CC BY

ORIGINAL PAPER

International Journal of Occupational Medicine and Environmental Health 2026;39(6)
https://doi.org/10.13075/ijomeh.1896.02855

FACTORS ASSOCIATED WITH SELF-REPORTED STRESS BY INFORMAL CAREGIVERS PROVIDING CARE FOR OLDER ADULTS

NATALIA DRAPAŁA[1], ILONA BARAŃSKA[1], ANNA KLIŚ-KALINOWSKA[2,3], and KATARZYNA SZCZERBIŃSKA[1,4]

[1] Jagiellonian University Medical College, Kraków, Poland
Laboratory for Research on Aging Society, Chair of Epidemiology and Preventive Medicine, Medical Faculty
[2] Jagiellonian University Medical College, Kraków, Poland
Faculty of Health Sciences
[3] Care and Treatment Center in Krakow, Kraków, Poland
[4] University Hospital, Kraków, Poland
Geriatric Department

Highlights
- Stress was reported more frequently among caregivers who were employed.
- Lack of access to respite care was associated with a higher frequency of stress.
- Caregivers of relatives with unmet needs had greater chances of stress.

Abstract
Objectives: The aim of this study was to assess the prevalence of self-reported stress among informal caregivers of older adults living at home and to identify key factors associated with caregiving-related stress. **Material and Methods:** Between April 2024 and May 2025, a cross-sectional survey was conducted among 338 informal caregivers of individuals aged ≥60 years. Data were collected using the interRAI-Self-Reported Carer Needs (SCaN) tool. Logistic regression analyses were used to identify key stress-related factors. **Results:** Factors that significantly increase the odds of experiencing stress associated with caregiving include: being employed while providing care (OR = 3.03, 95% CI: 1.61–5.70), caring for a person with Alzheimer's disease or other dementia (OR = 2.38, 95% CI: 1.24–4.54), lack of access to respite services (OR = 3.53, 95% CI: 1.92–6.49), spending >35 h/week on caregiving (OR = 2.27, 95% CI: 1.08–4.77), and the presence of mood-disorder symptoms in the carer (OR = 3.53, 95% CI: 1.92–6.49). Caregivers who felt their relatives' needs were unmet were nearly 6 times more likely to report stress compared to those who felt otherwise (OR = 5.84, 95% CI: 1.48–23.01). **Conclusions:** Caregiver stress is a multifaceted phenomenon associated with numerous factors. This cross-sectional study identifies factors associated with the prevalence of caregiving stress, underscoring the need for a multidimensional approach to strengthen and optimize support systems for informal caregivers and the individuals they care for. Int J Occup Med Environ Health. 2026;39(6)

Key words:
logistic regression, older people, informal caregiver, interRAI, caregiver distress, respite care

Conflict of interest: the authors declare no potential conflicts of interest related to the research, authorship, or publication of this article.
Funding: this study was supported by Jagiellonian University Medical College (grant No. N41/DBS/001540 entitled "Diagnosis of the health, burdens and needs of family caregivers of older people," project manager: Prof. Katarzyna Szczerbińska).
Received: March 11, 2026. Accepted: October 9, 2026.
Corresponding author: Natalia Drapała, Jagiellonian University Medical College, Laboratory for Research on Aging Society, Chair of Epidemiology and Preventive Medicine, Medical Faculty, Skawińska 8, 31-066 Kraków, Poland (e-mail: natalia.drapala@uj.edu.pl).

INTRODUCTION

Care for older adults may be provided by professional caregivers or informal carers, who are typically relatives offering voluntary, unpaid support. While professional caregivers are at well-documented risk of burnout due to chronic emotional and physical overload, informal caregivers, although not experiencing burnout in the occupational sense, are highly vulnerable to caregiver stress. This multidimensional burden includes emotional strain, social isolation, and physical exhaustion [1]. Caregiver stress is strongly associated with decline in mental and physical health, which increases the risk of depression, anxiety, and somatic illness [2–5].

Research shows that behavioral symptoms in care recipients and the overall intensity of care demands increase stress levels, particularly among spouses and adult children [6]. Chronic caregiving stress has also been linked to biological dysregulation, including impaired endothelial function – an early cardiovascular risk marker observed among dementia caregivers [7]. Elevated inflammatory markers, such as interleukin 6 (IL-6), C-reactive protein (CRP) and D-dimer, further highlight the physiological consequences of long-term stress, particularly in older caregivers [8]. Additionally, higher hair cortisol concentrations in dementia caregivers suggest sustained activation of the stress response system, which subsequently influences immune functioning, sleep quality, and cardiovascular health [9].

Across Europe, informal caregivers provide essential unpaid support to older adults, representing 13–22% of the adult population. The prevalence is lowest in Portugal and Spain, and highest in Luxembourg, Belgium, and Denmark [10]. In Poland, around 15% of adults provide informal care, primarily to older parents or in-laws, and spend an average of >35 h/week on caregiving tasks [11]. As populations age and the need for long-term care increases, it is crucial to understand the factors that contribute to caregiver stress in order to design effective support systems that protect caregiver well-being and ensure sustainable care provision.

This study aimed to assess the prevalence and factors associated with caregiver stress among informal caregivers of older adults living at home.

MATERIAL AND METHODS

Study design

The study was conducted using a survey approach that incorporated both paper-and-pencil (PAPI) and computer-assisted web interviewing (CAWI) methods. The data used in this study were collected using a standardized questionnaire as part of a project entitled "Diagnosis of the Health, Burdens and Needs of Family Caregivers of Older People" which was financed by the Jagiellonian University Medical College's own budget. The study was approved by the Research Ethics Committee of the Jagiellonian University Medical College (positive opinion No. 118.0043.1.74.2024, March 21, 2024).

Data collection and study population

The research involved 338 informal caregivers providing care for people aged ≥60 years who lived in the community at the time the data was collected. The study was conducted online and on-site at the respite care center (RCC) for older people and chronically dependent persons in Kraków in April 1, 2024 – May 31, 2025.

The inclusion criteria were as follows:

- an informal carer, defined as a family or non-family member (partner, spouse, child, family member, or close friend) providing unpaid care to an older adult aged ≥60 years, with at least 2 weekly interactions if residing in separate households;
- an informal carer for an older person (aged ≥60 years) who was in their constant unpaid care, provided they lived together.

Exclusion criteria:

- caregiver of a person <60 years of age,

– caregiver of an older person currently staying in a 24-hour care facility, such as a residential home, nursing home or hospital.

Online survey

The online survey was completed by 249 informal caregivers of older adults living in the community. The survey was conducted using the Lime Survey platform. The Laboratory for Research on Ageing Society (Pracownia Badań nad Starzejącym się Społeczeństwem) website provided access to the survey. The survey was also shared on the websites and social media platforms of organizations supporting informal caregivers of dependent individuals in Poland. First, participants were provided with information about the study's objectives and the consent form. Next, they filled in the questionnaire. The survey was a one-off study that ensured full anonymity. Respondents were not asked to provide any personal data to avoid their identification.

