



# Caregiving in long-term care before and during the COVID-19 pandemic: a scoping review

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## Key summary points

**Aim** This scoping review aims to summarize recent literature exploring the associations between caregiving and resident, formal and informal caregiver health in long-term care before and during the COVID-19 pandemic.

**Findings** Based on the thematic analysis of 20 records out of 252 identified records, we summarized themes of biological, psychological, and social health among care givers, care workers and residents.

**Message** This review finds that the long-term care sector needs significant improvements in infrastructure and resources to better support caregiving, thereby enhancing the emotional, psychological, and social health of residents, formal and informal caregivers, particularly during and after crisis situations like the COVID-19 pandemic.

## Abstract

**Purpose** The COVID-19 pandemic magnified pre-existing socioeconomic, operational, and structural challenges in long-term care across the world. In Canada, the long-term care sector's dependence on caregivers as a supplement to care workers became apparent once restrictive visitation policies were employed. We conducted a scoping review to better understand the associations between caregiving and resident, formal and informal caregiver health in long-term care before and during the COVID-19 pandemic.

**Methods** A literature search was performed using MEDLINE, AgeLine, Google Advanced, ArXiv, PROSPERO, and OSF. Pairs of independent reviewers screened titles and abstracts followed by a review of full texts. Studies were included if they reported biological, psychological, or social health outcomes associated with caregiving (or lack thereof).

**Results** After screening and reviewing 252 records identified by the search strategy, a total of 20 full-text records were eligible and included in this review. According to our results, research on caregiving increased during the pandemic, and

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researchers noted restrictive visitation policies had an adverse impact on health outcomes for residents and formal and informal caregivers. In comparison, caregiving in long-term care prior to the pandemic, and once visitation policies became less restrictive, led to mostly beneficial health outcomes.

**Conclusion** Caregiver interventions, for the most part, appear to promote better health outcomes for long-term care residents and formal and informal caregivers. Suggestions to better support caregiving in long-term care settings are offered.

**Keywords** Caregivers · Caregiving · Care workers · Health outcomes · Health policies · Long-term care · Residents · Visitation policies

## Introduction

According to the World Health Organization, the goal of long-term care (LTC) is to maintain the best possible quality of life for residents and meeting their health, personal, and social needs consistent with their basic rights, fundamental freedoms, and human dignity [1]. To do so, LTC systems rely on a collaborative workforce comprised of formal and informal caregivers. Formal caregivers (e.g., care aides, nurses, personal support workers, social workers) are associated with formal LTC service delivery systems and are often paid for their work [1]. However, due to increased workload, burnout, job dissatisfaction, and care worker shortages, formal caregivers are increasingly finding themselves rushing or missing care tasks and not able to spend enough time with residents to meet their needs [2–6]. Further, informal caregivers provide care to family members, friends, or community members, but are usually unpaid for their work [1]. Informal caregivers can, for instance, provide residents with cognitive stimulation, decision-making assistance, mobility supports, mealtime assistance, friendship, social participation, and relational continuity [7–9]. From a health systems perspective, caregiving is also associated with reductions in LTC expenditures [10–12].

Public health measures associated with the COVID-19 pandemic led to the temporary reduction, cessation, or both of caregiver presence in LTC settings globally [13]. With formal caregiver shortages and an increased need for complex care due to illness and social isolation, restrictions on caregiver presence in LTC may have significantly reduced resident and care worker support systems, leading to adverse impacts on residents and formal and informal caregivers [14]. Despite documented adverse outcomes for residents, caregivers, and care workers during the COVID-19 pandemic [15], a comprehensive overview of the association between caregiver presence and resident and formal and informal caregiver outcomes has yet to be conducted. Such an overview is needed to inform social policy to address current and future inequalities and challenges in LTC settings during public health emergencies.

Therefore, this scoping review was conducted to synthesize the best available evidence on the influence of

caregiving on resident and formal and informal caregiver outcomes in LTC settings both before and during the COVID-19 pandemic. Our first aim is to provide a comprehensive summary of recent evidence examining the association between caregiving and outcomes among residents, formal and informal caregivers. Our second aim is to identify key challenges and opportunities for future researchers, policymakers, and practitioners to better support caregiving in LTC settings during health emergencies.

