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Back to basics in the field of loneliness: progressing conceptualisation and definition of the term – an umbrella concept analysis

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ABSTRACT

The absence of a comprehensive, unified, conceptualisation of loneliness and the consequent lack of a clear and precise theoretical definition of loneliness impede research, policy and practice activities to understand and address this global public health issue. Our study aimed to establish the first such conceptualisation and develop the first such definition. To do so, we undertook a systematic conceptual review, specifically an umbrella concept analysis, including 42 documents summarising/synthesising the literature concerning the conceptualisation and/or theoretical definition of loneliness. The novel definition developed is *the negative feeling(s) one experiences as a result of a (conscious or subconscious) personal perception that one's interpersonal needs are not satisfied by (the quantity and/or quality of) one's interpersonal (emotional, social, collective, professional and/or religious) relationships*. In the process, we identified the unidimensionality of loneliness and generated clarity regarding the opposite of loneliness ('unloneliness'). We call on researchers, policymakers and practitioners working in the field of loneliness, the wider field of interpersonal relationships or encountering loneliness in other fields of activity, across the globe, to employ the novel conceptualisation and theoretical definition as a foundation for activities to further progress understanding and addressing of loneliness. We also encourage consideration of unloneliness, when undertaking such activities.

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Loneliness; concept analysis; umbrella review; conceptualisation; definition; interpersonal relationships


1. Introduction

1.1. Background

Loneliness, in modern times, has evaded formal definition (Strickler, 2023, p. E793)

Prior to the coronavirus (COVID-19) pandemic, loneliness was already viewed as a serious public health problem (Cunningham et al., 2021; Hawkey, 2022; Hunter, 2012; Office of the Surgeon General, 2023; The Lancet, 2020) due to its reported prevalence (Surkalim et al., 2022) – described as an *epidemic in modern society* (Killeen, 1998, p. 762) – and associations with low wellbeing, poor mental and physical health and premature mortality (Cacioppo et al., 2006; Holt-Lunstad

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et al., 2010, 2015; Leigh-Hunt et al., 2017; Office of the Surgeon General, 2023; The Lancet, 2023; Vanderweele et al., 2012), as well as considerable economic implications (Meisters et al., 2021; New Economics Foundation & Co-op, 2017; Peytrignet et al., 2020). The prominence of the problem was increased by the pandemic, with the measures implemented to control the spread of coronavirus (e.g., social distancing) exacerbating loneliness (Cunningham et al., 2021; Holt-Lunstad, 2021), and post-pandemic surveys reporting a worldwide increase in the problem (Ernst et al., 2022; O'Sullivan et al., 2021). Addressing loneliness has thus been recognised as critical and the World Health Organization (WHO) has declared the problem a global public health issue and established a Commission aiming to facilitate resourcing of the problem as such (WHO Commission on Social Connection). It has also called on all governments to give loneliness *the political priority and resources that [it] deserve[s]* (World Health Organization, 2021b, para. 2).

A key first step to addressing a public health problem, or a wider policy problem, is understanding the problem (Campbell et al., 2007; Cioffi, 2019; Sharp, 1991; Whittemore & Grey, 2002; Wight et al., 2015). As highlighted in the recent *Back to Basics* conceptual clarification guidance article (Bringmann et al., 2022) referred to in the title of this article, as well as other contemporary articles (Flake & Fried, 2020; Lambert & Newman, 2023; Peters & Crutzen, 2024; Podsakoff et al., 2016), understanding a problem requires adequate conceptualisation and definition of the relevant concepts. Such conceptualisation and definition are crucial for theory development, evidence generation and synthesis, and communication and comparison regarding the problem (Bringmann et al., 2022; Hagger, 2014; Peters & Crutzen, 2024; Podsakoff et al., 2016; Sheeran et al., 2017).

In the field of loneliness, understanding, and therefore addressing, of the problem is impeded by the absence of a comprehensive, unified, conceptualisation of loneliness, and the consequent lack of a clear and precise theoretical definition of loneliness (see Appendix 1 for explanation of these terms). The status quo regarding conceptualisation and theoretical definition has been noted by leaders in the field as problematic for research, policy and practice activities – communicated succinctly in the assertion of Victor (2021): *The research literature, policy and practice [concerning loneliness] are redolent with debates about concepts and terminology ... precision of the definition and use of concepts is important in conducting empirical research across disciplines and is essential for informing policy and practice* (p. 52). The issue of an absence of a comprehensive, unified, conceptualisation of loneliness, and the consequent lack of a clear and precise theoretical definition of loneliness, was first formally acknowledged in 1959 in the statement of pioneering psychiatrist Frieda Fromm-Reichmann (Fromm-Reichmann, 1959): *loneliness is one of the least satisfactorily conceptualized psychological phenomena* (p. 1). Despite the ensuing voluminous literature concerning the conceptualisation and theoretical definition of loneliness – including efforts to distinguish 'loneliness' from the oft-conflated term 'social isolation', e.g., Wigfield et al. (2022), Asante and Tuffour (2022) – and multiple endeavours to summarise and/or synthesise (see Appendix 1 for explanation of these terms) that literature, e.g., Bekhet et al. (2008), ElSadr et al. (2009), McHugh Power et al. (2018), the issue persists and has been re-emphasised in recent publications by leaders in the field of loneliness and prestigious journals, e.g., Fried et al. (2020), Lederman (2023), Lim et al. (2023), Malli et al. (2023), Motta (2021), Prohaska et al. (2020), Schmidt (2023), The Lancet (2020), The Lancet (2023), Victor (2021).

It is therefore time to return to the beginning of the iterative cycle (the process of scientific advancement comprising different stages, e.g., theorising and measurement) in the field of loneliness – the conceptualisation stage, in which the individually necessary and jointly sufficient characteristics of the concept are determined, i.e., to go *Back to Basics*, as advised by Bringmann et al. (2022) in their conceptual clarification guidance article.

Prior to doing so, given that the term 'loneliness' has been used to refer to multiple disparate phenomena over the years, it is essential to clarify the phenomenon requiring scrutiny. Most uses of the term 'loneliness' are now archaic (de Jong Gierveld et al., 2018), e.g., the use referring to a phenomenological state resulting from a discrepancy in one's self-concept (Perlman & Peplau, 1982), and the use referring to a psychodynamic condition emanating from intra-psychic conflicts stemming from early

experiences (Perlman & Peplau, 1982). Current usage of the term generally refers to either a psychosocial state originating from issues with one's interpersonal relationships¹ (Cacioppo & Patrick, 2008; Mayers & Svartberg, 2001) – known as psychosocial, secondary or ordinary loneliness (Bekhet et al., 2008), or an existential condition arising from being human, i.e., from being encapsulated in a mind/body that is separate from all others (Moustakas, 1961) – known as existential, primary or cosmic loneliness (Francis, 1976). The former phenomenon is both that most commonly referred to by the term (de Jong Gierveld et al., 2018; Wright, 2005) and that viewed as a global public health issue (Ding et al., 2022; Murphy, 2021; Stickley & Ueda, 2022; UK Government, 2018; World Health Organization, 2021a). For these reasons the phenomenon requiring scrutiny is psychosocial loneliness.² Hereafter, unless pertinent to emphasise 'psychosocial', we refer to psychosocial loneliness by the term 'loneliness'.

A comprehensive, unified, conceptualisation of loneliness and a clear and precise theoretical definition of the term, derived from that conceptualisation, would, in themselves, constitute substantial progress in understanding the problem of loneliness. They would also provide an enhanced foundation for the undertaking of multiple activities to further progress understanding and addressing of the global public health issue of loneliness. These activities span the arenas of research, policy and practice and include:

- (a) Selection/development of conceptually-valid (generic and contextually-sensitive) operational definitions of loneliness (definitions stated in terms of observations and/or activities that identify the phenomenon – sometimes referred to as measures or tools [Podsakoff et al., 2016; Waltz et al., 2017]) – for use to identify and assess loneliness and to evaluate interventions to address loneliness (Asante & Tuffour, 2022; Cunningham et al., 2021; Fried et al., 2020; Waltz et al., 2017; Yanguas et al., 2018);
- (b) Selection/development of conceptually-valid (generic and contextually-sensitive) qualitative questions to explore loneliness, as well as selection/development of guidance concerning how to code qualitative data regarding loneliness (Peters & Crutzen, 2024);
- (c) Selection/development of theories of loneliness, including sources of loneliness and consequences of loneliness (Becker & Jaakkola, 2020; Bringmann et al., 2022; Cronin et al., 2010; Prohaska et al., 2020; Weaver & Mitcham, 2008);
- (d) Selection/development of education and training interventions concerning identification of individuals experiencing loneliness – for health professionals and other professionals who are well-positioned to identify such individuals, e.g., community-based workers such as police officers (Asante & Tuffour, 2022; National Academies of Sciences, Engineering, and Medicine, 2020);
- (e) Selection/development of targeted and tailored interventions, including policy interventions, to address loneliness (Asante & Tuffour, 2022; Cunningham et al., 2021; McHugh Power et al., 2018; O'Rourke, 2024; Prohaska et al., 2020; Wigfield et al., 2022);
- (f) Robust evidence synthesis in the field of loneliness (Peters & Crutzen, 2024);
- (g) Effective communication in the field of loneliness (Prohaska et al., 2020).

1.2. Study aim

The aim of our study was twofold: to establish a comprehensive, unified, conceptualisation of loneliness and develop a clear and precise theoretical definition of loneliness. The specific objectives were:

- (i) To conduct a literature review to establish a comprehensive, unified, conceptualisation of loneliness;
- (ii) To employ that conceptualisation to develop a clear and precise theoretical definition of loneliness.

2. Methods

2.1. Study design

We undertook a conceptual literature review, specifically an umbrella concept analysis – a complementary combination of an umbrella review (Aromataris et al., 2015) and a concept analysis (Meleis, 2018) – to achieve our study aim. We selected this study design for the following reasons:

- Our awareness of the existence of multiple summaries and/or syntheses of literature concerning the conceptualisation and/or theoretical definition of loneliness;
- Its enabling of a systematic, comprehensive and transparent process of data generation as well as a structured process of data analysis to address the study aim.

Despite the utility of an umbrella concept analysis, we could not identify any methodological guidance regarding, or any prior instances of, this type of study. We therefore followed guidance for both umbrella reviews (Cant et al., 2022; Gates et al., 2020) and concept analyses – specifically an adapted version³ of the Walker and Avant (2018) method – making modifications where necessary to combine the two study types, e.g., enhancing the data generation stage of concept analysis with the detailed and rigorous umbrella review guidance for data generation, and enhancing the data analysis stage of umbrella reviewing with the specific concept analysis guidance for analysis. We also integrated the relevant parts of the processes of conceptualisation and theoretical definition development outlined by Waltz et al. (2017), Podsakoff et al. (2016), Mackenzie et al. (2011), Lambert and Newman (2023) and Tay and Jebb (2018) in order to enhance the Walker and Avant (2018) method and aid achievement of our study aim. Finally, we employed Qualitative Content Analysis – specifically the conventional method outlined by Hsieh and Shannon (2005) – to facilitate the data analysis and to augment its comprehensiveness and transparency. This enabled us to develop methodological guidance concerning umbrella concept analyses (manuscript in preparation). We provide details of the process in the following sections. In line with relevant recommendations for conceptual research (Health Psychology Review, 2024; Pham & Oh, 2021) we did not pre-register the review protocol, but rather followed the guidance of Hulland (2020) regarding reproducibility, thoroughness, honesty and focus. To report the concept analysis in this article we follow the Enhancing the QUALity and Transparency Of health Research (EQUATOR) network guidelines concerning umbrella reviews (Gates et al., 2022) and the guidance of Reese (2023) and Lambert and Newman (2023) regarding conceptual articles.

