types of opportunities people have to form meaningful social bonds (Haslam et al., 2019). A wide variety of existing approaches fall under this category, such as: befriending programs where a peer-support worker engages in regular conversations

or social activities with the client (Fakoya et al., 2021), group programs where clients are encouraged to meet with peers, or engage in new hobbies and activities and in turn establish a sense of belonging within groups (e.g., the GROUPS 4 HEALTH program, derived from social identity theory; Haslam et al., 2019), programs that introduce clients to companion animals (Krause-Parello et al., 2019), and other forms of social prescribing where clinicians signpost and refer lonely people to appropriate support in the community (often with the assistance of link workers). Whilst loneliness is conceptually separable from objective social isolation, the hypothesised mechanism here is that social avoidance and/or lack of opportunities to engage socially and establish a sense of belonging within social groups, can contribute to loneliness, and thus by providing these opportunities loneliness levels might decrease (Haslam et al., 2019).

Over the past decade, a number of systematic reviews and meta-analyses have been conducted to examine the effectiveness of the above types of loneliness interventions. The first of these meta-analyses (Masi et al., 2011) found that psychological therapy using CBT produced significantly better outcomes (Hedge's g = .60) than other interventions and control conditions, noting relatively poor effect sizes for social skill training and social prescribing approaches (Hedge's g < .16). More recent meta-analyses that incorporate a greater number of studies have found that in some circumstances social skill training and social prescribing can have similar efficacy to CBT and can be superior to control conditions (Eccles & Qualter, 2021; Hickin et al., 2021). In particular, whilst there can be high heterogeneity between studies, recent meta-analyses have found that, overall, each of these approaches can be effective for reducing loneliness levels (i.e., each producing moderate or modest effect sizes), with no significant differences present between the intervention types (e.g., overall Hedge's g = .43 (Hickin et al., 2021), .32-.41 (Eccles & Qualter, 2021), .32 (McElfresh et al., 2021)). That said, across studies, CBT remains consistently among the best performing interventions and is presently the category with the largest evidence base (Hickin et al., 2021; Kall et al., 2021).

Of note, similar findings (i.e., no significant difference between intervention types) have been reported in systematic reviews of younger (Eccles & Qualter, 2021; Osborn et al., 2021), mature (Bessaha et al., 2020) and older adults (Jarvis et al., 2020; Quan et al., 2020), and among people with mental health disorders (Ma et al., 2020; Mann et al., 2021). Indeed, when demographic factors like age and gender have been examined as moderators, they have been found not to have a significant impact on intervention

effectiveness (Hickin et al., 2021). These meta-analyses have also examined the impact of key intervention characteristics, such as group versus individual format, or face-to-face versus use of digital technology. Current data on these characteristics indicate that group and individual formats produce similar effect sizes, as do face-to-face and digital interventions (e.g., Hickin et al., 2021; Eccles & Qualter, 2020). Collectively, then, these findings are promising in terms of clinicians' ability to address loneliness in a flexible manner; a variety of interventions, administered across a variety of formats, appear successful in reducing loneliness levels. Nonetheless, not all interventions have been successful (Ingram et al., 2020) and more theory-guided research is needed.

Future Intervention Directions, Opportunities, and Challenges

Several key challenges remain in the area of loneliness interventions. Chief among these is trying to increase the specificity of interventions, or to determine which intervention components will work best for particular types of people and particular types of situations, i.e., implementing a precision health approach (Akhter-Khan & Au, 2020). Whilst the results of the abovementioned studies are promising, the overall effect sizes across interventions for loneliness remain, generally speaking, lower than effect sizes seen for other types of psychological difficulties. One reason for this may be the common use of a one-size-fits-all approach to the implementation of interventions in loneliness treatment trials. This approach is conceptually suboptimal given the established multi-factor nature of the aetiology of loneliness (Badcock et al., 2022). For some clients, maladaptive social cognition may be the predominant mechanism behind their59ssessness (i.e., indicating a key role for CBT components), whereas for other clients, poor social skills or an absence of opportunities for social contact may conceivably play a more influential role (i.e., indicating a key role for social skills training and social prescribing components). The application of the same intervention across all clients therefore misses opportunities to tailor an approach to the specific needs of each client. This lack of tailoring may also help to explain why recent meta-analyses have noted high heterogeneity in study effect sizes and have failed to observe any significant overall differences between different intervention types (i.e., because each treatment was appropriate for some participants, but not all). Moving forward, it will be useful to test modularised treatment programs containing multiple components (e.g., CBT, social skills training, and social prescribing), where the weighting of each component, and the format of its presentation, can be

customised for clients based on pre-intervention assessment results (e.g., Cohen-Mansfield et al., 2018).