## Methods

### Search strategy

The search strategy was developed in consultation with a librarian from the University of Manitoba (CM). We used a comprehensive list of search terms to identify LTC settings and the involvement (e.g., visit, presence, involvement) of caregiving (e.g., family, spouse, child, volunteer). We searched for these concepts in controlled vocabulary (i.e., MeSH), title, abstract, and keyword fields. We searched for peer-reviewed journal articles in two databases, MEDLINE (Ovid; 1946–2022) and AgeLine (EBSCOhost; 1978–2022), as well as gray literature in Google Scholar, ArXiv, PROSPERO, and Open Science Framework. Only studies published in the English language over the previous seven years (i.e., January 1, 2015–March 10, 2022) were included since the World Health Organization's (2015) World Report on Ageing and Health identifying the need to support long-term care caregivers was published this same year. A detailed MEDLINE (Ovid; 1946–2022) search strategy is included in Table 1. All other search strategies are available upon request.

### Eligibility criteria

At the title and abstract level, studies were included if they described the involvement of caregivers in LTC settings and, at the full-text level, studies were included if they reported on outcomes associated with the involvement of caregivers

**Table 1** Detailed MEDLINE (Ovid;1946–2022) search strategy

Database	Search criteria
Medline	1 Long Term Care/ or Nursing Homes/ or Homes for the Aged/ or Residential Facilities/ or Assisted Living Facilities/ or Skilled Nursing Facilities/ ( <i>n</i> = 70,367)
Ovid	2 (long-term care or long-term care or LTC or nursing home? or home* for the aged or assisted living or chronic care or rest home* or personal care home* or extended care cent* or residential care or PCH or residential facilit* or retirement home? or retirement housing or residential cent* or supportive housing or supportive home?).tw,kw. ( <i>n</i> = 61,580)
1946–2022	3 1 or 2 ( <i>n</i> = 98,407)
	4 visitors to patients/ ( <i>n</i> = 2111)
	5 ((famil* or caregiver* or spous* or child* or kin* or relative? or surrogate? or volunteer?) adj2 (visit* or presence or involvement)).tw,kw. ( <i>n</i> = 16,797)
	6 4 or 5 ( <i>n</i> = 18,495)
	7 3 and 6 ( <i>n</i> = 514)
	8 limit 7 to (english language and yr = "2015 -Current") ( <i>n</i> = 160)

in LTC settings. Outcomes were relevant if they pertained to LTC residents, formal and informal caregivers.

### Study selection

All records identified by the literature searches were imported into a reference management software, EndNote X9 (Clarivate Analytics, PA, USA), and exported to an online review tool, Rayyan (Qatar Computing Research Institute, Doha, Qatar). Duplicates were removed and pairs of reviewers independently screened the records by title and abstract and, subsequently, full text. Disagreements were resolved by a third independent reviewer.

### Data extraction

Using an a priori data extraction tool developed in Excel by the reviewers, pairs of independent reviewers extracted data from studies included in the scoping review. The data extracted included author(s), year of publication, country, relation to the COVID-19 pandemic (i.e., before, during), study design, population (i.e., residents, formal and informal caregivers) and sample size, interventions (and any comparisons), and outcomes. Any disagreements that arose between the reviewers were resolved through consensus.

### Data synthesis

Health outcomes were conceptualized using the biopsychosocial model [16]. The biopsychosocial model is a holistic framework whereby health is considered an integration of cumulative and intersecting biological, psychological, and social factors [17–19]. Accordingly, we synthesized the extracted data in narrative and tabular forms by population (i.e., residents, formal and informal caregivers) and outcomes (i.e., biological outcomes, psychological outcomes, social outcomes).