2.2. Data generation

2.2.1. Systematic literature search

We (the research team, comprising a psychologist focussed on loneliness and social prescribing, a nurse focussed on cancer rehabilitation and survivorship and a psychologist focussed on the social dimensions of health and wellbeing – all experienced in both research in the field of loneliness and evidence synthesis) consulted an academic liaison librarian to develop the search strategy. We developed the strategy in an iterative manner, testing various potential search terms and ensuring that key documents were identified by the final strategy. Both academic and grey literature from a diverse range of disciplines, including psychology, philosophy, nursing, medicine, sociology and anthropology, had potential to contribute to the achievement of our study aim, thus a wide range of databases was included in the search: Medical Literature Analysis and Retrieval System Online (MEDLINE), Excerpta Medica Database (Embase), Cumulated Index to Nursing and Allied Health Literature (CINAHL), PsycInfo, Sociology Collection (Applied Social Sciences Index and Abstracts [ASSIA], Sociological Abstracts, Sociology Database), Web of Science Core Collection, Scopus, PhilPapers, Philosopher's Index, WorldCat, ProQuest Dissertations & Theses Global,

Google books Advanced Book Search and Google Advanced Search. We did not set date limits, therefore all databases were searched from inception until Summer/Autumn 2022, with an updated search conducted in Autumn 2024 (see Appendix 2 for final search strategy and date of each search).

2.2.2. Eligibility assessment

We considered documents for inclusion if they had a focus (indicated by an aim/objective/research question or a description of content or a heading) on summarising and/or synthesising (academic and/or grey) literature concerning the conceptualisation and/or theoretical definition of psychosocial loneliness (in any population or context).

We excluded documents if they:

- Were not written in English;
- Were unavailable to access;
- Were superseded by a later document.

We determined the eligibility of documents by applying the eligibility criteria in a two-stage process: (1) screening of titles, abstracts, summaries, lists of contents; (2) assessment of full texts. Two team members conducted this process independently. The process was assisted by the use of Covidence systematic review software (www.covidence.org). Any discrepancies were resolved by discussion, with the option to consult a third team member if necessary.

2.2.3. Quality appraisal

Given the novelty of the umbrella concept analysis, no formal quality appraisal criteria exist for this study design. We could identify only brief and imprecise quality appraisal criteria for concept analyses more widely (Morse et al., 1996). Therefore, in order to appraise the eligible documents, we developed a rigour classification system for process of data generation (literature search, eligibility assessment, quality appraisal, data extraction) and process of data analysis, with separate sub-sections for summarisation and synthesis. This system was informed by the general, non-detailed quality appraisal criteria for concept analyses, as well as by guidance regarding the process of data generation for umbrella reviews (Cant et al., 2022; Gates et al., 2020) and concept analyses (Walker & Avant, 2018), and guidance concerning the process of data analysis for concept analyses (Walker & Avant, 2018) and conceptualisation and theoretical definition development (Lambert & Newman, 2023; Mackenzie et al., 2011; Podsakoff et al., 2016; Waltz et al., 2017). The system classified the rigour of the process of data generation and the rigour of the process(es) of data analysis as 'high', 'medium' or 'low' (see Appendix 3 for details of classifications). Two team members applied the rigour classification system independently. Any discrepancies were resolved by discussion, with the option to consult a third team member if necessary. As the study was a conceptual review all eligible documents had potential to contribute to the achievement of the aim. We therefore took the decision not to exclude documents based on their rigour classifications. Rather rigour classifications informed the data analysis and discussion.

2.2.4. Data extraction

We extracted conceptualisations and theoretical definitions of loneliness from those documents in which literature was summarised. We also extracted novel conceptualisations and theoretical definitions of loneliness from those documents in which literature was synthesised. This was facilitated by the development of a standardised data extraction form (see Appendix 4 for data extraction form). All data were extracted by one team member then verified by a second team member. Any disagreements were resolved through discussion, with the option to consult a third team member if necessary.

2.3. Data analysis

2.3.1. Conceptualisation of loneliness

We undertook a Conventional Qualitative Content Analysis (Hsieh & Shannon, 2005) to identify attributes of the concept of loneliness, i.e., descriptive qualities that may or may not identify (be necessary characteristics of) loneliness. This analysis comprised the following steps:

- Familiarisation: repeated reading of extracted data to achieve immersion and obtain a sense of the whole;
- Development of initial coding scheme: open coding of data extracted from one-third of included documents to derive preliminary codes, and establishment of preliminary categories (higher-level organisations of those codes) by identifying relationships between preliminary codes;
- Application and refinement of initial coding scheme: coding of data extracted from remaining two-thirds of included documents – and re-coding of data from original one-third of included documents – according to the initial coding scheme, and amendment of the coding scheme upon encountering data that did not fit an existing code;
- Finalisation of coding scheme: examination of all data within each code and category in order to split broad codes and categories (creating sub-categories) and merge narrow codes and categories.

We then employed the findings of the analysis to conceptualise loneliness, i.e., to specify the conceptual domain of loneliness and the conceptual theme of loneliness (see Appendix 1 for explanation of these terms) as advised in guidance regarding conceptualisation (Lambert & Newman, 2023; Mackenzie et al., 2011; Podsakoff et al., 2016; Waltz et al., 2017). This process involved asking several questions. These were:

- What type of property does loneliness represent? (conceptual domain – type of property);
- To what entity does the property apply? (conceptual domain – entity to which the property applies);
- Must this be present to classify an occurrence as loneliness, i.e., can an occurrence be identified as loneliness without this? – asked of identified attributes to distinguish the necessary characteristics from the descriptive attributes of the concept (conceptual theme – individually necessary and jointly sufficient characteristics);
- How distinct are the necessary characteristics from each other? Would eliminating any one of them restrict the conceptual domain in a significant way? (conceptual theme – dimensionality);
- Is an individual's loneliness expected to be relatively stable over time or is it expected to vary over time? (conceptual theme – stability over time);
- Is an individual's loneliness expected to apply only in a specific situation or is it expected to apply more generally? (conceptual theme – applicability across situations);
- Is loneliness expected to apply only to particular individuals or is it expected to apply more generally? (conceptual theme – applicability across individuals).

The analysis was led by one team member, with two other team members checking the interpretation of data and verifying the findings after each step. Any disagreements were resolved by discussion.

2.3.2. Construction of cases of loneliness: model cases and contrary cases

We employed the novel conceptualisation of loneliness to construct different cases of loneliness. Originally we intended to construct multiple: (a) model cases of loneliness – cases that are clearly

loneliness as they demonstrate the individually necessary and jointly sufficient characteristics of loneliness; (b) related cases of loneliness – cases that are similar to loneliness as they contain some, but not all, of the individually necessary characteristics of loneliness; (c) contrary cases of loneliness – cases that are within the conceptual domain of loneliness but are clearly not loneliness as they demonstrate none of the individually necessary and jointly sufficient characteristics of loneliness. However following the establishment of only one necessary (thus solely sufficient) characteristic, we recognised that it was not possible to provide related cases of loneliness. We therefore constructed only model cases – cases demonstrating the single necessary and sufficient characteristic of loneliness, and contrary cases – cases within the conceptual domain of loneliness but not demonstrating the single necessary and sufficient characteristic of loneliness. In order to do so we determined the full expected range, i.e., the polarity of the continuum (Tay & Jebb, 2018), of loneliness, as advised in guidance regarding conceptualisation (Lambert & Newman, 2023). The cases were constructed by one team member and verified by two other team members. Any disagreements were resolved by discussion. The cases were informed by our previous empirical research in the area of loneliness (Cunningham, 2014a; Cunningham et al., 2018), as well as discussions about loneliness with academics from different disciplines (e.g., medicine, nursing, psychology, sociology), health and social care professionals, third sector professionals, patients and the general public, over the past 15 years. The process of constructing these cases facilitated identification of any areas of overlap, vagueness or contradiction regarding the meaning, and the single necessary and sufficient characteristic, of loneliness, and thus any required refinements to the data analysis.

2.3.3. Development of a theoretical definition of loneliness

We employed the novel conceptualisation of loneliness to formulate a theoretical definition of loneliness. We ensured that this definition was unambiguous, and not circular, tautological, self-referential nor overly technical, as advised in guidance regarding theoretical definition development (Lambert & Newman, 2023; Mackenzie et al., 2011; Podsakoff et al., 2016; Waltz et al., 2017). The definition was formulated by one team member and verified by two other team members. Any disagreements were resolved by discussion.

3. Findings

3.1. Search results, document characteristics and rigour classifications

We identified 12,603 records through academic literature, doctoral theses and other grey literature searching. Following deduplication and removal of Master's theses, we screened 8,223 titles, abstracts, summaries and lists of contents and assessed 135 full-text documents for eligibility. Forty-two documents were included in the umbrella concept analysis. See Figure 1 for an outline of the process of document identification.

The 42 documents were published between 1982 and 2024 and comprised 24 peer-reviewed journal articles, 13 book chapters, three PhD thesis chapters, one encyclopaedia article and one pre-print article. Eleven documents reported both a summary and a synthesis of literature concerning the conceptualisation and/or theoretical definition of loneliness. Three of these documents provided a conceptualisation and a theoretical definition of loneliness, seven provided only a conceptualisation, and one provided only a theoretical definition. The remaining 31 documents reported only a summary of literature concerning the conceptualisation and/or theoretical definition of loneliness. The rigour of the data generation process was classified as high for five documents, medium for seven documents and low for 30 documents. The rigour of the data analysis process for summarisation was not classified as high for any documents. It was classified as medium for four documents and low for 38 documents. The rigour of the data analysis process for synthesis was classified as low for all eleven documents reporting a synthesis. See Table 1 for details, and

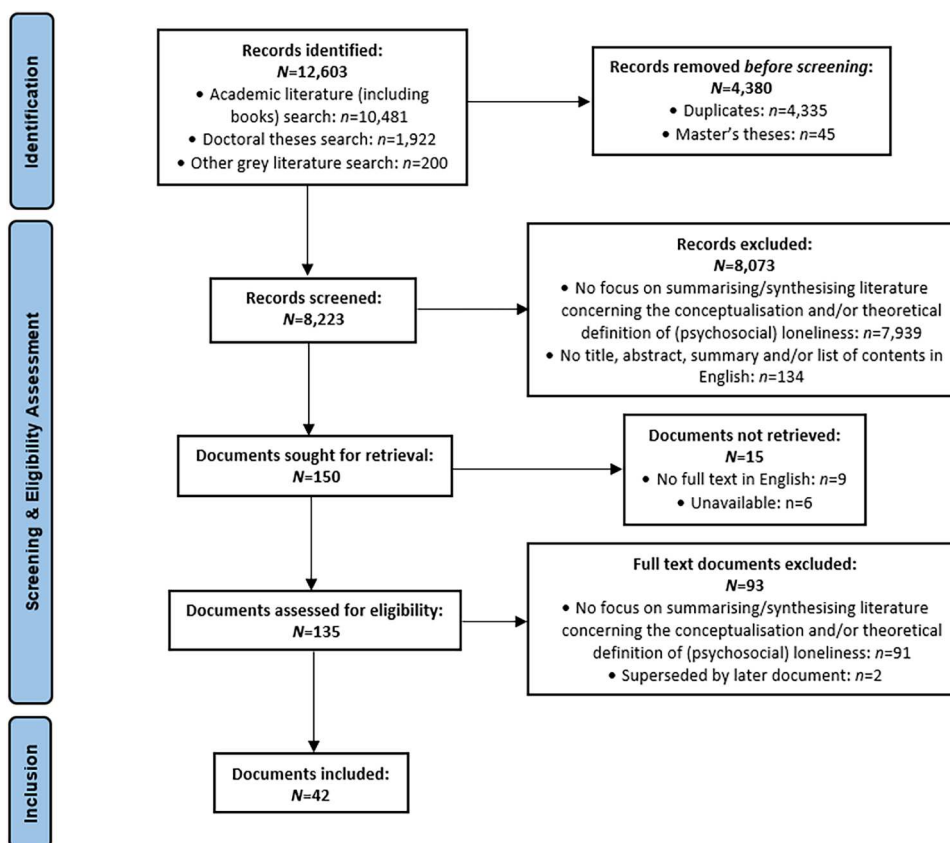


Figure 1. Outline of the process of document identification. Figure adapted from the preferred reporting items for overviews of reviews (PRIOR) statement (Gates et al., 2022).

rigour classifications, of the included documents (see Appendix 5 for references of included documents).

