



# Barriers, facilitators, and motives to provide distance care, and the consequences for distance caregivers: A mixed-methods systematic review

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## ABSTRACT

**Rationale:** Distance caregivers (DCGs) are a growing population with substantial contributions to informal care. While much is known about the provision of local informal care, evidence from the distance caregiving population is lacking. **Objective:** This mixed-method systematic review examines barriers and facilitators of distance caregiving, determinants of motivations and willingness to provide distance care, and the impact on caregiver outcomes.

**Methods:** A comprehensive search strategy was conducted in four electronic databases and grey literature to minimise potential publication bias. Thirty-four studies, including 15 quantitative, 15 qualitative, and 4 mixed-method studies were identified. Data synthesis involved a convergent integrated approach to integrate quantitative with qualitative findings, followed by thematic synthesis to identify key themes and subthemes.

**Results:** Barriers and facilitators of providing distance care included contextual and socioeconomic aspects of geographic distance, communication and information resources, and local support networks that shaped the distance caregiver role and caregiver involvement. The main motives for caregiving given by DCGs were cultural values and beliefs, societal norms, and perceived expectations of caregiving encompassing the sociocultural context of the caregiving role. Interpersonal relationships and individual characteristics further shaped DCGs' motivations and willingness to care from a geographic distance. DCGs experienced both positive and negative outcomes as a result of their distance caretaking responsibilities including feelings of satisfaction, personal growth, and enhanced relationship with the care recipient but also high levels of caregiver burden, social isolation, emotional distress, and anxiety.

**Conclusions:** The reviewed evidence contributes toward novel understandings about the unique nature of distance care and have important implications for research, policy, healthcare, and social practice.

## 1. Introduction

Demographic and social changes such as increased societal mobility and population migration, gendered roles within society and workplace globalization, have affected the traditional patterns of providing informal care (Baldassar et al., 2006; Bei et al., 2020). Approximately 15%–20% of all informal caregivers, most of them adult children of aging parents, provide care from a geographic distance (Douglas et al., 2016). There is no consensus on how to best define distance care (Bevan and Sparks, 2011; Cagle and Munn, 2012). Most research to date has used mileage or travel time categories to measure the geographic

distance between caregivers and their care recipient and define Distance caregivers (DCGs) (Bevan and Sparks, 2011; Cagle and Munn, 2012). Overall, travel time and space along with several other socioeconomic factors which are confounded with distance, such as travel costs and access to transportation, will influence distance caregiving—in its existence as well as in its extent.

DCGs engage in many activities to support the needs of their care recipient, including the provision of emotional, financial, and social support, care management and performance of practical and nursing tasks when visiting their loved one (Bevan and Sparks, 2011; Cagle and Munn, 2012). Notably, nearly three-quarters of DCGs assist with

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instrumental activities of daily living (IADLs), such as managing medications, arranging transportation, doing housework, and orchestrating care (Bevan and Sparks, 2011). Providing care from afar, however, can be challenging, and several factors shape the nature of distance care and distance caretaking activities. For example, to facilitate distance care and monitor the healthcare of their loved one DCGs often must rely on local support from nearby family, friends, or formal care services (Bevan and Sparks, 2011).

Previous systematic reviews on general caregiving populations have identified multiple- and often-interrelated determinants of what motivates and makes caregivers willing to care (Greenwood and Smith, 2019; Zarzycki et al., 2022a). Informal care is likely to be intrinsically motivated, shaped by an internal desire to care for a loved one, and/or extrinsically motivated, shaped by sociocultural norms and values to care (Greenwood and Smith, 2019; Zarzycki et al., 2022a). DCGs may report different motives to care associated with their geographic and spatial distance from the care recipient. A previous study found that DCGs experienced a range of emotions, from guilt to excessive worrying about not being physically present to fulfil their filial duties towards their elderly parents completely (Amin and Ingman, 2014). Although geographic distance limited those carers from providing hands-on care daily, guilty feelings due to their physical absence worked as a motive to provide adequate care, albeit from afar (Amin and Ingman, 2014).

Additionally, reviews on local caregiving samples or samples simply classified as co-resident or non-co-resident, suggest that caregivers often experience negative outcomes as a result of their caretaking responsibilities, including high levels of burden, increased symptoms of anxiety and depression, and poor physical health (Allen et al., 2017; Chiao et al., 2015; Geng et al., 2018; Loh et al., 2017; Pinguart and Sørensen, 2003; Vitaliano et al., 2003). Experiencing the added challenges associated with caring from a distance, DCGs may be at higher risk of poor mental and physical health, as suggested in the findings of Li et al. (2019) who found that adult children who live more than half an hour away from their aging parents, reported higher levels of depression than co-residing caregivers. Another study revealed that eldercare from a distance interfered with DCGs' social and family life, causing emotional stress and burden (Koerin and Harrigan, 2003). When asked what was their biggest difficulty as a caregiver, most participants cited difficulties related to the distance from the care recipient, followed by the emotional strain of watching the deterioration of their loved one while being afar (Koerin and Harrigan, 2003).

DCGs are a unique caregiving subpopulation who make a substantial contribution to informal care, however, to the best of our knowledge, no review has previously systematically evaluated and synthesised evidence of the determinants (barriers and facilitators) of the DCGs' role, their motivations to provide distance care, and the impact of that care on their mental and physical health. Previous reviews have mainly focused on local caregivers, excluding the distance caregiving population (Romero-Moreno et al., 2011; Quinn et al., 2010). In addition, past reviews of distance caregiving have been limited to evaluating evidence of the phenomenon of distance care in general, focusing on the definition and sociodemographic characteristics of DCGs and describing only briefly the benefits and costs of such a role (Bledsoe et al., 2010; Cagle and Munn, 2012). Other reviews have exclusively focused on distance caregiving for patients with advanced cancer without exploring distance care concerning other health conditions with different care needs or demands (Douglas et al., 2016); or on the availability of technology-based and eHealth interventions to support DCGs (Benefield and Beck, 2007). This systematic review seeks to highlight where research gaps or consensus in knowledge exist in order to guide further research that will aid the development of geographically appropriate interventions. If this is achieved, the sustainability of distance care will be enhanced. Therefore, this review will.

1. Identify, synthesize, and critically appraise the evidence of the barriers and facilitators to distance care that shape the distance caregiving role and tasks.
2. Synthesize and critique the evidence of the determinants of motivations and willingness to care from a geographic distance.
3. Synthesize and critique the evidence of the impact of distance care on caregiver psychosocial and health outcomes.

## 2. Methods

A systematic review protocol was registered on PROSPERO (CRD42020156350) and published to *BMJ Open* (Bei et al., 2021). The review was conducted in accordance to the recommendations of the Preferred Items for Reporting of Systematic Reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021) and the Joanna Briggs Institute (JBI) Methodology for Mixed-Method Systematic Reviews (Lizarondo et al., 2020), and was further informed by Johnson and Hennessy's recent article on best practice methods for research syntheses (2019). The PRISMA checklist is available in [Supplementary Table 1 \(Table S1\)](#).

### 2.1. Eligibility criteria

Eligible studies for inclusion were peer-reviewed studies or unpublished studies such as doctoral theses to avoid publication bias. Studies reporting on quantitative data (analytical observational and descriptive observational studies), qualitative data, and mixed-method study designs were included. No date restrictions were applied but due to resource limitations, studies had to be published in English.

Study participants were adult DCGs (aged 18 and above) of adult family members or friends with care needs. The definition of distance care by Parker et al. (2006) was used and adapted for the purposes of the review, and a DCG was defined as.

- 1) Anyone who provides informal, unpaid care to a relative or friend with a chronic illness, disability, or frailty that limits independence and necessitates assistance;
- 2) and who lives at a geographic distance from the care recipient and may experience caregiving complications as determined by distance, travel time, travel costs, personal mobility problems, limited transportation, or other related factors that affect the caregiver's access to the care recipient.

Care recipient's health conditions included any chronic illness and disability (e.g., cancer, dementia, cardiovascular disease) or general frailty. Studies focusing on young DCGs (under 18 years old) or DCGs of children and adolescents were not eligible, as young caregiving and care-receiving experiences are associated with additional demands and burdens (Rubira et al., 2012; Shifren, 2009).