## Results

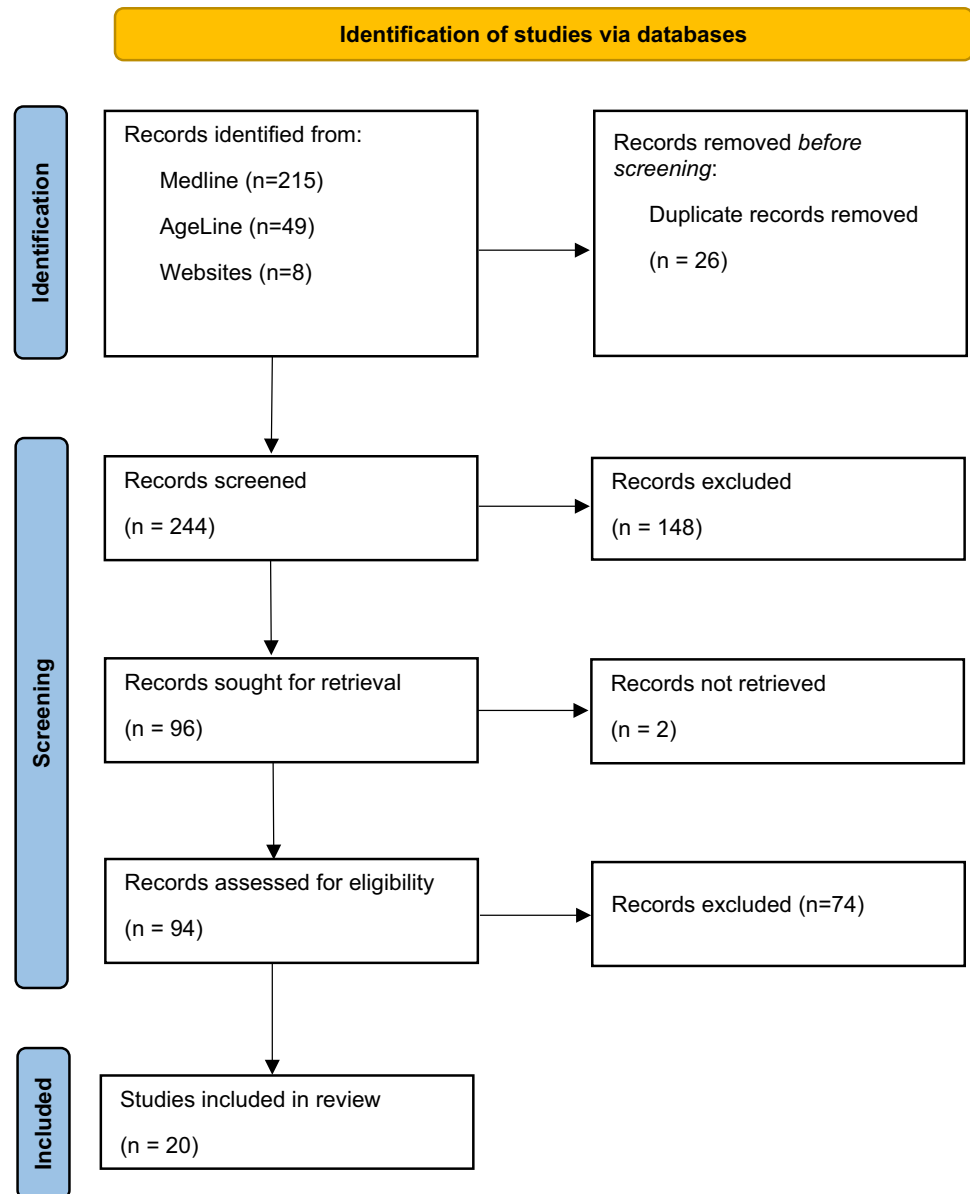
### Study selection

The search strategy identified in a total of 252 records with 244 peer-reviewed journal articles and 8 Gy literature reports. Of these 252 records, 148 records were excluded based on screening by title and abstract. Thus, 104 full-text records were screened for eligibility. As shown in the PRISMA Flow Diagram in Fig. 1, a total of 20 full-text records were eligible and included in this review.

### Study characteristics

The characteristics of the 20 eligible studies are presented in Table 2. Studies were conducted in Australia [20], Canada [21–24], Denmark [25], Israel [26, 27], the Netherlands [28–31], New Zealand [32], Sweden [33], Taiwan [34, 35], and the United States [36–39]. Half of the eligible studies employed a qualitative study design (*n* = 10; [22, 25, 27, 30–36]). The remaining eligible studies either employed a study design that was quantitative (*n* = 3; [24, 29, 37]) or mixed methods (*n* = 7; [20, 21, 23, 26, 28, 38, 39]). Three studies included residents as participants [20, 23, 24], fourteen studies included informal caregivers as participants [21, 25, 27, 29–39], and six studies included formal caregivers as participants [22, 26–28, 31, 32]. During the COVID-19 pandemic, interventions were primarily centered around the enactment (and subsequent removal) of restrictive visitation policies, whereas interventions prior to the COVID-19 pandemic were more varied and included personalized approaches (e.g., personalized photos and songs [27]), technology [23], informal caregiver presence during mealtimes [35], and education [33]. Biological, psychological, and social outcomes associated with caregiving are further described below and summarized in Tables 3, 4, and 5.

Fig. 1 PRISMA flow diagram



## Biological health outcomes

### Residents

Although resident-specific biological health outcomes were not reported prior to the COVID-19 pandemic, some resident-specific outcomes were reported during the COVID-19 pandemic. As an example, formal and informal caregivers indicated that residents' physical health worsened and this worsening was, in part, attributed to restrictive visitation policies [21, 26, 30, 38]. Sizoo et al. (2020), for instance, noted that residents experienced an increase in somatic symptoms [30]. Cohen-Mansfield et al. (2021) also described increased rates of morbidity and mortality among residents [26]. Once restrictive visitation policies were lifted, however, residents

were observed to engage in more frequent active movements [28].