Due to the rigour of the data generation process being classified as low or medium, and the rigour of the data analysis process being classified as low, for all eleven documents reporting a synthesis, we were able to have only a low level of trust in the syntheses, i.e., the novel conceptualisations and theoretical definitions. We therefore did not emphasise synthesis data over summary data, but rather gave equal weight to both types of data.

3.2. Conceptualisation of loneliness

The final coding scheme of the Qualitative Content Analysis comprised three categories: 'Socio-cognitive attributes of loneliness – descriptive qualities concerning the interpersonal relationship deficit(s)', 'Emotional attributes of loneliness – descriptive qualities concerning the affective response to the interpersonal relationship deficit(s)', and 'Temporal attributes of loneliness' – descriptive qualities concerning the timeframe of the experience. Each category contained one or more sub-categories and each sub-category contained one or more codes. See Table 2 for details of the final coding scheme with exemplifying data. For the two sub-categories for which data saturation (the point at which no new codes were emerging from the data set) was not reached – 'Interpersonal needs that can be unsatisfied'⁴ and 'Specific feeling(s) of the affective response', we provide multiple examples of codes. For all other sub-categories data saturation was reached, therefore we present all codes identified.

Table 1. Details, and rigour classifications, of the 42 included documents.

Document	Relevant focus	Rigour classification		
		Process of data generation	Summari-sation	Synthesi-sation
1. Loneliness among the elderly: A mini review (Grover, 2022) Peer-reviewed journal article	Description of content: Discusses the concept of loneliness among the elderly	Low	Low	N/A
2. Loneliness: An integrative approach (Sonderby & Wagoner, 2013) Peer-reviewed journal article	Research question: What is loneliness?	Low	Low	Low
3. Loneliness in childhood: Toward the next generation of assessment and research (Weeks & Asher, 2012) Book chapter	Headings: Theoretical perspectives on loneliness	Low	Low	N/A
4. Concept analysis of loneliness in older adults: A hybrid model (Bandari et al., 2020) Pre-print article	Aim: To perform a concept analysis of older adults' loneliness	Medium	Low	Low
5. Historical perspectives on the research of social isolation, loneliness, and social support (Ciolfi, 2019) Book chapter	Description of content: A historical overview of highlights from the research on ... loneliness ... How and what we have learned about the defining characteristics of [loneliness]	Low	Low	N/A
6. Being alone in later life: Loneliness, social isolation and living alone (Victor et al., 2000) Peer-reviewed journal article	Description of content: Examines the [concept] of loneliness	Low	Low	N/A
7. Together and lonely: Loneliness in intimate relationships – causes and coping (Rokach & Sha'ked, 2013) Book (specific chapter: What exactly is loneliness?)	Heading: Psychological views of loneliness	Low	Low	Low
8. Exploring loneliness in the context of cancer: A mixed methods study (Cunningham, 2014) PhD thesis (specific chapter: What is loneliness?)	Aim: To clarify the conceptual and theoretical meaning of loneliness	Medium	Low	Low
9. Desolated milieu: Exploring the trajectory of workplace loneliness (2006-2019) (Firoz et al., 2020) Peer-reviewed journal article	Objective: To review the existing literature on workplace loneliness with the goal of lighting up the construct ... and [its] dimensions	High	Low	N/A
10. Theoretical approaches to loneliness (Perlman & Peplau, 1982) Book chapter	Description of content: Over the years, many psychologists and sociologists have offered theoretical remarks on loneliness ... The purpose of this chapter is to present, compare, and evaluate these theoretical approaches	Low	Low	N/A

(Continued)

Table 1. Continued.

Document	Relevant focus	Relevant output	Rigour classification		
			Process of data generation	Summari-sation	Synthesi-sation
11. An analysis of loneliness as a concept of importance for dying persons (Brown, 2005) Book chapter	Description of content: A thorough concept analysis of loneliness	Summary + synthesis – conceptualisation + theoretical definition	Medium	Low	Low
12. The conceptualization and measurement of childhood loneliness (Terrell-Deutsch, 2009) Book chapter	Description of content: A brief overview of theoretical arguments regarding loneliness	Summary + synthesis – conceptualisation	Low	Low	Low
13. Loneliness (MacEvoy et al., 2011) Encyclopaedia article	Description of content: Discuss theoretical perspectives ... regarding loneliness in adolescence	Summary	Low	Low	N/A
14. A narrative review of the theoretical foundations of loneliness (Tzouvara et al., 2015) Peer-reviewed journal article	Description of content: A number of theoretical and conceptual foundations [of loneliness] have been proposed by scholars and are discussed and reflected upon	Summary	Low	Low	N/A
15. A conceptual review of loneliness in adults: Qualitative evidence synthesis (Mansfield et al., 2021) Peer-reviewed journal article	Description of content: Evidence synthesis of how loneliness is conceptualised in qualitative studies in adults	Summary	High	Medium	N/A
16. Feeling lonely: Theoretical perspectives (Karnick, 2005) Peer-reviewed journal article	Description of content: Exploration of the theoretical perspectives on loneliness that emerged in the general literature and in the literature of philosophy, psychology, and nursing, in relation to an emerging conceptualization of the experience of feeling lonely	Summary	Low	Low	N/A
17. Key concept: Loneliness (Motta, 2021) Peer-reviewed journal article	Description of content: Review the most dominant definitions of loneliness and address some of their underlying assumptions and problems Aim: To attempt a theoretical synthesis of the leading approaches to understanding loneliness	Summary	Low	Low	N/A
18. Conceptualizing loneliness in health research: Philosophical and psychological ways forward (McHugh Power et al., 2018) Peer-reviewed journal article	Description of content: The literature on loneliness is selectively reviewed with respect to three major theoretical approaches that have guided research in this area	Summary	Medium	Medium	N/A
19. Loneliness: A theoretical review with implications for measurement (Marangoni & Ickes, 1989) Peer-reviewed journal article			Low	Low	N/A

(Continued)

Table 1. Continued.

Document	Relevant focus	Rigour classification		
		Process of data generation	Summari-sation	Synthesi-sation
20. Loneliness: A concept analysis (Bekhet et al., 2008) Peer-reviewed journal article	Description of content: Explicates the concept of loneliness through the examination of its conceptual definition and uses, defining attributes, related concepts Description of content: Four major theories of loneliness are reviewed	Low	Low	N/A
21. Loneliness in elderly people: An important area for nursing research (Donaldson & Watson, 1996) Peer-reviewed journal article	Purpose: To explore the concept of loneliness using Walker and Avant's concept analysis framework Description of content: An interpretative synthesis of existing (mainly positivistic) conceptualizations of loneliness	Low	Low	N/A
22. Concept analysis of loneliness with implications for nursing diagnosis (Elsadr et al., 2009) Peer-reviewed journal article	Aim: To clarify the uses and applications of the concept of loneliness and to examine the meanings, dimensions, and contexts of adult patient loneliness within health care contexts	Medium	Low	Low
23. The Social Construction of Loneliness: An integrative conceptualization (Stein & Tuval-Mashiach, 2015) Peer-reviewed journal article	Description of content: The major characteristics of the experience of loneliness, and a definition of loneliness for counselling are described	Low	Low	Low
24. Patient experiences of loneliness: An evolutionary concept analysis (Karhe & Kaunonen, 2015) Peer-reviewed journal article	Description of content: Contribute to a more fully worked out account of what loneliness consists in Description of content: Detailed review of the literature on loneliness, including issues of conceptualization Description of content: Loneliness is distinguished from the related concepts of solitude and being alone Aim: To redress this lack of conceptual clarity [between social isolation and loneliness] by providing a clear summary of the differences and similarities between the two concepts as they have been deployed by others	Medium	Medium	N/A
25. Loneliness: A review of current literature, with implications for counselling and research (McWhirter, 1990) Peer-reviewed journal article	Description of content: Loneliness consists in	Low	Low	N/A
26. The psychological structure of loneliness (Seeman, 2022) Peer-reviewed journal article	Description of content: Loneliness consists in	Low	Low	Low
27. Adjustment and coping implications of loneliness (Jones & Carver, 1991) Book chapter	Description of content: Loneliness is distinguished from the related concepts of solitude and being alone	Low	Low	N/A
28. Toward a theory of adolescent loneliness (Antognoli-Toland & Beard, 1999) Peer-reviewed journal article	Aim: To redress this lack of conceptual clarity [between social isolation and loneliness] by providing a clear summary of the differences and similarities between the two concepts as they have been deployed by others	Low	Low	N/A
29. Developing a new conceptual framework of meaningful interaction for understanding social isolation and loneliness (Wigfield et al., 2022) Peer-reviewed journal article		Medium	Low	N/A

(Continued)

Table 1. Continued.

Document	Relevant focus	Relevant output	Rigour classification		
			Process of data generation	Summari-sation	Synthesi-sation
30. Loneliness among children with special needs: Theory, research, coping, and intervention (Margalit, 1994) Book (specific chapter: Theoretical approaches to loneliness)	Heading: What is loneliness?	Summary	Low	Low	N/A
31. Lonely children and adolescents: Self-perceptions, social exclusion, and hope (Margalit, 2010) Book (specific chapter: Loneliness conceptualization)	Description of content: Definitions and theory are presented in order to clarify what is loneliness	Summary	Low	Low	N/A
32. The psychological aspects of loneliness experienced by college students (Wood, 1984) PhD thesis (specific chapter: Review of the literature)	Headings: Definitions of loneliness Types of loneliness Theoretical approaches to loneliness	Summary	Low	Low	N/A
33. Loneliness and the desire for recognition (Havens, 2019) PhD thesis (specific chapter: Loneliness then and now)	Heading: What is loneliness? Definitions, explanations and theories	Summary	Low	Low	N/A
34. New ways of theorizing and conducting research in the field of loneliness and social isolation (de Jong Gierveld et al., 2018) Book chapter	Description of content: Addresses well-established aspects and new developments in the main concepts of loneliness	Summary	Low	Low	N/A
35. The psychological journey to and from loneliness: Development, causes, and effects of social and emotional isolation (Rokach, 2004) Book (specific chapter: Loneliness – the concept and experience)	Description of content: Delve into conceptualization, and various definitions and explanations of what loneliness may be	Summary + synthesis – conceptualisation	Low	Low	Low
36. Loneliness and disability: A systematic review of loneliness conceptualization and intervention strategies (Gomez-Zuniga et al., 2022) Peer-reviewed journal article	Heading: Loneliness: Conceptualization	Summary	High	Low	N/A
37. Loneliness in emerging adulthood: A scoping review (Kirwan et al., 2024) Peer-reviewed journal article	Research question: How has loneliness been conceptualized ... in research in emerging adults?	Summary	High	Medium	N/A

(Continued)

Table 1. Continued.

Document	Relevant focus	Relevant output	Rigour classification		
			Process of data generation	Summari-sation	Synthesi-sation
38. A critique of existential loneliness (Gallagher, 2023) Peer-reviewed journal article	Heading: Loneliness: A quick review Research question: How has loneliness been ... defined in this population [pregnant and postpartum people and parents of children aged 5 years or younger]? Aim: By gathering insights from a wide range of disciplines ... we aim to fill in the blanks in previous theories [of loneliness]	Summary	Low	Low	N/A
39. Loneliness in pregnant and postpartum people and parents of children aged 5 years or younger: A scoping review (Kent-Marvick et al., 2022) Peer-reviewed journal article		Summary	High	Low	N/A
40. Navigating the theoretical landscape of loneliness research: How interdisciplinary synergy contributes to further conceptualizations (Delafontaine et al., 2023) Peer-reviewed journal article		Summary + synthesis – conceptualisation + theoretical definition	Low	Low	Low
41. The concepts and measurement of social isolation and loneliness (van Tilburg & de Jong Gierveld, 2023) Book chapter	Headings: The concept and definition [of loneliness] Discrepancy between realized and desired relationships Emotional and social loneliness Loneliness as a negative experience Contextual conceptualization of loneliness Description of content: This introduction begins the task of enhancing conceptual clarity [regarding loneliness]. It looks at extant knowledge about what loneliness means	Summary	Low	Low	N/A
42. From loneliness to solitude in person-centred health care (Buetow, 2022) Book (specific chapter: Introduction)		Summary	Low	Low	N/A

3.2.1. Conceptual domain of loneliness

We identified that loneliness involves both socio-cognitive attributes and emotional attributes, thus the type of property it represents is ‘feelings regarding interpersonal relationships’. We also identified that such feelings regarding interpersonal relationships are experienced by an individual in response to a personal perception of one or more relationship deficits, thus the entity to which loneliness applies is ‘the individual’. See the first two categories in [Table 2](#) for support for these findings regarding the conceptual domain of loneliness.

