

Current state of knowledge on parents' social isolation and loneliness from pregnancy to the end of early childhood: definitions, measuring instruments, extent, and associated factors

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Table of contents

List of tables	III
Highlights	1
Summary	3
1 Introduction	7
1.1 Context	7
1.2 Social isolation and loneliness: a public health issue.....	7
1.3 Mandate objectives.....	8
2 Methodology	9
3 Results	11
3.1 Characteristics of the selected publications	11
3.2 Definition of the concepts.....	15
3.2.1 Loneliness	15
3.2.2 Social isolation	15
3.2.3 Distinction between social isolation, loneliness, and related concepts	15
3.3 Measuring social isolation and loneliness	17
3.3.1 Measuring instrument for social isolation and loneliness – UCLA Loneliness Scale	17
3.3.2 Measuring instruments for social isolation	17
3.3.3 Measuring instruments for loneliness	18
3.4 Extent of social isolation and loneliness.....	18
3.5 Factors associated with social isolation and loneliness.....	20
3.5.1 Individual factors.....	22
3.5.2 Family factors.....	24
3.5.3 Socioeconomic and cultural factors	26
3.5.4 Community and societal factors	28
3.5.5 Temporal factors.....	31
4 Discussion	35
4.1 Limitations of current knowledge and avenues for research	37
5 Conclusion	39
6 References	41

List of tables

Table 1	Characteristics of studies from the scientific literature	12
Table 2	Characteristics of documents from the grey literature	14
Table 3	Summary of definitions of social isolation, loneliness, and related concepts	16
Table 4	Factors associated with social isolation and loneliness according to their type, and number and proportion of publications for each factor type	21
Table 5	Individual factors associated with social isolation and loneliness according to the association studied	23
Table 6	Family factors associated with social isolation and loneliness according to the association studied	25
Table 7	Socioeconomic and cultural factors associated with social isolation and loneliness according to the association studied.....	27
Table 8	Community and societal factors associated with social isolation and loneliness according to the association studied.....	30
Table 9	Temporal factors associated with social isolation and loneliness according to the association studied	32

Highlights

This review provides a portrait of our current knowledge on parents' social isolation and loneliness during the perinatal and early childhood period. This document informs public health actors working with parents and their families on various aspects of these two phenomena. A scoping review was carried out to identify: 1) the definitions of social isolation and loneliness, as well as the distinction with certain related concepts; 2) the main instruments used to measure social isolation and loneliness; 3) the extent of social isolation and loneliness in the population of interest; and 4) the main factors associated with social isolation and loneliness.

The current state of knowledge on social isolation and loneliness during the perinatal and early childhood period is limited. However, this scoping review demonstrates that:

- There is an emerging consensus that social isolation and loneliness are two separate realities. Social isolation is considered an objective parameter that refers to a lack of significant, sustained contact with others, both in quality and quantity. Loneliness, however, is a subjective parameter based on the individual's perception of a gap between actual and desired social relationships, in terms of quantity and quality. Despite this emerging consensus, some publications addressing both social isolation and loneliness make no formal distinction between these two concepts.
- The UCLA Loneliness Scale is the measuring instrument most commonly used in publications examining social isolation, loneliness, or both in parents during the perinatal and early childhood period. However, no measuring instruments used in population surveys specifically targeting parents, which would make it possible to measure the extent of the phenomenon in this population, were identified in the literature consulted.
- The scientific and grey literatures do not provide for an adequate description of the extent of this phenomenon in parents during the perinatal and early childhood period, as the available data vary significantly.
- There are a wide variety of factors associated with social isolation, loneliness, or both. These factors involve plural aspects of parents' lives during the perinatal and early childhood period: the characteristics of the individual and the family, and economic, sociocultural, community, societal, and temporal factors.
- Five observations can be made concerning the factors associated with social isolation and loneliness in the literature: 1) the publications mainly focus on identifying the parent's individual characteristics; 2) there may be multiple and interdependent factors associated with the two phenomena; 3) social isolation and loneliness are phenomena that result from complex systems; 4) both phenomena are associated with certain factors of socioeconomic vulnerability in families; and 5) certain factors associated with social isolation and loneliness are also determinants of parenting.
- The scoping review also allowed us to identify gaps in knowledge, from which we conclude that the phenomena in question merit wider study. A number of subjects related to social isolation and loneliness remain to be explored: prevalence; the influence of new technologies; socioeconomic, cultural, community, and societal factors; the various dimensions of parenting and child development; the father's experience; effects on socioeconomically vulnerable parents; and strategies to prevent or counter social isolation and loneliness during the perinatal and early childhood period.

Summary

Introduction

In 2016, the Ministère de la Santé et des Services sociaux (MSSS) began updating the *Cadre de référence des Services intégrés en périnatalité et pour la petite enfance (SIPPE)*, which is the reference framework for perinatal and early childhood integrated services for families in vulnerable situations. This work included reviewing the program's eligibility criteria. Vulnerability is now defined by socioeconomic status, education level, and a new criterion: social isolation.

To our knowledge, no review of the scientific literature addressing the social isolation of parents, from pregnancy to the end of early childhood, has been published in the last 20 years. In view of this, we have described the state of knowledge on parents' social isolation and loneliness during the perinatal and early childhood period. This work serves to inform public health actors working with parents and their families on various aspects of these two phenomena, including: 1) the definitions of social isolation and loneliness, as well as the distinction with certain related concepts; 2) the main instruments used to measure social isolation and loneliness; 3) the extent of social isolation and loneliness in the population of interest; and 4) the main factors associated with social isolation and loneliness.

Methodology

A scoping review was conducted in order to review the current state of knowledge. This type of approach allows for an examination of the scope, scale, and potential of the existing literature on a subject. A literature review was carried out in a number of EbscoHost databases using keywords related to two thematic concepts: "perinatal period and early childhood" and "social isolation and loneliness." A similar approach was used to find documents in the grey literature. New references from the review of the consulted publications and from experts were then added. The publications were chosen based on specific eligibility criteria. In accordance with the proposed methodology for a scoping review, the methodological quality of the selected publications was not assessed. In total, 40 publications were chosen, comprised of 30 scientific articles and ten documents from the grey literature.

Main results

Thirty scientific documents measuring or describing social isolation or loneliness were identified. Half discuss social isolation, 13 articles discuss loneliness, and two articles discuss both. The majority of studies focus on pregnant women and new mothers. These studies essentially use three study designs: cross-sectional studies (12), longitudinal studies (10), and qualitative studies (7). One study uses a mixed method design. Ten documents from the grey literature complete the knowledge base: four documents address social isolation and loneliness, while three documents address only social isolation, and another three only loneliness. The majority of these documents focus on both parents.

Eleven studies propose a definition of social isolation or loneliness within the context of the perinatal and early childhood period. Some key characteristics have been identified for each of the two concepts. There is an emerging consensus that social isolation and loneliness are two separate realities. Social isolation is considered an objective parameter that refers to a lack of significant, sustained contact with others, both in quality and quantity. Loneliness, however, is a subjective parameter based on the individual's perception of a gap between actual and desired social relationships, in terms of quantity and quality. Despite this emerging consensus, some publications addressing both social isolation and loneliness make no formal distinction between the two concepts.

Eleven instruments developed to measure social isolation, loneliness, or both concepts indistinctly, were identified. The UCLA Loneliness Scale is the measuring instrument most commonly used to measure social isolation and loneliness in parents during the perinatal and early childhood period. However, no measuring instruments in population surveys specifically targeting parents, which would make it possible to measure the scale of this phenomenon in the target population, were identified in the literature consulted.

Overall, the existing knowledge does not provide for an adequate description of the extent of this phenomenon in parents during the perinatal and early childhood period, as the available data vary significantly.

The scientific and grey literatures address factors associated with social isolation, loneliness, or both concepts. There are a wide variety of factors associated with these two phenomena that relate to plural aspects of parents' lives during the perinatal and early childhood period: the characteristics of the individual and the family, and economic, sociocultural, community, societal, and temporal factors.

Discussion

In view of the current state of knowledge, five observations can be made concerning the factors associated with social isolation and loneliness in the literature: 1) the publications mainly focus on identifying the individual characteristics of the parents affected; 2) there may be multiple and interdependent factors associated with social isolation and loneliness; 3) social isolation and loneliness are phenomena that result from complex systems with feedback loops; 4) both phenomena are associated with certain factors of socioeconomic vulnerability in families; and 5) certain factors associated with social isolation and loneliness are also determinants of parenting.