A related challenge is determining how technology or digital innovations might best be used to optimise the effectiveness and reach of loneliness treatments. Digital technology use has increased dramatically in the loneliness field in recent years, including online administration of individual or group psychotherapy programs (Shapira et al., 2021), smart phone app delivered psychoeducation (Lim, Rodebaugh, et al., 2019), and use of virtual reality technology to simulate social situations (Antunes et al., 2017). With respect to psychotherapy, digital interventions can vary widely in the degree to which clinician resourcing or guidance is required, ranging from intensive therapy, to occasional text message feedback, or a completely automated program requiring no clinician input. Käll et al. (2021), for instance, recently demonstrated that 9 weeks of online CBT modules (with weekly text feedback from a therapist) was effective in significantly reducing loneliness in a diverse sample of 68 adults. In the broader mental health field, it has been found that more intense levels of therapist support do tend to improve outcomes (Baumeister et al., 2014), though the extent to which this principle applies to loneliness interventions has not yet been thoroughly tested. Digital interventions hold substantial promise for enhancing the accessibility of loneliness interventions; however, we must keep in mind that they are unlikely to be equally well-suited to all client types (Williams et al., 2021). A recent review of digital interventions for loneliness amongst older adults, for instance, found poor effect sizes for several interventions (Shah et al., 2021). In older cohorts particularly, the provision of sufficient initial training and support around technology use appears to be crucial for enabling the effectiveness of digital interventions (Jarvis et al., 2020).

Finally, there have also been several recent developments in the loneliness and wider affective science field that may hold promise in informing new approaches to loneliness treatment. Preece et al. (2021), for instance, recently proposed that an emotion regulation framework could be useful for understanding and treating loneliness. Amongst a diverse sample of general community adults, they found that around half the variance in people's loneliness levels could be explained by the pattern of strategies typically used to regulate emotions. Lonely people were more likely to use cognitive emotion regulation strategies involving rumination, catastrophising, and blaming of oneself or others, and were less likely to use cognitive reappraisal. Behaviourally, lonely people were also more likely to respond to their emotions by inhibiting expression of their emotions and withdrawing from others (Preece et al., 2021). Given the established utility of emotion regulation-based treatments for other types of psychological difficulties (e.g., depression and anxiety; Andersen et al., 2016), these findings thus suggest that a similarly broad targeting of emotion regulation patterns in loneliness could hold promise for loneliness treatment. One potential manifestation of this could be the broadening 60ssessness CBT programs from their primary focus on maladaptive social cognition, to also incorporating teaching of a wide range strategies focused on regulating emotions more generally, such as behavioural activation and mindfulness, though the overall quality of evidence for the latter is still low (Teoh et al., 2021). Practice-based research and evaluation by psychologists could play a significant role in improving the evidence base of what works and identifying the mechanisms of change across interventions for loneliness.

Attitudes, Culture, and Preferences

Unfortunately, there has been a scarcity of research specifically aimed at investigating attitudes towards loneliness, including limited inquiry into the presence and effects of stigma directed at the self and others, or from healthcare professionals. Although research is beginning to turn its attention to the effects of loneliness stigma (Barreto, Van Breen, et al., 2021), older evidence is often still relied on. Nonetheless, one of the major challenges to tackling loneliness in clinical practice is managing the stigma associated with it, which can complicate both assessment and treatment (Mann et al., 2017). People who are lonely often say that they feel ashamed or a failure and worry that others will view them as unlikeable. These self-stigmatizing attitudes and emotions associated with feeling lonely can make it difficult for people to disclose their feelings (Mental Health Foundation, 2018). To illustrate, the BBC Loneliness experiment surveyed 55,000 participants, and found that when loneliness was assessed with an indirect (rather than a direct) measure 30% of respondents switched from the 'never' to the 'sometimes' lonely group, showing that people do not like to admit to feeling lonely (Qualter et al., 2018). A further factor is that loneliness often co-exists with other stigmatized identities, which means that the effects of multiple stigmatized experiences (e.g., ageing, mental illness) may need to be identified and addressed (Kong et al., 2021). For example, stereotyped attitudes may lead to the expectation that loneliness in older adults is inevitable, whilst many older people are satisfied with their social relationships. To date, however, no studies have examined effective ways of challenging loneliness stigma.