3.2.3. Conceptual theme of loneliness

3.2.3.1. Individually necessary and jointly sufficient characteristics of loneliness. We identified that the socio-cognitive attributes and emotional attributes involved in loneliness are both required to classify an occurrence as loneliness. We also identified that these socio-cognitive and emotional attributes are not separate, but rather are conjoined, i.e., the feeling(s) regarding the interpersonal relationship deficit(s) is/are an intrinsic response – the response cannot happen without the deficit(s) and the deficit(s) cannot happen without the response. We also identified that to classify an occurrence as loneliness, temporal attributes are not required, i.e., an occurrence can be identified as loneliness without these as they are descriptive attributes. We therefore established one necessary (thus solely sufficient) characteristic of loneliness, comprising two conjoined elements: (1) a socio-cognitive element containing multiple integral parts – a personal perception (conscious or sub-conscious) that one’s individual interpersonal needs (such as attachment, emotional support, belongingness, nurturance, reassurance of worth, companionship, meaningfulness) are not satisfied by (the quantity and/or quality of) one’s interpersonal relationships (emotional, social, collective, professional and/or religious); (2) an emotional element – the intrinsic negative affective response to this perception (this can include one or more negative feelings, such as dissatisfaction, sadness, distress, boredom, emptiness, despair, anxiety, fear, worry, agony) that is intended to signal the need for change in the interpersonal realm and motivate one to take action to achieve that. Given the complexity of the single necessary and sufficient characteristic of loneliness, we took the decision to explicate the characteristic at two levels: basic and detailed. The basic level explication delineates concisely the essence of loneliness, enabling a clear distinction between cases demonstrating loneliness and cases not demonstrating loneliness. It is:

A personal perception that one’s individual interpersonal needs are not satisfied by one’s interpersonal relationships – this intrinsically generates a negative affective response in order to signal the need for change in the interpersonal realm and motivate one to take action to achieve that.

The detailed level explication elaborates on the basic level explication, elucidating variations in the appearance of loneliness in different situations. It delineates the diversity possible in: the interpersonal relationship deficit(s) (the type[s] of interpersonal relationship in which a deficit occurs and the nature of the deficit[s]); the level of personal awareness of the deficit(s). It also provides examples of interpersonal needs that can be unsatisfied and resulting negative feeling(s). The detailed level explication is:

A conscious or sub-conscious personal perception that one’s individual interpersonal needs, such as attachment, emotional support, belongingness, nurturance, reassurance of worth, companionship, meaningfulness, are not satisfied by the quantity and/or quality of one’s emotional, social, collective, professional and/or religious relationships – this intrinsically generates a negative affective response that can include one or more negative feelings, such as dissatisfaction, sadness, distress, boredom, emptiness, despair, anxiety, fear, worry, agony, in order to signal the need for change in the interpersonal realm and motivate one to take action to achieve that.

See [Tables 3](#) and [4](#) for support for this finding regarding the necessary and sufficient characteristic of loneliness. These tables expand on the first two categories in [Table 2](#), providing details of, and data illustrating the socio-cognitive and emotional element of loneliness, respectively. See following section ‘Stability and applicability of loneliness’ for further details regarding temporal attributes of loneliness.

Table 2. Details of the final coding scheme of the qualitative content analysis including exemplifying data.

Category	Sub-category	Code	Exemplifying data extract (Document number)
Socio-cognitive attributes of loneliness – descriptive qualities concerning the interpersonal relationship deficit(s)	Requirements for the perception of one or more interpersonal relationship deficits	Personal evaluation (conscious or sub-conscious)	<i>[L]oneliness results when we perceive that our social relationships are not up to par with our expectations (7)</i> <i>[W]hen it comes to people recognizing that they are lonely, there are individual differences in levels of awareness ... Young classifies] as lonely those individuals who exhibit symptoms of distress that are associated with unsatisfactory social relationships, even when such individuals are unaware of a discrepancy between their actual and desired social relationships ... The topic of self-ascription is related to the definition of loneliness (17)</i>
		Unachieved universal interpersonal needs – the social needs perspective	<i>The social needs perspective suggests that unless one's interpersonal relationships satisfy this inherent set of social needs, loneliness will result (12)</i>
		Unachieved individual interpersonal needs – the cognitive perspective	<i>Cognitive discrepancy theory describes loneliness as ... the result of a cognitive, evaluative process during which an individual begins to perceive a discrepancy between the interpersonal relationships they possess and the ones they wish to have (40)</i>
		Combination of the social needs and cognitive perspectives	<i>[A]pparent that the previously discussed social needs perspectives also rely on an implicitly assumed notion of perceived discrepancy ... [I]t is no longer possible to distinguish clearly between cognitive and social-needs approaches (19)</i>
	Types of interpersonal relationship in which deficit(s) can occur	Emotional – intimate attachment (romantic or non-romantic)	<i>[A]n intimate attachment (with a spouse or parent, for example) (8)</i>
		Social – core social partnership	<i>[C]ore social partners ... usually comprises family members and close friends (3)</i>
		Collective – connection with similar others/others in a group/network (social identity)	<i>[T]he connections that a person can have with others who are similar or part of a network (such as a nationality, political party, or other group) and that can be at a distance in the collective space (17)</i>
		Professional – relationship in which one or both members act in an occupational/professional role	<i>[R]elationships with health care professionals (24)</i> <i>[T]he relationship among colleagues (9)</i>
		Religious – relationship with a deity	<i>[A] relationship with God (24)</i>

(Continued)

Table 2. Continued.

Category	Sub-category	Code	Exemplifying data extract (Document number)
Emotional attributes of loneliness – descriptive qualities concerning the affective response to the interpersonal relationship deficit(s)	Nature of the interpersonal relationship deficit(s)	Quantitative	<i>[T]he number of relationships available is less than desired (4)</i>
		Qualitative	<i>[T]he quality or intimacy one desires has not been realized (41)</i>
	Interpersonal needs that can be unsatisfied	Emotional support	<i>[E]motional support at the time of crisis (1)</i>
		Belongingness	<i>[L]oneliness [is] thwarted belongingness (37)</i>
		Reassurance of worth	<i>[R]elationships ... enable the meeting of one's inherent social needs such as ... reassurance of worth ... (17)</i>
		Companionship	<i>[W]ith such a [relational] deficit resulting in unmet needs for ... companionship (8)</i>
		Meaningfulness	<i>[S]ubjective needs ... in the [domain] of ... meaningfulness (40)</i>
	Nature of the affective response	Intrinsic	<i>[L]oneliness [is] a biologically hardwired and genetically encoded response (40)</i>
	Valence of the affective response	Negative	<i>Similar to [other] negative emotional experiences, loneliness is an unpleasant and distressing experience (31)</i>
	Specific feeling(s) of the affective response	Sadness	<i>Feelings associated with loneliness were most often sadness ... (2)</i>
		Dissatisfaction	<i>The feeling of psychological discomfort may be dissatisfaction ... (22)</i>
		Emptiness	<i>[Loneliness] is associated with ... a sense of emptiness (3)</i>
		Distress	<i>[F]eelings of distress ... associated with loneliness (5)</i>
		Fear	<i>Negative emotions identified in conceptualisations of emotional loneliness included ... fear ... (15)</i>
	Purpose of the affective response	Motivational	<i>[L]oneliness [is] the social equivalent of physical pain; while physical pain prompts behaviour change so as to protect the individual from physical dangers, e.g., the pain of burning skin alerts one to pull his/her hand away from the hot pan, social pain (i.e., loneliness) serves to protect the individual from the dangers of remaining isolated (8)</i>

(Continued)

Table 2. Continued.

Category	Sub-category	Code	Exemplifying data extract (Document number)
Temporal attributes of loneliness – descriptive qualities concerning the timeframe of the experience	Duration of the experience	Transient	<i>Transient loneliness refers to shortlived and infrequent feelings of loneliness</i> (40)
		Situational	<i>Situational ... loneliness is a more distressing experience induced by a significant change or stressful life event (for example, moving to a new town, divorce or bereavement)</i> (8)
		Persistent ^a	<i>For instance, if one attributes loneliness to an internal, “stable” factor such as perceived unattractiveness, then this suggests more long-term, chronic loneliness</i> (5)

Note: ^aIn line with the suggestion of Malli et al. (2023) we opted to replace the term ‘chronic’ – that used in the data, with ‘persistent’ so as to avoid the pathologisation of long-term loneliness.

3.2.3.2. Dimensionality of loneliness. We identified that loneliness is a unidimensional concept (a concept that comprises only one dimension [Mackenzie et al., 2011]) as opposed to a multidimensional concept (a concept that comprises multiple, distinct, sub-dimensions [Mackenzie et al., 2011]). Loneliness comprises only one necessary (thus solely sufficient) characteristic, rather than multiple, distinct, necessary characteristics that can constitute sub-dimensions. However the single necessary and sufficient characteristic can take different forms: loneliness encompasses multiple and diverse experiences, differing in the interpersonal relationship deficit(s) (the type[s] of interpersonal relationship in which a deficit occurs [emotional, social, collective, professional and/or religious] and the nature of the deficit[s] [quantitative and/or qualitative]), the level of personal awareness of the deficit(s) (conscious or sub-conscious), the unsatisfied interpersonal need(s), and the resulting negative feeling(s). See Tables 3 and 4 for support for this finding regarding the dimensionality of loneliness.

3.2.3.3. Stability and applicability of loneliness. We identified that the duration of an individual’s loneliness can be categorised as transient, situational or persistent and that both its stability over time and applicability across situations may be influenced by the lonely individual’s attributions for the loneliness. For instance, a belief that one’s loneliness is caused by internal factors such as social skills deficits or personality traits is likely to lead to greater stability over time and applicability across situations than is a belief that one’s loneliness is caused by external factors such as a recent move to a new community where one feels competent and confident about developing friendships. Such internal and external attributions are sometimes referred to as ‘trait’ and ‘state’ loneliness, respectively. We also identified that loneliness does not apply only to particular individuals, but rather applies universally, with everyone having interpersonal needs and an intrinsic negative affective response if those needs are not satisfied. See the third category in Table 2 and Tables 3 and 4 for support for these findings regarding the stability and applicability of loneliness.

3.3. Construction of cases of loneliness: model cases and contrary cases

We constructed six model cases of loneliness – cases that are clearly loneliness as they demonstrate the single necessary and sufficient characteristic of loneliness. These cases demonstrate diverse experiences of loneliness, differing in: the interpersonal relationship deficit(s) (the type[s] of

Table 3. Details of, and data illustrating, the socio-cognitive element of loneliness.