This scoping review also allowed us to determine the limits of current knowledge, from which we conclude that the phenomena in question merit wider study. A number of subjects in relation to social isolation and loneliness remain to be explored: prevalence; the influence of new technologies; socioeconomic, cultural, community, and societal factors; the various dimensions of parenting and child development; the father's experience; effects on socioeconomically vulnerable parents; and strategies to prevent or counter social isolation and loneliness during the perinatal and early childhood period.

On the whole, our fragmentary knowledge on the phenomena of parents' social isolation and loneliness during the perinatal and early childhood period underscores the importance of innovative public health actions, as well as applying caution and creativity in areas where there are gaps in knowledge. The lack of data specific to parents and parents-to-be also demonstrates a need to evaluate public health actions in connection to social isolation and loneliness during the perinatal and early childhood period. Finally, to guide action, it may be worthwhile to supplement our current knowledge with that from other population groups, such as seniors, for definitions, measuring instruments, risk factors, and health impacts.

Conclusion

The current knowledge on social isolation and loneliness during the perinatal and early childhood period is limited. Nonetheless, given the influence of parents and the family environment on the life course of children, parents transitioning to parenthood or with young children are a population group that merits study. This review of the current state of knowledge can serve as a preliminary step for future work documenting existing strategies to prevent the social isolation and loneliness of parents and their families, as well as support strategies when individuals are affected by these realities.

1 Introduction

1.1 Context

In 2016, the Ministère de la Santé et des Services sociaux (MSSS) began updating the *Cadre de référence des Services intégrés en périnatalité et pour la petite enfance (SIPPE)*, which is the reference framework for perinatal and early childhood integrated services for families in vulnerable situations. This work included reviewing the program's eligibility criteria. Vulnerability is now defined by socioeconomic status, education level, and a new criterion: social isolation (1). This change has had an impact on perinatal and early childhood care as the program plays an important role in the promotion/prevention mandate of the public health system in Quebec.

To our knowledge, no review of the scientific literature addressing the social isolation of parents from pregnancy to the end of early childhood has been published in the last 20 years. It is therefore pertinent to detail the current state of knowledge on parents' social isolation during this period in order to describe the nature and extent of the available scientific knowledge on this subject. As such, the MSSS mandated the Institut national de santé publique du Québec (INSPQ) with summarizing the state of current knowledge on this phenomenon.

It should be noted that this review of the current state of knowledge targets both the issues of social isolation and loneliness as the two concepts are often used interchangeably in the literature. A distinction is made between the two when the data allow.

1.2 Social isolation and loneliness: a public health issue

Social isolation and loneliness are increasingly recognized as major determinants of health. Several reviews have demonstrated the adverse impacts of social isolation and loneliness on population health. Documented associations include high mortality and morbidity rates, decreased healthy behaviours, and overuse of health services (2–6). In addition, their impacts on health status and mortality are recognized as comparable to or stronger than other clearly identified risk factors such as tobacco use, sedentariness, obesity, and hypertension (2, 5). These data are mainly from studies conducted on groups of seniors, adults, or people of all ages.

It is possible, however, that the development and experience of social isolation and loneliness differ by population subgroup and individual life course. It is therefore pertinent to document the issues of social isolation and loneliness in families transitioning to parenthood or who have young children as the health and well-being of parents, as well as children's family environment in the first years of life, have a major impact on child development.

1.3 Mandate objectives

The objective of this current state of knowledge report is to produce an initial portrait of the available knowledge on parents' social isolation and loneliness during the perinatal and early childhood period (i.e., from pregnancy to 5 years old) to inform public health actors who work with parents and their families.

To this end, this review will focus on describing the following aspects:

- 1) The definitions of social isolation and loneliness and their distinction with certain related concepts
- 2) The main instruments used to measure social isolation and loneliness
- 3) The current knowledge on the extent of social isolation and loneliness
- 4) The main factors associated with social isolation and loneliness

2 Methodology

A scoping review was carried out to describe the current state of knowledge on social isolation and loneliness during the perinatal and early childhood period. This type of approach aims to examine the scope, scale, and potential of the existing literature on a subject (7). A scoping review aims to map the key concepts underlying a field of research and to clarify the definitions and conceptual boundaries of a subject (8). The methodological framework proposed by Arksey and O'Malley (7) was used to guide the process, including the improvements proposed by Levac, Colquhoun, and O'Brien and the Joanna Briggs Institute (8, 9).

A literature review was carried out in a number of EbscoHost databases (see *Annexe 1* for the details of the methodology). Keywords related to two concepts, the perinatal and early childhood period and social isolation and loneliness, were used (see *Tableau 10 of Annexe 1*¹). A similar approach was then undertaken to find documents in the grey literature (see *Tableau 11 of Annexe 1*). New references from the review of reference lists of consulted publications and from experts were then added. The publications in the final selection were chosen according to certain inclusion and exclusion criteria (see *Annexe 1*).

A total of more than 150 publications were consulted (scientific and grey literature). Thirty scientific articles and ten other documents were chosen after being read in their entirety (see *Figure 1 in Annexe 1*). In accordance with the proposed methodology for a scoping review, the methodological quality of the selected publications was not assessed (7–9).

Two measures were put in place to ensure the quality of this report on the current state of knowledge: support from a scientific committee and review of the content by internal and external reviewers. These steps also comprise the consultation stage of Arksey and O'Malley's methodology (7) as a means to inform and validate the results of scoping reviews.

¹ For all appendices, please refer to the French version on line at www.inspq.qc.ca/publications/2721

3 Results

This section describes the available knowledge on parents' social isolation and loneliness during the perinatal and early childhood period. It is divided into five parts. The first provides a summary of the main characteristics of the selected publications. The following parts address: the definitions; the measuring instruments; the scale of the phenomenon; and the factors associated with social isolation and loneliness.

3.1 Characteristics of the selected publications

A preliminary analysis of the studies from the scientific literature highlights a wide range of research objectives, methodologies, and results pertaining to social isolation and loneliness within the perinatal and early childhood context. There are multiple explanations for this high variability: the definitions and dimensions used to describe situations of social isolation and loneliness, the representativeness of participants (e.g., adolescent mothers, immigrant mothers, substance using mothers), and the means of data collection (e.g., online survey, interview by phone or in person).

Of the 30 scientific documents selected, half discuss social isolation (10–24) and 13 discuss loneliness (25–37). Only two studies discuss both concepts (38, 39). Half of the studies were conducted in the last ten years, between 2009 and 2019 (11–16, 24–29, 31, 38, 39). The studies come from North America (11, 20, 23, 24, 30, 33–37, 39), Europe (12–14, 18, 21, 26, 27, 29, 31, 32, 38), Australia, (15–17, 19, 22) and Japan (10, 25, 28). Most articles (26) target pregnant women or new mothers (10–26, 28, 30, 33–39) and some target specific subgroups of pregnant women or new mothers. Only four studies target both parents (mothers and fathers) (27, 29, 31, 32). No studies were conducted exclusively with fathers. In addition, two studies target other actors of interest, namely healthcare and social services professionals and local government representatives (13, 15).

In terms of research methodologies used, most studies report primary data (24 studies) (11, 13, 15–19, 21–29, 31, 33–39). Twelve of the selected studies use a cross-sectional design (10, 16, 18, 19, 24, 25, 28, 29, 33–36), ten use a longitudinal design (11, 12, 14, 21, 27, 30–32, 37, 39), seven, a qualitative design (13, 15, 17, 20, 22, 26, 38), and one, a mixed methods design (23). As the objective of a scoping review is to describe the nature and scope of the existing literature, studies using the same sample were not excluded when distinct results were reported (11 studies using four samples) (11, 12, 14, 27, 29, 31, 32, 34–36, 39). Finally, it should be mentioned that this report does not include systematic quality assessments of each selected study. Although all the studies were published in journals with peer review committees, some may be of low methodological quality.

Table 1 presents the main characteristics of the scientific literature.

Table 1 Characteristics of studies from the scientific literature

Variable	Number of articles ¹
Concepts	
Social isolation	15
Loneliness	13
Social isolation and loneliness	2
Study period	
2019–2009	15
2008–1999	10
Unreported study period	5
Country	
Canada	6
United States	5
Finland	4
Australia	5
France	2
Japan	3
England	4
Netherlands	1
Target population²	
Pregnant women or new mothers	26
<i>Complex issues</i>	3
<i>Young age</i>	3
<i>Immigrants</i>	1
<i>Ethnocultural diversity</i>	2
<i>First-time mothers</i>	1
<i>Care history³</i>	1
<i>Low-income</i>	1
Parents	4
Healthcare and social services professionals, local government employees	2
Type of data	
Primary	24
Secondary	5
Not reported	1
Type of study	
Cross-sectional	12
Longitudinal	10
Qualitative	7
Mixed	1

¹ N = 30 articles.

