Family caregiver’s loneliness and related health factors: what can be changed?

Sylvie Bonin-Guillaume
Institut National de la Santé et de la Recherche Médicale, UMR- Inserm 1106, Aix Marseille University

Sylvie Arlotto
Assistance Publique Hôpitaux de Marseille

Alice Blin
Assistance Publique Hôpitaux de Marseille

Stéphanie Gentile (✉️ stephanie.gentile@ap-hm.fr)
Assistance Publique Hôpitaux de Marseille

Research Article

Keywords: Loneliness, Caregivers, Frailty, Caregiver burden

Posted Date: January 14th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1181538/v1

License: ☺️ This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License
Abstract

Background

Loneliness is a public health issue which may affect the entire population. Loneliness is associated with depression, sleep disorders, fatigue and increase the risk of obesity and diabetes. Risk factors for loneliness include poor social network and poor physical and mental health. The main objective was to study factors related to loneliness of family caregivers caring for independent older people.

Methods

We performed a non-interventional observational cross-sectional study in south-eastern France. Family Caregivers caring for people aged 70 and over living at home were included. These older people were independent, without long-term conditions and who applied for professional social assistance for daily living. Data were collected through a questionnaire, administered face-to-face or by telephone. Loneliness and perceived health status were measured through a single-question. Burden was assessed through the Mini-Zarit Scale, frailty was measured through the Gerontopole Frailty Screening Tool.

Results

Of the 876 caregivers included, 10% felt lonely often or always. They reported more physical and mental health issues than those who did not feel loneliness (p<0.001). Family caregivers with loneliness were more likely to be looking after a parent and were twice as likely to have a moderate to severe burden (OR=2.6). They were more likely to feel anxious (OR=5.6), to have sleep disorders (OR=2.4), to be frail (OR=2) and to feel their health as poor or bad (OR=2).

Conclusions

Loneliness has a negative impact on health, frailty and burden of family caregivers. Means must be implemented to anticipate the consequences of the loneliness felt by family caregivers, notably by orienting them towards the relevant services.

Background

Loneliness is the subject of many investigations in public health because of its significant prevalence and impacts on health [1]. Loneliness is therefore a public health issue which may affect the entire population [2].

There are several different definitions of loneliness. The most commonly used is that of Perlman and Peplau [3], who describe loneliness as the gap between a person's preferred and actual level of social
contact which is a subjective perception.

Researchers have distinguished loneliness from related concepts such as living alone and social isolation [1, 4]. At its most basic level, social isolation has been defined as an objective state of having minimal social contact with other individuals (i.e., emotional loneliness) or to close friends and family (i.e., relational loneliness), which can be self-selected [5].

Perceived loneliness is measured using a variety of more or less standardized tools, leading to confusion about its prevalence in the literature [6].

Then, the prevalence of loneliness among adults varies greatly because of the different tools used, underlying concepts, and populations investigated. In Europe, the average prevalence is 7%, but loneliness is unequally distributed across countries [7]. In France, the prevalence of loneliness is estimated in the general population as being between 10 and 19%, depending on the measurement tools used [8], compared to 27% of people aged 75 and over and 16% for caregivers of older people [9].

Loneliness is an independent risk factor for frailty [10]. Furthermore loneliness is associated with depression, sleep disorders and fatigue [11], with increased risk of obesity [12] and diabetes [13] and adverse outcomes like functional decline and early death [14], emergency visits or early admission in homecare [15]. Risk factors for loneliness include living alone [16], loss of a partner, poor social networks and resources, low socioeconomic status [17], and poor physical and mental health [18].

The factors associated with loneliness vary according to age and life stages [19]. Indeed, loneliness has a non-linear trajectory according to age and affects specific age groups, such as young adults or the oldest old persons, especially in relation to low income levels, greater functional limitations or relational status.

Family caregivers (FCGs), especially those of older people, are particularly affected by loneliness [20]. FCGs are defined as people who provide unpaid, ongoing assistance to people with long-term conditions or limitation in activities of daily living (ADLs), such as grooming, feeding, bathing, walking, dressing, or instrumental activities of daily living (IADLs), such as shopping, meal preparation, housekeeping, and managing finances [14].

In France, there are 15 million FCGs [21], corresponding to 1 in 6 inhabitant.