Study conducted at the RCC

An on-site survey was conducted with 89 informal caregivers of older adults using respite care services at the RCC for older people and chronically dependent persons in Kraków. The "Respite Care" („Opieka wytchnieniowa") program, funded by the Solidarity Fund (Fundacja Solidarności Międzynarodowej), provides temporary relief for informal caregivers by offering short-term substitute care. In Kraków, the "Respite Care" program supports ≤350 residents annually. It is available year-round to family members or informal carers who need a break from daily caregiving duties, with services delivered either as day care (≤240 h/year) or short-term residential care (≤14 days/year) [12]. The participants were recruited by pre-trained interviewers who were nurses by profession. The interviewers informed the respondent about study objectives and provided them with an information form as well as they obtained informed written consent to participate in the study and the processing of personal data. Participants could either complete the questionnaire on site or take it home and return it to the interviewer during their next visit to the RCC.

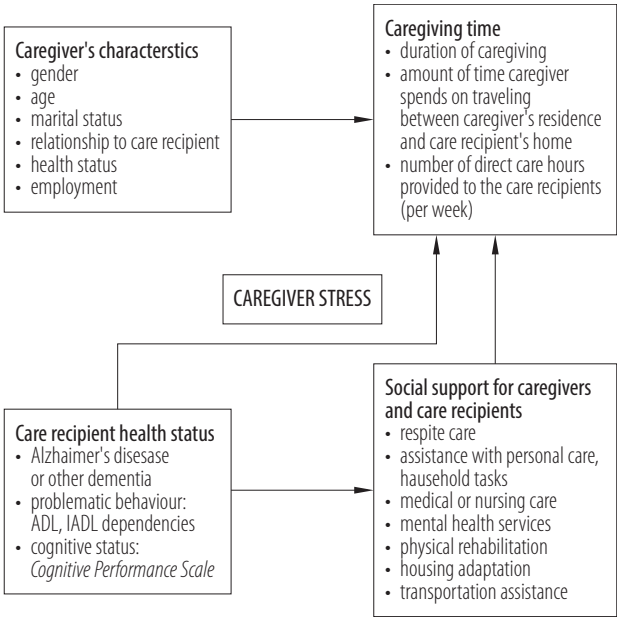
Measurements

The interRAI-Self-Reported Carer Needs (SCaN), v. 10.1 questionnaire was used for the study. This is a standardized instrument developed by the interRAI consortium and is available through the official interRAI website and publication catalogue, where the assessment form and user manual can be obtained; access is subject to the terms and conditions specified by interRAI [13]. This tool has been designed to evaluate quality of life and needs of individuals caring for their loved ones. The first part of the tool is focused on assessment of health and well-being of a caregiver. It covers areas such as memory and cognition, social participation, functioning, endurance, stamina, mood and health condition. The second part concentrates on the needs of caregivers, including their access to and use of formal support services, and the challenges they encounter. The final section contains items related to the self-rated quality of life as perceived by caregivers.

The variables included in the analysis were selected based on a review of the scientific literature [14–16] to ensure coverage of key aspects related to the care of older adults and the needs of their caregivers. A graphical representation of the relationships between these domains is provided in Figure 1.

The analysis of characteristics of informal caregivers included the following variables:

– gender,
– age,
– marital status,
– relationship to the care recipient,
– employment status,
– self-rated health,
– duration of care provided to the care recipient,
– time needed to reach the place where the care recipient currently lives.



ADL – activities of daily living; IADL - instrumental activities of daily living.

Figure 1. Factors associated with caregiver stress

Caregiver stress was measured using a yes/no response to the following question: "Is caring for the care recipient a major source of stress for you?" The analyses accounted for whether the caregiver used respite care (0 – the caregiver does not need it, as sufficient support is already being provided or they do not perceive a need; 1 – the caregiver needs it, indicating a lack of access to this form of assistance despite needing it, or receiving insufficient support). The analysis also included 5 nominal variables (0 – no, 1 – yes) indicating the presence of specific low-mood symptoms among caregivers. These symptoms were: having little interest or pleasure in usual activities; feeling anxious, restless, or uneasy; feeling sad, depressed, or hopeless; feeling overwhelmed by the care recipient's condition; and feeling unable to continue caregiving activities. A summary index was constructed from these variables to quantify the number of symptoms. The index ranges 0–5, with higher scores indicating a greater symptom burden. For analytical purposes, the number of symptoms was categorized into 3 levels: low (0–1 symptoms), moderate (2–3 symptoms), and high (4–5 symptoms).

The index was based on 13 variables reflecting different forms of support provided to the older adult, including: assistance with personal care; assistance with household tasks; medical or nursing care; mental health services; delivered meals; physical rehabilitation; day or night care services outside the home; end-of-life care; housing adaptations; therapy or assistance to support communication; aids and assistive devices; transportation assistance; and financial or legal advice. The variable relating to educational support, including job training, was excluded from the index because it showed no statistically significant association with caregiving stress. Caregivers assessed whether their care recipients used each form of support and the extent to which their needs were met (0 – not received, not needed; 1 – not received, but support needed; 2 – received, no additional support needed; 3 – received, but additional support needed). The resulting index was used to categorize the level of needs fulfilment among older adults into 3 groups: low (indicating numerous unmet needs), moderate (indicating partial fulfilment of needs), and high (indicating high fulfilment of needs or the absence of unmet needs). The analysis of care recipients included the following variables: gender, age, Alzheimer's disease or another dementia.

Analysis

To characterize the sample, descriptive statistics (mean [M] and standard deviation [SD], median and interquartile range, or frequency and proportion) were employed. The characteristics of the respondents have been reported separately for those who participated in the online survey and for the caregivers who were recruited at RCC (Table 1). This division is based on the assumption that the needs and experiences of caregivers who used respite care might differ from those of caregivers who participated in the online survey. Univariable analyses were performed to examine factors that were associated with caregiver stress. The χ^2 test was used for nominal variables, Spearman's

Table 1. The characteristics of the study participants based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025

Variable	Participants (N = 338)	
	respite care center (N = 89)	online (N = 249)
Caregivers		
gender [n (%)]		
male	18 (20.5)	30 (12.0)
female	70 (79.5)	219 (88.0)
age [years] (M±SD)	56.3±14.0	50.0±13.9
marital status [n (%)]		
in relationship (married/civil partnership long-term living with partner)	63 (70.8)	176 (70.7)
other (divorced or separated, widow or widower, never married)	26 (29.2)	73 (29.3)
relationship with the care recipients [n (%)]		
partner	18 (21.2)	14 (5.6)
daughter/son or son-in-law/daughter-in-law	51 (60.0)	127 (51.0)
parent/legal guardian	6 (7.1)	34 (13.7)
other relative	10 (11.8)	40 (16.1)
friend/neighbor	0 (0)	34 (13.7)
employment (yes) [n (%)]	37 (42.0)	110 (44.2)
self-rated health [n (%)]		
excellent	4 (4.5)	14 (5.6)
good	37 (41.6)	133 (53.4)
fair	45 (50.6)	93 (37.3)
poor	3 (3.4)	9 (3.6)
duration of caregiving [n (%)]		
<12 months	25 (28.1)	51 (20.5)
1–5 years	37 (41.6)	112 (45.0)
>5 years	27 (30.3)	86 (34.5)
direct care time provided to the care recipients [n (%)]		
<4 h/week	18 (20.5)	50 (20.1)
4–14 h/week	28 (31.8)	98 (39.4)
14–35 h/week	14 (15.9)	47 (18.9)
≥35 h/week	28 (31.8)	54 (21.7)
time caregiver spends on traveling between caregiver's residence and care recipient's home [n (%)]		
we live together	53 (59.6)	104 (41.8)
≤14 min	10 (11.2)	61 (24.5)
15–29 min	8 (9.0)	42 (16.9)

Table 1. The characteristics of the study participants based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025 – cont.