² A single article may target more than one population group described in the table.

³ Mothers who received social services or youth protection services in their childhood.

Ten documents from the grey literature complete the knowledge base. Four documents address social isolation and loneliness (40–43), while three address only social isolation (44–46) and another three only loneliness (47–49). The majority (eight) of these documents were published in the last ten years (40–45, 47, 49), though certain information on the study period was not reported in half of the documents (40, 42, 44, 47, 49). The documents are from the same countries as those mentioned for the scientific literature except for one, which is from Scotland (41). Contrary to the scientific literature, most (seven) of these documents target parents (mothers and fathers) (40–43, 45, 47, 48). Although these documents were published by recognized organizations, some may be of lower quality than others from a methodological perspective.

Table 2 presents the main characteristics of the grey literature.

A more detailed description of the selected publications is appended (see *Annexe 2*).

Table 2 Characteristics of documents from the grey literature

Variable	Number of documents ¹
Concepts	
Social isolation	3
Loneliness	3
Social isolation and loneliness	4
Publication date	
2019–2009	8
2008–1999	2
Study period	
2019–2009	2
2008–1999	3
Unreported study period	5
Country of publication	
Canada	3
Scotland	1
Australia	2
England	4
Target population²	
Pregnant women or new mothers	3
<i>Young age</i>	2
<i>Experience with homelessness</i>	1
Parents	7
<i>Low income, low education level, and young age</i>	1
<i>Immigrants</i>	1
Healthcare and social services professionals, local government employees	2
Type of publication	
Research report	7
Practice document	1
Government report	1
Other type of report	1
Author	
Government authority	2
Teaching and public research body	5
Non-profit organization	3

¹ N = 10 documents.

² A single article may target more than one population group described in the table.

3.2 Definition of the concepts

This section presents the conceptual definitions and descriptions used in the selected publications. This exercise helps define the concepts, show the relationships between them, and position them in relation to each other within the context of the perinatal and early childhood period. For the sake of brevity, only the concepts of loneliness and social isolation are discussed in detail in this section.

3.2.1 LONELINESS

Eight studies define the concept of loneliness. Two studies reiterate the writings of Peplau and Perlman (5), who define loneliness as the unpleasant experience that occurs when a person's network of social relations is significantly deficient in either quality or quantity (25, 28). Loneliness is a subjective feeling that arises when there is a discrepancy between an individual's actual and desired social relationships (27, 29, 31), or a perception of insufficient social, emotional, or physical support to meet an individual's needs (37). Loneliness is relatively independent of a person's actual number of contacts or the extent of their social network. Loneliness can therefore even be experienced in the presence of others (29, 31, 32). Similarly, being alone does not necessarily mean feeling lonely (31, 32).

Some studies distinguish between two dimensions of loneliness: social loneliness and emotional loneliness (51). Social loneliness is characterized by the lack of a social network or feeling of belonging to a group (29, 31, 32), or social isolation (27). Emotional loneliness, however, is characterized by a lack of attachment to or intimate relationship with another person (27, 29, 31, 32).

Finally, three types or degrees of severity are described: transient loneliness; situational loneliness, caused by a disruptive force or unexpected experience; and chronic loneliness, characterized by insufficient social relationships for a period of two years or more (26).

In the grey literature, Lavigueur, Coutu, and Dubeau (48) use the concept of felt loneliness ("solitude ressentie"), which they define as a feeling of isolation or the perception of relationship deprivation.

3.2.2 SOCIAL ISOLATION

In contrast with the multiple definitions proposed for loneliness, very few articles define social isolation. Three studies describe the concept. Social isolation encompasses the structural and objective characteristics of social relationships: the number and type of contacts; the diversity, density, and reciprocity of the social network, as well as the frequency and duration of contacts. Social isolation is therefore characterized by an objective lack of significant and sustained social relationships (25), or by social loneliness, as described above (27). In addition, according to Honda, Fujiwara, and Kawachi (10), isolation is a state of lacking social capital.

In the grey literature, social isolation is defined as an objective state of having an inadequate quality (as seen by others and not as perceived by the individual) and quantity of social relationships on various levels (individual, group, community, and societal) (41, 44).

3.2.3 DISTINCTION BETWEEN SOCIAL ISOLATION, LONELINESS, AND RELATED CONCEPTS

Six publications address both social isolation and loneliness, but not all define the concepts in relation to each other (38–43). Five publications do not distinguish between the two concepts and use them interchangeably (38–40, 42, 43). Only one publication describes the conceptual relationship between social isolation and loneliness (41). This distinction is used in some publications that

address either social isolation or loneliness, but still propose a definition for each of these two concepts (25, 44, 47). According to these publications, social isolation and loneliness are not necessarily connected. An individual who has many contacts may still feel lonely. Inversely, a socially isolated individual might not feel lonely. Social isolation is distinguished from loneliness by its objective nature, as it is characterized by a lack of social contacts. Loneliness, on the other hand, is characterized by the emotional perception of a lack of interaction, or by the way the individual perceives and experiences a lack of interaction (25, 41, 44).

Two publications, however, propose that social isolation has a subjective nature, as described above. According to Schuez-Havupalo et al. (27), social loneliness is characterized by social isolation. However, Lavigueur, Coutu, and Dubeau (48) define felt loneliness as "the feeling of isolation." Nevertheless, as a whole, the publications lean toward definitions of social isolation and loneliness as complex and multidimensional phenomena.

The exercise of identifying the different definitions of social isolation and loneliness has also made it possible to inventory the definitions of certain related concepts found in publications targeting the perinatal and early childhood period. The different definitions used in the selected publications are presented in *Annexe 3*. To ensure a better understanding of the following sections, Table 3 summarizes these definitions and presents the key elements of each concept.

Table 3 Summary of definitions of social isolation, loneliness, and related concepts

Concept	Definition
Loneliness	Perceived discrepancy between actual and desired social relationships, in terms of quantity and quality (25–29, 31, 32, 37, 40, 41, 44, 47–49)
Social loneliness	Absence of a social network or feeling of belonging to a group (29, 31, 32)
Emotional loneliness	Lack of attachment to or intimate relationship with another person (27, 29, 31, 32)
Social isolation	Lack of significant, sustained contact with others, both in quality and quantity (10, 25, 27, 41, 44, 47, 48)
Social support	Set of actions or resources that an individual provides to another with whom they have a personal relationship (15, 16, 30, 33, 38, 41)
Social network	Refers to the number and frequency of social contacts (41)
Social capital	Set of resources from which individuals and communities benefit, made available to them through their social networks (10, 16, 17)
Social connection	Described as the counterpart of social isolation (24)
Community connectedness	Sense of belonging to a community, based on the perception of similarity to others, as well as an interdependence with others, and the willingness to maintain it (17)
Social or socioeconomic deprivation	Refers to the financial and professional dimensions of social inequalities which result in the reduction of relationships and routine activities (12, 14, 18)
Social exclusion	Process by which certain individuals and groups are marginalized. This process involves a lack of resources (19, 44)
Relational exclusion	Lack of social support and social relationships (38)
Stigmatization	Alienation of an individual or group whose attributes are considered contrary to society's norms (11, 23)

3.3 Measuring social isolation and loneliness

This review of the current state of knowledge provided an inventory of 11 instruments developed to measure the social isolation and loneliness of parents during the perinatal and early childhood period (22 studies). These instruments were all used to determine the presence or lack of social isolation, loneliness, or both, of the parent. No measuring instruments were used in population-based surveys specifically targeting parents, to determine the scale of the phenomenon or high-risk groups.

3.3.1 MEASURING INSTRUMENT FOR SOCIAL ISOLATION AND LONELINESS – UCLA LONELINESS SCALE

Eleven empirical studies examining social isolation, loneliness, or both in parents during the perinatal and early childhood period, use various versions of the UCLA Loneliness Scale (52) (11, 25, 27–33, 37, 39). The tool is made up of 20 questions on feelings of loneliness and social isolation, based on Weiss's theory of social and emotional loneliness (51). Respondents answer each question using a Likert scale (1 [never] to 4 [often]) for a total score between 20 and 80. Higher scores indicate higher levels of loneliness.