Informal caregiving by FCGs is important to the health and social care systems because it supports those with disability in their own homes for longer [22]. The reliance on such informal care will increase in the coming decades given the demographic projections of an aging world population [23].

Providing health and/or social care is not without consequences for FCGs who can experience adverse impacts on their physical and mental health [24] and even decreased life expectancy [25], as a consequence. Factors associated with higher burden on FCGs, include the high number of hours spent caring, a poor relationship with the care recipient [26] or poor social networks [27].
Most studies on loneliness target specific populations such as older people or the vulnerable, e.g. with a financial and social vulnerability [28]. Few studies have focused on FCGs who have their personal and social environment reduced due to the lack of time left after their professional life and their caregiving relationship [29]. It is therefore important to explore the loneliness of FCGs.

Thus, we hypothesized that the loneliness of FCGs is a factor related with their burden, health, and frailty. The main objective was to study factors related to loneliness of family caregivers caring for independent older people.

**Materials And Methods**

**Study design**

We performed a non-interventional observational cross-sectional study, in the Provence Alpes Côte d’Azur region (PACA), south-eastern France, between April 2016 and June 2017.

**Study population**

Were included FCGs caring for people aged 70 and over, living at home, independent according to the AGGIR grid (Autonomie Gérontologie Groupes Iso-Ressources grid, that evaluates the independence of seniors and assigns a level between 1 and 6) [30], without long-term conditions and beneficiaries of the Caisse d'Assurance Retraite et de Santé Au Travail (Carsat). Carsat is a national pension and occupational health administration. To be included, the FCG had to have been designated by an older people who had applied to Carsat for social assistance for daily living.

**Ethics approval**

This study was carried out in accordance with the bioethics laws and has obtained the ethical approval of the Ethics Committee of the University of Aix-Marseille (No. 2020-09-07-10). All personal data were managed exclusively by Carsat, which is authorized by the Commission Nationale de l'Informatique et des Libertés (CNIL) (n°2005-38). In agreement with the Ethics Committee of the University of Aix-Marseille, an letter of information for FCGs was given during a Carsat visit to the older people and/or sent to the FCG. The written receipt of consent was not required.

**Variables and measures**

The data were collected from the FCG by a face-to-face or telephone interview. The detailed procedures were described in a previous publication but are summarized in brief here [27].

**Judgement criteria**

The loneliness of FCGs was evaluated by a single-question “Do you feel lonely?” with a 5 point Likert scale (never, rarely, sometimes, often or always) issued from the longer version of the center-epidemiological-study depression scale as it is a common and widely used measure of loneliness [5].
Other variables collected

All of the variables resulting from the questionnaire completed by the FCGs are not presented in this article but are presented in a previous publication [27].

Socio-demographic data of the FCGs were collected, such as age, gender, family situation, relationship with the care recipient (child, spouse or other), professional activity, income and family support in the daily life of the FCG.

In addition, variables related to FCGs health, frailty, and burden were collected.

To begin, the perceived health status of the FCGs was measured using a single 5-point Likert scale (from excellent to bad) and 5-point Likert scale (from never to always) were used to collect the existence of sleep disorders, anxiety, stress or overwork. Finally, we asked FCGs if they had discussed their caregiving role with their physician. To complement FCGs health status, we collected data about the presence or absence of long-term conditions, musculoskeletal disorders, falls in the past 6 months, regular physical activity, physician visits in the past 3 months, psychotropic drug use, and medical care foregone in the past year. In addition, the impact of the caregiving relationship on family life, outings or even vacations has been investigated.

FCG’s frailty was assessed with 4 of the 6 items of the Gerontopole Frailty Screening Tool (GFST), because of the collection methods. Currently no cut-off score has been determined [31].

FCG’s burden was assessed with the Mini-Zarit scale [32, 33]. The Mini-Zarit Scale consists of 7 items, scored in 3 point Likert scale from 0 (never) to 1 (nearly always).

The total score ranges from 0 to 7 and therefore determines 4 levels of burden: absent or light (0-1), light to moderate (1.5-3), moderate to severe (3.5-5) or severe (5.5-7).

Statistical analysis

All variables were examined through classical descriptive analysis. Categorical variables were described by their frequencies and percentages and ordinal or scale variables by their mean, standard deviation (± sd.), minimum, median, and maximum.