Variable	Participants (N = 338)	
	respite care center (N = 89)	online (N = 249)
Caregivers – cont.		
time caregiver spends on traveling between caregiver's residence and care recipient's home [n (%)] – cont.		
30–59 min	14 (15.7)	20 (8.0)
≥60 min	4 (4.5)	22 (8.8)
symptoms of mood disorders in caregivers [n (%)]		
felt little interest or pleasure in things you normally enjoy (yes)	26 (29.2)	96 (38.6)
felt anxious, restless or uneasy (yes)	33 (37.1)	128 (51.4)
felt sad, depressed or hopeless (yes)	33 (37.1)	124 (49.8)
felt overwhelmed by the care recipient's condition (yes)	33 (37.1)	131 (52.6)
felt unable to continue caring activities (yes)	14 (15.7)	70 (28.1)
caregiver respite care utilisation and needs status [n (%)]		
not received, not needed	29 (33.0)	116 (46.6)
not received, but support needed	53 (60.2)	110 (44.2)
received, no additional support needed	1 (1.1)	16 (6.4)
received, but additional support needed	5 (5.7)	7 (2.8)
caring for the care recipient is a major source of stress (yes) [n (%)]	49 (55.7)	145 (58.2)
Care recipient		
gender [n (%)]		
male	31 (34.8)	63 (25.3)
female	58 (65.2)	186 (74.7)
age [years] (M±SD)	79.6±9.1	80.2±8.8
Alzheimer's disease or other dementia (yes) [n (%)]	27 (30.3)	79 (31.7)

rank correlation for ordinal variables and Student's t-test for quantitative variables (Table 2).

Due to the relatively small sample size of the RCC group (N = 89), the authors could not perform separate logistic regression analyses for both study groups, as this could have resulted in limited statistical power. Instead, a single multivariable model was constructed for the combined sample, with data source (RCC vs. online) included as a control variable, which did not show significant difference between groups (Table 3). The authors also tested for interactions between the data source and selected variables, where differences by recruitment setting were observed; however, no statistically significant interactions were identified. The selection of variables for inclusion in the logistic regression model was based on the results of the univariable analyses. The model was developed using backward stepwise selection, removing variables until only those with a statistically significant association with caregiver stress remained. Regardless of the selection results, the following control variables were also included

Table 2. Prevalence of self-reported stress and associated factors: bivariate analysis based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025

Variable	Participants (N =338)			
	respite care center (N = 89)		online (N = 249)	
	stressed	p	stressed	p
Caregiver				
gender [n (%)]		**0.04**		0.83
male	6 (33.3)		18 (60.0)	
female	42 (60.9)		127 (58.0)	
age [years] (M±SD)	56.3±12.8	0.97	52.3±13.3	**0.01**
marital status [n (%)]		0.36		0.89
in relationship (married/civil union, long-term living with partner)	37 (58.7)		102 (58.0)	
other (divorced or separated; widow or widower, never married)	12 (48.0)		43 (58.9)	
relationship with the care recipients [n (%)]		**0.04**		**0.03**
partner	10 (55.6)		11 (78.6)	
daughter/son or son-in-law/daughter-in-law	34 (68.0)		81 (63.8)	
parent/legal guardian	3 (50.0)		20 (58.8)	
other relative	2 (20.0)		20 (50.0)	
friend/ neighbor	0 (0)		13 (38.2)	
employment status [n (%)]		**<0.001**		**<0.001**
no	21 (41.2)		61 (43.9)	
yes (full or part time employment)	28 (77.8)		84 (76.4)	
self-rated health [n (%)]		**0.02**		**<0.001**
excellent	1 (33.3)		3 (21.4)	
good	15 (40.5)		61 (45.9)	
fair	30 (66.7)		73 (78.5)	
poor	3 (100.0)		8 (88.9)	
duration of caregiving [n (%)]		0.56		**<0.001**
<12 months	15 (60.0)		20 (39.2)	
1–5 years	20 (55.6)		64 (57.1)	
>5 years	14 (51.9)		61 (70.9)	
direct care hours provided to the care recipients (per week) [n (%)]		0.08		**<0.001**
<4 h/week	21 (46.7)		71 (52.0)	
14–35 h/week	8 (57.1)		32 (68.1)	
≥35 h/week	19 (67.9)		42 (77.8)	

Table 2. Prevalence of self-reported stress and associated factors: bivariate analysis based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025 – cont.

Variable	Participants (N =338)			
	respite care center (N = 89)		online (N = 249)	
	stressed	p	stressed	p
Caregiver – cont.				
amount of time caregiver spends on traveling between caregiver's residence and care recipient's home [n (%)]		0.79		0.08
living together	34 (64.2)		68 (65.4)	
≤14 min	1 (10.0)		28 (45.9)	
15–29 min	3 (42.9)		30 (71.4)	
30–59 min	7 (50.0)		11 (55.0)	
≥60 min	4 (100.0)		8 (36.4)	
index of symptoms of mood disorders [n (%)]		0.05		**<0.001**
low (0–1 symptoms)	15 (78.9)		59 (84.3)	
moderate (2–3 symptoms)	8 (53.3)		44 (57.1)	
high (4–5 symptoms)	24 (46.2)		42 (41.2)	
respite care utilization and needs status [n (%)]		**<0.001**		**<0.001**
no need (sufficient support is already being provided, or they do not perceive a need)	8 (26.7)		48 (36.4)	
unmet need (a lack of access to this form of assistance despite needing it, or receiving insufficient support)	41 (70.7)		97 (82.9)	
Care recipient [n (%)]				
gender		0.31		0.84
male	15 (48.4)		36 (57.1)	
female	34 (59.6)		109 (58.6)	
Alzheimer's disease or other dementia		**0.01**		**<0.001**
no	29 (46.8)		85 (50.0)	
yes	20 (76.9)		60 (75.9)	
index of older adults' needs fulfillment		**0.01**		**<0.001**
high	2 (16.7)		7 (17.9)	
moderate	31 (60.8)		107 (61.5)	
low	7 (87.5)		27 (87.1)	

The proportion of respondents who did not experience stress is not shown in the table, as this would make up the remaining percentage needed to reach 100% for the "yes" category.
P-value for categorical variables – the χ^2 test or likelihood ratio test, ordinal variables – Spearman's rank correlation test.
Bolded are statistically significant results .