This instrument is widely used for a range of populations as it is considered to have high reliability and validity in various cultures and contexts (25, 29–31, 37, 39). More specifically, two studies examining the validity and reliability of the scale in a sample of parents during the perinatal and early childhood period are included, one on the Finnish version of the scale and the other on the Japanese (25, 32). The authors conclude that these versions may be used to assess parents' loneliness in various contexts, including in a clinical context and in public health, given their simplicity, high reliability, and validity.

3.3.2 MEASURING INSTRUMENTS FOR SOCIAL ISOLATION

Seven studies examining social isolation use measuring instruments other than the UCLA Loneliness Scale.

Honda, Fujiwara, and Kawachi (10) use a questionnaire with two components to measure maternal loneliness: concerns about parenting tasks and the mother's social network. Maternal isolation is defined by the presence of a lot or some concerns about parenting tasks and not having anyone to ask for help within the mother's social network. It is unclear whether this questionnaire has been validated.

Husain et al. (21) use the Life Events and Difficulties Schedule (53) to examine situations of social isolation. This tool is a validated psychological measurement of the stressfulness of life events, i.e., adverse social conditions, including social isolation. It is administered in the form of a semi-structured interview that aims to create a portrait of stressful or difficult events experienced in the 12 months preceding the interview, taking multiple areas of life into account, including family, work, health, and interpersonal relationships. The objective is to describe the events, then rate the severity of each according to a number of dimensions. Two reference manuals guide the researchers' ratings.

McDaniel, Coyne, and Holmes (24) use a questionnaire on feelings of connectedness. Two questions assess feelings of connection to family and friends. The answers are ranked on a four-point scale (1 [very isolated] to 4 [very connected]). Isolation is defined and measured as the counterpart of feelings of social connection. Bremner, Fisher, Howat, and Wood (16) use four components from the Families, Social Capital, and Citizenship Survey (54) tool as a measurement of social connections within a community. However, it is unclear whether these two tools have been validated.

Finally, three studies examine socioeconomic and social deprivation. The two indices used, the deprivation index and the social index, break deprivation down into a number of dimensions. Social isolation is defined as one of these dimensions and measured in both indices. The deprivation index (55), used in both studies, measures social isolation by whether the mother has a trusted individual to provide support during birth (14, 56). The social index, used in the study by Poeran et al. (18), asks parents if they feel socially isolated. However, neither the number of questions asked nor their wording are available.

3.3.3 MEASURING INSTRUMENTS FOR LONELINESS

Four studies examining loneliness use measuring instruments other than the UCLA Loneliness Scale.

In Rokach's work (34–36), three separate instruments are used to document the various dimensions and sources of loneliness, as well as strategies for coping with loneliness. The questions were written by the author and his collaborators and are based on prior research on loneliness in other population groups. However, it is unclear whether these questionnaires have been validated. The three instruments are named and described below.

The Loneliness Questionnaire (36), based on the work of Rokach and Brock (57), provides a description of the loneliness experienced by respondents according to five dimensions: emotional distress; social inadequacy and alienation or social deprivation; the positive and enriching aspects of solitude, including growth, self-discovery, and increased feelings of inner strength and self-reliance; interpersonal isolation; and self-alienation.

The Loneliness Antecedents Questionnaire (34), based on the work of Rokach and Brock (58), provides a description of the antecedents of loneliness of the respondent: personal inadequacies; developmental deficits; unfulfilling intimate relationships; relocations and significant separations; and social marginality.

The Loneliness Questionnaire (35), based on Rokach's work (59), is used to document respondents' coping strategies against loneliness. Six strategies are described in the tool: reflection and the acceptance of one's loneliness; self-development and understanding one's situation and self; the strengthening of one's social support network; denial; religion; and active participation in various activities to maximize social contacts.

In the grey literature, Lavigueur, Coutu, and Dubeau (48) use an abridged version of a validated tool, the Emotional/Social Loneliness Inventory (60), to address the feeling of loneliness experienced by parents. In reference to their current situation, the parent must respond "generally true" or "generally false" to four questions.

3.4 Extent of social isolation and loneliness

Very few publications provide data on the extent of social isolation and loneliness in parents during the perinatal and early childhood period. In total, seven publications from the scientific and grey literatures report results on the extent of social isolation (N = 1), loneliness (N = 5), or both (N = 1). One publication is from the scientific literature, and three are from the grey literature. In addition, three publications cite the results of surveys from other sources.

Only one study reports data on social isolation during the perinatal and early childhood period. In Honda, Fujiwara, and Kawachi's study (10), a low prevalence of social isolation is reported in a representative sample of Japanese mothers (0.6%). No scientific article reports prevalence data for loneliness.

Three documents from the grey literature provide estimates of the prevalence of social isolation and loneliness. In Lavigueur, Coutu, and Dubeau² (48), feelings of loneliness are more frequent in vulnerable mothers (30%) compared to mothers who do not present any factors of vulnerability, and more pronounced in single-parent families (43%), compared to 7% in non-vulnerable families. This trend does not appear to be observed in vulnerable fathers, for whom the frequency of feelings of loneliness is similar to that of the non-vulnerable group. The grey literature also reports that 32% of young (18–24 years old) and new mothers always or often feel lonely according to a representative sample of the general British population³ (49). Finally, a government report examines the prevalence of social isolation and loneliness in Scotland (41). It concludes that it is currently impossible to answer the question directly as there is no agreed set of indicators for social isolation in Scotland. It also notes that there is a lack of data on the extent of loneliness in parents.

Three publications from the scientific and grey literatures cite the results of surveys from other sources. As such, it is not possible to know the validity of these secondary data, including whether the scales of measurement used were validated or if the sample is representative of the target population. According to a British survey, parents with a child under a year old are more likely to experience loneliness than other groups of the population (40). According to another British survey, almost a quarter of parents report always or often feeling isolated from their friend network since becoming a parent and 22% report that their loneliness has worsened since becoming a parent (47). Yet another British survey reports that 28% of mothers experience loneliness after giving birth to their first child (26). This proportion seems to be even higher in young mothers.⁴ More than half of young mothers report feeling lonely since becoming a mother and two-thirds say that they have fewer friends since becoming a mother (40).

Finally, three studies reveal certain differences between the loneliness experienced by parents and by other groups of the population, without necessarily reporting the prevalence in both groups. For example, two studies reveal that average loneliness scores of pregnant women and mothers are similar to those of adults in the general population (18, 61). Rokach's study (36) reports that loneliness is experienced differently by pregnant women and new mothers than by women in the general population. Average loneliness scores are higher in women in the general population. According to the author, this may be due to the fact that pregnant women and new mothers associate certain negative experiences with motherhood rather than with loneliness.

² Parents living with a child two to six years old and presenting one or more of the following factors of vulnerability: low income (below the poverty line); low education level (secondary education not completed); mother under 21 years old at the birth of the first child.

³ The sample size is very small given the low incidence in the general population.

⁴ The age of the young mothers is not specified in this publication.

3.5 Factors associated with social isolation and loneliness

The scoping review identified a number of factors associated with social isolation, loneliness, or both during the perinatal and early childhood period. By associated factors, we mean a statistical association between the concepts of social isolation, loneliness, or both, and certain factors. As such, it is not possible to differentiate between a risk factor, cause, consequence, or even a concomitant factor of social isolation or loneliness using the results presented in this section.

In total, 36 publications from the scientific and grey literatures report an association between various factors and social isolation (N = 23), loneliness (N = 19), or both (N = 5). Table 4 presents the documented factors, according to whether they are related to the individual, the family, the economic and sociocultural sphere, the community or society, or temporality. Note that the categorization of factors in the following subsections is one of several possibilities in the presentation of results. The factors are grouped and presented this way to facilitate the understanding of the reader.

Overall, the most studied category of factors in relation to the concepts of social isolation and loneliness are individual factors (N = 15). However, the most commonly studied factors are found within the categories of individual factors and family factors: health status and social functioning (N = 6) and family structure (N = 6).

The studies use essentially three study designs: cross-sectional (10), longitudinal (10), and qualitative (7). One study uses a mixed method design. Our sample also includes eight documents from the grey literature.

In the following sections, each factor is described in detail by its association with social isolation, loneliness, or both, when applicable. When supporting longitudinal data is available, the direction of association is considered. For brevity, only the results from the grey literature that complement the scientific literature are presented.