Dichotomizations were performed for three variables. The variable loneliness was thus recoded into "often / always" vs. "sometimes / rarely / never". Frailty was recoded according to the median score obtained (lower or upper). And finally, burden was recoded into "moderate to severe/severe burden" versus the other two categories.

The recoded variable «loneliness» was described by univariate analyse. The associations between qualitative variables were measured by the Chi squared test and the exact Fischer test for small numbers. A Student Test or Analysis of Variance (ANOVA) was performed for the ordinal or scales variables.
Multivariate logistic regression analysis was performed to test the independent significance of different variables. All variables with a threshold p-value of 0.1 were included in the model.

All statistical analyses were performed using SPSS (V.20.0, IBM). The statistical tests were all two-sided, and statistical significance was indicated by a p-value of less than 0.05.

Results

Table 1 present the sociodemographic characteristics of the FCGs and the comparison of these according to the presence or not of loneliness. The complete characteristics of the population have been published in a previous publication [27].

Table 1 – FCGs sociodemographic characteristics

| Feeling lonely (often or always) | Not feeling lonely | Total | p   |
|---------------------------------|---------------------|-------|-----|
| 10.3% (n = 91)                  | 89.6% (n = 785)     | 876   |     |
| Gender (female)* % (n)          | 73.6 (67)           | 63.4 (498) | 64.5 (565) | .055 |
| Age (median ± SD)               | 61.4 ± 11.1         | 62.9 ± 13.9 | 62.7 ± 13.6 | .350 |
| Living alone* % (n)             | 25.3 (23)           | 16.1 (126) | 17 (149) | .027 |
| Child FCG* % (n)                | 67 (61)             | 59.9 (470) | 60.6 (531) |     |
| Spouse FCG % (n)                | 28.6 (26)           | 28.7 (225) | 28.7 (251) | .106 |
| Other FCG % (n)                 | 4.4 (4)             | 11.5 (90) | 10.7 (94) |     |
| Working % (n)                   | 34.1 (31)           | 40.5 (318) | 39.8 (349) | .235 |
| Low income** % (n)              | 59.5 (50)           | 48.7 (342) | 49.9 (392) | .061 |
| Helping for over a year % (n)   | 70.0 (42)           | 72.7 (381) | 72.4 (423) | .656 |
| Without family support* % (n)  | 74.7 (68)           | 44.8 (352) | 47.9 (420) | .000 |

* variables included in the regression analysis
** variable not included in the regression due to missing data

In our study, 10% of family caregivers felt lonely. FCGs who felt lonely lived significantly more alone and identified a greater lack of family support.
Table 2 present health, frailty and burden profile of the FCGs and the comparison of these according to their feeling of loneliness.