### 2.2. Search strategy and data sources

The search strategy was developed using key terms on distance caregiving, motives and willingness to provide distance care and distance caregiver outcomes. A variation of Medical Subject Headings (MeSH) and free-text terms were applied. Included terms were also informed by past reviews focusing on the distance caregiving population (Bledsoe et al., 2010; Douglas et al., 2016). Electronic bibliographic databases including the Cumulative Index to Nursing and Allied Health Literature (CINAHL) MEDLINE, PubMed and PsycINFO were searched without limits on publication date from database inception through October 25, 2022. An example of the search strategy string terms used for PubMed database is available in [Table S2](#). A detailed search on grey literature, including the OpenGrey (<http://www.opengrey.eu/>) and Electronic Theses Online Service (ETHOS; <https://ethos.bl.uk/>) databases, was also conducted to maximise our access to potentially relevant studies and reduce publication bias. The reference lists of all studies

included were screened to identify additional citations of interest.

### 2.3. Review process

The titles and abstracts of identified texts from database searches were first assessed by the principal researcher (EB). Once narrowed down by abstracts, a full-text review process was completed in duplicate by two independent reviewers (EB, MZ), for studies that met the eligibility criteria at screening and studies with unclear relevance. A third independent author (EB) was consulted to resolve any discrepancies that arose between the two reviewers during the full-text screening process. Additional records identified from searches of grey literature and reference lists were also assessed in detail against the eligibility criteria by the principal researcher (EB).

### 2.4. Data extraction

Study information was extracted by the included studies using the JBI mixed-method data extraction tool, as adapted and modified for the purposes of our review (Table S3). One reviewer (EB) completed the data extraction process in full. A second reviewer (MZ) independently extracted data for accuracy, employing double-coding of 80% of the included studies. The following items were recorded from each study: study identification features; aims and objectives; study methods; population characteristics; phenomena of interest; context-related information; main study findings and relevant outcomes. Extracted information varied across different study designs.

### 2.5. Quality assessment

A quality assessment of the included studies was conducted in duplicate by two independent reviewers (EB, MZ), using the Mixed Methods Appraisal Tool (MMAT) version 2018 (Hong et al., 2018). The MMAT is a quality appraisal instrument for mixed-method reviews, content validated and piloted across all methodologies. The tool consists of two screening questions followed by five criteria for appraising each study design. For mixed-method studies three sets of items are assessed: the qualitative, the quantitative and the mixed-method set. According to the tool, the quality of the qualitative and quantitative components should be individually assessed to appraise criterion 5.5 in the mixed-method set. For all studies, total scores were calculated by dividing the number of MMAT criteria met by 5 and could range between 0% (no quality), 20% (very low quality), 40% (low quality), 60% (moderate quality), 80% (good quality), and 100% (very high quality). For all three sets, each item was rated on a categorical scale (yes, no, and cannot tell). The number of items rated “yes” was counted to provide the overall score.

### 2.6. Data synthesis

Data synthesis involved a convergent integrated approach as per JBI methodology for conducting a mixed-method review (Lizarondo et al., 2020). This approach provided a structured way to identify key themes and subthemes across different types of studies. In the first part, extracted data from quantitative studies were converted into “qualitised data” to allow integration with qualitative data. This involved transforming the quantitative findings and numerical data into textual descriptions and narrative interpretations. In the second part, a thematic analysis was conducted as a method of integration where the “qualitised” data were assembled and pooled with the results of the qualitative studies to identify themes and subthemes based on similarity. Extracted data of the included studies were coded, with codes then grouped to generate themes and subthemes based on similar meanings and produce a set of integrated findings for each of the three review objectives.

## 3. Results

### 3.1. Search results

Fig. 1 summarizes the selection process. Our searches yielded 9602 citations in total. After removal of the duplicate studies ( $n = 989$ ), 8613 titles and abstracts were screened. Following exclusions ( $n = 8542$ ), 71 full-text reports were reviewed for final detailed eligibility checks. The study selection process resulted in 30 studies and four doctorate theses that met the eligibility criteria ( $n = 34$ ; Table 1 and Supplementary Material 4; S4). The grey literature search did not result in any additional reports.

Table 1 briefly summarizes the characteristics of the selected studies with reference numbers used within the Results section for each included study. All studies were published between 1988 and 2022. Studies presented a variety of designs, including 15 quantitative studies of which nine were cross-sectional (4–6, 17, 24–27, 32) and six were secondary data analyses (8, 15, 19, 21–22, 28); 15 qualitative studies (1–3, 9–11, 13–14, 16, 18, 20, 29, 31, 33–34); and four mixed-method studies (7, 12, 23, 30). By location, the majority of studies were conducted in the US ( $n = 21$ ), followed by Australia ( $n = 3$ ; 2–3, 13), Canada ( $n = 3$ ; 15, 16, 22), Finland ( $n = 2$ ; 31, 34), the UK ( $n = 2$ ; 32–33), China ( $n = 1$ ; 21), Israel ( $n = 1$ ; 4), and Sweden ( $n = 1$ ; 10).

### 3.2. Participants

Sample sizes ranged from 3 to 2881. In total, across the 34 studies, there were over 11,400 participants. Fourteen studies recruited caregivers of different geographic proximities, including co-residents and local caregivers (4, 7–10, 15, 21–22, 23, 25–27, 31–32). Seven studies used nationwide caregiving samples (8, 15, 22, 24–27). One study was published in two reports (5–6) and another recruited both DCGs and their care recipient (9). Sample size was not reported in one study (2).

In all studies, the majority of DCGs cared for a biological parent or a parent-in-law. Mean age of DCGs ranged from 34 to 66 years. Age was not reported in five studies (2–3, 11, 15–16). In most studies, participants were exclusively or predominantly White. Two studies recruited exclusively Ghanaian caregivers (17–18), three studies Asian caregivers (1, 20–21) and one Israeli caregivers (4). Ethnic composition was not reported in five studies (11, 15, 22, 28, 32). As per gender distributions, the majority of samples comprised over 50% female DCGs. Five studies recruited exclusively female caregivers (9, 14, 16, 31, 34), one study male caregivers (28), and two more male than female caregivers (20, 24). Gender was not reported in one study (2).

With regard to the care recipient’s condition, the majority of the study samples provided care to an aging parent or parent-in-law in need of care. In three of the nationwide studies, old age and dementia emerged as the top two conditions or illnesses for which the care recipient needed care (25–27). Two studies focused exclusively on DCGs of individuals with dementia (11, 32), two on advanced cancer (7, 23), and one on terminal illness (14).

### 3.3. Geographic proximity to the care recipient

The majority of studies assessed geographic proximity using travel time ( $n = 18$ ; 4, 8, 9, 11–12, 14–15, 19, 21–22, 24–28, 32–34), or mileage/kilometres ( $n = 8$ ; 5–6, 10, 13, 23, 29–31). For transnational caregiving, geographic proximity was simply assessed based on living in another country from that of the care recipient ( $n = 7$ ; 1–3, 17–18, 20, 34). One study assessed proximities by recruiting DCGs who reside in a different city from that of their CRs (16). The operational definition of distance caregiving differed significantly among studies. Researchers used a wide range of different terms including DCGs, Long Distance Caregivers (LDCs) and translational caregivers, depending on the way they assessed and categorised geographic and spatial proximities.