Table 3. Factors associated with self-reported stress: results of logistic regression analysis based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years (N = 338) online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025

Variable	OR	95% CI	p
Constans	0.05		<0.001
Data source (0 – respite care center, 1 – online)	1.63	0.78–3.40	0.19
Gender (0 – male, 1 – female)	0.91	0.40–2.09	0.83
Age	1.02	0.99–1.04	0.17
Employment (yes vs. no)	3.03	1.61–5.70	**<0.001**
Alzheimer's disease or other dementia in care recipient (yes vs. no)	2.38	1.24–4.54	**0.01**
Time of care provided for an older person			
<14 h/week	ref.		
14–35 h/week	2.01	0.94–4.30	0.07
>35 h/week	2.27	1.08–4.77	**0.03**
Index of older adults' needs fulfillment			
high	ref.		
moderate	3.35	1.39–8.04	**0.01**
low	5.84	1.48–23.01	**0.01**
Mood disorders			
0–1 symptom	ref.		
2–3 symptoms	1.58	0.80–3.14	0.19
4–5 symptoms	3.48	1.60–7.56	**<0.001**
Respite care utilization and needs status[a] (needs vs. does not need)	3.53	1.92–6.49	**<0.001**

ref. – reference.
R^2 Nagelkerke = 0.464.
Bolded are statistically significant results.
[a] Does not need – sufficient support is already being provided, or they do not perceive a need, needs – reflecting a lack of access to this form of assistance despite needing it, or receiving insufficient support.

in the model: caregiver gender and age (centered on the mean), and study method (RCC vs. online). The possibility of interactions between all variables included in the model was checked. The goodness of fit of the model was checked, using the Nagelkerke's R^2. The results were reported as odds ratio (OR) and 95% confidence interval (CI). An additional analysis was conducted to examine whether receiving different forms of support for older adults was associated with caregiver-perceived stress (Table 4). Analyses were performed using IBM SPSS Statistics v. 29 for Windows (SPSS Inc.). The accepted level of statistical significance was 0.05.

RESULTS

Characteristics of informal caregivers

The majority of caregivers were the care recipient's partners, children or children-in-law. Most of them were women (85.5%). The proportions of caregivers in employment were similar in both groups (42.0% in the RCC group and 44.2% in the online sample), with >40% of caregivers in both groups reporting that they provided >14 h of care/week. The majority of caregivers rated their health as good (RCC: 41.6%, online: 53.4%). Furthermore, over half of the caregivers in each group (55.7% and 58.2%, respectively) reported caregiving as stressful. The mean age of caregivers

Table 4. Prevalence of self-reported stress and support for care recipients based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025

Support	Participants (N = 338) [n (%)]					
	respite care center (N = 89)			online (N = 249)		
	stress (yes)	stress (no)	p	stress (yes)	stress (no)	p
Assistance with personal care (e.g., bathing, grooming)			**0.01**			**0.01**
not received, not needed	9 (33.3)	18 (66.7)		48 (48.0)	52 (52.0)	
not received, but support needed	32 (71.1)	13 (28.9)		64 (72.7)	24 (27.3)	
received, no additional support needed	4 (40.0)	6 (60.0)		22 (55.0)	18 (45.0)	
received, but additional support needed	4 (66.7)	2 (33.3)		11 (52.4)	10 (47.6)	
Assistance with household tasks (e.g., cleaning, laundry)			**0.01**			**<0.001**
not received, not needed	11 (39.3)	17 (60.7)		32 (44.4)	40 (55.6)	
not received, but support needed	31 (70.5)	13 (29.5)		73 (80.2)	18 (19.8)	
received, no additional support needed	2 (22.2)	7 (77.8)		25 (40.3)	37 (59.7)	
received, but additional support needed	5 (71.4)	2 (28.6)		15 (62.5)	9 (37.5)	
Medical or nursing care			**<0.001**			**<0.001**
not received, not needed	2 (13.3)	13 (86.7)		27 (41.5)	38 (58.5)	
not received, but support needed	35 (76.1)	11 (23.9)		61 (75.3)	20 (24.7)	
received, no additional support needed	7 (41.2)	10 (58.8)		35 (47.9)	38 (52.1)	
received, but additional support needed	5 (50.0)	5 (50.0)		22 (73.3)	8 (26.7)	
Mental health services (e.g., social work, psychology)			0.26			**<0.001**
not received, not needed	24 (49.0)	25 (51.0)		70 (49.0)	73 (51.0)	
not received, but support needed	18 (66.7)	9 (33.3)		62 (79.5)	16 (20.5)	
received, no additional support needed	1 (100.0)	–		4 (22.2)	14 (77.8)	
received, but additional support needed	3 (75.0)	1 (25.0)		9 (90.0)	1 (10.0)	
Delivered meals			**<0.001**			**<0.001**
not received, not needed	26 (45.6)	31 (54.4)		97 (56.4)	75 (43.6)	
not received, but support needed	19 (95.0)	1 (5.0)		30 (81.1)	7 (18.9)	
received, no additional support needed	2 (28.6)	5 (71.4)		10 (35.7)	18 (64.3)	
received, but additional support needed	1 (50.0)	1 (50.0)		8 (66.7)	4 (33.3)	
Physical rehabilitation (e.g., physical or occupational therapy)			**0.01**			**<0.001**
not received, not needed	3 (25.0)	9 (75.0)		24 (40.0)	36 (60.0)	
not received, but support needed	32 (71.1)	13 (28.9)		76 (66.7)	38 (33.3)	
received, no additional support needed	6 (37.5)	10 (62.5)		22 (50.0)	22 (50.0)	
received, but additional support needed	7 (50.0)	7 (50.0)		23 (74.2)	8 (25.8)	

Table 4. Prevalence of self-reported stress and support for care recipients based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025 – cont.