Table 2 – FCGs health, frailty and burden characteristics
|                                    | FCGs feeling lonely (often or always) (n = 91) | FCGs not feeling lonely (n = 785) | Total population (N = 876) | p     |
|------------------------------------|-----------------------------------------------|----------------------------------|---------------------------|-------|
|                                    |                                               |                                  |                           |       |
| **Health & frailty status**         |                                               |                                  |                           |       |
| Having a Chronic health problems* % (n) | 52.7 (48)                                    | 39.6 (311)                       | 41 (359)                  | .016  |
| Feeling his health status as poor or bad* % (n) | 60.4 (55)                                    | 25.7 (202)                       | 29.3 (257)                | .000  |
| Feeling moderate/severe physical pain* % (n) | 82.4 (75)                                    | 57.1 (448)                       | 59.7 (523)                | .000  |
| Complaining of sleep disorders* % (n) | 73.6 (67)                                    | 28.2 (221)                       | 32.9 (288)                | .000  |
| Feeling anxious, stressed, overworked% (n)* | 80.2 (57)                                    | 19.9 (156)                       | 26.1 (229)                | .000  |
| Having Musculoskeletal disorder* % (n) | 73.6 (67)                                    | 60 (471)                         | 61.4 (538)                | .011  |
| Being frail according to the GFST score* % (n) | 67 (61)                                      | 28.9 (227)                       | 32.9 (288)                | .000  |
| Having no regular physical activity* % (n) | 62.6 (57)                                    | 32 (251)                         | 35.2 (308)                | .000  |
| Having fallen during the previous 6 months* % (n) | 22 (20)                                      | 13.5 (106)                       | 14.4 (126)                | .029  |
| Having consulted at least once a doctor for himself or herself during the previous 3 months* % (n) | 89 (81)                                      | 79.4 (623)                       | 80.4 (704)                | .028  |
| Renouncing health care during the previous 12 months* % (n) | 30.8 (28)                                    | 10.3 (81)                        | 12.4 (109)                | .000  |
| Taking at least one psychotropic drug* % (n) | 46.2 (42)                                    | 21.1 (166)                       | 23.7 (208)                | .000  |
| Having talked with his doctor about his/her status as a FCG* % (n) | 44 (40)                                      | 37.6 (295)                       | 38.2 (335)                | .236  |
| **Burden and perceived consequences of caregiving relationship** |                                               |                                  |                           |       |
| Having a moderate/severe burden (Mini-Zarit score)* % (n)* | 78 (71)                                      | 30.6 (240)                       | 35.5 (311)                | .000  |
| Having a difficult relationship with the older people* % (n) | 42.9 (39)                                    | 13.2 (104)                       | 16.3 (143)                | .000  |
| Having a impact on family life* % (n) | 54.9 (50)                                    | 22.9 (180)                       | 26.3 (230)                | .000  |
| Having a impact on the day's outings* % (n) | 69.2 (63)                                    | 43.2 (339)                       | 45.9 (402)                | .000  |
| Having a impact on leaving for a few days* % (n) | 69.2 (63)                                    | 45.5 (357)                       | 47.9 (420)                | .000  |
| Perceiving difficulties in fulfilling their role as FCG * % (n) | 83.5 (76)                                    | 49.9 (392)                       | 53.4 (468)                | .000  |
FCGs who felt lonely reported more physical and mental health issues, *i.e.* they were more likely to rate their health as poor or bad, to experience moderate to severe physical pain, and to have feelings of anxiety, stress, or overworked. FCGs who felt lonely were more likely to be frail, according to GFST scale, to experience moderate to severe burden, to have more negative impacts on family life, and to have a bad relationship with the older people.

The majority of the FCGs who felt lonely performed more than 3 tasks (80% of them versus 43%, *p*<0.001) and had more difficulties to perform them related to their own state of health, lack of financial or material means, lack of specialized institutions or lack of dialogue with professionals (*p*<0.05).

Multivariate analysis showed that family caregivers who felt lonely were more often children (OR=1.8). In addition, they were twice as likely to have a moderate or severe burden (OR=2.6) and were more limited in their assistance by lack of material or financial means (OR=2.5). They were more likely to have a difficult relationship with the older people (OR=2.3) and more likely to have no family support (OR=3.3).

They were 6 times more likely to feel anxious (OR=5.6), have sleep disorders (OR=2.4), and twice as likely to be frail (GFST) (OR=2), and to experience their health as poor or mediocre (OR=2) (Table 3).

Table 3 - Factors associated with FCG loneliness

|                                | OR      | 95% CI    | p      |
|--------------------------------|---------|-----------|--------|
| Child FCG                      | 1.846   | 1.048     | .034   |
| FCG without family support     | 3.379   | 1.837     | .000   |
| FCG having a difficult relationship with the older people | 2.328 | 1.300 | .004 |
| Moderate/Severe burden FCG     | 2.604   | 1.387     | .003   |
| FCG limited in assistance by the lack of material or financial means | 2.506 | 1.409 | .002 |
| FCG complaining of sleep disorders | 2.476 | 1.355 | .003 |
| FCG feeling anxious, stressed, overworked | 5.634 | 2.987 | .000 |
| FCG feeling his health status as poor or bad | 2.457 | 1.282 | .007 |
| Frailty according to the GFST score | 2.015 | 1.087 | .026 |

* A probability value of <0.05 was considered significant
Discussion

Nearly 10% of caregivers felt often or always lonely. Based on the literature review, this prevalence is similar to that found in the general population but slightly lower than that found among family caregivers [7, 9].