Element description	Details	Illustrating data (Document number)
<p>A personal perception that one's individual interpersonal needs are not satisfied by one's interpersonal relationships</p>	<p>In the past there was much debate about whether everyone has the same interpersonal needs (the social needs perspective), or whether interpersonal needs are idiosyncratic (the cognitive perspective). In the former perspective, if the universal interpersonal needs are not satisfied by one's interpersonal relationships then one experiences loneliness.</p>	<p>[S]everal of the earlier writers on the subject suggested that people have inherent and lifelong needs for intimacy and that loneliness results from the failure to satisfy those needs ... By contrast, cognitive approaches to loneliness assume individual differences in the need for intimacy and social contact, suggesting that loneliness occurs when intimacy and social contact are suboptimal (27)</p>
	<p>In the latter perspective, if one's individual interpersonal needs are not satisfied by one's interpersonal relationships then one experiences loneliness.</p>	<p>The social needs perspective suggests that unless one's interpersonal relationships satisfy this inherent set of social needs, loneliness will result ... Cognitive processes theory ... in contrast to the social needs theory, suggests that loneliness results not from unmet inherent social needs but from dissatisfaction with one's perceived social relationships. In other words, loneliness results when one experiences and recognizes a discrepancy between what one wants or hopes for in one's social relationships and what one actually achieves (12)</p>
	<p>A further difference between the two approaches is that while the cognitive perspective explicitly acknowledges the role of cognitive processes in recognising that one's interpersonal needs are not satisfied by one's interpersonal relationships, the social needs perspective does not explicitly acknowledge the role of cognitive processes.</p>	<p>[S]ocial needs perspective suggests that it is specific social deficits (i.e., lacking an intimate partner or an accepting social group) that cause feelings of loneliness, the cognitive variant of the social needs perspective ... emphasizes the role of individuals' subjective appraisals of their situation in explaining loneliness. According to this view, it is how individuals perceive their social relationships and come to recognize deficits – and not the objectively measurable social deficits themselves – that lead to loneliness (13)</p>
	<p>There is now widespread agreement that a combination of these two perspectives is the case as everyone has interpersonal needs – this is an inherent part of being human, but everyone does not have identical interpersonal needs – rather interpersonal needs are idiosyncratic. There is also widespread agreement that cognitive processes are involved in recognising that one's interpersonal needs are not satisfied by one's interpersonal relationships.</p>	<p>[Loneliness is] a consequence of the universal human need to belong (1) The longing for interpersonal intimacy stays with every human being from infancy throughout life; and there is no human being who is not threatened by its loss. The human being is born with the need for contact and tenderness (12) Although the ability to experience loneliness in response to unmet social needs is deemed universal, thresholds for experiencing loneliness are subject to interindividual and intercultural variation (40) [E]ach person's triggers for distress and threshold for alarm are unique (5) [D]ifferent types of relationships make different provisions, all of which may be required by individuals, at least under some conditions (23) [P]rominent aspects of the experience remain largely open for individual variation, the first being the deficient social needs (23)</p>

(Continued)

Table 3. Continued.

Element description	Details	Illustrating data (Document number)
	<p>The experience of loneliness involves a personal perception that one's individual interpersonal needs are not satisfied by one's interpersonal relationships.</p> <p>It therefore requires personal evaluation – as opposed to another person's evaluation – of one's interpersonal relationships against one's own individual interpersonal needs – as opposed to against external interpersonal needs, e.g., another person's own individual interpersonal needs.^a</p>	<p>[A]pparent that the previously discussed social needs perspectives also rely on an implicitly assumed notion of perceived discrepancy ... [I]t is no longer possible to distinguish clearly between cognitive and social-needs approaches (19)</p>
		<p>[T]he cognitive variant of the social needs perspective ... emphasizes the role of individuals' subjective appraisals of their situation in explaining loneliness. According to this view, it is how individuals perceive their social relationships and come to recognize deficits – and not the objectively measurable social deficits themselves – that lead to loneliness (13)</p>
		<p>[L]oneliness ... can only be judged from the individual's own perspective (12)</p>
		<p>Loneliness is a subjective experience. The only way to learn if children are lonely is to ask them. Only self-reports may provide valid information about loneliness (31)</p>
		<p>The only reliable report for loneliness feelings can be achieved through the individual's own self-report ... no objective correlate exists to indicate if loneliness is present without having to ask (30)</p>
		<p>[I]t is how individuals perceive their social relationships ... that lead[s] to loneliness (3)</p>
		<p>[E]xperience of loneliness ... occurs when individuals fail to meet the standards they set themselves (18)</p>
		<p>[L]oneliness results when we perceive that our social relationships are not up to par with our expectations (7)</p>
		<p>[L]oneliness can be viewed as an affective indication that one's relationships are failing to provide what one wants or needs (19)</p>
		<p>[L]oneliness is a normal reaction to 'loss, abandonment, and lack of social support resulting from dissatisfaction with the current social relation provisions (22)</p>
		<p>[I]t is not the lack of specific relationships that causes loneliness, but rather the lack of specific relationship provisions (3)</p>
		<p>[T]wo elements are essential for the experience of loneliness: a subjective evaluation of one's social relationships and a negative affective response (8)</p>

(Continued)

Table 3. Continued.

Element description	Details	Illustrating data (Document number)
<p>It is recognised that it is possible for one to be lonely with only sub-conscious, rather than conscious, awareness that the experience is loneliness, i.e., with only sub-conscious awareness that the negative feeling(s) experienced is/are generated by one's perception that one's interpersonal needs are not satisfied by one's interpersonal relationships.</p> <p>The unsatisfied interpersonal needs can be multiple and varied.</p> <p>The interpersonal relationship deficit(s) one experiences comprise(s) both the nature of the deficit(s) and the type(s) of interpersonal relationship in which the deficit(s) occur(s).</p> <ul style="list-style-type: none">Quantitative – the number of interpersonal needs;Qualitative – the quality of interpersonal relationships is lower than required to satisfy one's interpersonal needs. <p>The types of interpersonal relationship in which a deficit can occur are:</p>		<p>Loneliness is a subjective experience. As a subjective experience, loneliness may be related or unrelated to the objectively measured existing social network (30)</p> <p>One may feel unloved, unaccepted, or lacking any other need, regardless of "objective" realities concerning those provisions (23)</p> <p>An individual who does not have an objective social relationship deficit may therefore experience feelings of loneliness if his/her social relationships fall ... below his/her threshold of satisfaction. Similarly, an individual who by objective standards lacks in social relationships ... may not experience loneliness if those relationships meet his/her threshold of satisfaction (8)</p> <p>[W]hen it comes to people recognizing that they are lonely, there are individual differences in levels of awareness ... Young classifies as lonely those individuals who exhibit symptoms of distress that are associated with unsatisfactory social relationships, even when such individuals are unaware of a discrepancy between their actual and desired social relationships ... The topic of self-ascription is related to the definition of loneliness (17)</p> <p>[Loneliness] does not require that the sufferer be cognitively aware of her loneliness: her experience need not give rise to the knowledge that she is lonely (26)</p> <p>[S]ometimes people may experience loneliness without recognizing the true nature of their distress (12)</p> <p>[O]ne's inherent social needs such as attachment, social integration, nurturance, reassurance of worth, reliance alliance, and guidance (17)</p> <p>One may feel unloved, unaccepted, or lacking any other need (23)</p> <p>[U]nmet needs for intimacy and/or companionship (8)</p> <p>Loneliness ... occurs when a person's network of social relationships is deficient in some important way, either quantitatively or qualitatively (1)</p> <p>In his 1973 seminal work in the area, Weiss advanced the idea that two types of relational deficit – emotional and social, can, individually or conjointly, result in the experience of loneliness (8)</p> <p>Quantitative deficit: [T]he number of relationships available is less than desired (4)</p>

(Continued)

Table 3. Continued.

Element description	Details	Illustrating data (Document number)
	<ul style="list-style-type: none">• Emotional – intimate attachment (romantic or non-romantic);• Social – core social partnership;• Collective – connection with similar others/others in a group/network (social identity);• Professional – relationship in which one or both members act in an occupational/professional role;• Religious – relationship with a deity.	<p>Qualitative deficit: <i>[T]he quality or intimacy one desires has not been realized</i> (41)</p> <p>Emotional relationship: <i>[A]n intimate attachment (with a spouse or parent, for example)</i> (8)</p> <p>Social relationship: <i>[C]ore social partners ... usually comprises family members and close friends</i> (3)</p> <p>Collective relationship: <i>[T]he connections that a person can have with others who are similar or part of a network (such as a nationality, political party, or other group) and that can be at a distance in the collective space</i> (17)</p> <p>Professional relationship: <i>[R]elationships with health care professionals</i> (24)</p> <p><i>[T]he relationship among colleagues</i> (9)</p> <p>Religious relationship: <i>[A] relationship with God</i> (24)</p>

Note: ^aGiven that there is now widespread agreement that a combination of the social needs and cognitive approaches is the case, hereafter, for simplicity, unless pertinent to emphasise ‘individual’, we refer to ‘individual interpersonal needs’ as ‘interpersonal needs’.

Table 4. Details of, and data illustrating, the emotional element of loneliness.

Element description	Details	Illustrating data (Document number)
The intrinsic negative affective response to this perception	If one's interpersonal needs are not satisfied by one's interpersonal relationships, a negative affective response is intrinsically generated.	<p><i>Loneliness is an aversive experience. Similar to other negative affective states such as anxiety or depression, loneliness is an unpleasant and distressing experience ... the consistently negative affect related to loneliness (30)</i></p> <p><i>[T]wo elements are essential for the experience of loneliness: a subjective evaluation of one's social relationships and a negative affective response (8)</i></p> <p><i>[L]oneliness is ... an emotional response to the fact that a person's need for connection to others is not satisfied (33)</i></p> <p><i>[L]oneliness is always involuntary (29)</i></p> <p><i>[L]oneliness [is] a biologically hardwired and genetically encoded response to an unmet need for belongingness (40)</i></p>
	The purpose of this intrinsic response is to signal the need for change in the interpersonal realm and motivate one to take action to achieve that.	<p><i>[L]oneliness [is] the social equivalent of physical pain; while physical pain prompts behaviour change so as to protect the individual from physical dangers, e.g., the pain of burning skin alerts one to pull his/her hand away from the hot pan, social pain (i.e., loneliness) serves to protect the individual from the dangers of remaining isolated (8)^a</i></p> <p><i>In the same way that physical pain offers protection to the physical body, loneliness functions as an alarm signal that protects the social body, because it motivates individuals to avoid social isolation in the future through reaffiliation and collective goal attainment (40)</i></p> <p><i>[L]oneliness ... function[s] as "an adaptive feedback mechanism for bringing the individual from a current lack stress state to a more optimal range of human contact in quantity or form" (8)</i></p> <p><i>[Loneliness] motivates humans to seek meaning and connection ... It signals the potential for growth and new possibilities (35)</i></p>
	The negative affective response does not comprise one particular feeling, but rather can include one or more negative feelings.	<p><i>[Loneliness is] a complex set of feelings that occurs when intimate and social needs are not adequately met (9)</i></p> <p><i>[P]rominent aspects of the experience remain largely open for individual variation ... the second [being] the affective manifestations of loneliness (23)</i></p> <p><i>[L]oneliness has not been shown to be related to one unique set of emotions (30)</i></p> <p><i>Negative emotions identified in conceptualisations of emotional loneliness included sadness, fear, anxiety, and worry (15)</i></p> <p><i>The feeling of psychological discomfort may be dissatisfaction, fear, sadness, negative thoughts, or uneasiness (22)</i></p> <p><i>Individuals who are lonely describe their experience as social pain, unhappiness, and anxiety (31)</i></p>

Note: ^aIndeed, research has identified that social and physical pain activate the same regions of the brain (Eisenberger, 2012).

interpersonal relationship in which a deficit occurs and the nature of the deficit[s]); the level of personal awareness of the deficit(s); the unsatisfied interpersonal need(s); the resulting negative feeling(s).