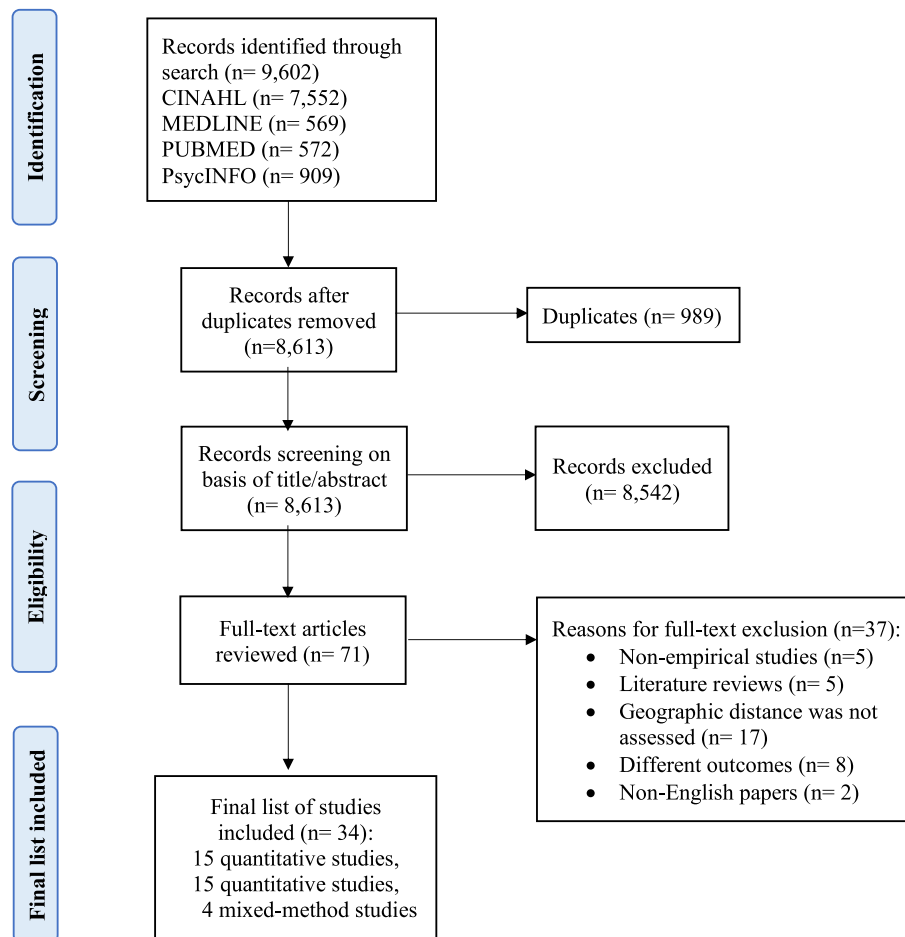


Fig. 1. PRISMA flow diagram of study selection.

### 3.4. Methodological quality of the studies

The methodological quality assessment of the included studies using the MMAT is given in Tables S4–S6 and more details are depicted in Table S7. The majority of studies ( $n = 27$ , 79%) obtained MMAT scores ranging from good to high quality. Of the 15 qualitative studies, eleven were rated as high quality (74%), two as good quality (13%; 16, 34) and two as moderate quality (13%; 2–3). The items most frequently scored negatively (“No”) or considered unclear (“Cannot tell”) were those referring to the data analysis used ( $n = 4$ , criterion 1.3; 2–3, 16, 34), and the coherence between qualitative data sources, collection, analysis and interpretation ( $n = 2$ , criterion 1.5; 2–3).

Most quantitative studies obtained an excellent score ( $n = 12$ , 80%). One study received a designation of good quality, as criterion 4.5 on the statistical analysis used was rated unclear ( $n = 7\%$ ; 25). Two of the 15 quantitative studies (13%) were evaluated as moderate (19, 32). In one of these studies, authors did not provide sufficient information on the nonresponse bias (criterion 4.4.) and the statistical analysis conducted to address the research questions (criterion 4.5; 19). In the second study, authors did not provide detailed information on the measurements used (criterion 3.2) and the confounders accounted for in the design and analysis (criterion 3.4; 32).

Finally, of the four mixed-method studies only one met all quality appraisal criteria and received a designation of high quality (23). The remaining three met partial criteria and received a designation of moderate (7, 12) and low quality respectively (30). In two studies, the items referring to the integration (criterion 5.2) and interpretation of quantitative and qualitative components (criterion 5.3) scored negatively (7, 30). In Falzarano et al. (2022; 12), criterion 5.4 referring to the

inconsistencies between qualitative and quantitative findings, also scored negatively. In Falzarano et al. (2022; 12) and Schoonover (1988; 30), criterion 5.5 which refers to the individual appraisal of the quantitative and qualitative methods involved, received a negative score.

### 3.5. Thematic synthesis

Following thematic analysis and synthesis, three broad analytic themes were identified for the barriers and facilitators to distance caregiving, the motives and willingness to provide distance care and the distance caregiver outcomes.

#### 3.6. Theme 1: what do they do? And what holds them back? Barriers and facilitators to distance care

Theme 1 describes a number of societal factors which are confounded with spatial and geographic distances and shape the nature of distance care and the distance caretaking responsibilities and tasks. The theme incorporates seven descriptive subthemes: travel time and distance; economic resources; social policies and travel restrictions; communication technologies; information received; local siblings and inter-sibling relationships; and local friends & neighbours.

##### 3.6.1. Travel time and distance

Geographic distances and travel time to the care recipient’s home were identified as key determinants to distance care and caregiver involvement (1–3, 7–8, 11, 13–16, 19–21, 23–31, 34). For most DCGs, the time needed to reach the care recipient’s home and the modes of transport available determined their availability to care and the

**Table 1**

Brief Summary of Studies in the Systematic Review (numbers are used in the Results section to reference particular studies).

Number	Study	Methods	Location	Sample Size (N)	Measures of Geographic Distance
1	Amin and Ingman (2014)	Qualitative	USA	21	Transnational distance caregiving
2	Baldassar (2007)	Qualitative	Australia	NA	Transnational distance caregiving
3	Baldock (2000)	Qualitative	Australia	12	Transnational distance caregiving
4	Bei et al. (2022)	Quantitative	Israel	162	Travel time
5	Bevan et al.a (2012)	Quantitative	USA	130	Mileage
6	Bevan et al.b (2012)	Quantitative	USA	137	Mileage
7	Cagle (2008)	Mixed-Methods	USA	106	Travel time
8	Chou et al. (2001)	Quantitative	USA	1509	Travel time
9	Donorfio and Kellett (2006)	Qualitative	USA	11	Travel time
10	Dunér (2010)	Qualitative	Sweden	16	Kilometres
11	Edwards (2014)	Qualitative	USA	10	Travel time
12	Falzarano et al. (2022)	Mixed-Methods	USA	296	Travel time
13	Gunn et al. (2021)	Qualitative	Australia	13	Kilometres
14	Herman (1994)	Qualitative	USA	3	Travel time
15	Joseph and Hallman (1998)	Quantitative	Canada	1149	Travel time
16	Joseph et al. (2007)	Qualitative	Canada	9	Different cities
17	Kodwo (2009)	Quantitative	USA	124	Transnational distance caregiving
18	Kodwo-Nyameazea and Nguyen (2008)	Qualitative	USA	5	Transnational distance caregiving
19	Koerin and Harrigan (2003)	Quantitative	USA	109	Travel time
20	Lee et al. (2015)	Qualitative	USA	21	Transnational distance caregiving
21	Li et al. (2019)	Quantitative	China	557	Travel time
22	Li and Wister (2021)	Quantitative	Canada	2881	Travel time
23	Mazanec (2009)	Mixed-Methods	USA	80	Mileage
24	MetLife & NAC (2004)	Quantitative	USA	1130	Travel time
25	NAC & AARP (2004)	Quantitative	USA	1247	Travel time
26	NAC & AARP (2009)	Quantitative	USA	1480	Travel time
27	NAC & AARP (2015)	Quantitative	USA	1248	Travel time
28	Parker et al. (2002)	Quantitative	USA	277	Travel time
29	Roff et al. (2007)	Qualitative	USA	22	Mileage
30	Schonoover et al. (1988)	Mixed-Methods	USA	55	Mileage
31	Sihto (2018)	Qualitative	Finland	12	Kilometres
32	Thompson and Lovestone (2002)	Quantitative	UK	64	Travel time
33	White et al. (2020)	Qualitative	UK	128	Travel time
34	Zechner (2008)	Qualitative	Finland	5	Transnational distance caregiving

Note. Tables S4–S6 (online supplementary documents) provide the complete details recorded for all studies. NA = Not Available.

frequency of visiting their loved one. Longer travel times and limited transport options usually meant both fewer visits and caretaking activities that involve face-to-face interaction and physical contact with the care recipient (e.g., instrumental and nursing tasks; 1–3, 7–8, 11–21, 23–27, 31). Because DCGs were unable to provide direct care regularly, they put most of their efforts to provide emotional and financial support and arrange the care of their loved one. This was particularly evident in transnational distance caregiving, where air -usually- travel was more time-consuming (e.g., 33 h of travelling), expensive, and involved crossing the national borders (1–3, 17–18, 20, 34).