## Psychological health outcomes

### Residents

A few studies reported on resident-specific psychological outcomes prior to the COVID-19 pandemic, but a greater number of studies focused on psychological outcomes that occurred during the COVID-19 pandemic. Of note, reported outcomes were primarily reported by formal caregivers, informal caregivers, or both and not self-reported by residents. Prior to the COVID-19 pandemic, for example, resident-specific psychological outcomes associated with

**Table 2** Study characteristics

Reference	Country	Relation to pandemic	Study design	Population	N	Intervention
Brannelly et al., 2019 [32]	New Zealand	Before	Qualitative (focus groups)	Informal caregivers Formal caregivers	11	Inclusive care
Dassa, 2018 [27]	Israel	Before	Qualitative (interviews, document review)	Formal caregivers Informal caregivers	3	Personalized music and photographs
Hunter et al., 2020 [22]	Canada	Before	Qualitative (interviews)	Formal caregivers	21	Montessori-based volunteer program
Lignos et al., 2022 [23]	Canada	Before	Mixed methods (surveys, focus groups)	Residents	35	Ambient Activity Technology (ABBY)
Ludlow et al., 2020 [20]	Australia	Before	Mixed methods (interviews, cognitive testing)	Residents	38	Card sorting task
Roberts et al., 2018 [39]	The United States	Before	Mixed methods (surveys)	Informal caregivers	14,797	N/A
Stølen et al., 2021 [25]	Denmark	Before	Qualitative (interviews, observations)	Informal caregivers	50 to 60	N/A
Tasseron-Dries et al., 2021 [31]	The Netherlands	Before	Qualitative (interviews)	Formal caregivers Informal caregivers	43	Namaste Care Family Program
Tsai et al., 2020 [35]	Taiwan	Before	Qualitative (interviews)	Informal caregivers	18	Caregivers present during mealtime
Tsai et al., 2021 [34]	Taiwan	Before	Qualitative (interviews)	Informal caregivers	20	N/A
Wallerstedt et al., 2018 [33]	Sweden	Before	Qualitative (interviews)	Informal caregivers	40	Palliative care education
Backhaus et al., 2021 [28]	The Netherlands	During	Mixed methods (surveys)	Formal caregivers	64	COVID-19 visitation policies
Cohen-Mansfield et al., 2021 [26]	Israel	During	Mixed methods (surveys)	Formal caregivers	52	COVID-19 visitation policies
Feder et al., 2021 [36]	The United States	During	Qualitative (surveys)	Informal caregivers	328	COVID-19 visitation policies
Hindmarch et al., 2021 [21]	Canada	During	Mixed methods (surveys, focus groups)	Informal caregivers	70	COVID-19 visitation policies
McArthur et al., 2021 [24]	Canada	During	Quantitative (administrative data)	Residents	765	COVID-19 visitation policies
Monin et al., 2020 [37]	The United States	During	Quantitative (surveys)	Informal caregivers	161	COVID-19 visitation policies
Nash et al., 2021 [38]	The United States	During	Mixed methods (surveys)	Informal caregivers	512	COVID-19 visitation policies
Prins et al., 2021 [29]	The Netherlands	During	Quantitative (surveys)	Informal caregivers	958	COVID-19 visitation policies
Sizoo et al., 2020 [30]	The Netherlands	During	Qualitative (surveys)	Informal caregivers	76	COVID-19 visitation policies

informal caregiver interventions (i.e., interventions aimed at improving caregiver outcomes) included increased positive emotions, such as enjoyment, excitement, joy, and security [22, 27, 33]. Dassa (2018) reported increased positive emotions among residents after engaging with individualized music and photos presented to them by their caregivers [27], whereas Hunter et al. (2020) reported an increase in residents' positive emotions as the result of a Montessori-based volunteering program for LTC residents [22]. LTC residents also reported feeling more secure when informal caregivers accompanied them to appointments outside of the LTC home

[33]. Informal caregivers also indicated that they believed that caregiver interventions resulted in a slowing of cognitive declines among residents [34].