Table 4 Factors associated with social isolation and loneliness according to their type, and number and proportion of publications for each factor type

N= 36 publications⁵

Type of factor	Total publications n (%)	Publications on social isolation n (%)	Publications on loneliness n (%)	Publications on social isolation and loneliness n (%)	Type and number of study designs used	Factors identified (no. of publications)
Individual (parent)	15 (41.7)	10 (27.8)	7 (19.4)	2 (5.6)	Longitudinal (6) Cross-sectional (6) Qualitative (1) Grey literature (2)	Age (4) Sex (1) Personal characteristics or prior experiences (1) Health status and social functioning (6) Use of healthcare services (3) Drug use (1) Technology use (2) Coping strategies (1)
Family	13 (36.1)	6 (16.7)	11 (30.6)	4 (11.1)	Longitudinal (4) Cross-sectional (3) Qualitative (2) Grey literature (4)	Intention to become pregnant (2) Parenting self-efficacy (1) Family structure (6) Child's health (4) Use of healthcare services for the child (1)
Socioeconomic and cultural	12 (33.3)	6 (16.7)	9 (25)	4 (11.1)	Longitudinal (3) Cross-sectional (2) Qualitative (3) Grey literature (4)	Social network (4) Social support (3) Income (4) Education (2) Immigration (2)
Community and societal	12 (33.3)	7 (19.4)	6 (16.7)	3 (8.3)	Longitudinal (2) Cross-sectional (2) Mixed methods Qualitative (4) Grey literature (3)	Healthcare service context (2) Neighbourhood or community characteristics (1) Participation in a group activity (4) Stigmatization (3) Racism (1) Social representations of motherhood (1)
Temporal	4 (11.1)	1 (3)	3 (8.3)	0 (0)	Longitudinal (1) Cross-sectional (1) Qualitative (1) Grey literature (1)	Stressful life events (3) Prenatal period vs. postpartum period (1)

⁵ A single publication may report on multiple factors.

3.5.1 INDIVIDUAL FACTORS

In total, 15 publications have examined the association between social isolation, loneliness, or both, and the parent's individual characteristics (see Table 5). Aside from age (four publications) and health status and social functioning (six publications), individual factors are examined in less than 10% of the selected publications. The publications essentially use two study designs: longitudinal and cross-sectional. More specifically, the associations found between social isolation, loneliness, or both, and age, sex, health status and social functioning, and the use of healthcare services are supported by longitudinal data from six studies.

Age: the age of the parent has been studied in relation to both social isolation and loneliness. Two studies report a significant association between the mother's age and social isolation (10) or loneliness (37). Socially isolated mothers seem more likely to be younger (under 20) or older (over 40) than mothers who are not isolated (10). Geller (37) also demonstrates a significant association between the increase in a pregnant woman's age and loneliness. Moreover, the grey literature reports that young age and teen pregnancy may be associated with mothers' social isolation and loneliness (40, 44).

Sex: the parent's sex has only been examined in relation to loneliness in one longitudinal study (31). Loneliness appears to be a phenomenon experienced differently by men and women. The majority of mothers experience slight but stable feelings of social and emotional loneliness during pregnancy and the perinatal period. This trend applies to fathers to a certain extent. A small but nonetheless significant proportion of fathers feel a high level of social or emotional loneliness during this period.

Personal characteristics or prior experiences: this factor has only been examined in relation to loneliness. According to Rokach (34), pregnant women are less likely to attribute their loneliness to personal characteristics or prior experiences compared to women in the general population. These characteristics or experiences are mainly those that may lead to low self-esteem, fear of intimacy, mistrust of others, and feeling socially ill-at-ease.

Health status and social functioning: the parent's health status and social functioning have also been associated with social isolation and loneliness. Three longitudinal studies report that depression symptoms are positively associated with social isolation and loneliness. Having symptoms of depression is a predictive factor of social isolation and social and emotional loneliness, in both mothers and fathers⁶ (31, 39). Social isolation in mothers during the prenatal period is also a predictive factor of depression during the postpartum period (21). Psychological distress, social phobia, and a low secure attachment style score in the mother are also correlated with loneliness (28, 31). We should note that longitudinal data suggest that social phobia in parents is a predictive factor of feelings of loneliness (31). Moreover, a low secure attachment style score may indicate an incapacity to effectively receive or use support offered by different sources (28). According to the grey literature, poor self-rated health in new mothers is also associated with social isolation (44).

⁶ A significant proportion of women (36%) in Khan et al.'s sample (39) had a history of depression or a psychiatric diagnosis (anxiety, panic disorder, substance use disorder, post-traumatic stress).

Table 5 Individual factors associated with social isolation and loneliness according to the association studied

N = 15 publications

Factor (references)	Type of study design (No. of publications)	Total no. of publications	No. of publications on social isolation	No. of publications on loneliness	No. of publications on social isolation and loneliness	Association studied (references) p: significant association n: non-significant association o: association reported in qualitative studies or grey literature
Age (10, 37, 40, 44)	Longitudinal (1) Cross-sectional (1) Grey literature (1)	4	2	1	1	Young mothers (under 20 years old) or older mothers (over 40 years old) (p) (10) Increasing age (p) (37) Teen pregnancy (o) (44) Young parents (o) (40)
Sex (31)	Longitudinal (1)	1	0	1	0	Level of social and emotional loneliness (p) (31)
Personal characteristics or prior experiences (34)	Cross-sectional (1)	1	0	1	0	Characteristics or experiences that may lead to low self-esteem, fear of intimacy, mistrust of others, feeling socially ill-at-ease (p) (34)
Health status and social functioning (19, 21, 28, 31, 39, 44)	Longitudinal (3) Cross-sectional (2) Grey literature (1)	6	3	2	1	Symptoms of depression (p) (19, 21, 31, 39) Poor self-rated health (o) (44) Psychological distress (p) (28) Low secure attachment style score (p) (28) Social phobia (p) (31)
Use of healthcare services (12, 14, 37)	Longitudinal (3)	3	2	1	0	Number of unplanned hospital visits (p) (37) Inadequate use of prenatal care (n) (14) Reduced probability of completing a mandatory preanesthetic evaluation (n) (12)
Drug use (22)	Qualitative (1)	1	1	0	0	Drug addiction (o) (22)
Technology use (24, 28)	Cross-sectional (2)	2	1	1	0	Intermediate cell phone use (p) (28) Use of tablets/portable gaming consoles (p) (28) Blogging (p) (24) Social networking (n) (24)
Coping strategies (35)	Cross-sectional (1)	1	0	1	0	Reflection and acceptance of loneliness (p) (35) Denial (p) (35)

Use of healthcare services: the scientific literature suggests that social isolation and loneliness have a differential effect on the use of healthcare services during pregnancy. Longitudinal data report an increase in the use of hospital services due to loneliness (37), but there is no documented association between the use of prenatal care and social isolation (12, 14).

Drug use: drug use by mothers has only been described in relation to social isolation (22). According to a qualitative study, mothers suffering from addiction are often isolated from their families and friends, do not have another resource person from whom they can receive support daily or in the event of an emergency, mistrust the individuals in their social networks as the majority of these individuals use drugs, and experience a lack of support from their partner.

Use of technologies: two studies have examined the association between the use of new technologies and social isolation and loneliness. Cross-sectional data suggest a link depending on the type of device and its use (24, 28). For example, daily underuse (0 to < 0.5 h) and overuse (2 to 3 h, > 3 h) of cell phones (smartphones) are associated with higher levels of loneliness in mothers, along with a longer duration of use of tablets and portable gaming consoles (28). It should also be emphasized that there is an association between the frequency of blogging and a stronger feeling of connection to family and friends, which the authors define as the counterpart of social isolation (24). However, no significant link between the use of social networking sites and feelings of social connection has been reported (24).

Coping strategies: Rokach (35) reveals that the coping strategies of pregnant women and new mothers to reduce loneliness differ from those of women in the general population. Pregnant women and new mothers are less likely to use reflection and introspection, or denial and deviant behaviours, to ease their loneliness compared to women in the general population.

3.5.2 FAMILY FACTORS

In total, 13 publications have examined the association between social isolation, loneliness, or both, and factors related to the family (see Table 6). Aside from family structure and the child's health, the other family factors are examined in less than 10% of the selected publications. These studies essentially use three study designs: longitudinal, cross-sectional, and qualitative. The associations found between social isolation, loneliness, or both, and the family structure, the child's health, and use of healthcare services for the child are supported by longitudinal data from four studies.