Support	Participants (N = 338) [n (%)]					
	respite care center (N = 89)			online (N = 249)		
	stress (yes)	stress (no)	p	stress (yes)	stress (no)	p
Day or night care services outside of home			**<0.001**			**<0.001**
not received, not needed	8 (26.7)	22 (73.3)		61 (42.4)	83 (57.6)	
not received, but support needed	28 (82.4)	6 (17.6)		70 (88.6)	9 (11.4)	
received, no additional support needed	2 (40.0)	3 (60.0)		5 (33.3)	10 (66.7)	
received, but additional support needed	9 (60.0)	6 (40.0)		9 (81.8)	2 (18.2)	
End-of-life care			0.31			**0.01**
not received, not needed	28 (51.9)	26 (48.1)		98 (52.7)	88 (47.3)	
not received, but support needed	12 (75.0)	4 (25.0)		27 (77.1)	8 (22.9)	
received, no additional support needed	1 (33.3)	2 (66.7)		10 (58.8)	7 (41.2)	
received, but additional support needed	2 (66.7)	1 (33.3)		10 (90.9)	1 (9.1)	
Housing adaptation (wider doors, ramps, downstairs toilet, central heat, gas or flood detector, adaptation grants)			**<0.001**			**<0.001**
not received, not needed	11 (32.4)	23 (67.6)		48 (44.4)	60 (55.6)	
not received, but support needed	31 (77.5)	9 (22.5)		73 (73.0)	27 (27.0)	
received, no additional support needed	3 (37.5)	5 (62.5)		16 (57.1)	12 (42.9)	
received, but additional support needed	4 (66.7)	2 (33.3)		8 (61.5)	5 (38.5)	
Therapy or assistance to support communication (e.g., speech-language therapy, translation services)			0.51			**0.01**
not received, not needed	37 (52.1)	34 (47.9)		117 (57.4)	87 (42.6)	
not received, but support needed	9 (75.0)	3 (25.0)		22 (68.8)	10 (31.3)	
received, no additional support needed	1 (50.0)	1 (50.0)		2 (22.2)	7 (77.8)	
received, but additional support needed	1 (50.0)	1 (50.0)		4 (100.0)	–	
Aids and assistive devices			**0.02**			**<0.001**
not received, not needed	13 (39.4)	20 (60.6)		46 (45.1)	56 (54.9)	
not received, but support needed	26 (65.0)	14 (35.0)		62 (78.5)	17 (21.5)	
received, no additional support needed	9 (81.8)	2 (18.2)		23 (45.1)	28 (54.9)	
received, but additional support needed	1 (25.0)	3 (75.0)		14 (82.4)	3 (17.6)	
Transportation assistance			**<0.001**			**<0.001**
not received, not needed	9 (30.0)	21 (70.0)		50 (50.0)	50 (50.0)	
not received, but support needed	28 (73.7)	10 (26.3)		59 (74.7)	20 (25.3)	
received, no additional support needed	8 (80.0)	2 (20.0)		25 (46.3)	29 (53.7)	
received, but additional support needed	4 (44.4)	5 (55.6)		11 (68.8)	5 (31.3)	

Table 4. Prevalence of self-reported stress and support for care recipients based on a cross-sectional survey conducted among informal caregivers of individuals aged ≥60 years online and on-site at the respite care center samples, Kraków, Poland, April 2024 – May 2025 – cont.

Support	Participants (N = 338) [n (%)]					
	respite care center (N = 89)			online (N = 249)		
	stress (yes)	stress (no)	p	stress (yes)	stress (no)	p
Financial or legal advice			**0.01**			0.52
not received, not needed	24 (43.6)	31 (56.4)		104 (56.2)	81 (43.8)	
not received, but support needed	20 (80.0)	5 (20.0)		25 (69.4)	11 (30.6)	
received, no additional support needed	3 (75.0)	1 (25.0)		13 (56.5)	10 (43.5)	
received, but additional support needed	1 (33.3)	2 (66.7)		3 (60.0)	2 (40.0)	
Educational support, including job training			0.12			0.11
not received, not needed	39 (53.4)	34 (46.6)		120 (56.6)	92 (43.4)	
not received, but support needed	8 (72.7)	3 (27.3)		16 (69.6)	7 (30.4)	
received, no additional support needed	1 (100.0)	–		5 (50.0)	5 (50.0)	
received, but additional support needed	–	2 (100.0)		4 (100.0)	–	

p-value: χ^2 test or likelihood ratio test.
Bolded are statistically significant results.

in the online group was 50 years (SD = 13.9 years), compared to M±SD 56±14.0 years in RCC. Among the respondents, 31.8% (RCC) and 21.7% (online) spent ≥35 h/week on caregiving. Caregivers living with the care recipient were more frequent in the RCC (59.6%) than in the online group (41.8%). Emotional problems were relatively common in all caregivers. There were some differences in emotional burden, e.g., 28.1% of caregivers in the online group reported they felt unable to continue caregiving, compared with 15.7% in the RCC group (Table 1).

Characteristics of caregivers and their care recipients

The majority of care recipients were women, representing 65.2% of the RCC group and 74.7% of the online group. Median age of care recipients in the online group was 81.0 years (ranged 61–99 years), and was 79.0 years in the RCC group (ranged 60–95 years). The age of care recipients in the online group was M±SD 80.2±8.8 years, compared to 79.6±9.1 years in RCC. The most frequently reported health condition among people cared for by informal caregivers was Alzheimer's disease or other dementia (RCC: 30.3%, online: 31.7%) (Table 1).

Prevalence of self-reported stress declared by informal caregivers and related factors

Self-reported stress was reported by 55.7% of caregivers recruited at the RCC and by 58.2% of caregivers participating in the online survey. In the RCC group, stress was reported more frequently by women than by men. Partners, children and parents reported stress more often than distant relatives or friends. Self-reported stress was significantly associated with employment status in both groups, with rates almost twice as high among carers in employment compared to those who were not employed. Caregivers with poor self-rated health reported stress more often than those with

better health self-assessment (in both study groups). Self-reported stress was significantly more prevalent among caregivers who participated in the online survey and provided care for a longer period of time, as well as among those with a greater weekly care burden. Self-reported stress was more prevalent in caregivers with higher number of depressive symptoms and lower satisfaction with care services provided for the relative. The results are presented in Table 2.

Factors associated with stress reported by informal caregivers for older people

The multivariable logistic regression model (with relatively high R^2 Nagelkerke = 0.464 explaining total variation of the dependent variable) identified independent factors that significantly increased the odds of self-reported caregiving stress among informal caregivers. They include current employment (OR = 3.03, 95% CI: 1.61–5.70), caring for a person with Alzheimer's disease or other dementia (OR = 2.38, 95% CI: 1.24–4.54), providing >35 h of care/week (OR = 2.27, 95% CI: 1.08–4.77), need for respite care in the form of periodic relief from caring for their loved one (OR = 3.53, 95% CI: 1.92–6.49), and numerous self-reported symptoms of mood disorders (OR = 3.53, 95% CI: 1.92–6.49). Furthermore, carers who reported that their relatives' needs were not being met were nearly 6 times more likely to experience caregiving stress compared to those whose relatives' needs were met (OR = 5.84, 95% CI: 1.48–23.01). These results were independent of the source of data, whether obtained from RCC or the online survey (Table 3).

DISCUSSION

The aim of this study was to identify factors associated with self-reported stress among informal caregivers of older people. The authors carefully selected a number of factors based on a literature review and data testing that could potentially impact the risk of experiencing stress associated with being an informal caregiver. Following a thorough examination of the data, it was established that informal caregivers were at a significantly higher risk of reporting stress if they were still employed, spent >35 h/week on caregiving, cared for a person with Alzheimer's disease or other dementia, and if they indicated a need for respite care support or exhibited a higher number of symptoms indicative of mood disorders. Furthermore, caregivers who said their relatives' needs were not being met were more likely to experience stress from caregiving than those whose relatives' needs were being met (Table 3).

Logistic regression analysis indicates that employed informal caregivers are >3 times as likely to experience stress related to caring for their loved ones as those who are not employed. The authors' results are consistent with previous findings. Qualitative data indicate that balancing work and caregiving responsibilities often require changes in employment arrangements, such as reducing working hours, changing jobs, or giving up work altogether [17]. Studies have shown that caregivers over the age of 50 who combine formal employment with caregiving responsibilities experience deterioration in well-being, social isolation and various health problems [18]. Caring for a dependent person can be perceived as preventing them from pursuing their personal activities, which contributes to feelings of helplessness. Jurek [19] reached similar conclusions, emphasizing overload, stress, and the risk of burnout. The Bakalarczyk report [20] highlights insufficient legal provisions and an underdeveloped support system, recommending solutions such as flexible working hours, care leave, financial incentives, and psychological support programs.