Once restrictive visitor policies were implemented at the start of the COVID-19 pandemic, most studies began to report on an overall worsening of psychological health for residents. For instance, increased negative emotions, such as boredom, frustration, loneliness, and sadness, were reported [26, 30]. Sizoo et al. (2020), as an example, found that loneliness increased when residents were waiting to receive a palliative designation so that their caregivers could

**Table 3** Impact of caregiving on residents' health

Biological health outcomes	Psychological health outcomes	Social health outcomes
<p>Before the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• N/A</li> </ul> <p>During the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• Increased active movements once restrictions were lifted [28]</li> <li>• Increased rates of morbidity and mortality [26]</li> <li>• Increased somatic symptoms [30]</li> <li>• Worsened overall physical health [21, 26, 30, 38]</li> </ul>	<p>Before the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• Increased positive emotions (i.e., enjoyment, excitement, joy, security; [22, 27, 33])</li> <li>• Slowing of declines in cognitive health [34]</li> </ul> <p>During the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• Decreased likelihood of responsive behaviors [24]</li> <li>• Increased negative emotions (i.e., boredom, frustration, loneliness, sadness; [26, 30])</li> <li>• Increased positive emotions (i.e., calm; [30])</li> <li>• Increased responsive behaviors [21, 24, 26, 30]</li> <li>• Worsened overall mental health [21, 24, 28, 30]</li> <li>• Worsened overall mental health (e.g., depression; [21, 24, 28, 38])</li> </ul>	<p>Before the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• Increased desire for caregivers to be involved in residents' care [20]</li> <li>• Increased feelings of connection between residents and informal caregivers [23]</li> </ul> <p>During the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• Communication technologies were usually beneficial for resident and informal caregiver interactions [26, 37]</li> </ul>

be exempted from visitation policies [30]. Once visitation policies became less restrictive, residents began to report increased positive emotions [28].

Another reported facet of psychological health focused on residents' mental and cognitive health. That is, during the COVID-19 pandemic, residents were observed to experience declines in cognitive health [30], mental health [38], or both [21, 24, 28]. Hindmarch et al.'s (2021) [21] findings were specific to residents living with dementia, whereas Sizoo et al.'s (2020) [30] reported findings were specific to residents living in psychogeriatric units. Furthermore, an increase in responsive behaviors was observed across LTC homes when informal caregivers were unable to visit residents [21, 24, 26, 30]. Some residents living in psychogeriatric units, for example, demonstrated increased aggression and agitation when informal caregiver visitations were restricted [30].

Despite the adverse impacts of restrictive visitation policies, some residents experienced improvements in psychological health during this time. For example, formal caregivers reported that some residents appreciated fewer caregiver visits as this allowed more time to engage in restful activities and design a daily routine that met their needs [26]. McArthur et al. (2021) observed a lower incidence of delirium during visit restrictions for residents living in homes that did not experience a COVID-19 outbreak but were locked down for three months, which the authors attributed to a calmer environment resulting from fewer caregiver visits [24]. When mitigation strategies (e.g., virtual visits, increased student volunteers) were appropriately employed alongside restrictive visitation policies, responsive behaviors did not increase among residents living with dementia [24]. While some residents living in psychogeriatric units experienced rapid cognitive decline, agitation and aggression,

other residents reported feeling calmer during the COVID-19 pandemic due to fewer informal caregiver visits [30].

### Informal caregivers

Some informal caregivers experienced increased negative emotions during the COVID-19 pandemic due to restrictive visiting policies. These negative emotions included anger, concern, distress, fear, frustration, grief, guilt, helplessness, insecurity, sadness, stress, and worry [21, 26, 29, 30, 36, 38]. Although some negative emotions associated with witnessing the effects of living with dementia were reported prior to the COVID-19 pandemic [33], most informal interventions (e.g., personalized care) resulted in increased positive emotions, such as appreciation, calmness, confidence, joy, nostalgia, and satisfaction [32, 33].

### Formal caregivers

For some studies of formal caregivers, increased negative emotions were reported prior to the COVID-19 pandemic when caregiver interventions were introduced, as well as when restrictive visitation policies were introduced during the COVID-19 pandemic. Prior to the COVID-19 pandemic, negative emotions centered on unspoken boundaries and communication gaps [25]; reported negative emotions shifted to anger, frustration, helplessness, and sadness during the COVID-19 pandemic [38]. Positive emotions (e.g., confidence, satisfaction) were noted prior to the COVID-19 pandemic when caregiver interventions were introduced [32]. However, several studies showed that positive emotions were not reported during the COVID-19 pandemic; formal caregivers reported worsened overall mental health [28, 38]. Mental health challenges were reported even after visitation policies were loosened [28].