Another line of evidence has focussed on the social or public stigma of loneliness i.e., negative attitudes held by the general community towards lonely others. Early studies in this field suggested that people who are perceived to be lonely are likely to be judged more negatively (e.g., rated as less adjusted, competent, and likeable) than non-lonely ones (Lau & Gruen, 1992). Subsequent studies, however, produced mixed results which may, in part, be due to methodological flaws in previous research (e.g., confounding loneliness with social skill or personality traits). More recent evidence, using improved study designs, suggests that the public stigma of loneliness may be less than previously thought (Kerr & Stanley, 2021), which may be useful to discuss with clients. Research on the stigma of loneliness from mental health professionals is scarce, though negative attitudes from clinicians can be a barrier to providing high quality care. For example, a qualitative study of mental health practitioners in early intervention services for psychosis noted that clinicians recognized that the majority of service users were lonely, yet they did not routinely discuss this problem with their clients or offer specific interventions for loneliness. Importantly, most of the clinicians interviewed thought that self or public stigma associated with mental illness contributed to loneliness in their clients, but the role of stigma from mental health professionals in contributing to the lack of targeted care for loneliness was not discussed (Stefanidou et al., 2021). Together, these findings suggest that psychologists: need to be aware of client attitudes towards loneliness; consider potential benefits of routine screening for loneliness using both direct and indirect measures; recognize that solutions for loneliness may be more effective if they incorporate strategies for challenging stigma; and should be mindful of how their own attitudes and behaviour may influence their practice.

The aversive nature of lacking connection to others and having a desire for more meaningful social relationships are common features of loneliness across cultures (Heu et al., 2021). However, the experience of feeling lonely cannot be fully understood without considering a person's cultural environment – the culture they belong to, the neighbourhood they live in, and the social norms of their local community (Barreto, Victor, et al., 2021; McHugh Power et al., 2017). For example, high rates of loneliness have been reported in migrants, refugees and people from ethnic minority backgrounds, which may reflect a host of factors including racism, limited language skills and difficulty sharing cultural views (Victor, Dobbs, et al., 2021). Conversely, Heu et al. (2018) recently showed that across five European countries levels of loneliness were lower for individuals who described themselves or their immediate environment as collectivistic (e.g.,

valued higher social embeddedness). These findings suggest that interventions to reduce loneliness could target both individual and community approaches. However, cultural influences on loneliness have received limited research attention. Complicating matters, as noted above, popular measures of loneliness may lack cross-cultural validity (Hudiyana et al., 2021) and research on culturally sensitive interventions for loneliness is limited (Salway et al., 2020). Nonetheless, following a synthesis of the evidence, Salway and colleagues suggested that when considering loneliness in migrant and ethnic minority communities, the following factors should be examined: positive social ties and interactions, negative social ties and interactions, self-worth, and appraisal of existing ties.

Finally, it is important to recognize that everyone's need for connection and experience of loneliness is different. Therefore, it can be helpful to encourage clients to map their current social connections (see example template in supplementary materials) identify their strengths and weaknesses (which connections are working well and what is missing or needs improvement, i.e., individual, interpersonal, and collective loneliness), and where their priorities lie. For example, some clients may feel their ties with immediate family are strong but feel disconnected from friends/peers and would like to improve this aspect of their social life.

Implications for Workforce Training and Practice

In recognition of the scale and significance of loneliness and social isolation for mental and physical health, the Global Initiative on Loneliness and Connection[1] recently recommended that training in social health and wellbeing (and their associated risk factors and management), should be mandatory for health professionals and social care providers (Badcock et al., 2022). Current training of clinical psychologists and neuropsychologists remains heavily influenced by the medical model of diagnosis and treatment. However, the evidence suggests that the social determinants of health and recovery need to be included in best-practice frameworks for the delivery of psychological care. In particular, both trainees and experienced clinicians, in clinical- and neuro-psychology, need to be equipped with the knowledge, skills and resources to ensure clinical competency in the61ssessent and management of chronic loneliness (see Supplementary Table 1). This may be especially urgent in workplaces where psychologists are frequently under-represented (O'Connor & Yanos, 2021; Pachana & Yeo, 2019). Some progress has been

made to achieve these objectives. For example, guidelines for American psychologists working in long-term care settings encourage clinicians to assess the experience of loneliness because it is associated with diminished mental and physical health across the life span (Molinari et al., 2021). However, the available research shows that loneliness is a frequent and distressing problem for people with a wide range of mental, neurodevelopmental and neurodegenerative disorders, and in others seeking psychological services. Consequently, the evidence suggests that clinical guidelines should be extended to recommend routine screening for the presence and severity of loneliness in psychological practice, so that this major social stressor can be appropriately integrated into "socially aware" case formulations and treatment plans (Johnson & Sampson, 2019). Indeed, health professionals who are aware of the challenges, the need for action, and are confident about talking with their clients about social influences on health are more likely to provide to help for these problems (Naz et al., 2016).