### 3.6.2. Economic resources

Access to resources, particularly finances, had a significant impact on the capacity to care from a geographic distance (1–3, 7–8, 11, 14, 16–20, 23–24, 34). Unlike local caregivers, DCGs had to organize and make several trips to provide direct hands-on care and meet the care-receiving needs of their loved one. Travel expenses were reported by several participants as a source of financial strain, particularly those more distant and transnational DCGs (1–3, 11, 17–18, 34). For several DCGs, especially those reporting in earlier decades, financial struggles had also a negative impact on the emotional support provided and contact with their elderly parents, due to the economic costs of long-distance calling (1–3, 16, 34).

In addition, most DCGs contributed financially to their parents' care, typically coordinating and supporting the healthcare and paid care services of their loved one and sending financial support (1–2, 7–8, 11, 13, 16–20, 23–27). Financial strain was intensified in situations where DCGs also dealt with job insecurity, low income, limited vacation time for visiting their loved one, and uncertainties related to their working or immigration status (e.g., Asian H1B migrant workers in the US), and in some cases limited the capacity to provide financial support to their loved one (2–3, 16–20, 24–27, 34).

### 3.6.3. Social policies and travel restrictions

Many transnational DCGs described inadequate social and government policies of the immigration country, that restricted travelling back home and shaped caring practices across nations (2, 20, 34). Travel restrictions arose from social and immigration policies that created uncertainty associated with DCGs' visa status; complicated and expensive processes of visa application and renewal; absence of dual citizenship rights; and fear of becoming unemployed due to possible refusal of re-entry to immigration country because of the return visits back home (2, 20). Other reasons included losing income support benefits or unemployment allowance, in immigration countries where travelling abroad should not exceed a few working days (34); the rationale behind this was usually to avoid providing benefits to individuals who reside outside of the country (34). The lack of institutional support limited return visits and hindered face-to-face care activities (2, 20, 34). Notwithstanding these challenges, transnational DCGs still continued to provide elder care mainly through regular communications, financial remittances and occasional return visits where possible (2, 20, 34).

### 3.6.4. Communication technologies

Previous generations of DCGs (1970s, 1980s) experienced difficulties at maintaining regular contacts with their aging parents, due to the limited and expensive communication technologies of the time (e.g., international phone calling; 2–3). Despite their willingness to stay in close contact with their loved one, DCGs often had only one way of contacting them, through letters which harmed the provision of emotional support, monitoring and coordination of care, and resulted in inadequate (time-lagged) access to key information about the care recipient's health (2–3).

With the recent rise of communication technologies, the nature of distance caregiving has significantly transformed. Newer generations of DCGs reported using various forms of communication technologies to

stay close with their care recipient, making regular phone calls and utilizing email, mobile text messages and visual communication technologies such as Skype (1–2, 7, 13, 11, 14, 16–18, 20, 23, 28–29, 31, 33–34). Access to communication technologies improved the provision of emotional support and further helped DCGs to overcome obstacles created in the past by distance (1–2, 11, 14, 17–19, 20, 23, 28–29, 31, 33–34). Using communication technologies, DCGs were also able to access information regarding the care recipient's health status, monitor and coordinate care services and work together with their siblings to meet the needs of their loved one (1, 11, 13, 16–18, 20, 23, 33–34). Yet, in some cases, barriers to the use of technologies were also identified in younger generations and harmed distance care provision (33). For instance, some participants reported that their significant other was unwilling or unable to use technologies (33). Hearing problems could impede communication and contact by phone whereas the adoption of technologies could be also prevented or made more difficult by memory loss (33).

### 3.6.5. Information received

Being adequately informed about the care recipient's needs and condition promptly increased DCGs' confidence that they were contributing to their loved one's care appropriately and responsively (1, 3, 7, 12–13, 20, 33). Overall, DCGs were reliant on and appreciative of the local informal or paid formal care network and elderly care services keeping them up to date with the care recipient's situation. However, several participants expressed concerns that they have received inadequate information about the care recipient's condition or needs. This was evident in situations where local family members, or even the care recipient themselves, tried to hide any bad news on the care recipient's condition or present it more positively (1, 3, 7) to spare their anxiety and "protect" them from getting more worried because "they couldn't have done anything from so far" (1, 3, 7, 33).

Others expressed their dissatisfaction about information received from healthcare professionals, paid caregivers or elderly care facilities regarding the care plan or health status of their loved one (7, 11, 12–14, 23, 32). In one of the qualitative studies, DCGs expressed a strong desire for frequent, regular communication from the local care network, in addition to notifications if problems have arisen (13). Several participants also reported difficulties contacting the relevant people within their loved one's elderly care service, something that harmed the monitoring of care from afar. In their case-control study, [Thompson and Lovestone \(2002; 32\)](#) found that DCGs were more dissatisfied with the information given to them than local caregivers who were physically more involved in their patient's care. In their mixed-method study, [Falzarano and colleagues \(2022; 12\)](#) also found that DCGs of care recipients living in a residential facility were more likely to report difficulties in communicating and receiving information from formal care providers as major challenges when compared to those who took care of a care recipient living in the community.

Overall, DCGs expressed a need for communication pathways that were easier to navigate, or a consistent contact person, especially with the added complexity of long-distance communication. The ambiguity surrounding the care recipient's well-being and needs led to feelings of being cut off and left out of the care decision-making (1–2, 7, 11, 23, 30). Decreasing shared knowledge with the DCGs further exacerbated the feelings of inadequacy and harmed the effectiveness of distance care (1–2, 7, 11, 13–14, 30).

### 3.6.6. Local siblings and inter-sibling relationships

Participants who had siblings living in the same geographic locale as their aging parents, often worked together to ensure that their loved one's needs were being handled and met (1–3, 11, 17–18, 20, 23, 29–30, 33–34). Local siblings were usually the ones to take care of the physical and practical needs of elderly parents and provide day-to-day support in the absence of DCGs. They were also a key source of information about the well-being and illness progression of the care recipients. As a result,

several participants expressed their gratitude and appreciation for the efforts their siblings had made, and many became closer to them (3, 11, 23, 29, 30).

DCGs whose local siblings identified as primary caregivers expressed fewer expectations of themselves to provide practical and instrumental care and instead mainly took responsibility and put their efforts into tasks that can be performed at a distance (e.g., financial management and coordination of healthcare and social care services), (2–3, 11, 28–29, 31). In one of the quantitative studies, researchers also found that DCGs with more siblings tended to have less contact with their elderly parents, suggesting that the care responsibility diffused and led to reduced emotional support by DCGs (28).

In some cases, parental care resulted in conflicts between DCGs and their local siblings, adding stress to their relationships and the care-taking situation (10–11, 29–31, 33). Past disputes that re-emerged or differing current views about the care plan, finances or division of care labor contributed to sibling conflict and had a negative impact on DCGs' motives to collaborate in caregiving with their siblings.

### 3.6.7. Local friends and neighbours

Local friends and neighbours of DCGs and their care recipient, were identified as an additional source of support that further facilitated distance care (1, 3, 7, 11, 14, 20–21, 29, 33). A strong social support network sustained DCGs' commitment to provide care, for example, several participants reported the existence of a "local caring community" as a vital component in their effort to meet the needs of their loved ones. In many cases, local friends and neighbours of the family, were willing to take on caregiving roles and responsibilities, including direct care and day-to-day support, that DCGs themselves could not (1, 3, 7, 11, 14, 20, 33). Local social support networks were also a valuable source of information regarding the care recipient's well-being and needs. In their quantitative study, [Li et al. \(2019; 21\)](#) found that social support received from friends buffered the negative effect of geographic distance on depression, particularly on LDCs. Although neighbours and friends provided, in most cases, valuable support undertaking tasks such as visiting and providing practical and instrumental support, in some cases there was potential for disagreements, and some neighbours were themselves in poor health or were perceived by the DCG as unable to cope with health conditions such as dementia, suggesting that this neighbourly support might break down or be disrupted (33).