**Table 4** Impact of caregiving on caregivers' health

Biological health outcomes	Psychological health outcomes	Social health outcomes
<p>Before the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• N/A</li> </ul> <p>During the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• N/A</li> </ul>	<p>Before the COVID-19 pandemic</p> <ul style="list-style-type: none"> <li>• Increased negative emotions due to witnessing the effects of living with dementia [33]</li> <li>• Increased positive emotions (i.e., appreciation, calmness, confidence, joy, nostalgia; satisfaction [32, 33])</li> </ul> <p>During the COVID-19 pandemic</p> <ul style="list-style-type: none"> <li>• Increased negative emotions (i.e., anger, concern, distress, fear, frustration, grief, guilt, helplessness, insecurity, sadness, stress, worry; [21, 26, 29, 30, 36, 38])</li> </ul>	<p>Before the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• Appreciation for open and honest dialog with formal caregivers [25, 31, 33, 39]</li> <li>• High trust in ability of formal caregivers to provide residents with acute care [33]</li> <li>• Low trust in ability of formal caregivers to provide residents with personalized care [23, 25, 33, 34, 39]</li> <li>• Perceived lack of communication with formal caregivers resulted in feeling uncertain, uninformed, and unwelcome [25, 31]</li> </ul> <p>During the COVID-19 pandemic:</p> <ul style="list-style-type: none"> <li>• Communication technologies were usually beneficial for resident and informal caregiver interactions if supported by infrastructure and resources [21, 26, 36, 37]</li> <li>• Perceived high-quality communication with formal caregivers resulted in feeling informed [36]</li> </ul>

## Social health outcomes

### Residents

Prior to the COVID-19 pandemic, residents reported several benefits to informal caregiver interventions. Recognizing that residents' health status depended on formal and informal caregivers, for example, residents were in favor of providing caregivers with information regarding their health status [20]. In one study, LTC residents living with dementia demonstrated an improved connection with informal caregivers when a relevant memory was activated through personalized photos and songs [23]. During the COVID-19 pandemic, social health outcomes among residents focused on the effect of communication technology use. That is, communication with informal caregivers using email and video calls reduced negative emotions and increased positive emotions [26, 37]; in contrast, hand-written letters from informal caregivers were associated with increased negative emotions [37].

### Informal caregivers

During the COVID-19 pandemic, a variety of interventions involving communication technologies (e.g., video calls) were implemented. For the most part, the adoption of these technologies resulted in improved communication between informal caregivers and residents [21, 26, 36, 37], but this impact was found to be dependent upon the availability of communication technologies within the LTC home [36]. For example, Hindmarch et al. (2021) found that, due to a lack of infrastructure and resources, communication technologies were only a positive social experience for a few, but not all, of the informal caregivers interacting with residents living with dementia [21]. Informal caregivers who reported high-quality communication with formal caregivers felt more informed regarding resident well-being, whereas those who reported low-quality communication perceived insufficient access to and low-quality relationships with formal caregivers [36].

Prior to the COVID-19 pandemic, caregiving interventions were found to significantly impact caregivers' relationships with care workers. For instance, a perceived lack of communication between formal and informal caregivers led some informal caregivers to feel unwelcome, unsure if formal caregivers approved of their actions, and inadequately informed about their role in resident care [25, 31]. Caregivers expressed appreciation for open and honest dialog from formal caregivers about resident health status and needs [25, 31, 33, 39]. Finally, while informal caregivers trusted that formal caregivers could provide residents with acute care [33], they had much less trust

**Table 5** Impact of caregiving on care workers' health

Biological health outcomes	Psychological health outcomes	Social health outcomes
Before the COVID-19 pandemic: • N/A During the COVID-19 pandemic: • N/A	Before the COVID-19 pandemic: • Increased negative emotions (i.e., insufficient [25]) • Increased positive emotions (i.e., confidence, satisfaction [32]) During the COVID-19 pandemic: • Increased negative emotions (i.e., anger, frustration, helplessness, sadness; [38]) • Worsened overall mental health [28, 38]	Before the COVID-19 pandemic: • Increased communication between formal and informal caregivers about resident needs [22, 32] • Negative perceptions of informal caregivers (i.e., [23, 25, 31]) • Positive perceptions of informal caregivers (i.e., helpful, respectful, unintrusive; [22]) During the COVID-19 pandemic: • Fewer social opportunities at work [28]

in their ability to provide residents with personalized care [23, 25, 33, 35, 39].