Another stress-related factor is the amount of time spent caring for a dependent person. Caregivers who spend >35 h/week caring for someone are over twice as likely to experience stress related to caregiving as those who spend <14 h/week on caregiving duties. Research by Kumagai [21] confirmed that providing ≥20 h of care/week worsens mental health in non-employed caregivers and that providing >40 h/week of care can lead to their burnout. Hirsch and Woodward [22] found that caregivers

providing ≥20 h of care/week experienced 21% more days of reduced well-being (IRR = 1.215, $p < 0.001$), highlighting the importance of care intensity over duration. The report by Regional Social Welfare Center (Regionalny Ośrodek Polityki Społecznej) in the city of Kraków emphasizes that a lack of time for rest, together with limited social life and daily personal activities is a major source of frustration and stress for caregivers [23].

The authors' logistic regression analysis showed that informal caregivers whose care recipients were dissatisfied with support they received were almost 6 times more likely to experience caregiving stress compared with caregivers whose care recipients were satisfied. A meta-analysis by Rahman et al. [24] revealed that more than a quarter of older adults had unmet care needs. This was linked to stress and burnout among caregivers, particularly in rural areas [24]. Beach and Schulz [25] obtained similar results, with 44.3% of care recipients reporting at least one unmet need and their caregivers more frequently experiencing overload and deteriorating mental health. National reports emphasize that lack of access to support services and insufficient knowledge about available benefits can lead to caregiver overload and additional costs [26].

This study also showed that informal caregivers whose loved ones have been diagnosed with Alzheimer's disease or another type of dementia are more than twice as likely to experience stress related to their caregiving responsibilities, compared to caregivers whose loved ones do not have this condition. Alzheimer's disease and dementia cause a significant emotional burden on caregivers due to cognitive impairment, behavioral and psychological symptoms including aggression and dependence, which require constant supervision. Furthermore, informal caregivers of individuals with Alzheimer's disease have been shown to experience elevated levels of anxiety, depression, and reduced quality of life due to the chronic demands of caregiving and lack of support [27]. A meta-analysis by Pinquart and Sorensen [28] suggests that behavioral problems exhibited by patients, as well as the number of caregiving tasks, are strongly correlated with depression and stress, particularly among spouses and children providing regular care.

Informal caregivers who experience 4–5 symptoms of low mood are almost 3.5 times more likely to experience stress than those who experience zero to one symptom of low mood. Typical symptoms of depression and burnout include sadness, hopelessness, anxiety and a lack of enjoyment in daily activities. These conditions can be both a consequence and a risk factor of caregiver stress. Studies confirm an increased risk of mental health problems among informal carers [29–31]. A systematic review by Janson et al. [32] further shows that informal caregivers are more likely to experience not only depression and anxiety, but also chronic physical conditions such as pain, sleep disorders and reduced quality of life compared to non-caregivers. A lack of comprehensive institutional support can lead to mental and physical exhaustion, as emphasised by Herudzińska [33] and by Daniluk and Gawiński [34]. They highlight the chronic lack of time, sleep disorders and insufficient financial resources experienced by caregivers, and draw parallels between caregiver burnout and occupational burnout.

The authors' research shows that caregivers who do not receive respite care are >3.5 times more likely to experience stress as a result of their caregiving duties than those who do receive respite care. A meta-analysis by Wei and Han [35] confirms that supportive interventions, particularly respite care, can significantly reduce stress, depression and anxiety in caregivers of people with dementia, thereby improving quality of life for all involved. Research highlights that effectiveness of this type of support depends on flexibility – particularly in terms of who provides care, when, and how – as well as on accessibility and alignment with caregivers' needs, while limited flexibility contributes to underuse [36]. Moreover, structured support in planning respite time, such as coaching interventions, can enhance its benefits by increasing both its use and caregivers' satisfaction, thereby

improving its overall impact [37]. The "Respite Care" program in Poland has been in place since 2019 and has continued annually since then. The program's main objective is to give caregivers a temporary break from their duties and improve access to local support services. Research indicates that this form of support is increasingly recognized as essential. Bakalarczyk [38] emphasises its growing role in public policy, while also highlighting the absence of comprehensive systemic regulation [38]. A report by the Imago Foundation [39] highlights the positive effects of a respite break, as well as the need to educate caregivers on how to make the most of their free time. However, data from the Polish Financial Supervision Authority (Komisja Nadzoru Finansowego) [40] indicate organizational problems in the implementation of the "Respite Care" program in Poland, resulting in limited access.

Polish findings are consistent with broader European studies demonstrating that informal caregivers in Poland face significantly higher burden compared to caregivers in Western and Northern Europe [41–42]. Studies repeatedly demonstrate high levels of caregiver strain, driven by long hours of care, poor access to formal support and declining caregiver health [43–45]. Data from a recent multinational study conducted in long-term care facilities across 5 EU countries showed that relatives in Poland spent substantially less time with dying residents and were less engaged in end-of-life care than relatives in the Netherlands, Belgium or Finland [46]. This reflects deeper systemic issues: Poland has one of the lowest levels of long-term care funding and availability in Europe, which results in heavier reliance on families and higher caregiver strain.

Strengths and limitations

As this study was conducted in Poland, the findings may not be generalizable to other health and social care systems. Different methods were used to collect the data, but this did not affect stress reporting. Future studies of a larger RCC samples will allow for subgroup-specific analyses and possibly show if RCC makes change in caregiving stress perceptions. Caregiver stress was assessed using a single dichotomous (yes/no) self-reported question, which may oversimplify this complex and multidimensional construct. This approach does not allow for the assessment of stress intensity, variation, or its different domains, and may result in a loss of information. Therefore, the findings should be interpreted with caution, as the measure reflects a general subjective perception of stress rather than its full scope. Future studies should incorporate validated multidimensional instruments to enable a more comprehensive assessment of caregiver stress. Furthermore, cross-sectional design of the study did not allow to capture fluctuations in caregiver stress over time.

CONCLUSIONS

Caregiver stress is a complex phenomenon influenced by multiple factors. This study identifies key factors of self-reported stress among informal caregivers of older adults. Several of these factors relate to the organization and availability of support for caregivers, including access to respite care, employment flexibility, psychological support, and the accessibility of care services for the older person. The authors' findings highlight the need for a multidimensional approach to strengthening and optimizing support systems for informal caregivers and the individuals they care for.

ACKNOWLEDGMENTS

The author would like to thank Dr. Szymon Czarnik from the Department of Economic Sociology, Education and Social Research Methods, for his guidance and support in preparing the master's thesis on which this article is based.