Table 6 Family factors associated with social isolation and loneliness according to the association studied

N = 13 publications

Factor (references)	Type of study design (No. of publications)	Total no. of publications	No. of publications on social isolation	No. of publications on loneliness	No. of publications on social isolation and loneliness	Association studied (references) p: significant association n: non-significant association o: association reported in qualitative studies or grey literature
Intention to become pregnant (20, 33)	Cross-sectional (1) Qualitative (1)	2	1	1	0	Baby to fill a void (p) (33) Happy to be pregnant (p) (33) Unplanned pregnancy (n) (33) Teen parenthood in an immigration context (o) (20)
Feeling of parenting self-efficacy (29)	Cross-sectional (1)	1	0	1	0	Parenting self-efficacy (p) (29)
Family structure (31, 37–39, 45, 48)	Longitudinal (3) Qualitative (1) Grey literature (2)	6	1	3	2	Marital status (p, n) (37, 39) Low marital satisfaction (p) (31) Single parenthood (p, o) (38, 48) Family conflicts (o) (45) Number of previous pregnancies (n) (37)
Child's health (18, 27, 40, 42)	Longitudinal (1) Cross-sectional (1) Grey literature (2)	4	1	1	2	Adverse perinatal outcomes (spontaneous and iatrogenic births, small for gestational age, low Apcar score, perinatal mortality) (p) (18) Child with physical or mental health problems (o) (40, 42) Number of episodes of acute otitis (p) (27) Number of antibiotic treatments related to respiratory tract infections (p) (27)
Use of healthcare services for the child (27)	Longitudinal (1)	1	0	1	0	Number of medical visits for respiratory tract infections (p) (27)

Intention to become pregnant: this factor has been studied in relation to both social isolation and loneliness. Sable et al. (33) reveal a correlation between the desire to become pregnant and loneliness in pregnant women. The correlation is positive among those who expressed the belief that a baby would fill a void in their lives and is negative among those who are happy to have a baby. There does not appear to be any relationship with unplanned pregnancy (33). According to qualitative data, parenthood among immigrant teens is perceived as a potential means of reducing their loneliness (20).

Parenting self-efficacy: this factor has only been examined in relation to loneliness. One study demonstrates a negative association between parenting self-efficacy and loneliness (29).

Family structure: six publications have examined family structure, social isolation, and loneliness. Two longitudinal studies reveal contradictory results concerning a possible association with the pregnant women's marital status (37, 39). Low marital satisfaction is associated with higher levels of social and emotional loneliness in parents (31). According to qualitative data (including the grey literature), feelings of loneliness are also stronger in single-parent families (38, 48), while family conflicts may create conditions of social isolation for mothers (45). Finally, no relationship has been observed between the number of previous pregnancies and social isolation and loneliness (37).

The child's health: the child's health has been associated with social isolation and loneliness in the parent (18, 40, 42). This finding is supported by longitudinal data that demonstrates an adverse effect of parents' social loneliness on the infant's physical health: a reduced number of otitis diagnoses and antibiotic treatments (27). The authors explain this negative association in two ways. The first is that social loneliness may cause avoidant behaviour toward social tasks, such as medical consultations, which may lead to a reduced number of physician visits for the infant. The second is that social loneliness in parents may also influence participation in social activities, thus reducing exposure to pathogens.

Use of healthcare services for the child: this factor has only been examined in relation to loneliness. The parents' loneliness impacts the use of healthcare services for the child. Emotional loneliness in the mother is associated with an increase in the number of medical visits for an infection while parents' social loneliness leads to a reduced number of medical visits (27).

3.5.3 SOCIOECONOMIC AND CULTURAL FACTORS

Twelve publications have examined the association between social isolation, loneliness, or both, and certain socioeconomic and cultural factors (see Table 7). Aside from income and social network, the other factors are examined in less than 10% of the selected publications. The publications essentially use two study designs: cross-sectional and qualitative. A number of factors described in the grey literature are also reported here. The associations found between social isolation, loneliness, or both, and income, education level, and social support are supported by longitudinal data from three studies.

Table 7 Socioeconomic and cultural factors associated with social isolation and loneliness according to the association studied

N = 12 publications

Factor (references)	Type of study design (No. of publications)	Total no. of publications	No. of publications on social isolation	No. of publications on loneliness	No. of publications on social isolation and loneliness	Association studied (references) p: significant association n: non-significant association o: association reported in qualitative studies or grey literature
Social network (26, 28, 38, 49)	Cross-sectional (1) Qualitative (2) Grey literature (1)	4	0	3	1	Limited social network (p) (28) Lack of energy for prioritizing social relationships (o) (49) Negative emotions (o) (49) Perceived lack of social contacts (o) (26) Lack of empathy in social relationships (o) (26) Friendships between mothers (o) (38)
Social support (30, 45, 49)	Longitudinal (1) Grey literature (2)	3	1	2	0	Emotional support (p) (30) Informational support (p) (30) Tangible support (p) (30) Problematic support (p) (30) Insufficient or no social support (o) (45, 49)
Income (10, 28, 39, 42)	Longitudinal (1) Cross-sectional (2) Grey literature (1)	4	1	1	2	Low income (p) (39) Living below the poverty line (p) (10) Higher costs of raising a child (p) (10) Average subjective economic status (p) (28) Living in a precarious financial situation (o) (42)
Education (10, 37)	Longitudinal (1) Cross-sectional (1)	2	1	1	0	Education level (p, n) (10, 37)
Immigration (20, 43)	Qualitative (1) Grey literature (1)	2	1	1	0	Teen pregnancy in an immigration context (o) (20) Loss of extended family and friends, limited knowledge of the language and culture of the host country, lack of social network in the host country (o) (43)

All factors included in this section have been studied in association with social isolation and loneliness separately, except for the parent's social network.

Social network⁷: four publications address the relationship between the social network, social isolation, and loneliness of young mothers (26, 28, 38, 49). According to Mandai, Kaso, Takahashi, and Nakayama (28), a more limited social network is significantly associated with loneliness. Qualitative data (including from the grey literature) describe a number of aspects associated with a more limited social network, including a perceived lack of social contacts, the feeling of a lack of empathy in social relationships, a lack of energy for prioritizing social relationships, and negative emotions felt by the mother who fears that she will become a burden on her social network by sharing them (26, 49). According to Ellis-Sloan and Tamplin (38), friendships between mothers may be a means of countering social isolation and loneliness by giving young mothers informal social support.

Social support⁸: Hudson et al. (30) demonstrate a differential effect of social support on the loneliness of mothers presenting certain factors of vulnerability, such as being single, having a low income, being an adolescent, or being African American. Emotional, informational, and tangible support are negatively correlated with loneliness during the postpartum period, while problematic support is positively correlated with loneliness during the perinatal and early childhood period.⁹ This means that a lack of emotional support, information, assistance, and resources, as well as difficult interpersonal relationships with the person's main sources of support, may lead to feelings of loneliness following the birth of a child. Insufficient or no social support are also described as related to social isolation and loneliness in the grey literature (45, 49).

Income: according to four publications, including one from the grey literature, social isolation and loneliness seem to be more pronounced in parents with a low subjective economic status who are facing financial difficulties or who live in a low-income household (10, 28, 39, 42).

Education: the relationship between the mother's education level, social isolation, and loneliness is not clear, but may differ for social isolation and loneliness. According to Honda, Fujiwara, and Kawachi (10), socially isolated mothers seem more likely to be less educated compared to non-isolated mothers. Geller (37), however, did not observe any significant association between loneliness and education level.

Immigration: according to qualitative data, immigration may create situation of social isolation and loneliness for immigrant parents, especially pregnant teenagers, due to a loss of extended family and friends, a limited knowledge of the language of the host country, and a lack of a social network in the host country (20, 43).

3.5.4 COMMUNITY AND SOCIETAL FACTORS

In total, 12 publications reveal certain community factors or societal practices associated with social isolation, loneliness, or both (see Table 8). Aside from participation in a group activity, the other community and societal factors are examined in less than 10% of the selected publications. These publications are primarily qualitative studies. Only the associations found between social isolation, loneliness, or both, and the healthcare service context, participation in a group activity, stigmatization, and racism are supported by cross-sectional (N = 2) or longitudinal (N = 2) data.

⁷ See Table 3 and *Annexe 3* for a description of social network.

⁸ See Table 3 and *Annexe 3* for a definition of social support.

⁹ See *Annexe 3* for a description of the different components of social support.