## 3.7. Theme 2: why do they do it? Motivations and willingness to provide distance care

This theme incorporates eight descriptive subthemes: obligation to care; reciprocity; feelings of guilt; gendered care; religiosity and spirituality; relationship quality; acceptance of care; and care recipient's health status.

### 3.7.1. Obligation to care

The cultural belief that it is a child's duty to care for their parents or parents-in-law when they become dependent on them, was reflected in several studies (1–3, 7, 9–10, 11, 14, 16, 17–20, 30–31, 34). DCGs expressed their motives to provide distance care as a means of fulfilling their elder care responsibilities in socio-cultural contexts in which caregiving was viewed as an unspoken family value, a moral obligation.

Filial duty to fulfil a culturally constructed idea of appropriate family responsibilities was reflected in a largely similar way across the various distance caregiving groups (e.g., DCGs who lived hours away from their care recipient and transnational DCGs who lived in a country different to that of the care recipient) (1–3, 7, 11, 14, 16, 17–18, 20, 30–31, 34). In a quantitative study of filial duty, [Kodwo \(2009; 17\)](#) found that Ghanaian transnational DCGs who had emigrated to the United States felt highly obligated to support their elderly relatives back home and that this filial obligation was a significant predictor of emotional care and regular contact between the immigrant caregivers and their non-migrant elderly

relatives. Filial duty also predicted providing financial support but only when the elderly family members experienced major financial problems. However, the sub-sample in the last model for financial support was too small ( $n = 22$ ) to provide any conclusive evidence.

### 3.7.2. Reciprocity

Reciprocity was repeatedly cited as one of the underpinning motives for providing distance care whereby DCGs felt indebted to their parents for raising them and that it was now their turn to pay back that support (1–3, 7, 9–10, 16, 1–20, 30, 33–34). Despite the feelings of distress caused by not being physically present with the care recipient, many DCGs reciprocated the care and love they received by trying to provide adequate care from a geographic distance.

In several studies, DCGs also indicated a high societal expectation to take care of their elderly parents for “bringing them to the world” and felt that just by virtue of being their child, informal parental care was expected and to be given regardless of spatial and geographic proximities. (1–3, 7, 9–10, 16, 19–20, 30, 34). Finally, in some cases, DCGs “returned a favor” by giving care to a family member other than parents or to a non-family member because that person had provided care in the past to one of their loved ones (1, 7, 16). Overall, participants expressed willingness to provide distance care and fulfil their care responsibilities towards family or non-family members who “earned” that right after raising them or providing some type of assistance in the past.

### 3.7.3. Feelings of guilt

Several participants expressed feelings of guilt for not living closer in order to provide care to their loved one on a day-to-day basis (1–3, 7, 14, 16, 18, 20, 23, 29, 31, 33–34). Feeling guilty for their physical absence and the inability to meet their filial obligations, was a major source of distress and anxiety for most DCGs. At the same time, although physical absence acted as a barrier to DCGs providing more direct care to their loved one, it also worked as a motivator by increasing their efforts to provide care and fulfil their filial duty and expectations to care (1–3, 7, 9–10, 16, 19–20, 30, 33). DCGs put significant time and energy into overcoming the distance barrier by providing any care possible from afar, including emotional and financial support and coordination of care services. In addition, making visits when possible and providing practical support such as instrumental and nursing tasks in part appeased the guilt of physical distance. Finally, in some studies, DCGs also expressed feelings of guilt towards their siblings who carried out more immediate/regular care (2–3, 30). DCGs felt a responsibility to make extended return visits to the care recipient, not only to perform their filial duty but also to provide respite to siblings.

### 3.7.4. Gendered care

Gendered sociocultural norms and expectations of care were frequently reflected in DCGs’ accounts (1–3, 10, 14–20, 24, 30–31). Female participants expressed expectations to provide more emotional support and hands-on care when visiting their loved one, underpinned by cultural norms and ideologies that construct women as the “natural” caregivers (3, 14, 16, 18, 20, 31). On the other hand, men described expectations to fulfil their caregiving role by performing traditionally male activities such as house maintenance, financial and care management (3, 16, 18, 20, 31). As [Baldock \(2000; 3\)](#) suggests, however, a simple gendered construct of informal care provision as seen in caregiver studies more generally, does not work in the case of distance caregiving. In several studies, particularly those on transnational distance caregiving, physical distance did not permit the performance of gendered-specific caring tasks, with men and women eventually providing care in similar ways, regardless of their expectations (1–3, 10, 17–20, 30).

However, despite the effect that geographic distance had on the fulfilment of gender-specific care roles, complex gendered dynamics were still identified. Female DCGs expressed greater guilt for not being able to give enough care to their loved one and fulfil the role of “family

nurturer” due to their geographic distance (1–3, 20, 30). In some cases, females were also more likely to express the need to spend more time with their loved one and live closer so that they could provide more help (2–3, 30). This pattern is consistent with the findings of two quantitative studies that used nationwide samples of DCGs (15, 24). Researchers in these studies found that women were more willing to travel farther and more often for their loved (24); reported missing more hours of work as a result of distance caring; and spent more time helping the care recipient around their home and with personal care (24). In contrast, male DCGs were more likely to limit the hours committed to care as distance increased (15).

### 3.7.5. Religiosity and spirituality

For some participants, spiritual and religious beliefs provided a strong motivation to care, despite the geographic distances, with DCGs expressing their faith and trust in a God who “walks with them in every situation they face” (7, 14, 23). In some studies, connections with the church community offered a way of coping with the distance caregiving complexities, increasing DCGs’ motivations and willingness to continue providing care (7, 14). Overall, participants described their personal faith, and the availability of a religious community, as sources of strength that helped them to make meaning out of the distance caregiving situation and supported them through their journey of distance care.

Religious obligations were cited as separate motives for providing distance care (9, 18). In one study, when one of the participants asked if she thought that it was children’s responsibility to take care of their parents, she said, “Well, the church teaches you like that!” (9). Finally, some DCGs also believed that they would be spiritually rewarded and receive “God’s blessing” for the care they provided despite the difficulties of living far away (18). The religious belief of a future reward motivated DCGs to continue providing distance care for their loved ones.

### 3.7.6. Relationship quality

The pre-existing relationship with the care recipient emerged as a strong motivator to care from a geographic distance (1, 10–11, 18, 23, 28, 30–31, 33). Participants who described their past relationship with the care recipient as positive, emotionally close and supportive were more willing to overcome the distance barriers and provide care to their loved one. The persistence and durability of emotional bonds between adult children and their parents positively influenced willingness to provide distance care and the undertaking of more caregiving responsibilities, including having increased contact and making more frequent trips to their loved one’s home (1, 10–11, 18, 23, 28, 30–31, 33).

Additionally, love and affection were referenced directly by some participants of the qualitative studies as key motives for providing distance care in spite of the difficulties the physical distance created (1–3, 9–10, 14, 18, 33). DCGs expressed emotional motives for providing care, describing caregiving as an action of love, affection, and loyalty towards their care recipient. In contrast, those who experienced a less positive or reciprocal relationship were less motivated to provide care, with geographic distance providing an opportunity to set limits on the intensity of care and the type of support provided (18, 31).

### 3.7.7. Acceptance of care

A care recipients’ attitude towards the distance caregiving role and the care received had a significant influence on the DCGs’ motivations and willingness to continue providing distance care (3, 9–10, 14, 23, 33–34). DCGs whose loved ones acknowledged their role and expressed feelings of gratitude for the care received, were more motivated to continue caring (2, 9, 14, 23, 33), whereas those who described their care recipient as someone who had negative attitudes towards the care process or was not willing to accept care, felt less motivated (10, 34).