AUTHOR CONTRIBUTIONS

Research concept: Natalia Drapała, Katarzyna Szczerbińska
Research methodology: Natalia Drapała, Ilona Barańska, Katarzyna Szczerbińska

Collecting material: Natalia Drapała, Ilona Barańska, Katarzyna Szczerbińska, Anna Kliś-Kalinowska
Statistical analysis: Natalia Drapała, Ilona Barańska
Interpretation of results: Natalia Drapała, Ilona Barańska, Katarzyna Szczerbińska, Anna Kliś-Kalinowska
References: Natalia Drapała

REFERENCES

1. Figueiredo D. Caregiving and carer stress. In: Pachana NA, editor. Encyclopedia of geropsychology. Singapore: Springer; 2017. p. 445-55. https://doi.org/10.1007/978-981-287-082-7_351.
2. Cheng ST. Dementia caregiver burden: a research update and critical analysis. Curr Psychiatry Rep. 2017;19(9):64. https://doi.org/10.1007/s11920-017-0818-2.
3. Sheehan OC, Haley WE, Howard VJ, Huang J, Rhodes JD, Roth DL. Stress, burden, and well-being in dementia and nondementia caregivers: insights from the caregiving transitions study. Gerontologist. 2021;61(5):670-9. https://doi.org/10.1093/geront/gnaa108.
4. Gao C, Chapagain NY, Scullin MK. Sleep duration and sleep quality in caregivers of patients with dementia: a systematic review and meta-analysis. JAMA Netw Open. 2019;2(8):e199891. https://doi.org/10.1001/jamanetworkopen.2019.9891.
5. Pinquart M, Sörensen S. Correlates of physical health of informal caregivers: a meta-analysis. J Gerontol B Psychol Sci Soc Sci. 2007;62(2):P126-37. https://doi.org/10.1093/geronb/62.2.p126.
6. Pinquart M, Sörensen S. Associations of stressors and uplifts of caregiving with caregiver burden and depressive mood: a meta-analysis. J Gerontol B Psychol Sci Soc Sci. 2003; 58(2):P112-28. https://doi.org/10.1093/geronb/58.2.p112.
7. Mausbach BT, Roepke SK, Ziegler MG, Milic M, von Känel R, Dimsdale JE, et al. Association between chronic caregiving stress and impaired endothelial function in the elderly. J Am Coll Cardiol. 2010;55(23):2599-606. https://doi.org/10.1016/j.jacc.2009.11.093.
8. von Känel R, Dimsdale JE, Mills PJ, Ancoli-Israel S, Patterson TL, Mausbach BT, et al. Effect of Alzheimer caregiving stress and age on frailty markers interleukin-6, C-reactive protein, and D-dimer. J Gerontol A Biol Sci Med Sci. 2006; 61(9):963-9. https://doi.org/10.1093/gerona/61.9.963.
9. Stalder T, Tietze A, Steudte S, Alexander N, Dettenborn L, Kirschbaum C. Elevated hair cortisol levels in chronically stressed dementia caregivers. Psychoneuroendocrinology. 2014;47: 26-30. https://doi.org/10.1016/j.psyneuen.2014.04.021.
10. Tur-Sinai A, Teti A, Rommel A, Hlebec V, Lamura G. How many older informal caregivers are there in Europe? Comparison of estimates of their prevalence from three European surveys. Int J Environ Res Public Health. 2020;17(24):9531. https://doi.org/10.3390/ijerph17249531.
11. Baji P, Golicki D, Prevolnik-Rupel V, Brouwer WBF, Zrubka Z, Gulácsi L, et al. The burden of informal caregiving in Hungary, Poland and Slovenia: results from national representative surveys. Eur J Health Econ. 2019;20(Suppl 1):5-16. https://doi.org/10.1007/s10198-019-01058-x.
12. Kraków bez barier [Internet]. Kraków: Miejska platforma internetowa „Magiczny Kraków"; 2026 [cited 2026 Jan 16]. Program „Opieka wytchnieniowa" w Gminie Miejskiej Kraków. Available from: https://www.krakow.pl/bezbarier/programy_i_dzialania/268430,2138,komunikat,program_opieka_wytchnieniowa_w_gminie_miejskiej_krakow.html. Polish.
13. Fries BE, Hirdes JP, Declercq A, Morris JN, Vereker N, Betini RSD, et al. interRAI Self-Reported Carer Needs (SCaN) assessment form and user's manual. Standard edition, v. 10.1 [Internet]. Washington: interRAI; 2025 [cited 2026 Jan 16]. Available from: https://catalog.interrai.org/products/978-1-62255-247-4.
14. Pearlin LI, Mullan JT, Semple SJ, Skaff MM. Caregiving and the stress process: an overview of concepts and their measures. Gerontologist. 1990;30(5):583-94. https://doi.org/10.1093/geront/30.5.583.
15. Fonareva I, Oken BS. Physiological and functional consequences of caregiving for relatives with dementia. Int Psychogeriatr. 2014;26(5):725-47. https://doi.org/10.1017/s1041610214000039.