We also constructed four contrary cases of loneliness – cases within the conceptual domain of loneliness (one's feelings regarding one's interpersonal relationships) but that are clearly not loneliness as they do not demonstrate the single necessary and sufficient characteristic of loneliness. In order to do so we determined that loneliness is a bipolar concept (a concept for which its presence is on the upper end of the continuum and its opposite is on the lower end [Tay & Jebb, 2018]), as opposed to a unipolar concept (a concept for which its presence is on the upper end of the continuum and its absence is on the lower end [Tay & Jebb, 2018]). We did so following our identification that if one's experience within the conceptual domain of loneliness does not demonstrate the single necessary and sufficient characteristic of loneliness then logic dictates that it demonstrates an opposing single necessary and sufficient characteristic, i.e., if one's experience concerning one's feelings regarding one's interpersonal relationships does not demonstrate *a personal perception that one's interpersonal needs are not satisfied by one's interpersonal relationships – this intrinsically generates a negative affective response*, then it must demonstrate *a personal perception that one's interpersonal needs are satisfied by one's interpersonal relationships – this intrinsically generates a positive affective response*. We thereby determined the experience on the other end of the continuum from loneliness to be the opposite of loneliness, i.e., 'unloneliness',⁵ rather than merely an absence of loneliness. All instances of unloneliness require one's interpersonal needs to be satisfied by one's interpersonal relationships. However, unloneliness encompasses multiple and diverse experiences, differing in the level of personal awareness that one's interpersonal needs are satisfied by one's interpersonal relationships (conscious or sub-conscious), the satisfied interpersonal needs, and the resulting positive feeling(s). Again, given the complexity of the single necessary and sufficient characteristic of unloneliness, we took the decision to explicate the characteristic at two levels: basic and detailed. The basic level explication delineates concisely the essence of unloneliness, enabling a clear distinction between cases demonstrating unloneliness and cases not demonstrating unloneliness. It is: *A personal perception that one's interpersonal needs are satisfied by one's interpersonal relationships – this intrinsically generates a positive affective response*. The detailed level explication elaborates on the basic level explication, elucidating variations in the appearance of unloneliness in different situations. It delineates the diversity possible in the level of personal awareness that one's interpersonal needs are satisfied by one's interpersonal relationships. It also provides examples of interpersonal needs that can be satisfied and resulting positive feeling(s). The detailed level explication is:

A conscious or sub-conscious personal perception that one's interpersonal needs, such as attachment, emotional support, belongingness, nurturance, reassurance of worth, companionship, meaningfulness, are satisfied by the quantity and quality of one's emotional, social, collective, professional and religious relationships – this intrinsically generates a positive affective response that can include one or more positive feelings, such as satisfaction, happiness, joy, enthusiasm, fulfilment, hope, peace, calmness, cheerfulness, contentment.

The contrary cases demonstrate diverse experiences of unloneliness. See [Tables 5](#) and [6](#) for the model cases and contrary cases, respectively. The process of constructing the model and contrary cases of loneliness identified no areas of overlap, vagueness or contradiction regarding the meaning and the single necessary and sufficient characteristic of loneliness, thus no refinement of the data analysis was required.

3.4. Theoretical definition of loneliness

Given the complexity of the theoretical definition of loneliness, and consistent with our decision regarding the necessary and sufficient characteristic of loneliness, we took the decision to formulate two versions of a theoretical definition of loneliness: a basic version and a detailed version. The basic version communicates concisely the whole meaning of the term, articulating the single

Table 5. Model cases of loneliness.

Case	Loneliness experience	Specific details of loneliness experience
Name: Hamish Age: 35	Hamish has recently moved with his partner and young child to another country for work. He has not yet made any friends in his new location, and he is very much missing spending time with his friends back home – they used to play sports together at the weekend and go for a drink after work together on Friday evenings, where they would have a laugh and sometimes discuss any worries or problems they had. He feels sad that he does not have that in his life now and he feels a bit bored. He keeps in touch with his friends via social media but doesn't find it anything like as enjoyable as seeing them in person. He also feels like an outsider in his new community. The people are friendly and they recently invited him along to a local fundraising event, but he didn't enjoy it as it seemed as though everyone else had lived in the area for their whole lives, and knew each other well. Hamish wonders if he will ever feel like he belongs in the community, and in the country in general. He feels anxious as he can't see how he will and he wishes he had never chosen to move for work.	A <u>conscious</u> personal perception that his interpersonal needs, including <u>emotional support</u> , <u>companionship</u> and <u>belongingness</u> , are not satisfied by the <u>quantity</u> or <u>quality</u> of his relationships, specifically his <u>social and collective</u> relationships – this intrinsically generates a negative affective response that includes <u>sadness</u> , <u>boredom</u> and <u>anxiety</u> .
Name: Catherine Age: 63	Catherine has just completed treatment for cancer. Her treatment went well and she is very pleased to have completed it, however she now feels as though she has been abandoned. She has so many unanswered questions and worries about the future but is concerned that she'll be seen as a nuisance if she bothers her health care professionals about these – they have been a good support during her treatment but haven't indicated that she can get in touch about anything now that her treatment is finished. It seems to her as though they just expect her to resume her normal life now that her treatment is over, and she is finding herself feeling very anxious without the contact and support she had during her treatment. She's also found that she's been questioning her faith and her relationship with God since her cancer diagnosis – she feels like God has abandoned her. She is very distressed about this.	A <u>conscious</u> personal perception that her interpersonal needs, including <u>informational support</u> and <u>emotional support</u> , are not satisfied by the <u>quality</u> of her relationships, specifically her <u>professional and religious</u> relationships – this intrinsically generates a negative affective response that includes <u>abandonment</u> and <u>distress</u> .
Name: Athiva Age: 44	Athiva has been married for eight years. She and her husband are no longer getting on, and are interacting with each other less and less, which is making her feel very unhappy. They used to be so close and have such a validating and affirming relationship, and now they feel so distant. They used to enjoy a lot of time together and were very supportive of each other and able to talk about anything, but that is no longer the case. Their relationship seems to be getting worse each day and Athiva finds this agonising but doesn't know what to do about it.	A <u>conscious</u> personal perception that her interpersonal needs, including <u>attachment</u> , <u>emotional support</u> , <u>reassurance of worth</u> and <u>companionship</u> , are not satisfied by the <u>quality</u> of her relationships, specifically her <u>emotional</u> relationships – this intrinsically generates a negative affective response that includes <u>unhappiness</u> and <u>agony</u> .
Name: Katy Age: 51	Katy is the headteacher of a large secondary school. She has worked very hard to get to that position and is pleased to have the job that she had always hoped for. Everything in her life is going well but for some reason she feels dissatisfied and distressed. When she speaks to her partner about this, her partner says it seems as though Katy feels lonely at	A <u>sub-conscious</u> personal perception that her interpersonal needs, including <u>informational support</u> and <u>tangible support</u> , are not satisfied by the <u>quantity</u> or <u>quality</u> of her relationships, specifically her <u>professional</u> relationships – this intrinsically generates a negative affective response that includes <u>dissatisfaction</u> and <u>distress</u> .

(Continued)

Table 5. Continued.

Case	Loneliness experience	Specific details of loneliness experience
	work – she no longer has colleagues at the same level in her workplace and, due to the depute head being on medical leave, she’s having to take difficult and sometimes unpopular decisions on her own. There is no one to help her out with her large workload, and although she attends a meeting with other local headteachers every month, it’s not the same as having other supportive colleagues in her workplace. Teachers are also looking to her for support with problems on a regular basis. Once this is pointed out to her Katy realises that it is the reason for her dissatisfaction and distress.	
Name: Grigorios Age: 80	Grigorios has lived on his own since his wife died five years ago. He misses her a lot every day and he doesn’t enjoy living on his own at all. He feels empty inside. His children have all moved away from the area so he only sees them occasionally and he knows how busy they are so he doesn’t want to burden them by asking them to visit more regularly. His son bought him an Alexa for his birthday, telling him that it would help with feeling alone as it would provide company and interaction. That made Grigorios feel very sad and misunderstood – he can’t understand how his son can think that interacting with an Alexa could replace interacting with his wife and family. One of Grigorios’ two good friends died last year and the other was diagnosed with dementia a few years ago and now lives in a care home. Grigorios feels like no one would notice or care if he wasn’t around anymore. He feels despair at his situation.	A <u>conscious</u> personal perception that his interpersonal needs, including <u>attachment</u> , <u>meaningfulness</u> and <u>companionship</u> , are not satisfied by the <u>quantity</u> or <u>quality</u> of his relationships, specifically his <u>emotional</u> and <u>social</u> relationships – this intrinsically <u>generates</u> a negative affective response that includes <u>emptiness</u> , <u>sadness</u> , <u>misunderstanding</u> and <u>despair</u> .
Name: Andrew Age: 6	Andrew started school earlier this year and is not enjoying it at all. He hasn’t made any friends and spends a lot of time playing on his own and tells his parents he is sad about this. His parents don’t really have time to listen though as their lives are very busy due to many commitments. He finds it hard to interact with other children, which may be partly due to his speech and language problems. The school has organised for him to have speech and language therapy to help, however he has only seen his therapist once due to staff shortages. He is frustrated by this because he liked his therapist and had been hopeful that she would help him learn to speak like his classmates.	A <u>conscious</u> personal perception that his interpersonal needs, including <u>companionship</u> , <u>nurturance</u> and <u>belongingness</u> , are not satisfied by the <u>quantity</u> or <u>quality</u> of his relationships, specifically his <u>social</u> and <u>professional</u> relationships – this intrinsically <u>generates</u> a negative affective response that includes <u>sadness</u> and <u>frustration</u> .

necessary and sufficient characteristic, thereby clearly distinguishing loneliness from other concepts. It is: *The negative feeling(s) one experiences as a result of a personal perception that one’s interpersonal needs are not satisfied by one’s interpersonal relationships*. The detailed version elaborates on the basic version, clarifying variations in the appearance of loneliness in different situations. It communicates the diversity possible in the interpersonal relationship deficit(s) (the type[s] of interpersonal relationship in which a deficit occurs and the nature of the deficit[s]) and the level of personal awareness of the deficit(s), as well as the existence of diversity in the unsatisfied interpersonal need(s) and the resulting negative feeling(s). It is: *The negative feeling(s) one experiences as a result of a conscious or sub-conscious personal perception that one’s interpersonal needs are not satisfied by the quantity and/or quality of one’s emotional, social, collective, professional and/or religious relationships*.

Table 6. Contrary cases of loneliness (cases of unloneliness).

Case	Unloneliness experience	Specific details of unloneliness experience
Name: Waleed Age: 55	Waleed feels he has a very good relationship with his wife – they have been married for 30 years and still really enjoy each other's company. When issues arise they talk about them and sort them out. He also feels happy about his relationships with his three adult children and his two grandchildren – he values time with his family and organises his time to make sure he sees or speaks to them all regularly. His relationships at work are supportive – his boss encourages autonomy which he likes, and his colleagues are always open to listening to and discussing new ideas and suggestions, and are also happy to help with any difficulties and problems. This has meant he has been able to achieve goals that are significant to him, such as developing a programme to support children living with a long-term health condition. Waleed enjoys good health but knows that he can access health care professionals he trusts if he has any problems. He also has a personal trainer who is excellent at helping him to reach his weight loss goals. He doesn't have as much time as in the past to meet up with friends, but he has kept up his three closest friendships and enjoys seeing 'the guys' on a regular basis. He knows they will always be there to help him if needed too. He is a practising Muslim and is satisfied with his relationship with Allah – he finds this brings him great peace. He feels a part of the local Muslim community, as well as the wider Muslim community across the world.	A conscious personal perception that his interpersonal needs, including <u>attachment, emotional support, tangible support, meaningfulness and belongingness</u> , are satisfied by the <u>quantity and quality</u> of his emotional, social, collective, professional and religious relationships – this intrinsically generates a positive affective response that includes <u>happiness, satisfaction and peace</u> .
Name: Janet Age: 72	Janet is a wife, mother of four adult children and eight young grandchildren and a retired business owner. While chatting to one of her daughters she mentioned that she feels very cheerful and fulfilled in life, but she can't quite put her finger on why, as she doesn't have a lot of money, she can't afford to go on lots of holidays and she has a couple of long-term health conditions. Her daughter is a relationship counsellor – she says it seems clear to her that her mother's positive feelings are related to her high-quality interpersonal relationships. Janet has a supportive and affirming marriage, children and grandchildren who love her and rely on her for help and support, and several kind, helpful and fun friends. She knows her health care professionals well and regularly talks about how good they are and how fortunate she feels. She used to be religious but has chosen to move away from that and is contented with her choice. She is an active member of a number of groups, including a local chess club, and a political party which she strongly identifies with. Janet realises that her daughter is right – her satisfying relationships are the reason for her cheerfulness and fulfilment.	A sub-conscious personal perception that her interpersonal needs, including <u>attachment, meaningfulness and reassurance of worth</u> , are satisfied by the <u>quantity and quality</u> of her emotional, social, collective, professional and religious relationships – this intrinsically generates a positive affective response that includes <u>cheerfulness, fulfilment and contentment</u> .
Name: Constantina Age: 29	Constantina is single by choice – she likes the freedom of single life, at least for now. She enjoys living on her own with her two dogs – she loves snuggling up with them in the evenings and feels very contented when she does. She has many	A conscious personal perception that her interpersonal needs, including <u>companionship, belongingness and informational support</u> , are satisfied by the <u>quantity and quality</u> of her emotional, social, collective, professional and

(Continued)

Table 6. Continued.