It is notable that the most promising approaches for reducing loneliness, especially for people with a mental illness (Mann et al., 2017), draw on the existing skills of professional psychologists, namely interventions to change unhelpful cognitions, emotions, and behaviours. Thus, psychologists are particularly well-placed to assist clients who are lonely. However, they can also play an important role in raising awareness of the need to address loneliness in mental health services and advocating for the benefits of tackling loneliness in the broader community (see Supplementary Table 1). Moreover, as clinician-researchers, psychologists are well-placed to take a lead role in advancing research and evaluation to facilitate recovery in their clients.

A final, but no less important, consideration is the impact of loneliness on mental health clinicians themselves. Recent evidence has highlighted high rates of loneliness in both practicing and trainee healthcare professionals, a challenge that is likely to rise with the increasing demands on the mental health system arising from the COVID-19 pandemic (Katzman et al., 2016; Rokach & Boulazreg, 2020). Factors such as professional isolation (e.g., private practice work), increasing use of virtual service deliveries (i.e., telehealth), and insufficient social connections to colleagues or non-work relationships have all been shown to contribute to clinician loneliness (Kulkarni, 2019; Lim et al., 2020). Accordingly, healthcare professionals need to be aware of their own social needs and incorporate these into existing self-care practices (Ending Loneliness Together, 2022).

Summary and Conclusions

Loneliness is a common experience in modern society. Whilst feeling lonely is a normal part of human experience, frequent, intense, or persistent loneliness constitutes a major social determinant of mental health. Moreover, the number of people experiencing loneliness has significantly increased since the onset of the COVID19 pandemic (O'Sullivan et al., 2021). Chronic loneliness disrupts good mental health and wellbeing, increases risk for a wide range of mental health conditions, and worsen outcomes for those with pre-existing high and low prevalence mental disorders (World Health Organization and Calouste Gulbenkian Foundation, 2014). The best available evidence underscores the importance of enquiring about loneliness on a routine basis in psychological practice and, where relevant, incorporating clients' attitudes, culture and preferences when developing case formulations and treatment plans. Amongst the most effective interventions for loneliness are those based on CBT that seek to change the perceptual and cognitive biases that frequently occur in lonely people. Since training in CBT is a foundational competency for professional psychologists, they are particularly well-placed to help their clients achieve good outcomes. However, whilst CBT techniques are moderately effective in reducing loneliness, the precise mechanisms underpinning how these treatments work remain unclear. Practice-based evaluation of treatment outcomes is therefore essential in providing valuable new evidence of what works, for whom and when.

Footnotes

[1] See: https://www.gilc.global/ for further information.

Additional Information

Practitioner Highlights
- Loneliness occurs in all age groups, with peaks rates in younger and older adults.
- Loneliness is common in people seeking help from mental health professionals
- The stigma of loneliness can make it hard to talk about it: clinicians need to be proactive in asking about feeling lonely.
- Understanding loneliness is best considered in relation to cultural environment, social needs and priorities.
- Psychologists are well-placed to take a lead role in advancing research, advocacy and interventions for loneliness.

Key Learning Objectives
- Understand the relationship between loneliness and mental health across the life course.

- Increase knowledge of measurement tools for assessing loneliness.
- Critically evaluate the latest evidence on psychological therapies for chronic loneliness.
- Appreciate attitudes towards loneliness and the implications for clinicians.
- Enhance capacity to integrate social determinants of health into routine practice.

Supplementary Materials
Supplementary materials for this article can be viewed here: https://osf.io/c8y7n/

Conflict of Interest
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This review did not involve human participants; ethics approval was not required.

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N/A

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Johanna Badcock: conceptualization, methodology, writing – original draft, review and editing.
David Preece: writing – review and editing.
Anna Badcock: conceptualization, writing – review and editing.

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