However, results confirm that loneliness has a negative impact on the health, frailty and burden of FCGs. Indeed, analyses showed that FCGs who feel lonely are more likely to be anxious, stressed and overworked than others [34, 35]. They are also more likely to perceive their health as poor or bad, and more likely to experience moderate to severe burden, despite having the same age as FCGs who do not feel lonely. Loneliness has also been associated with greater frailty, which is a known biopsychosocial risk factor for which early identification is advocated to prevent the physical and mental health consequences of FCGs.

This study highlights the need to collect the feelings of loneliness of FCGs. This could be done from a prevention perspective, upstream of the impacts on mental and physical health, burden, and frailty [34] and propose social prescriptions to avoid medical prescriptions, such as antidepressants, anxiolytics. Indeed, loneliness is a societal issue that can become a medical issue [1].

Also, it is important to understand factors predisposing to feeling of loneliness in order to develop effective interventions to prevent and reduce it [36]. Indeed, preserving the good physical and mental health of FCGs is essential for the sustainability of the health care system [37] to limit the risk of unplanned hospitalization [32] or abuse of their care recipient [38].

In a prior study, the first action identified was to drive health professionals and social workers to identify who is a FCG and who is not, in order to be able to help them if needed. Identifying the FCGs and listening to them has been shown to be a first step in reducing their burden [27].

FCGs who feel lonely are more likely to be children who have a difficult relationship with their parent and limited family support. There is probably a certain precarious profile. Indeed, many articles reported the difficulties of working FCGs, and FCGs sandwiched between their professional life, their family life and their role of FCG, which makes them more frail and is for some of them a source of social isolation and loneliness [39].

The health professional who identifies the issue of loneliness with the caregiver could thus be the initiator of a social prescription, in order to anticipate possible health issues. This social prescription could lead to actions such as participation in a shared garden, a support group, more professional help, and support in administrative procedures or even regular contact with the caregiver by a professional [40].

Numerous initiatives are in place to prevent loneliness and social isolation of the older people, but FCGs, who are at risk of stress and loneliness, are often excluded from these initiatives [41].
A possible limitation of this study is that FCGs included were caring for older people who asked for supplementary social assistance and professional help for their daily living. Yet our results cannot be generalized to the whole older people’s population assisted by FCGs because of this representative bias.

Loneliness is a phenomenon that is all the more topical as we have been living for a year and a half in a pandemic period, which is likely to persist for some time. This pandemic has accentuated the feeling of loneliness and the constraints that weigh on FCGs [42]. FCGs are therefore vulnerable in terms of physical and mental health and are particularly at risk when their needs are not addressed. The COVID-19 pandemic period resulted in increased pressure on FCGs and exacerbated their depressive symptomatology, especially among those who felt already lonely before the pandemic [43].

The COVID-19 pandemic also allowed the development of human or virtual solutions, which can also be evolving answers in time and less expensive. However, it is necessary to include FCGs in these solutions and to develop actions specifically for them.

**Conclusions**

Loneliness is a societal issue that can become a medical issue. Physicians need to be informed and sensitive to do prevention, before having to manage medical consequences such as depression, frailty, stress, consumption of psychotropic drugs. Means must be implemented to anticipate the consequences of the loneliness felt by FCGs, notably by orienting them towards the relevant services.

**Abbreviations**

FCG: Family Caregiver

FCGs: Family Caregivers

PACA: Provence Alpes Côte d’Azur

Carsat: Caisse d'Assurance Retraite et de la Santé au Travail

GFST: Gérontopôle Frailty Screening Tool

AGGIR: Autonomie Gérontologie Groupes Iso-Ressources

CNIL: Commission Nationale de l’Informatique et des Libertés

ANOVA: ANalysis Of VAriance

SPSS: Statistical Package for the Social Sciences

IBM: International Business Machines
Declarations

Ethics approval and consent to participate: This study was carried out in accordance with the bioethics laws and has obtained the ethical approval of the Ethics Committee of the University of Aix-Marseille (No. 2020-09-07-10). All personal data were managed exclusively by CARSAT, which is authorized by the Commission Nationale de l'Informatique et des Libertés (CNIL) (n2005-38). In agreement with the Ethics Committee of the University of Aix-Marseille, a letter of information for FCGs was given during a Carsat visit to the older people and/or sent to the FCG. The written receipt of informed consent was not required.