### 3.7.8. Care recipient's health status

The care recipient's health status and level of dependence emerged from the data as key motivators to practice caregiving despite distance (2–3, 7, 9–10, 14, 18, 23, 28, 31). Despite increasing the levels of emotional strain, a loved one's physical and/or mental health deterioration heightened the sense of need and reinforced DCGs' motives to care. Participants expressed the need to "protect" their parents and be there for them now that they needed them the most, and many took further initiatives despite their geographic distance, to ensure that their loved ones' needs are met. This was particularly evident in studies with advanced cancer patients where the threat of decline and uncertainty about illness progression were higher (7, 14, 23). Finally, DCGs often increased their contact with their siblings and travelled more frequently to their loved one's home to make sure that they are receiving the necessary care (2–3, 9, 18).

### 3.8. Theme 3: what are the benefits and burdens of caring from a distance?

This theme incorporates three main subthemes: positive caregiver outcomes and negative mental and physical health outcomes.

#### 3.8.1. Positive caregiver outcomes

The positive aspects associated with distance care included feelings of satisfaction, personal growth, enhanced relationship with the care recipient, and an overall meaningful and rewarding experience (3, 7, 9–11, 14, 19–20, 23, 29, 33). Several participants expressed feelings of pleasure, personal satisfaction and happiness derived from having ensured adequate care for their loved one (7, 10, 14, 19, 33). Others reported enjoyment in the time spent with their loved one (33). Throughout their journey, participants had the opportunity to learn more about their own self-identities and self-efficacy which frequently led to self-growth and increased self-awareness (3, 7, 9, 11, 14). Many discovered that they had an inner strength and patience that they never knew existed, and developed feelings of competence and self-worth (7, 9, 11, 14). In the process of distance care, some participants also found they became closer to their loved one. DCGs felt they had the chance to get to know their loved one better and became more compassionate with their needs and feelings (7, 9, 20, 23). In addition, through their return visits, transnational DCGs had the opportunity to reinforce family connections, confirm ethnic identity and transmit sociocultural values to their own children (20).

Notably, some DCGs identified unique benefits to living far away from their care recipient in terms of a strengthened relationship resulting from frequent telephone conversations where their loved one felt more comfortable to share feelings by phone than in person, while DCGs had the opportunity to talk more about everyday things and life rather than illness (23). Finally, the need for parental care in some cases strengthened the relationships with other members of the caring network such as local siblings, with participants indicating greater cooperation and empathy than previously (7, 11, 29).

#### 3.8.2. Negative mental health outcomes

Effects of distance care on mental health outcomes were examined in 26 of the 34 studies (1–4, 7–11, 13–14, 16, 19–23, 25–28, 30–34). Spatial and geographic distances created feelings of distress, frustration and uncertainty. DCGs indicated high worry about performance in providing care for their loved one from a geographic distance and many felt helpless, overwhelmed, and depressed (1, 7, 11, 14, 16, 20, 23, 30, 33). Several participants were also anxious and worried about not being physically there to monitor closely the care of their loved one or to respond immediately to an emergency and reported feelings of insecurity regarding their health status and well-being (1–3, 7–8, 10–11, 13–14, 16, 19–21, 23, 28, 30–34).

In addition, DCGs reported that care from a geographic distance was taxing on their finances, job, social and family relationships, which

resulted in increased levels of social isolation, caregiver burden and distress (1–3, 7–8, 10–11, 13, 16, 19–23, 28, 30–34). The challenges of living afar and the need for travelling back and forth to assist their parents, left DCGs less time and energy for connecting with family and friends. In many cases participants had to give up vacations, hobbies or other leisure activities to visit their parents and provide hands-on care (11, 14, 16, 19, 30). In addition, several employed participants reported that distance care interfered with their professional life and career with DCGs having to make work-related adjustments such as missing days from work, having a flexible job, or seeking fewer opportunities for exploring promotions and job advancements (11, 14, 16, 19–20, 24–27, 30–31).

Finally, evidence of differences between local and DCGs in terms of burden and distress is mixed. Three of the comparative studies that used nationwide samples reported that co-residing caregivers have higher levels of social, emotional and financial strain than DCGs (8, 26–27). In his study on caregivers of patients with cancer, [Cagle \(2008; 7\)](#) found that co-residing caregivers had higher levels of depressive symptoms than DCGs. Another comparative study reported that co-residing caregivers experienced greater burden than DCGs but only when high levels of attachment avoidance towards the care recipient were present (4). Further, [Thompson and Lovestone \(2002; 32\)](#) found that DCGs reported similar rates of subjective distress with local caregivers.

Yet, the 2004 NAC/AARP (25) national survey on caregivers found that DCGs experience greater levels of emotional distress than proximate or co-residing caregivers. Similarly, in their quantitative study, [Li and Wister \(2021; 22\)](#) found that DCGs experience greater levels of social isolation compared to co-residing and proximate caregivers but only when they provide high-intensity caregiving. Another study also reported that DCGs of cancer patients were slightly more distressed and anxious than local caregivers, although both had mean distress scores above the minimum threshold required for intervention (23). These findings are consistent with [Li et al. \(2019; 21\)](#) who found that DCGs reported higher levels of depressive symptoms than local caregivers and were more distressed by subjective caregiver burden which refers to the caregiver's appraisal and emotions related to care.

### 3.9. Negative physical health outcomes

Effects of distance care on physical health outcomes were reported in 12 studies (5–8, 11, 14, 16, 19, 23, 25–27). The burdens of caring from a geographic distance, combined in many cases with the limited time of DCGs to take care of their own personal needs, impacted their physical health. DCGs experienced physical symptoms such as tiredness, fatigue, headaches, decreased sleep, and weight gain (5–6, 11, 14, 16). However, one of the studies found that DCGs indicated greater emotional distress than physical strain, with only 10% of the sample reporting physical problems (19). Further, in five comparative studies, researchers found that caregivers living in the same household reported higher levels of physical strain than DCGs (8, 25–27). In contrast, [Mazanec \(2009; 23\)](#) found no significant differences between local and DCGs on physical health.

Finally, communication difficulties in the distance caregiving situation were also linked to compromised DCGs' health. In their two studies, [Bevan et al. \(2012a, 2012b; 5–6\)](#) investigated distance caregiving communication and physical health, by exploring the links between conflict frequency, conflict strategy usage, topic avoidance and negative physical health perceptions. The authors found that conflict frequency and conflict strategy usage were associated with poor physical health outcomes (6). In addition, DCGs often engaged in topic avoidance with their care recipients, which was related to negative health symptoms including physical pain, headache and poor appetite (5).



## 4. Discussion

### 4.1. Summary of findings

This mixed-method systematic review synthesised evidence on a growing subpopulation of carers, DCGs, who make a substantial contribution to informal care. The review comes at a critical time when demand for caregivers is growing due to the ageing population worldwide whilst at the same time mobile families and distance care have become more and more prevalent (Li et al., 2019; Lutz and K C, 2010). Understanding the nature of distance caregiving, the motivations behind this role, and the unique needs and burdens of those carers, will inform future research, policy, and practice development.

This large review brought together studies on distance caregiving from different countries and cultures, covering over three decades, with data from over eleven thousand and four hundred caregivers. We systematically identified and critically appraised 34 studies including quantitative, qualitative, and mixed-method study designs, that reported barriers and facilitators to provide distance care, motivations for distance caregiving, and the benefits and burdens of caring from a distance.

Barriers and facilitators to providing distance care arising from this systematic review included: contextual and socioeconomic aspects of geographic distance; economic resources and social policies; communication and information resources; and local support networks. In addition, the key factors impacting caregivers' motivation and willingness to provide distance care included: cultural values and beliefs, societal norms, and perceived expectations of caregiving encompassing the sociocultural context of the caregiving role; interpersonal relationships and individual characteristics of the care recipient. Finally, DCGs experienced both positive and negative outcomes as a result of their distance caretaking responsibilities. Positive outcomes included feelings of satisfaction, personal growth, increased self-awareness, and enhanced relationship with the care recipient and other family members involved in care provision. Negative outcomes included worse mental and physical health associated to the unique challenges and burdens of caring from a geographic distance.