Healthcare service context: two publications describe a link between the healthcare service context and social isolation. Relational continuity of care in maternity and child health clinics is negatively associated with mothers' emotional loneliness (29). The grey literature suggests that the relationship between mothers and healthcare professionals may contribute to the mothers' isolation, especially when they perceive difficulty in making their views and knowledge heard by these professionals (42).

Neighbourhood or community characteristics: this factor has been studied in relation to both social isolation and loneliness. Several characteristics of the neighbourhood or community, including feelings of safety (dangerous or unwelcoming neighbourhood), a higher cost of childcare, and a lack of social activities, may contribute to feelings of loneliness or to social isolation, according to the grey literature (40).

Participation in a group activity: this factor has only been studied in relation to social isolation. Cross-sectional data report a positive association between participation in local mothers' groups and increased social connections in the community, described as the counterpart of social isolation¹⁰ (16). Participation in mothers' groups outside the local community does not have the same strength of association (16). Qualitative studies list numerous aspects related to participating in a group, including meeting other parents living in the community, fostering relationships between mothers who live close to one another, and creating a support network (13, 15, 17). We should emphasize that these publications target two specific groups: young mothers with a care history (13) and families who have recently moved to a new residential neighbourhood (15–17).

Stigmatization¹¹: stigmatization has been studied in relation to both social isolation and loneliness. In a context of stigmatization, isolation is described as a coping strategy to physically and emotionally distance oneself from others (23). Ion, Wagner, Greene, and Loutfy (11) demonstrate that social isolation during the postpartum period is a significant predictor of perceived stigmatization for mothers living with HIV. The grey literature also mentions a relationship between the stigmatization of young mothers and loneliness (49).

Racism: racism has been studied in relation to both social isolation and loneliness. According to longitudinal data, racism perceived by pregnant women living with HIV, in a sample of women who mainly identified as Black or African women, appears to be significantly associated with their isolation and loneliness during the prenatal and postpartum period (39).

Social representations of motherhood: this factor has only been described in relation to loneliness, in one qualitative study. Lee, Vasileiou, and Barnett (26) suggest that loneliness is a result of the divergence between an idealized representation of motherhood and the experienced reality.

¹⁰ See Table 3 and *Annexe 3* for a definition of social connection.

¹¹ See Table 3 and *Annexe 3* for a definition of stigmatization.

Table 8 Community and societal factors associated with social isolation and loneliness according to the association studied

N = 12 publications

Factor (references)	Type of study design (No. of publications)	Total no. of publications	No. of publications on social isolation	No. of publications on loneliness	No. of publications on social isolation and loneliness	Association studied (references) p: significant association n: non-significant association o: association reported in qualitative studies or grey literature
Healthcare service context (29, 42)	Cross-sectional (1) Grey literature (1)	2	0	1	1	Relational continuity of care (p) (29) Mother/healthcare professional relationship (o) (42)
Neighbourhood or community characteristics (40)	Grey literature (1)	1	0	0	1	Neighbourhood safety (o) (40) Higher cost of childcare (o) (40) Lack of social activities in the community (o) (40)
Participation in a group activity (13)	Cross-sectional (1) Qualitative (3)	4	4	0	0	Social connections within a community (p) (16) Meeting parents living in the community (o) (15, 17) Fostering relationships between mothers living near one another (o) (15, 17) Creating a support network (o) (13, 17)
Stigmatization (11, 23, 49)	Longitudinal (1) Mixed (1) Grey literature (1)	3	2	1	0	Perceived stigmatization related to HIV (p) (11) Isolation as a coping strategy (o) (23) Stigmatization of young mothers (o) (49)
Racism (39)	Longitudinal (1)	1	0	0	1	Perceived racism (p) (39)
Social representations of motherhood (26)	Qualitative (1)	1	0	1	0	Social representations of motherhood (o) (26)

3.5.5 TEMPORAL FACTORS

Four publications reveal a temporal aspect to the social isolation or loneliness experienced by parents (see Table 9). Two factors are documented: stressful life events and the prenatal period versus postpartum period. These two factors are examined in less than 10% of the selected publications.

Stressful life events: the current knowledge base describes two examples of stressful life events in relation to mothers' social isolation and loneliness. Two publications suggest that young mothers who have experienced homelessness during the perinatal and early childhood period are particularly at risk of experiencing isolation or loneliness (38, 46). According to Rokach (34), pregnant women are less likely to attribute their loneliness to a relocation or separation, despite the possibility of severed or lost social ties, compared to women in the general population. The author offers two explanations for this result. On the one hand, the arrival of a baby may reduce the mobility of mothers and they may relocate less often during this period, which limits loss of social relations. On the other hand, it is possible that the frequency of relocation is not lower in this group, but simply that new mothers attribute less importance to relocation in the wake of the many changes experienced during the transition to parenthood.

Prenatal period vs. postpartum period: Junttila et al. (32) reveal a temporal aspect of the loneliness experienced by parents. Fathers' loneliness seems to be greater during the prenatal period, while mothers' loneliness appears to be greater in the postpartum period.

Table 9 Temporal factors associated with social isolation and loneliness according to the association studied

N = 4 publications

Factor (references)	Type of study design (No. of publications)	Total no. of publications	No. of publications on social isolation	No. of publications on loneliness	No. of publications on social isolation and loneliness	Association studied (references) p: significant association n: non-significant association o: association reported in qualitative studies or grey literature
Stressful life events (34, 38, 46)	Cross-sectional (1)	3	0	2	1	Experience with homelessness (o) (38, 46) Relocation or separation (p) (34)
	Qualitative (1) Grey literature (1)					
Prenatal period vs. postpartum period (32)	Longitudinal (1)	1	0	1	0	Loneliness during pregnancy or the postpartum period (p) (32)

4 Discussion

Although social isolation and loneliness are increasingly recognized as major determinants of health for different groups of the population, these phenomena have not been thoroughly examined during the perinatal and early childhood period. To our knowledge, no review of the scientific literature has been published in the last 20 years. The general objective of this review of the current state of knowledge is therefore to produce an initial portrait of the existing and current knowledge on social isolation and loneliness in families experiencing a transition to parenthood or who have young children. Specifically, it aims to map and clarify the definitions and measuring instruments, document the extent of these two phenomena, and describe the factors associated with social isolation and loneliness.

This review of the current state of knowledge systematically examined the available documentation on the phenomena of social isolation and loneliness in parents during the perinatal and early childhood period. This document is therefore a preliminary step to help public health actors understand the complexity of these two phenomena during the perinatal and early childhood period, as well as the difficulties of clearly identifying them, given the gaps in the available data. In accordance with the proposed methodology for a scoping review, the methodological quality of the selected publications was not assessed.

Two definitions, one measuring instrument

A clear conceptual definition makes it possible to operationalize and measure a phenomenon. The consulted literature provides benchmarks for operationalizing the concepts of social isolation and loneliness according to certain characteristics. For example, social isolation may be broken down by the characteristics of an individual's social contacts, including their number, frequency, duration, and type, as well as the diversity, density, and reciprocity of their social network. Loneliness may be operationalized according to its social and emotional dimensions or by its degree of severity.

Although the literature reveals distinctions between the two concepts and their associated characteristics, it uses just one measuring instrument for both phenomena, the UCLA Loneliness Scale (52), which indicates some inconsistency between the conceptual definition and the operationalization of social isolation and loneliness. It may also suggest that the level of conceptualization of social isolation and loneliness in the perinatal and early childhood period is not yet sufficiently developed to allow us to assess the benefits and disadvantages of treating them as two separate concepts rather than integrating them into a single concept. For example, we note that the literature rarely allows a distinction to be made between social isolation and loneliness in their relationship with the associated factors included in this review. Finally, a single measuring instrument may be insufficient for translating and fairly representing the different situations of social isolation and loneliness that parents may experience during the perinatal and early childhood period. This hypothesis is worth exploring considering the complexity of these two phenomena, as well as the multiplicity and interdependence of their associated factors.

Individualization of social isolation and loneliness issues

The most commonly studied factors in relation to the concepts of social isolation and loneliness are the parent's individual characteristics. This shows a tendency to individualize social isolation and loneliness issues in the literature. This observation suggests a tendency to assign responsibility in this situation to parents, which obscures the socioeconomic, cultural, community, and societal elements that also appear correlated with these two phenomena.