Consent for publication: not applicable

Availability of data and materials: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request. These data will be used in other publications.

Competing interests: The authors declare that they have no competing interests.

Funding: none.

Authors’ contributions: SBG, SA, AB and SG performed the literature review. All authors (SBG, SA, AB, SG) have taken part in the discussion and have critically analysed and approved the final manuscript.

Acknowledgments: We thank Carsat and its professionals, in particular Sylvie Perez and Karine Givone, and the social workers for their hard work.

References

1. Hawkley LC, Cacioppo JT. Loneliness Matters: A Theoretical and Empirical Review of Consequences and Mechanisms. Ann Behav Med [Internet]. 2010 Oct [cited 2021 Jul 21],40(2):218–27. Available from: https://academic.oup.com/abm/article/40/2/218-227/4569527

2. Andy A. Studying How Individuals Who Express the Feeling of Loneliness in an Online Loneliness Forum Communicate in a Nonloneliness Forum: Observational Study. JMIR Form Res [Internet]. 5(7). Available from: https://formative.jmir.org/2021/7/e28738

3. Perlman D, Peplau LA. Loneliness research: a survey of empirical findings. In: Preventing the harmful consequences of severe and persistent loneliness. Government Printing Office. 1984. p. 13–46.

4. Cornwell EY, Waite LJ. Social Disconnectedness, Perceived Isolation, and Health among Older Adults. J Health Soc Behav [Internet]. 2009 Mar [cited 2021 Jul 21],50(1):31–48. Available from: http://journals.sagepub.com/doi/10.1177/002214650905000103

5. Ong AD, Uchino BN, Wethington E. Loneliness and Health in Older Adults: A Mini-Review and Synthesis. Gerontology [Internet]. 2016 [cited 2021 Jun 1],62(4):443–9. Available from: https://www.karger.com/Article/FullText/441651
6. Valtorta NK, Kanaan M, Gilbody S, Hanratty B. Loneliness, social isolation and social relationships: what are we measuring? A novel framework for classifying and comparing tools. BMJ Open [Internet]. 2016,6(4). Available from: https://bmjopen.bmj.com/content/6/4/e010799

7. European Commission, d’Hombres B, Schnepf S. Loneliness – an unequally shared burden in Europe [Internet]. 2018. (Science for Policy Briefs). Available from: https://ec.europa.eu/jrc/sites/default/files/fairness_pb2018_loneliness_jrc_i1.pdf

8. Centre de Recherche pour l’Etude et l’Observation des Conditions de vie (CREDOC), Fondation de France, Berhuet S, Brice Masencal L, Etienne L, Guisse N, et al. 10 ans d’observation de l’isolement relationnel: un phénomène en forte progression Les solitudes en France – édition 2020 [Internet]. 2020. Available from: https://www.credoc.fr/publications/10-ans-dobservation-de-lisolement-relationnel-un-phenomene-en-forte-progression-barometre-les-solitudes-en-france-edition-2020

9. Direction de la Recherche, des Etudes, de l’Evaluation et des Statistiques, Bellidenty J, Radé E. Aider son parent âgé en ayant des enfants à charge - Quelle est la situation de cette génération ‘pivot’? Doss DREES [Internet]. 2021 Oct,(83). Available from: https://drees.solidarites-sante.gouv.fr/sites/default/files/2021-10/DD83.pdf

10. Hoogendijk EO, Suanet B, Dent E, Deeg DJH, Aartsen MJ. Adverse effects of frailty on social functioning in older adults: Results from the Longitudinal Aging Study Amsterdam. Maturitas [Internet]. 2016 Jan [cited 2021 Jun 1],83:45–50. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0378512215300529

11. Choi H. Impact of social isolation on behavioral health in elderly: Systematic review. World J Psychiatry [Internet]. 2015 [cited 2021 Jun 1],5(4):432. Available from: http://www.wjgnet.com/2220-3206/full/v5/i4/432.htm

12. Holt-Lunstad J, Smith TB, Baker M, Harris T, Stephenson D. Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review. Perspect Psychol Sci [Internet]. 2015,10(2):227–37. Available from: https://www.jstor.org/stable/44290063

13. Petitte T, Mallow J, Barnes E, Petrone A, Barr T, Theeke L. A Systematic Review of Loneliness and Common Chronic Physical Conditions in Adults. Open Psychol J. 2015,8(Suppl 2):113–32.