### 4.2. Comparisons with findings of other reviews

At the time of writing, we are not aware of a similar review on distance caregiving that has synthesised evidence relating to all our three objectives. With regards to our first objective concerning the barriers and facilitators to distance caregiving and the role of DCGs, our findings are consistent with Cagle and Munn's review (2012) of 15 studies, which primarily focused on DCGs in the US. Particular subthemes align with some of their narrative findings pertaining to the nature of distance care and the care tasks performed by DCGs including social and emotional support, financial assistance, and care coordination. However, our review takes a step further by identifying the specific determinants that shape the distance caregiving role and involvement in care provision, including contextual and socioeconomic aspects of geographic distance such as travel time needed to visit the care recipient; economic resources and social policies that determine the capacity and type of care provided; communication and information resources such as communicative technologies and information received about the care recipient's needs that impact caregiver involvement and coordination of care from afar; local support networks, inter-sibling relationships, and relationships within the wider local community that shape the distance caregiver role, care tasks performed and caregiver involvement. Although studies in both reviews were largely conducted in the US, our review also synthesised evidence from studies outside the US including non-English speaking countries (China, Finland, Israel, Sweden), increasing the applicability of findings to diverse populations with different ethnic and cultural background.

Our findings on willingness and motivations to provide distance care

are the first, to our knowledge, to synthesize evidence on what motivates DCGs and make them willing to care from a distance. These findings are critical to the understanding of taking on the distance caregiving role and due to their novelty cannot be compared with any of the previous reviews on distance care as the latter have not synthesised any evidence on the topic. However, given that DCGs are a unique population of carers with different needs, burdens and challenges caused by physical distance and separation, the findings provide a unique opportunity to make comparisons with reviews exploring motivations and willingness to care on other caregiving populations and identify potential similarities or differences.

Key subthemes emerging from our thematic synthesis on the motivations and willingness to provide distance care can be seen in Zarzycki et al.'s (2022a) extensive systematic review and meta-synthesis of 84 qualitative studies that reported cultural and societal motivations for caregiving. Zarzycki et al. (2022a) included studies of general caregiving populations while this review focused exclusively on the motives and willingness to provide care from a geographic distance. Similarly to our review findings, the meta-synthesis identified cultural and societal underpinnings of caregivers' motivations including cultural beliefs on filial piety and reciprocity, spiritual beliefs, societal norms and perceived expectations such as gendered roles, norms and expectations of caregiving. In both reviews, caregivers reported multiple and often inter-related motives to care and were rarely driven by one motivation alone. The consistency in findings highlights the importance of cultural and societal determinants and suggests that the decision to take on the distance caregiving role and continue providing care from afar is impacted in similar ways as with other caregiving populations, regardless of the spatial and geographic distances. Although DCGs reported similar cultural and societal motivations to care with those of general caregiving samples that reported in Zarzycki et al. review (including co-residing caregivers) (2022)<sup>a</sup>, in many cases physical distance did not permit the fulfilment of their own expectations of caring and those of their socio-cultural context. For example, many DCGs expressed feelings of guilt for not living closer to their care recipient to meet their filial obligations and provide hands-on care, which in turn acted as a unique motivator for providing the best care possible from afar.

Interpersonal relationships and individual characteristics that impacted DCGs' motivations, such as relationship quality and care recipient's health status, were also reported in the recent review of 103 qualitative studies conducted by Zarzycki et al. (2022b). As above, the consistency in findings indicates that despite the different nature of distance caregiving when compared to more traditional patterns of informal care, the willingness and motives to undertake this role are highly impacted by societal and interpersonal factors not directly related to physical proximity. Zarzycki et al. (2022b) focused on the general caregiving population synthesising evidence that enabled the identification of variations in personal and relational motivations across different types of relationship to the care recipient (e.g., spousal caregivers, adult-children caregivers), cultures and countries of origin. For example, the authors found that relationship quality as a motivating factor was less evident in Asian caregiver studies than Caucasian studies and distinguished the experience of filial obligation versus spousal obligation (Zarzycki et al., 2022b). Such variations were not identified in our findings since DCGs are a much more homogeneous sample consisting mainly of adult-children caregivers whereas majority of the reviewed studies originated from US and other English-speaking countries.

The benefits and burdens of distance care were reported in two previous reviews on distance caregiving (Cagle and Munn, 2012; Douglas et al., 2016), however, we did not limit our review on cancer caregiving as Douglas et al. (2016), had a wider search strategy and applied a different type of synthesis by integrating the results of quantitative studies with those of the qualitative and mixed-method study designs. The potential benefits of caring from a geographic distance were briefly discussed in both Douglas et al. (2016) and Cagle and

Munn's (2012) reviews with the authors reporting similar benefits to those identified in our review, including a sense of personal satisfaction, a rewarding and meaningful experience from ensuring adequate care and fulfilling a filial obligation. However, our review revealed additional benefits associated more to the self-identity of DCGs including increased self-awareness and competence, discovering of inner strengths and self-growth that derived from the efforts DCGs made to provide adequate care from a geographic distance. Similarly to Douglas et al. (2016), we identified unique benefits to living far away from the care recipient in terms of a strengthened relationship derived from frequent telephone conversations where the care recipient felt more comfortable to share feelings and DCGs enjoyed having this long-distance relationship with their parents which offered them the opportunity to talk more about life rather than illness. In addition to this, our review also revealed a strengthened relationship with other family members that took part and collaborated with DCGs in the provision of informal care.

The findings emerging from our mixed-method review on the mental health outcomes of distance care are consistent with both Douglas et al. (2016) and Cagle and Munn's (2012) reviews whereby high levels of burden, emotional distress, feelings of insecurity and anxiety were identified. However, our review also highlights the experience of high levels of burden, social isolation and worse mental health resulting from the competition between the distance caretaking responsibilities -including the physical burden of travelling- and other time-demanding activities including employment, social and family life. Further, we synthesised evidence of comparative studies between local and DCGs highlighting the importance for future research to further investigate the unique burdens and needs of distance caregiving as current findings are mixed. Unlike Douglas et al. (2016) and Cagle and Munn (2012), our review also identified physical health outcomes such as tiredness, fatigue, headaches, decreased sleep, and weight gain associated to the burdens of distance caring and communication difficulties that resulted in compromised physical health.

#### 4.3. Implications for future research

The current mixed-method systematic review brought together studies on distance caregiving, highlighting a growing research interest to understand this unique phenomenon in informal care. The reviewed studies were largely conducted within the Caucasian context and the western developed world. Further, since most of the data were collected in English, non-English speaking individuals, or those with lower literacy levels, may have been underrepresented. Future studies should strive to include more diverse populations in terms of race and ethnicity, socioeconomic status, and education. Another avenue for future research includes the temporal socioeconomic and political context of DCGs. Our review showed that the ability to provide distance care and the distance caregiver involvement are shaped by numerous socioeconomic factors, social policies, and political forces. Different countries present with different policies pertaining to the rights and benefits afforded to informal caregivers. Future studies should assess and evaluate the impact of government, social, and employer policies on the types of care and support DCGs can provide. Similarly, societal changes and health emergencies such as the COVID-19 pandemic might also determine the nature of distance care and DCGs' ability to get involved in care provision from afar. Although none of the studies included in this review explored care experiences during COVID-19, it is recommended for researchers that have collected data on caregiving populations during that period, to explore the specific ways through which the pandemic along with the public safety measures adopted such as social distancing, determined care provision, and shaped care experiences.

Additionally, research on distance care has been limited to cross-sectional quantitative and qualitative study designs and secondary data analyses with the inconsistent operationalisation of distance care provision. Comparative studies between local and DCGs and prospective longitudinal study designs should be employed to better understand the

unique nature of distance caregiving, the shifting patterns of motivations and willingness to provide distance care, and the consequences of caring from afar over time and over the care recipient's health trajectory. Future studies should also address the inconsistencies of what constitutes distance care with the use of a working definition that would differentiate local carers from DCGs, and the different distance care subgroups, not solely by assessing their geographic distance and travel time to the care recipient, but also other socioeconomic factors which are confounded with distance. Based on our findings, these include barriers and facilitators of distance care provision such as travel mode, social policies, and travel restrictions, access to transportation, economic resources, and travel costs. In addition, future research should add to the operational definition of distance care the access and use of communicative technologies by DCGs and their care recipients, since assistive technology emerged as a critical component for providing emotional support and monitoring care from afar.