16. Brites R, Brandão T, Nunes O, Hipólito J, Tomé Pires C. The Impact of caregiving on informal caregivers of people with dementia: family functioning, burden, and burnout. J Clin Psychol Med Settings. 2025;32(2):325-35. https://doi.org/10.1007/s10880-024-10052-2.
17. Gardiner C, Taylor B, Goodwin H, Robinson J, Gott M. Employment and family caregiving in palliative care: An international qualitative study. Palliat Med. 2022;36(6):986-93. https://doi.org/10.1177/02692163221089134.
18. Perek-Białas J, Stypińska J. Łączenie pracy i opieki nad osobą starszą – wpływ na jakość życia opiekuna. In: Kałuża D, Szukalski P, editors. Jakość życia seniorów w XXI wieku. Ku aktywności. Łódź: Wydawnictwo Biblioteka; 2010. p.136-48. https://hdl.handle.net/11089/3526. Polish.
19. Jurek Ł. Polityka łączenia pracy zawodowej z opieką nad osobą starszą. Acta Univ Lodz Folia Oeconomica. 2015;312:95-110. https://hdl.handle.net/11089/15535. Polish.
20. Bakalarczyk R. Godzenie pracy zawodowej z opieką nad osobami zależnymi – wyzwanie dla dialogu społecznego i polityki publicznej [Internet]. Warszawa: KIG; 2020 [cited 2026 Jan 16]. Available from: https://dialogkig.pl/wp-content/uploads/2020/11/RAPORT__Godzenie-pracy-zawodowej-z-opieka-nad-osobami-zaleznymi__2020r.pdf. Polish.
21. Kumagai N. Distinct impacts of high intensity caregiving on caregivers' mental health and continuation of caregiving. Health Econ Rev. 2017;7(1):15. https://doi.org/10.1186/s13561-017-0151-9.
22. Hirsch J, Toler Woodward A. Impact of aspects of caregiving on caregiver mental health. Act Adapt Aging. 2025;49(4):564-82. https://doi.org/10.1080/01924788.2025.2510756.
23. Perek-Białas J, Bieńkowska D, Ulasiński C, Szymańska J, Szlązak M, Piłat A, et al. Opiekunowie rodzinni osób starszych – problemy, potrzeby, wyzwania dla polityki społecznej. [Internet] Kraków: ROPS; 2015 [cited 2026 Jan 16]. Available from: https://www.obserwatorium.malopolska.pl/publikacje/opiekunowie-rodzinni-osob-starszych-problemy-potrzeby-wyzwania-dla-polityki-spolecznej-raport-z-badania. Polish.
24. Rahman MM, Rosenberg M, Flores G, Parsell N, Akter S, Alam MA, et al. A systematic review and meta-analysis of unmet needs for healthcare and long-term care among older people. Health Econ Rev. 2022;12(1):60. https://doi.org/10.1186/s13561-022-00398-4.
25. Beach SR, Schulz R. Family Caregiver factors associated with unmet needs for care of older adults. J Am Geriatr Soc. 2017;65(3):560-6. https://doi.org/10.1111/jgs.14547.
26. Abramowska-Kmon A, Bakalarczyk R, Kotowska IE, Łątkowski W, Łuczak P, Szweda-Lewandowska Z, et al. W stronę sprawiedliwej troski. Opieka nad osobami starszymi w Polsce. [Internet]. Warszawa: Fundacja Batorego; 2022 [cited 2026 Jan 16]. Available from: https://www.batory.org.pl/publikacja/w_strone_sprawiedliwej_troski/. Polish.
27. Hellis E, Mukaetova-Ladinska EB. Informal caregiving and Alzheimer's disease: the psychological effect. Medicina (Kaunas). 2022;59(1):48. https://doi.org/10.3390/medicina59010048.
28. Pinquart M, Sörensen S. Differences between caregivers and noncaregivers in psychological health and physical health: a meta-analysis. Psychol Aging. 2003;18(2):250-67. https://doi.org/10.1037/0882-7974.18.2.250.
29. Sallim AB, Sayampanathan AA, Cuttilan A, Ho R. Prevalence of mental health disorders among caregivers of patients with Alzheimer disease. J Am Med Dir Assoc. 2015;16(12):1034-41. https://doi.org/10.1016/j.jamda.2015.09.007.
30. Loh AZ, Tan JS, Zhang MW, Ho RC. The global prevalence of anxiety and depressive symptoms among caregivers of stroke survivors. J Am Med Dir Assoc. 2017;18(2):111-6. https://doi.org/10.1016/j.jamda.2016.08.014.
31. Geng HM, Chuang DM, Yang F, Yang Y, Liu WM, Liu LH, et al. Prevalence and determinants of depression in caregivers of cancer patients: A systematic review and meta-analysis. Medicine (Baltimore). 2018;97(39):e11863. https://doi.org/10.1097/MD.0000000000011863.
32. Janson P, Willeke K, Zaibert L, Budnick A, Berghöfer A, Kittel-Schneider S, et al. Mortality, morbidity and health-related outcomes in informal caregivers compared to non-caregivers:

a systematic review. Gesundheitswesen. 2022;84(08-09): 754. https://doi.org/10.1055/s-0042-1753689

33. Herudzińska MH. Seniorzy w Polsce – stan zdrowia, wsparcie instytucjonalne i opieka nieformalna. Wych Rodz. 2022; 27(2):325-44. https://doi.org/10.34616/wwr.2022.2.325.344. Polish.
34. Daniluk K, Gawiński J. Obciążenia i wzmocnienia związane z opieką nad osobami chorymi psychicznie i fizycznie w opinii opiekunów. Arch Social Sci Humanit. 2023;4(1). Polish.
35. Wei Z, Han Y. A meta-analysis of the impact of community interventions on the burden, depression, and anxiety of family caregivers for elderly individuals with dementia. Ann Community Med Pract. 2025;10(1):1065. https://doi.org/10.47739/2475-9465/1065.
36. Viens M, Ethier A, Provencher V, Carrier A. WHO, WHEN, HOW: a scoping review on flexible at-home respite for informal caregivers of older adults. BMC Health Serv Res. 2024;24:767. https://doi.org/10.1186/s12913-024-11058-0.
37. Iacob E, Caserta M, Donaldson G, Sparks C, Terrill A, Thompson A, et al. Evaluating the efficacy of time for living and caring: an online intervention to support dementia caregivers' use of respite. Innov Aging. 2024;8(5):igae043. https://doi.org/10.1093/geroni/igae043.
38. Bakalarczyk R. Opieka wytchnieniowa – znaczenie społeczne, obecność w polskiej polityce publicznej i pytania o kształt systemowy. Societas/Communitas. 2024;38(2):69–82. https://doi.org/10.55226/uw.S-C.2024.38.2.4. Polish.
39. Fundacja Imago. Opieka wytchnieniowa – dobre praktyki z kraju i zagranicy. [Internet] Wrocław: Fundacja Imago; 2019 [cited 2026 Jan 16]. Available from: https://fundacja imago.pl/wp-content/uploads/Raport_final.pdf. Polish.
40. Najwyższa Izba Kontroli. Zapewnienie opiekunom osób niesamodzielnych wsparcia wytchnieniowego [Internet]. Warszawa: NIK; 2022 [cited 2026 Jan 16]. Available from: https://www.nik.gov.pl/plik/id,26575,vp,29370.pdf. Polish.
41. Lamura G, Mnich E, Nolan M, Wojszel B, Krevers B, Mestheneos L, et al. Family carers' experiences using support services in Europe: empirical evidence from the EUROFAMCARE study. Gerontologist. 2008;48(6):752-71. https://doi.org/10.1093/geront/48.6.752.
42. Karczewska B, Bień B, Jamiołkowski J, Melchiorre MG, Chiatti C, Lamura G. Support gap in dementia family caregivers from Italy and Poland. Pol J Public Health. 2012;122(2):160-4. https://czasopisma.umlub.pl/pjph/article/view/1687.
43. Stojak Z, Jamiolkowski J, Chlabicz S, Marcinowicz L. Levels of satisfaction, workload stress and support amongst informal caregivers of patients receiving or not receiving long-term home nursing care in Poland: A Cross-Sectional Study. Int J Environ Res Public Health. 2019;16(7):1189. https://doi.org/10.3390/ijerph16071189.
44. Niedorys B, Chrzan-Rodak A, Bartoszek A, Rząca M, Bartoszek A, Ślusarska B. Analysis of selected conditions of caregiver burden according to cope-index: negative care impact scale. Long-Term Care Nursing. 2020;5(1):55-67. https://doi.org/10.19251/pwod/2020.1(5).
45. Biercewicz M, Główczewska-Siedlecka E, Fidecki W, Wysokiński M, Kędziora-Kornatowska K. Obciążenie opiekunów osób starszych opieką nad pacjentami ze schorzeniami układu nerwowego. Pielęgniarstwo Neurol Neurochir. 2023;12(2):84-9. https://doi.org/10.15225/PNN.2023.12.2.5. Polish.
46. Drapała N, Barańska I, Van den Block L, Smets T, Van Den Noortgate N, Finne-Soveri H, et al. Engagement of relatives in end-of-life care of residents in long-term care facilities: a cross-sectional study in 5 EU countries. J Am Med Dir Assoc. 2025;26(4):105492. https://doi.org/10.1016/j.jamda.2025.105492.

This work is available in Open Access model and licensed under a Creative Commons Attribution 4.0 International license – https://creativecommons.org/licenses/by/4.0/.