14. Perissinotto CM, Stijacic Cenzer I, Covinsky KE. Loneliness in older persons: a predictor of functional decline and death. Arch Intern Med. 2012,14(172):1078–83.

15. Newall N, McArthur J, Menec VH. A longitudinal examination of social participation, loneliness, and use of physician and hospital services. J Aging Health. 2015 Apr,27(3):500–18.

16. Beutel ME, Klein EM, Brähler E, Reiner I, Jünger C, Michal M, et al. Loneliness in the general population: prevalence, determinants and relations to mental health. BMC Psychiatry [Internet]. 2017,17(97). Available from: https://pubmed.ncbi.nlm.nih.gov/28320380/

17. de Jong Gierveld J. Developing and Testing a Model of Loneliness. J Pers Soc Psychol [Internet]. 1987,53(1):119–28. Available from: https://pubmed.ncbi.nlm.nih.gov/3612484/

18. Jaremka LM, Andridge RR, Fagundes CP, Alfano CM, Povoski SP, Lipari AM, et al. Pain, depression, and fatigue: Loneliness as a longitudinal risk factor. Health Psychol [Internet]. 2014 [cited 2021 Jun
19. Luhmann M, Hawkley LC. Age Differences in Loneliness from Late Adolescence to Oldest Old Age. Dev Psychol. 2016, 52(6): 943–59.

20. Roth DL, Fredman L, Haley WE. Informal Caregiving and Its Impact on Health: A Reappraisal From Population-Based Studies. The Gerontologist [Internet]. 2015 Apr 1 [cited 2021 Jun 2], 55(2): 309–19. Available from: https://academic.oup.com/gerontologist/article/55/2/309/656865

21. Giraud O, Outin JL, Rist B. Avant-propos. Revue française des affaires sociales. Rev Fr Aff Soc [Internet]. 2019 [cited 2020 Mar 30], Available from: https://www.cairn.info/revue-francaise-des-affaires-sociales-2019-1-page-7.htm

22. Broese van Groenou MI, De Boer A. Providing informal care in a changing society. Eur J Ageing. 2016, 13(3): 271–9.

23. England K, Azzopardi-Muscat N. Demographic trends and public health in Europe. Eur J Public Health. 2017 Oct 1, 27(suppl_4): 9–13.

24. Oldenkamp M, Hagedoorn M, Slaets J, Stolk R, Wittek R, Smidt N. Subjective burden among spousal and adult-child informal caregivers of older adults: results from a longitudinal cohort study. BMC Geriatr [Internet]. 2016 Dec 7 [cited 2018 Mar 15], 16: 208. Available from: https://doi.org/10.1186/s12877-016-0387-y

25. Schulz R, Beach SR. Caregiving as a Risk Factor for Mortality: The Caregiver Health Effects Study. JAMA [Internet]. 1999 Dec 15 [cited 2021 Feb 22], 282(23): 2215. Available from: http://jama.jamanetwork.com/article.aspx?doi=10.1001/jama.282.23.2215

26. Dauphinot V, Ravier A, Novais T, Delphin-Combe F, Mouchoux C, Krolak-Salmon P. Risk Factors of Caregiver Burden Evolution, for Patients With Subjective Cognitive Decline or Neurocognitive Disorders: A Longitudinal Analysis. J Am Med Dir Assoc [Internet]. 2016 Nov 1 [cited 2018 Mar 28], 17(11): 1037–43. Available from: http://www.jamda.com/article/S1525-8610(16)30250-X/abstract

27. Arlotto S, Bonin-Guillaume S, Denicolai S, Durand A-C, Gentile S. Les aidants de personnes âgées non dépendantes ont-ils des spécificités ? Étude auprès de 876 dyades personnes âgées-aidants. Rev DÉpidémiologie Santé Publique [Internet]. 2019 Nov [cited 2021 Feb 22], 67(6): 403–12. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0398762019304523

28. Yu H, Wang X, He R, Liang R, Zhou L. Measuring the Caregiver Burden of Caring for Community-Residing People with Alzheimer's Disease. PLoS ONE [Internet]. 2015 Jul 8 [cited 2020 Aug 21], 10(7). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4496054/