Further, although none of the reviewed studies provided sufficient evidence on the potential link between willingness and motives to distance care and the distance caregiver outcomes, it is recommended for future research to explore such specific associations and relationships that will further inform our knowledge on the complex nature of distance care. This is a critical point to be addressed by future studies on distance care, as prior studies on general caregiving populations have highlighted the significance of motivations and willingness to care on shaping caregiving and care-receiving experiences. For example, Camden et al. (2011) revealed that those who were unwilling to provide care reported higher abusive behaviours towards the care recipient while their loved one was more likely to be admitted to a care home the following year. Similarly, in their systematic review, Quinn et al. (2010) found that caregivers' motives to provide informal care can have implications on their mental well-being.

Finally, whilst there are some areas where we lack confidence in the generalisability of findings (e.g., applicability of findings in diverse ethnic and cultural backgrounds), our review provides sufficient evidence to begin to pilot and evaluate geographically sensible and tailored interventions that address the individualised needs of this subpopulation of carers. Affordable and accessible information and communication technologies such as videoconferencing and monitoring technologies are needed to bridge the distance between DCGs and care recipients, improve communication and reduce practical burdens by allowing DCGs more active participation in their loved one's care. Further, interventions targeting DCGs' beliefs, expectations of caring and coping skills may help maintaining motives to care from a geographic distance. Lastly, psychoeducational interventions -including eHealth interventions-focusing on the personal values, unique needs and stressors of DCGs and using problem-solving abilities for issues that arise from the distance caregiving situation may help alleviating burden and emotional distress.

#### 4.4. Implications for policy, health, and social care practice

The reviewed evidence emphasises the importance of support for DCGs to maintain their motives for continuing caring from afar and promote the sustainability of global healthcare and social care systems. We outline here a few points that could be focused on by policymakers, healthcare, and social professionals.

Firstly, governmental and social policies should identify and recognize the substantial contribution of DCGs within society. Current social policies, including labour market policies, are insufficient in allowing DCGs to balance distance care with work, social and personal life. For example, in the US there is currently no national legislation for employment policies and workplace benefits for informal caregivers, with 40% of the employed caregivers reporting that their employer made no accommodations such as allowing flexible work time and time off when needed (Cahill et al., 2022). Similarly, in the UK and other European countries there is currently no support for informal caregivers

in terms of employment policies unless the employer decides to acknowledge it themselves (no legal obligation) (Bouget et al., 2016; Spasova et al., 2018; Carers UK, 2022). Our findings show that caring from a geographic distance interferes significantly with work life and professional career with many DCGs having necessarily to make work-related adjustments such as missing whole days from work and having a flexible job. Therefore, a concrete national strategy that will increase flexible labour market policies and allow personal days off for DCGs who need to travel on family emergencies, coordinate local care networks, and assist with instrumental caring tasks that require physical presence, is of utmost importance.

In addition, our study showed that economic resources had a significant impact on the capacity to care from a geographic distance with several DCGs reporting for example difficulties in terms of travel costs and expenses in order to visit the care recipient. Current policies and legislations in both US and most European countries including the UK (with the exception mainly of the Nordic countries), have introduced insufficient to no cash benefit arrangements to date to support informal caregivers (Cahill et al., 2022; Carers UK, 2022; Spasova et al., 2018). Although this varies among the different European countries, and from state to state in US, direct cash benefits or allowances usually aim to relieve caregivers by purchasing in-home services and provide adult day care, to help older adults remain home as long as possible. Even though this may be beneficial for DCGs to coordinate care from afar, governmental and social policies are currently non-existent with regard to other financial burdens of distance care. Based on our findings, it is critical for future policies to take into consideration the specific financial costs borne by DCGs (including travel costs, phone calling, and internet costs that enable communication with the care recipient), and provide distance caregiver allowances -upon assessment-to support DCGs continuing with their role.

In sum, to prevent negative financial, physical and mental health consequences for DCGs as those reported in our findings, further emphasis should be put on adapting governmental and social policies. Overall, any policy underpinning support for DCGs should contain: the availability of local formal support services to assist DCGs with caring tasks that cannot be performed by distance and meet the needs of their care recipients; respite care services and provision of breaks from distance care to relief and prevent DCGs from getting overburdened; consideration of the financial costs borne by DCGs; flexible labour market policies; regular assessment of the distance caregiving experience, arising needs and support planning.

Finally, healthcare and social professionals should implement a distance caregiver self-care plan which evaluates and takes into consideration (a) the determinants of distance caregiver involvement and types of care provided (b) the complex and diverse sociocultural and personal motives that drive DCGs in their role of caring from afar, and (c) the distance care demands, challenges and burdens. With this knowledge, practitioners and service providers may better tailor their support to DCGs, providing individualised and culturally sensitive support plans to assist them in the care of their loved one from afar while still taking care of themselves. Communication between practitioners and DCGs is essential in order to develop and inform such a plan. Important parts of this communication can involve practitioners educating DCGs on how to access available resources that will facilitate the ability of distance caring and reduce barriers arising from geographic distance (e.g., access communicative technologies, liaise with local formal support services to coordinate care from afar); providing coping strategies and training skills to effectively balance the competing roles and demands in their lives based on their personal goals, objectives and values; strategies to get the requisite information on their loved one's needs and illness progression from health care providers and local support networks; coping skills and psychological support to deal with the challenges and struggles associated to distance caring, including feelings of guilt, burden, anxiety and emotional distress.

#### 4.5. Strengths and limitations

The review was carried out according to the methodological and reporting standards set out by both PRISMA (Page et al., 2021) and JBI methodology for mixed-method reviews (Lizarondo et al., 2020). A rigorous, systematic approach was applied to searching, screening, extracting, and analysing evidence in four different academic databases and grey literature to reduce publication bias. The convergent integrated approach followed by thematic analysis allowed for a structured way to identify key themes and subthemes across different study designs. The MMAT tool, a validated quality appraisal instrument for mixed-method reviews (Hong et al., 2018), was used to assess the strength of the body of evidence and majority of studies were judged to be of good and high methodological quality. The mixed-method design of the study ensured that a wide variety of data on distance care is captured from both qualitative and quantitative research findings. Due to resource limitations only studies published in English were reviewed. This might have led to mono-cultural bias, although international evidence was reviewed with studies coming from across the globe (including studies with non-English samples). In addition, no restrictions were applied to the care recipient's diagnosis. The sample diversity allowed for broader generalisation of the findings, providing useful recommendations for policymakers, healthcare and social professionals with the aim to promote the sustainability of distance care among diverse groups of DCGs.

However, the diversity among distance caregiving and care-receiving samples might have led to broader implications without targeting some of the exact needs of selected subpopulations of DCGs. Further, the high degree of heterogeneity across studies in assessing geographic distance and operationalise distance care resulted in caregiving samples of varying degrees of geographic proximity to the care recipient who may differ in their role, motivations and outcomes, making us less confident in the relevance of our findings for some subpopulations. For example, the needs and experiences of transnational caregivers may differ of DCGs who can access their care recipient more often and are occasionally involved in instrumental and nursing care tasks. Additionally, the scarcity of studies and mixed evidence on local versus DCGs samples did not allow to fully compare and report on the differences among the two subpopulations of carers. Lastly, the balance in terms of nation of study of origin, ethnicity, and care recipient's health condition was unequal, limiting the generalisability of our findings.

#### 5. Conclusions

This mixed-method review identified and critically appraised evidence from 34 studies on the growing subpopulation of DCGs, who play a vital role in informal care provision. The review synthesised evidence on the determinants of providing care from a geographic distance, the key factors influencing motives and willingness to provide distance care and the unique distance caregiving experiences, including both positive and negative caregiver outcomes. The reviewed evidence highlights a need for future studies to employ comparative and longitudinal study designs as well as consistent operationalisation of distance care provision, if we are to better understand the unique nature of providing care from afar. Future research should also design and implement tailored interventions to address the individualised/specific needs of this subpopulation of carers. Finally, the study highlights the critical need for governmental and social policies, health care and social professionals to recognize the substantial contribution of DCGs to informal care provision. The provision of adequate support through flexible labor policies and self-care plans should help to reduce the negative consequences for DCGs and promote the sustainability of distance care.

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