### Formal caregivers

During the COVID-19 pandemic, few socially based health outcomes for formal caregivers were reported. In one study, formal caregivers reported fewer opportunities for social activities at work; notably, reports of fewer opportunities for social activities continued after COVID-19 visitation policies were eased and workload (presumably) decreased [28]. For formal caregivers, health outcomes within the social realm were more often reported prior to the COVID-19 pandemic. For example, Brannelly et al. (2017) found a more inclusive approach to care resulted in reports of care workers having increased social discussions regarding resident needs with informal caregivers [32]. Another study found that formal caregivers were initially unsure of a volunteer-based Montessori program but gained confidence in the program once they had positive social interactions with informal caregivers [22]. Following these positive social interactions, care workers reported that caregivers were respectful, helpful, and non-intrusive of their workload [22]. Despite a slight increase in the workload of care workers prior to the COVID-19 pandemic, the implementation of a technology-based personalized media intervention increased the ability of formal caregivers to connect with informal caregivers in a more meaningful manner [23]. Conversely, some studies reported care workers were sometimes frustrated with activities planned by caregivers due to formal caregivers' beliefs that caregiver-planned activities were not in line with the resident's best interest (e.g., overwhelming to the resident [25]). According to one study, formal caregivers sometimes felt informal caregivers could provide additional care for a greater number of residents to assist with the workloads of formal caregivers [31].

### Discussion

Following the steps of a scoping review methodology (Table 6), our scoping review provides an overview of research conducted over the previous seven years on caregiving within LTC homes and its associated impact on resident, formal and informal caregiver health outcomes. Results from this scoping review suggest that, prior to the COVID-19 pandemic, caregiver interventions, for the most part, resulted in improved psychological and social health outcomes for residents, informal caregivers, and formal caregivers. With few exceptions, review findings indicate that restrictive visitation policies implemented during the COVID-19 pandemic resulted in declines in biological, psychological, and social health outcomes for residents. During this time, declines in psychological and social health outcomes were also reported for formal and informal caregivers.

The COVID-19 pandemic clearly revealed the complex interplay between biological, psychological, and social factors on health-related outcomes [17]. Extant research has suggested that residents faced a snowballing of risk which arose from increased potential for serious illness or death from COVID-19 associated with hazardous confined and communal living standards [7, 40]. Research also suggests that the relationship between residents and informal caregivers is essential in supporting residents' health and preventing feelings of loss and separation [13, 41–44]. Most of the studies in our scoping review reported residents experienced health declines when informal caregivers were unable to visit.

For formal caregivers, a magnification of stress-inducing circumstances arose from COVID-19 public health measures, including burnout, emotional strain, lack of organizational communication, and formal caregiver shortages [5, 45, 46]. Caregiver access was abruptly halted in LTC settings at the onset of the COVID-19 pandemic and during subsequent outbreaks [9, 14, 40], and the lack of informal caregivers in LTC homes during the COVID-19



**Table 6** Preferred reporting items for systematic reviews and meta-analyses extension for scoping reviews (PRISMA-ScR) checklist

Section	Item	Prisma-ScR checklist item	Reported on page #
Title			
Title	1	Identify the report as a scoping review	1
Abstract			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives	2
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach	3–4
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives	4
Methods			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number	N/A
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale	4–5
Information sources	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed	4–5
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated	5
Selection of sources of evidence	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review	5
Data charting process	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators	5–6
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made	5–6
Critical appraisal of individual sources of evidence	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate)	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted	6
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram	6
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations	6–8
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12)	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives	8–14
Synthesis of results	18	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives	8–14

**Table 6** (continued)

Section	Item	Prisma-ScR checklist item	Reported on page #
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups	14–16
Limitations	20	Discuss the limitations of the scoping review process	16
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps	16–17
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review	18

pandemic amplified these stress-inducing circumstances for formal caregivers [47]. Despite the unique conditions that the COVID-19 pandemic and corresponding restrictive visitation policies placed upon formal caregivers, our scoping review only identified two studies focused on formal caregiver health outcomes during this time. Of note, Backhaus et al. (2021) [28] found that formal caregiver experienced prolonged adverse psychological outcomes once visitation policies were loosened. This suggests that the changes observed in formal caregivers' stress levels were not solely due to pre-existing conditions, implying that the COVID-19 restrictions had a significant impact on formal caregivers, creating a temporary alleviation of some stress factors which re-emerged or worsened when restrictions were lifted. This could be owed to sudden increases in workload and emotional demands as formal caregivers had to readjust to the presence of visitors and increased burden of responsibilities. This reflects pre-existing and ongoing structural and systemic challenges within the Canadian long-term care sector, such as high workplace demand and low job satisfaction [48].

In contrast, restrictions in visitation policies have shown some positive effects among residents within psychogeriatric units. Some residents experienced peace in the care units due to fewer visits [30]. This could be owed to reduced external stimuli and potential stressors, creating a calm environment that promotes emotional and psychological well-being of individuals. This shift may also inadvertently foster more predictable routines and focused attention from caregivers, which may support residents' sense of stability.