Case	Unloneliness experience	Specific details of unloneliness experience
	friends and is very happy to be able to spend a lot of time with them. She is part of a great team at work, where everyone pitches in and helps each other. They also socialise together outside of work. She has a long-term health condition but has very supportive and knowledgeable health care professionals, and is satisfied with the care she receives. Constantina is undertaking an evening degree and feels she is getting what she needs from lecturers and her Advisor of Studies in order to successfully complete her degree. She feels fortunate to have great classmates on her course – they study together and help each other with problems, and also have a night out every semester, which she helps to organise. She is not religious but considers herself to be a spiritual person.	<u>religious relationships</u> – this intrinsically generates a positive affective response that includes contentment, happiness and satisfaction.
Name: Michael Age: 16	Michael wants to be a scientist when he's older. He is studying hard for his exams. He is finding maths quite challenging but his teacher is very supportive and spends one lunchtime a week working with Michael individually to help him – Michael's grades have improved a lot because of this – he is very grateful to his teacher and feels hopeful that he will be able to become a scientist. Michael has a good group of friends at school – they've been in the same class since they were at nursery and they live near each other so meet up out of school too. He is also pretty close to his parents and his older brother and younger sister and he feels loved – they argue sometimes of course but know each other well and always manage to work things out. He loves football and plays for a local team, which he feels very much a part of. He also belongs to the youth group at his church, and he feels connected to God – he is happy about this as he finds it very helpful, especially in times of difficulty when it helps him to stay calm.	A <u>conscious</u> personal perception that his interpersonal needs, including <u>tangible support, attachment, belongingness, nurturance and companionship</u> , are satisfied by the <u>quantity and quality</u> of his <u>emotional, social, collective, professional and religious relationships</u> – this intrinsically generates a positive affective response that includes <u>gratitude, hope, belonging, happiness and calmness</u> .

As we had established the single necessary and sufficient characteristic of unloneliness in order to construct contrary cases of loneliness, we took the opportunity to also formulate basic and detailed versions of a theoretical definition of unloneliness in the same manner (the rationale for two versions of a definition is the same as that delineated in the previous section for loneliness). A definition of unloneliness will enable a goal-oriented approach (with unloneliness as the goal), thus will facilitate not only alleviation of loneliness, but also prevention of loneliness. The basic version of the theoretical definition of unloneliness communicates concisely the whole meaning of the term, articulating the single necessary and sufficient characteristic, thereby clearly distinguishing unloneliness from other concepts. It is: *The positive feeling(s) one experiences as a result of a personal perception that one's interpersonal needs are satisfied by one's interpersonal relationships*. The detailed version elaborates on the basic version, clarifying variations in the appearance of unloneliness in different situations. It communicates the diversity possible in the level of personal awareness that one's interpersonal needs are satisfied by one's interpersonal relationships, as well as the existence of diversity in the satisfied interpersonal needs and the resulting positive feeling(s). It is: *The positive feeling(s) one experiences as a result of a conscious or sub-conscious personal perception that one's interpersonal needs are satisfied by the quantity and quality of one's emotional, social, collective, professional and religious relationships*.

4. Discussion

4.1. Summary of key findings

Forty-two documents were included in the umbrella concept analysis aiming to establish a comprehensive, unified, conceptualisation of loneliness and develop a clear and precise theoretical definition of loneliness.

In addressing the first objective – to conduct a literature review to establish a comprehensive, unified, conceptualisation of loneliness – we identified that although the concept of loneliness encompasses multiple and diverse experiences, it is a unidimensional concept comprising only one necessary (thus solely sufficient) characteristic. The basic level explication of this single necessary and sufficient characteristic is:

A personal perception that one's interpersonal needs are not satisfied by one's interpersonal relationships – this intrinsically generates a negative affective response in order to signal the need for change in the interpersonal realm and motivate one to take action to achieve that.

This delineates concisely the essence of loneliness, enabling a clear distinction between cases demonstrating loneliness and cases not demonstrating loneliness. The detailed level explication of the single necessary and sufficient characteristic is:

A conscious or sub-conscious personal perception that one's interpersonal needs, such as attachment, emotional support, belongingness, nurturance, reassurance of worth, companionship, meaningfulness, are not satisfied by the quantity and/or quality of one's emotional, social, collective, professional and/or religious relationships – this intrinsically generates a negative affective response that can include one or more negative feelings, such as dissatisfaction, sadness, distress, boredom, emptiness, despair, anxiety, fear, worry, agony, in order to signal the need for change in the interpersonal realm and motivate one to take action to achieve that.

This elaborates on the basic level explication, elucidating variations in the appearance of loneliness in different situations. It delineates the diversity possible in: the interpersonal relationship deficit(s) (the type[s] of interpersonal relationship in which a deficit occurs and the nature of the deficit[s]); the level of personal awareness of the deficit(s). It also provides examples of interpersonal needs that can be unsatisfied and resulting negative feeling(s).

We identified that the duration of an individual's loneliness can be categorised as transient, situational or persistent and that both its stability over time and applicability across situations may be influenced by the lonely individual's attributions for the loneliness. We also identified that loneliness does not apply only to particular individuals, but rather applies universally, with everyone having interpersonal needs and an intrinsic negative affective response if those needs are not satisfied.

We determined that loneliness is a bipolar concept following identification that if one's experience within the conceptual domain of loneliness does not demonstrate the single necessary and sufficient characteristic of loneliness then logic dictates that it demonstrates an opposing single necessary and sufficient characteristic. The basic level explication of the single necessary and sufficient characteristic of unloneliness (the opposite of loneliness) is: *A personal perception that one's interpersonal needs are satisfied by one's interpersonal relationships – this intrinsically generates a positive affective response.* This delineates concisely the essence of unloneliness, enabling a clear distinction between cases demonstrating unloneliness and cases not demonstrating unloneliness. The detailed level explication of the single necessary and sufficient characteristic is:

A conscious or sub-conscious personal perception that one's interpersonal needs, such as attachment, emotional support, belongingness, nurturance, reassurance of worth, companionship, meaningfulness, are satisfied by the quantity and quality of one's emotional, social, collective, professional and religious relationships – this intrinsically generates a positive affective response that can include one or more positive feelings, such as satisfaction, happiness, joy, enthusiasm, fulfilment, hope, peace, calmness, cheerfulness, contentment.

This elaborates on the basic level explication, elucidating variations in the appearance of unloneliness in different situations. It delineates the diversity possible in the level of personal awareness

that one's interpersonal needs are satisfied by one's interpersonal relationships. It also provides examples of interpersonal needs that can be satisfied and resulting positive feeling(s).

In addressing the second objective – to employ the novel conceptualisation to develop a clear and precise theoretical definition of loneliness – we employed the novel conceptualisation of loneliness to formulate two versions of a theoretical definition of loneliness: a basic version and a detailed version. The basic version communicates concisely the whole meaning of the term, articulating the single necessary and sufficient characteristic, thereby distinguishing loneliness from other concepts. It is: *The negative feeling(s) one experiences as a result of a personal perception that one's interpersonal needs are not satisfied by one's interpersonal relationships.* The detailed version elaborates on the basic version, clarifying variations in the appearance of loneliness in different situations. It communicates the diversity possible in the interpersonal relationship deficit(s) (the type[s] of interpersonal relationship in which a deficit occurs and the nature of the deficit[s]) and the level of personal awareness of the deficit(s), as well as the existence of diversity in the unsatisfied interpersonal need(s) and the resulting negative feeling(s). It is: *The negative feeling(s) one experiences as a result of a conscious or sub-conscious personal perception that one's interpersonal needs are not satisfied by the quantity and/or quality of one's emotional, social, collective, professional and/or religious relationships.*

We also formulated basic and detailed versions of a theoretical definition of unloneliness. The basic version communicates concisely the whole meaning of the term, articulating the single necessary and sufficient characteristic, thereby clearly distinguishing unloneliness from other concepts. It is: *The positive feeling(s) one experiences as a result of a personal perception that one's interpersonal needs are satisfied by one's interpersonal relationships.* The detailed version elaborates on the basic version, clarifying variations in the appearance of unloneliness in different situations. It communicates the diversity possible in the level of personal awareness that one's interpersonal needs are satisfied by one's interpersonal relationships, as well as the existence of diversity in the satisfied interpersonal needs and the resulting positive feeling(s). It is: *The positive feeling(s) one experiences as a result of a conscious or sub-conscious personal perception that one's interpersonal needs are satisfied by the quantity and quality of one's emotional, social, collective, professional and religious relationships.*

4.2. Interpretation in the context of existing literature

The novel conceptualisation of loneliness is the first comprehensive, unified, conceptualisation of loneliness. It progresses the maturity of the concept of loneliness (Branch & Rocchi, 2015; Morse et al., 1996), advancing previous conceptualisations, including the prevailing conceptualisation of Perlman and Peplau (1981) – referred to by Stein and Tuval-Mashiach (2015) as *the best conceptualization to date* (p. 212). This conceptualisation identifies the characteristics of loneliness generally as: a result of deficiencies in one's interpersonal relationships; a subjective experience that is not synonymous with objective social isolation; an unpleasant and distressing experience (p. 32). It does not recognise that deficiencies in one's interpersonal relationships stem from unsatisfied interpersonal needs, specifically one's own individual interpersonal needs. It also lacks clarity regarding who must perceive such deficiencies, and what the relationship is between the deficiencies in one's interpersonal relationships and the negative and distressing feelings experienced. It therefore does not delineate the essence of loneliness, thus does not enable a clear distinction between cases demonstrating loneliness and cases not demonstrating loneliness. Furthermore, the conceptualisation does not delineate the diversity possible in: the interpersonal relationship deficit(s) (the type[s] of interpersonal relationship in which a deficit occurs and the nature of the deficit[s]); the level of personal awareness of the deficit(s); the unsatisfied interpersonal needs; the resulting negative feeling(s). It therefore does not elucidate variations in the appearance of loneliness in different situations.

Additionally, in communicating the diversity possible in the type(s) of interpersonal relationship in which a deficit occurs, the novel conceptualisation extends previous proposals regarding the types of interpersonal relationship in which a deficit can occur. Such proposals include the initial

influential and oft-cited proposal of Weiss (1973), which recognises that deficits can be experienced in emotional and social relationships, but omits collective, professional and religious relationships. They also include later proposals that deficits can be experienced in a greater number of types of interpersonal relationship, e.g., the proposal of Hawkey et al. (2005) and our previous proposal (Cunningham et al., 2021). The former recognises that deficits can be experienced in intimate (emotional), relational (social) and collective relationships, but omits professional and religious relationships. The latter recognises that deficits can be experienced in emotional, social, cultural (collective) and professional relationships, but omits religious relationships.

The determination that loneliness is a unidimensional concept as it comprises only one necessary (thus solely sufficient) characteristic, but that loneliness experiences can differ in multiple ways, is in accordance with the assertion of Morse et al. (Morse et al., 1996) that the necessary characteristic(s) must be present in all instances of a concept, but that it/they can take different forms, giving rise to variations in the appearance of the concept in different situations (p. 386). This addresses the persistent debate regarding the dimensionality of loneliness, reconciling the seemingly-opposing unidimensional and so-called 'multidimensional' views (Grover, 2022; Pollet et al., 2022; Rosedale, 2007). The 'multidimensional' view proposes that loneliness encompasses multiple and diverse experiences differing in the type(s) of interpersonal relationship in which a deficit occurs (Chau et al., 2022; Shio-vitz-Ezra, 2023). It does not in fact propose that loneliness comprises multiple, distinct, sub-dimensions – what constitutes description as a 'multidimensional' concept (Mackenzie et al., 2011). This view is therefore not at odds with the unidimensional view – in fact the two views could be described as stating the same thing in different ways. It is therefore unsurprising that both views have received empirical support (Hartshorne, 1993; McWhirter, 1990). The determination that loneliness experiences can differ in more than the type(s) of interpersonal relationship in which a deficit occurs extends the reconciled view regarding the dimensionality of the concept. This determination is incorporated in the single necessary and sufficient characteristic (detailed level explication) and theoretical definition (detailed version) of loneliness.