Interdependence of factors associated with social isolation and loneliness

The wide variety of factors associated with these two phenomena demonstrate that social isolation and loneliness are not associated with a single factor, but are rather derived from multiple, interrelated factors. As such, the factors identified in this review do not seem to be independent; on the contrary, they seem to influence each other. In this context, it is important to evaluate the overall situation of the parent and their family in attempts to identify individuals experiencing social isolation or loneliness.

Social isolation and loneliness: complex phenomena

The existing knowledge suggests that the phenomena of isolation and loneliness are complex. While the scoping review has made it possible to determine the range of factors studied in relation to social isolation and loneliness, the majority of study designs do not allow for the direction of the association to be determined, nor for causes and consequences to be identified. However, it is a plausible assumption that the relationship between the parent's mental health and social isolation and loneliness is either bidirectional or multidirectional. Mental health issues increase the parent's risk of loneliness, and loneliness appears to contribute to the persistence of mental health issues (19, 21, 39). Feelings of loneliness are even documented as symptoms of depression in some measuring instruments (61). The bidirectional and multidirectional influences between social isolation and loneliness and other factors—for example, health problems in the child and the subsequent use of healthcare services (27), financial precarity (10, 28, 39), and the experience of stigmatization (11, 23)—also require further exploration. It is also possible that a combination of factors, instead of one sole factor, is associated with situations of social isolation and loneliness (37). Overall, these results emphasize the need to view these phenomena as stemming from complex systems with feedback loops.

Socioeconomic vulnerability and social isolation and loneliness

This review of the current state of knowledge indicates that the relationships between social isolation or loneliness and contexts of vulnerability in the perinatal and early childhood period have been the subject of little study. In fact, there are very few publications focusing specifically on parents in socioeconomically vulnerable situations in the literature (20, 23, 30, 38, 43, 46, 48, 49). Nevertheless, the publications that have studied these associations demonstrate that some factors associated with parents' social isolation or loneliness are more widespread among socioeconomically disadvantaged parents (young age, low income, low education level, recent immigration). As such, it is plausible that social isolation and loneliness have a differential or even stronger effect on this group of parents.

Social isolation, loneliness, and parenthood

Only one study included in this review of the current state of knowledge examined the relationship between social isolation, loneliness and parenthood. Parenthood can be broken down into three dimensions, according to the conceptual framework of Lacharité et al. (62): parental experience, practices, and responsibility. In relation to the experience of parenting, this review shows that parenting self-efficacy appears to be negatively associated with parents' loneliness (29). Parenting self-efficacy refers to the parent's beliefs about their ability to respond to their child's needs and effectively fulfil their parental role. Parenting self-efficacy is associated with parental practices and parent-child interactions that promote optimal development for the child (63–65).

The known literature suggests multiple determinants of parenthood. Some of these determinants are also identified as factors associated with social isolation and loneliness in this review. They include, for example, certain characteristics of the parent (insecure attachment style, mental health issues) (66–68) and certain characteristics of the child (physical or mental health problems) (69, 70), in addition to other factors, such as the conjugal relationship and social support (71–73). However, it is

not possible with the current knowledge base to fully understand the direct impact of social isolation and loneliness and their mechanisms on the different dimensions of parenthood.

Social isolation and loneliness: a cause for concern

The fragmentary knowledge on the phenomena of parents' social isolation and loneliness during the perinatal and early childhood period underscores the importance of innovative public health actions, as well as applying caution and creativity in areas where there are gaps in knowledge. The lack of data specific to parents and parents-to-be also demonstrates a need to evaluate public health actions in connection to social isolation and loneliness during the perinatal and early childhood period. It may be worthwhile to supplement current knowledge with that from other population groups, using the data available on definitions, measuring instruments, risk factors, and health impacts in order to guide action. Finally, we should note that a number of public health institutions, like the INSPQ, suggest avenues for fighting social isolation and loneliness in the population (74, 75).

4.1 Limitations of current knowledge and avenues for research

The literature on parents' social isolation and loneliness during the perinatal and early childhood period has various limitations. Accordingly, this review highlights the importance of continuing research efforts on parents' social isolation and loneliness to fill the gaps in evidence.

Firstly, no studies report results on the link between parents' social isolation or loneliness and parent-child relationships or the child's development. However, some factors associated with isolation and loneliness revealed in this review are recognized as factors that can adversely affect child health and development. We should highlight the influence of maternal depression and parental stress, caused by a low sense of parenting self-efficacy, on health problems in the child (63, 76–78). We should also note that the mother having a secure attachment style, or conversely, an insecure attachment style, can influence mother-child interactions and consequently, the child's socioemotional and cognitive development (79, 80). This suggests that it is important to better understand how the phenomena of social isolation and loneliness interact with proximal determinants of optimal child development.

Large-scale longitudinal studies that allow for observation of changes in levels of loneliness over time are necessary (40). This will allow causal inferences to be drawn between parents' social isolation and loneliness and long-term effects on the child's development. Longitudinal studies that examine the relationship between social isolation and loneliness and the different dimensions of parenthood will also be essential for documenting the existence and extent of these impacts. This knowledge is essential to guide the development of perinatal and early childhood interventions and services.

Secondly, the body of knowledge on social isolation and loneliness is mainly based on the perspective of mothers, with an implicit presumption that fathers have similar experiences. No studies were conducted exclusively with fathers. However, the few studies focusing on parents appear to suggest that loneliness is a phenomenon men and women experience differently (31, 32). As such, the results of this research should be applied to fathers with caution. There is also a need for studies focusing on fathers' social isolation and loneliness during the perinatal and early childhood period.

Thirdly, we note an absence of evidence on the prevalence of parents' social isolation and loneliness. It is not possible to adequately describe the scale of the phenomena during the perinatal and early childhood period on the basis of the existing knowledge. It is therefore important to consider including one or more indicators of these phenomena in population surveys targeting parents and families in Quebec (47). Furthermore, Quebec can learn from countries that have a national loneliness indicator (such as England, Scotland, and New Zealand), even though this indicator is developed to collect data on the general population and not specifically on parents (81–83).

Fourthly, it is not possible to fully grasp the impact of socioeconomic disadvantage and its mechanisms on parents' loneliness and social isolation on the basis of the available publications. For this reason, the differential effect of social isolation and loneliness on more vulnerable groups, from a socioeconomic perspective, merits further study.

The emergence and popularity of new information and communication technologies over the last twenty years may have an impact on parents' isolation and loneliness, given their potential to promote social interaction, creation, and sharing. Only two studies examine the association between the use of new technologies and these two phenomena. The results suggest that a relationship exists (24, 28). The potential of new technologies therefore warrants wider study.

Future research on the factors associated with social isolation and loneliness need to take into account the significant portion of studies on individual and family characteristics and instead focus further studies on potential socioeconomic, cultural, community, and societal factors. Areas where we note a lack of knowledge include the relationship between certain macrosystemic factors and parents' social isolation and loneliness, including public policies. It is therefore pertinent to analyze the impacts of public policies on parents' social isolation and loneliness during the perinatal and early childhood period, regardless of whether these policies target them specifically.

Evaluative studies on interventions aiming to prevent or counter parents' social isolation and loneliness during the perinatal and early childhood period were excluded from our mandate. However, this review of the current state of knowledge can serve as a preliminary step for future work documenting existing strategies to prevent parents and their families from finding themselves socially isolated or alone and to support them when they are affected by this reality.

5 Conclusion

This review of the current state of knowledge on the social isolation and loneliness of parents transitioning to parenthood or who have young children is based on a scoping review of the literature, which is a rigorous exercise of data collection and analysis. It provides an overview of the various studies addressing the definitions, measuring instruments, extent of social isolation and loneliness, as well as factors associated with these two phenomena.

The results describe the characteristics of social isolation and loneliness and document the different measuring instruments used in research. However, it is not possible to adequately describe the extent of these two phenomena based on our current knowledge. Nevertheless, the literature reveals a wide variety of factors associated with social isolation and loneliness that relate to plural aspects of parents' lives during the perinatal and early childhood period: the characteristics of the individual and the family, and economic, sociocultural, community, societal, and temporal factors.

Our current knowledge on social isolation and loneliness during the perinatal and early childhood period is limited. Nonetheless, the existing knowledge suggests that parents transitioning to parenthood or who have young children are a population group that merits study given their influence, as well as the influence of the family environment, on the life course of children. In concrete terms, this review of the current state of knowledge can serve as a preliminary step for future work documenting strategies to better understand and prevent the phenomena of social isolation and loneliness during the perinatal and early childhood period.

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