Informal caregivers have reported negative sentiments, including anger, distress, frustration, and helplessness, during the COVID-19 pandemic [21, 26, 29, 30, 36, 38]. Some of these negative emotions were associated with witnessing the effects of living with dementia. However, caregiver interventions, such as personalized care, have been shown to result in positive emotions and satisfaction [32, 33]. This

reflects a complex interplay of short-term and long-term emotional changes experienced by the residents. This suggests a need to explore and address emotional well-being not only during crisis situations like pandemics, but also in a post-pandemic context.

Our review found that communication between informal caregivers and residents through email and video calls reduced negative emotions and increased positive emotions, whereas hand-written letters from informal caregivers were associated with increased negative emotions [26, 37]. This finding highlights the role of emotional impact in communication, wherein immediacy, interactivity and active engagement provide a stronger sense of connection, and thus an effective emotional support. Lack of feedback and the absence of non-verbal cues associated with hand-written letters may hinder emotional connectivity, reducing positive emotional outcomes. Mediums to communicate between residents and caregivers confer a critical consideration in enhancing emotional well-being in caregiving relationships.

While previous research suggests that caregivers may experience adverse biological health outcomes from their role (e.g., injuries, pain, strain [18]), we did not identify any studies reporting on the biological health of informal caregivers during the COVID-19 pandemic. From the social standpoint, caregiving can also result in role conflict, strained relationships with family and peers, and pressure to manage multiple time constraints [49]. Our scoping review findings, however, did not find reports of similar social health outcomes during the COVID-19 pandemic as findings focused instead on the role of communication technologies. Finally, caregivers are at higher risk relative to non-caregivers of experiencing adverse psychological outcomes such as loneliness [18, 50].

Despite variations in methodologies and contexts providing distinct circumstances with notable effects, comparing associations between caregiving and resident, formal and informal caregiver health in LTC before and during the

COVID-19 pandemic has been shown to be a challenge. The COVID-19 pandemic introduced unprecedented changes, including the mandatory use of masks, limited social interaction even with care facilities, and increased stress among formal and informal caregivers, as well as the general population. However, the lack of longitudinal studies prevents the possibility of drawing meaningful conclusions.

### Limitations and directions for future research

Our scoping review was aimed at gathering empirical evidence regarding caregiving in LTC settings. Given that the review was limited to studies published in English between 2015 and 2022, it is likely that we did not capture key studies published in another language or outside of this period. Additional comprehensive reviews that include studies published in languages other than English outside of our specified timeframe are therefore warranted. Future systematic reviews should evaluate the quality of eligible studies to determine whether interpretations are well-supported by the provided evidence and examine the effectiveness of identified interventions. The findings from this scoping review also highlight shortcomings in the available literature. In particular, a lack of studies examining caregiving in the context of biological and social health outcomes and, in particular, health outcomes during the COVID-19 pandemic were identified.

### Conclusion

Although the role of caregiving is increasingly emphasized within the LTC sector since the COVID-19 pandemic, our scoping review reveals that the LTC sector still requires further infrastructure and resources to better support caregiving. Based on our scoping review findings, we offer suggestions for researchers, policymakers, and practitioners working within the LTC sector.

1. Establish and communicate expectations regarding the roles and responsibilities of informal caregivers to ensure that they best complement the established roles and responsibilities of formal caregivers.
2. Establish comprehensive jurisdictional policies for caregiving that include support for informal caregivers in maintaining their role as caregivers once residents are admitted (e.g., work-based accommodations) and ensuring continuity of their role during health emergencies (e.g., alternate means of visiting).
3. Ensure adequate provision of infrastructure (e.g., internet access), resources (e.g., devices), and training (e.g., digital literacy) for all residents and their informal car-

egivers to access communication technologies (e.g., video calls) as needed.

4. Provide ongoing support for residents, formal and informal caregivers during periods of transition following changes in visitation policies to allow all parties to adjust to the new circumstances using individualized approaches to the resident's needs, values, and preferences.
5. Develop programs that connect informal and formal caregivers in a way that strengthens shared understandings of residents' challenges, experiences, needs, and preferences.
6. Engage formal caregivers to perform regular wellness checks for long-term care residents, formal and informal caregivers to improve the home's atmosphere and the relationships within it.

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**Data availability** Data acquired, analyzed, and interpreted are publicly available.

### Declarations

**Conflicts of interest** There are no conflicts of interest to report.

**Ethical approval** Not required.

**Consent to participate** Not applicable.

**Consent for publication** Not applicable.

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