The novel theoretical definition of loneliness is the first theoretical definition to be underpinned by a comprehensive, unified, conceptualisation of loneliness, thus is the first definition to communicate the whole meaning of the term 'loneliness'. It gives credence to the assertion of Schmidt (2023) that an *all-encompassing definition* of loneliness might indeed be possible' (p. 1094). The detailed version of the theoretical definition addresses Schmidt's (2023) concern that such a definition is *unlikely to provide a detailed and profound understanding of the various conditions of loneliness ... [and] carries the risk of overlooking the subtle differences between distinct types of loneliness* (p. 1094). The novel theoretical definition advances previous theoretical definitions of loneliness, including the dominant theoretical definition of Perlman and Peplau (1981): *[L]oneliness is the unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively* (p. 31). This theoretical definition does not communicate that the deficiency in a person's network of social relations stems from unsatisfied interpersonal needs, specifically that person's own individual interpersonal needs. It also does not communicate who must perceive the deficiency in the person's network of social relations, or who endures the unpleasant experience. It therefore does not communicate the whole meaning of the term, thus does not distinguish loneliness from other concepts. Furthermore, the definition does not communicate the diversity possible in: the type(s) of interpersonal relationship in which a deficit occurs; the level of personal awareness of the deficit(s); the unsatisfied interpersonal need(s); the resulting negative feelings. It therefore does not clarify variations in the appearance of loneliness in different situations.

The elucidation of unloneliness as the opposite of loneliness accords with theory and evidence regarding the importance of interpersonal relationships for happiness, wellbeing, flourishing, thriving and life satisfaction (Amati et al., 2018; Feeney & Collins, 2015; Health Improvement Analytical Team (Department of Health), 2014; Helliwell et al., 2024; Kaufman et al., 2022; King, 2016; Lau & Bradshaw, 2018; Lu & Shih, 1997; Mcleod, 2024; Ryff & Singer, 2000; Seifert, 2024; Suar et al., 2021; What Works

Centre for Wellbeing, 2020). It is therefore in line with the tenets of 'positive psychology' (Seligman & Csikszentmihalyi, 2000). It advances previous incomprehensive proposals concerning the opposite of loneliness, including those that the opposite of loneliness is 'intimacy', e.g., Bach (2006), being together with someone else', e.g., Dahlberg (2007), 'belonging', e.g., van Tilburg and de Jong Gierveld (2023), Wardman (2023), 'social connection/connectedness', e.g., Holt-Lunstad (2022), Joppich (2022), O'Rourke and Sidani (2017) and 'contentment or joy', e.g., DePaulo (2021). Such proposals recognise only the socio-cognitive element of unloneliness, e.g., the first four examples of proposals, or the emotional element of unloneliness, e.g., the final example of a proposal. Furthermore, proposals recognising only the socio-cognitive element do so in an insufficient way. They make reference only to the satisfied interpersonal needs, with many doing so in only a limited way, i.e., mentioning only one satisfied need e.g., the first three examples of proposals recognising the socio-cognitive element. The elucidation of unloneliness as the opposite of loneliness also advances reference to the opposite of loneliness as simply that – the opposite of loneliness, e.g., Here (2018), Keegan (2015).

4.3. Strengths and limitations

Our study is the first umbrella concept analysis of loneliness. It is also the first instance of this novel type of conceptual review in any field. We selected this novel study design and developed the methodology following thorough consideration of the most appropriate research design to achieve the twofold aim of the study. A major strength of the study is therefore its overcoming of the significant challenge of developing and using a novel design and methodology in order to ensure fulfilment of the study aim – a manuscript detailing methodological guidance for the conduct of umbrella concept analyses is in preparation. Development and use of this novel design and methodology engendered two further key strengths of the study: a systematic, comprehensive and transparent process of data generation and a structured process of data analysis. A further strength of the study is the inclusion of grey literature – several of the included documents were not academic articles or books but their inclusion allowed for a more comprehensive review of the conceptualisation and/or theoretical definition of loneliness.

The main limitation of the study is the relatively low rigour of both the data generation and data analysis processes of the included documents. However we do not perceive this to have had a negative impact on the findings. The rigour of several of the included documents was classified as low for the process of data generation and/or the process of data analysis, however those documents provided data regarding the conceptualisation and/or theoretical definition of loneliness, thus their inclusion allowed for a more comprehensive review of the conceptualisation and/or theoretical definition of loneliness. To the best of our knowledge – based on 15 years of keeping abreast of the field – all key propositions concerning the conceptualisation and/or theoretical definition of psychosocial loneliness were included in one or more of the documents, and therefore in the analysis. We took the low rigour of the data analysis processes for syntheses into account in the analysis, tailoring the analysis strategy so as not to emphasise synthesis data over summary data, but rather giving equal weight to both types of data. A further limitation is the inclusion of only documents written in English. However, again to the best of our knowledge, this did not lead to the omission of any key propositions concerning the conceptualisation and/or theoretical definition of psychosocial loneliness, thus again we do not perceive this to have had a negative impact on the findings. Additionally, our decision to contain the study to a conceptual literature review and not to include stakeholder consultation could be perceived as a limitation, however we do not regard it as such. We took the decision to undertake a standalone conceptual literature review for several reasons: (a) the recommendation of Podsakoff et al. (2016) that when multiple conceptualisations and/or theoretical definitions already exist – as is the case in the field of loneliness – conducting a thorough review of the literature is the most important activity; (b) our own and wider, e.g., McHugh Power et al. (2018), recognition of the value of systematically identifying and synthesising the voluminous literature in the area under study; (c) our awareness of the general challenges

involved in conceptual research, including the time and resources required to do such research well, stemming from literature in the area, e.g., Heinonen and Gruen (2024), Reese (2023), Podsakoff et al. (2016), and our previous experience, e.g., Cunningham (2014b), Cunningham et al. (2022), Cunningham et al. (2023); (d) our appreciation of the specific challenges involved in developing and using a novel study design and/or methodology, including the time and resources required to do this well, again stemming from our previous experience, e.g., Cunningham et al. (2018), Cunningham et al. (2021), Gibson Smith et al. (2022). We intend to undertake stakeholder consultation regarding the conceptualisation and theoretical definition of loneliness as part of our follow-on work in the area. Furthermore, although not a formal, pre-planned part of the study, during the interim period while the manuscript was under review we took several opportunities for informal stakeholder consultation. We shared and discussed the findings of the study with multiple stakeholders, including researchers (both those working in the field of loneliness and those encountering loneliness in other fields), health and social care professionals, third sector professionals, patients and the general public. The feedback received regarding the comprehensive, unified, conceptualisation of loneliness and the clear and precise theoretical definition of loneliness was overwhelmingly positive. There was widespread agreement with the conceptualisation and definition of loneliness, as well as widespread recognition of their value for research, policy and practice activities to further progress understanding and addressing of loneliness.

Finally, although not a strength or limitation as such, but rather an intrinsic aspect of the social research process (Cunningham, 2014b), it is worth acknowledging the inherent existence of subjectivity in our study, particularly in the processes of data generation and data analysis. In order to both address that subjectivity, ensuring trustworthy findings, and facilitate audience judgement regarding the trustworthiness of our findings, we employed several recommended techniques. These techniques include: (1) a team approach to data generation and data analysis, including multiple coding; (2) provision of an audit trail; (3) grounding in examples; (4) overt referral to comparisons (Bird, 2020; Cant et al., 2022; Elliott et al., 1999; Gates et al., 2022; Hsieh & Shannon, 2005; Hulland, 2020; Shenton, 2004). See 'Methods' section for details of 1, 'Methods' and 'Findings' sections for details of 2, 'Findings' section for details of 3, and the previous section 'Interpretation in the context of existing literature' for details of 4.

4.4. Implications for research, policy and practice

The novel conceptualisation and theoretical definition of loneliness address the problematic status quo regarding conceptualisation and definition, providing an enhanced foundation for the undertaking of multiple activities to further progress understanding and addressing of the global public health issue of loneliness. These activities span the arenas of research, policy and practice and include:

- (a) Selection/development of conceptually-valid (generic and contextually-sensitive) operational definitions of loneliness (definitions stated in terms of observations and/or activities that identify the phenomenon – sometimes referred to as measures or tools) – for use to identify and assess loneliness and to evaluate interventions to address loneliness;
- (b) Selection/development of conceptually-valid (generic and contextually-sensitive) qualitative questions to explore loneliness, as well as selection/development of guidance concerning how to code qualitative data regarding loneliness;
- (c) Selection/development of theories of loneliness, including sources of loneliness and consequences of loneliness;
- (d) Selection/development of education and training interventions concerning identification of individuals experiencing loneliness – for health professionals and other professionals who are well-positioned to identify such individuals, e.g., community-based workers such as police officers;
- (e) Selection/development of targeted and tailored interventions, including policy interventions, to address loneliness;

- (f) Selection/development of wider (e.g., housing, transport, education, health) policy interventions with the potential to impact on one or more types of interpersonal relationship (emotional, social, collective, professional, religious), and therefore loneliness;
- (g) Robust evidence synthesis in the field of loneliness and the wider field of interpersonal relationships;
- (h) Effective communication in the field of loneliness and the wider field of interpersonal relationships.

The elucidation of unloneliness also facilitates such activities to further progress understanding and addressing of loneliness. It enables a goal-oriented approach (with unloneliness as the goal), facilitating not only alleviation of loneliness, but also prevention of loneliness.

We will detail multiple further specific recommendations in a comprehensive agenda for the field of loneliness underpinned by the novel conceptualisation and theoretical definition (manuscript in preparation).

5. Conclusion

Understanding and addressing of the global public health issue of loneliness is impeded by the absence of a comprehensive, unified, conceptualisation of loneliness and the consequent lack of a clear and precise theoretical definition of loneliness. We established the first such conceptualisation and developed the first such definition. The novel conceptualisation and theoretical definition of loneliness in themselves constitute substantial progress in understanding of the problem of loneliness. They also provide an enhanced foundation for the undertaking of research, policy and practice activities to further progress understanding and addressing of loneliness.

The elucidation of unloneliness also facilitates such activities to further progress understanding and addressing of loneliness. It enables a goal-oriented approach (with unloneliness as the goal), facilitating not only alleviation of loneliness, but also prevention of loneliness.

We call on researchers, policymakers and practitioners working in the field of loneliness – and also those working in the wider field of interpersonal relationships (such as those responsible for policy interventions with the potential to impact on one or more types of interpersonal relationship, and therefore loneliness), or encountering loneliness in other fields of activity – across the globe, to employ the novel conceptualisation and theoretical definition as a foundation for activities to further progress understanding and addressing of the global public health issue of loneliness, e.g., theory and intervention development. We also encourage consideration of the elucidation of unloneliness, when undertaking such activities.

Notes

1. We opted to use the term 'interpersonal' rather than the term 'social' in order to clearly differentiate from the narrower use of 'social' when referring to a specific type of relationship, e.g. in the seminal work of Weiss (1973).
2. For an up-to-date overview of existential loneliness see Gil Álvarez et al. (2023).
3. It is common practice to omit steps that do not add substance to the analysis of the concept of interest (Risjord, 2009).
4. We opted to use the term 'interpersonal' rather than the term 'social' in order to clearly differentiate from the wider use of 'social' when referring to human needs, e.g. Kreuter et al. (2021), Tong et al. (2018).
5. As yet, there is no widely-accepted term to communicate the opposite of loneliness, however the term 'unloneliness' has been coined for this purpose and its use, as well as that of the related adjective 'unlonely', is increasing, e.g. Anderson et al. (2022), Ashoka (2022), Chamberlain (2020), McDonald (2017), Morcom (2015), Nobel (2023), Richardson (2019), Rokach (2004), wa Maahlamela (2015), thus we adopted this term.

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