29. Orfila F, Coma-Solé M, Cabanas M, Cegri-Lombardo F, Moleras-Serra A, Pujol-Ribera E. Family caregiver mistreatment of the elderly: prevalence of risk and associated factors. BMC Public Health [Internet]. 2018 Dec [cited 2021 Feb 22], 18(1). Available from: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-5067-8

30. Aguilova L, Sauzéon H, Balland é., Consel C, N'Kaoua B. Grille AGGIR et aide à la spécification des besoins des personnes âgées en perte d’autonomie. Rev Neurol (Paris) [Internet]. 2014 Mar [cited...
31. Vellas B, Balardy L, Gillette-Guyonnet S, Abellan Van Kan G, Ghisolfi-Marque A, Subra J, et al. Looking for frailty in community-dwelling older persons: The Gerontopole Frailty Screening Tool (GFST). J Nutr Health Aging [Internet]. 2013 Aug [cited 2021 Jun 2],17(7):629–31. Available from: http://link.springer.com/10.1007/s12603-013-0363-6

32. Bonin-Guillaume S, Durand A-C, Yahi F, Curiel-Berruyer M, Lacroix O,CRETEL E, et al. Predictive factors for early unplanned rehospitalization of older adults after an ED visit: role of the caregiver burden. Aging Clin Exp Res. 2015 Dec,27(6):883–91.

33. Zarit SH, Reever KE, Bach-Peterson J. Relatives of the impaired elderly: correlates of feelings of burden. The Gerontologist. 1980 Dec,20(6):649–55.

34. Jarach CM, Tettamanti M, Nobili A, D’avanzo B. Social isolation and loneliness as related to progression and reversion of frailty in the Survey of Health Aging Retirement in Europe (SHARE). Age Ageing. 2021 Jan 8,50(1):258–62.

35. Vyas MV, Watt JA, Yu AYX, Straus SE, Kapral MK. The association between loneliness and medication use in older adults. Age Ageing. 2021 Feb 26,50(2):587–91.

36. Dahlberg L, Andersson L, Lennartsson C. Long-term predictors of loneliness in old age: results of a 20-year national study. Aging Ment Health [Internet]. 2018 Feb [cited 2021 Jun 2],22(2):190–6. Available from: https://www.tandfonline.com/doi/full/10.1080/13607863.2016.1247425

37. Hiel L, Beenackers MA, Renders CM, Robroek SJW, Burdorf A, Croezen S. Providing personal informal care to older European adults: Should we care about the caregivers’ health? Prev Med [Internet]. 2015 Jan [cited 2021 Mar 2],70:64–8. Available from: https://linkinghub.elsevier.com/retrieve/pii/S009174351400396X

38. Johannesen M., LoGiudice D. Elder abuse: a systematic review of risk factors in community-dwelling elders | Age and Ageing | Oxford Academic. Age Ageing [Internet]. 2020 Mar 30 [cited 2020 Mar 30],42(3):292–8. Available from: https://academic.oup.com/ageing/article/42/3/292/24179

39. Do EK, Cohen SA, Brown MJ. Socioeconomic and demographic factors modify the association between informal caregiving and health in the Sandwich Generation. BMC Public Health [Internet]. 2014 Apr 15 [cited 2018 Mar 15],14:362. Available from: https://doi.org/10.1186/1471-2458-14-362

40. Nyatanga B. Social prescribing: combating loneliness is everyone’s business. Br J Community Nurs. 2020 Apr 2,25(4):200.

41. Schulz R, Beach SR, Czaja SJ, Martire LM, Monin JK. Family Caregiving for Older Adults. Annu Rev Psychol. 2020 Jan 4,71:635–59.

42. Gorenko JA, Moran C, Flynn M, Dobson K, Konnert C. Social Isolation and Psychological Distress Among Older Adults Related to COVID-19: A Narrative Review of Remotely-Delivered Interventions and Recommendations. J Appl Gerontol Off J South Gerontol Soc. 2021 Jan,40(1):3–13.

43. Gallagher S, Wetherell MA. Risk of depression in family caregivers: unintended consequence of COVID-19. BJPsych Open [Internet]. 2020 Nov [cited 2021 Jul 1],6(6). Available from:
