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Musculoskeletal symptoms in formal and informal caregivers of elderly people

Sintomas musculoesqueléticos em cuidadores formais e informais de idosos

Síntomas musculoesqueléticos en cuidadores formales e informales de ancianos

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ABSTRACT

Objective: to evaluate musculoskeletal symptoms in formal and informal caregivers of elderly people, and check association with personal and work-related factors. **Methods:** this is a cross-sectional study. Instruments for assessment were the International Physical Activity Questionnaire, Self-Reporting Questionnaire-20, Borg's effort perception scale and Nordic Musculoskeletal Questionnaire. **Results:** informal caregivers had been working for a longer time (60.2% vs. 41%), had more hours of work (37.4% >12h for day), less time off (85.4% vs. 2.5%) and lack of care guidelines (90.2%). The region with the most musculoskeletal symptoms was the spine and the greater dependence of the elderly, the greater the chances of developing musculoskeletal symptoms (OR= 1.3, 95% CI= 1.1–1.6, p <0.05). **Conclusion:** personal and work-related factors were more prevalent in informal group and the elderly person's dependence interferes with the increase in musculoskeletal symptoms of caregivers. **Descriptors:** Caregivers; Elderly; Occupational Health; Musculoskeletal Pain; Physical Exertion.

RESUMO

Objetivo: Avaliar sintomas musculoesqueléticos em cuidadores formais e informais de idosos e verificar a associação com fatores pessoais e relacionados ao trabalho. **Método:** Trata-se de um estudo transversal. Os instrumentos para avaliação foram o Questionário Internacional de Atividade Física (IPAQ), *Self-Reporting Questionnaire*-20, Escala de Percepção de Esforço de Borg e o Questionário Nórdico de Sintomas Musculoesqueléticos. **Resultados:** Cuidadores informais trabalhavam há mais tempo (60,2% vs. 41%), tinham mais horas de trabalho (37,4% >12 h por dia), menos tempo de folga (85,4% vs. 2,5%) e falta de orientações de cuidado (90,2%). A região com mais sintomas musculoesqueléticos foi a coluna vertebral; e, quanto maior a dependência dos idosos, maiores foram as chances de desenvolver sintomas musculoesqueléticos (OR= 1,3, 95% CI= 1,1–1,6, p <0,05). **Conclusão:** Fatores pessoais e relacionados ao trabalho foram mais prevalentes em cuidadores informais, e a dependência do idoso interferiu no aumento dos sintomas musculoesqueléticos dos cuidadores.
Descritores: Cuidadores; Idoso; Saúde do Trabalhador; Dor Musculoesquelética; Esforço Físico.

RESUMEN

Objetivo: Evaluar los síntomas musculoesqueléticos en cuidadores formales e informales de los ancianos y verificar la asociación con factores personales y laborales. Métodos: Estudio transversal. Los instrumentos para la evaluación fueron el Cuestionario Internacional de Actividad Física (IPAQ), *Self-Reporting Questionnaire*-20, Escala de Percepción del Esfuerzo de Borg y el Cuestionario Nórdico de Síntomas Musculoesqueléticos. **Resultados:** Los cuidadores informales trabajaron más tiempo (60,2% vs. 41%), tuvieron más horas de trabajo (37,4% >12h por día), menos tiempo libre (85,4% vs. 2,5%) y falta de pautas de atención (90,2%). La región con más síntomas musculoesqueléticos fue la columna vertebral y, cuanto mayor la dependencia de los ancianos, mayores son las posibilidades de desarrollar síntomas musculoesqueléticos (OR= 1.3, 95% CI= 1.1–1.6, p <0.05). **Conclusión:** Factores personales y relacionados con el trabajo fueron más frecuentes en los cuidadores informales y la dependencia de los ancianos interfiere con el aumento de los síntomas musculoesqueléticos en cuidadores.
Descriptores: Cuidadores; Anciano; Salud Laboral; Dolor Musculoesquelético; Esfuerzo Físico.

INTRODUCTION

According to the latest United Nations report on population prospects, the number of people over the age of 65 represented 9% of the world's population in 2019 and is expected to reach 16% by 2050. Latin America is part of the regions where this population is expected to double between this period. Also, the number of people over eighty is estimated to triple, reaching 426 million in 2050[1].

It is known that 10 to 25% of the elderly between 60 and 65 years of age and up to 46% of the elderly after 85 years of age develop some type of disability, which requires help from another person responsible for their care[2]. This change arouses the need to investigate the health and work conditions of the people who care for these elderly people.

In most cases, care is offered by an informal caregiver, who does not receive remuneration or preparation to perform his/her role, and which is usually performed by family members. However, the existence of a formal caregiver has increased. Such an occupation is hired with the function of providing care to individuals in a situation of frailty or who present some type of risk, in order to systematize the tasks and privilege those associated with the promotion of health, as well as the prevention of disabilities[3].

As a result of the population aging process, the growing demand for caregivers of elderly people, who assume an important role in the current scenario[3], becomes noticeable, which justifies the importance of carrying out studies with such population. Both groups of caregivers – i.e. formal and informal - have incidence rates of up to 63% for musculoskeletal symptoms related to the activity of caring, which can lead to loss of vitality, stress, and withdrawals, leading to the need of attention[2].

Currently, work-related musculoskeletal symptoms affect several professional categories and have various names, among them are Work-Related Musculoskeletal Disorders (WMSD). There are several factors that can influence the manifestation of musculoskeletal symptoms in the population of caregivers, such as emotional factors, excessive workload, lack of orientation, and ergonomically unfavorable work[4]. However, studies that investigate this relationship, focus on psychic and emotional aspects of the caregiver[5] and even those that assess the physical symptom, still leave gaps. This occurs because they do not make comparisons between formal and informal workers and investigate symptoms of only a specific region of the body[6] or focus only on nursing professionals in a hospital environment[7].

In most Latin American countries, the family is the main care provider, carrying out this activity without any type of employment relationship or regulation on working hours, weekly breaks, holidays. In addition, they often do not have professional or caregiver training, which can lead to a greater risk of developing health problems[3,7-8].

In the formal context, Long Term Care Institutions for the Elderly (LTCI), where caregivers are covered by the labor regulatory standards, it is known that, like informal caregivers, these workers are exposed to physical and psychological changes, which can result in negative consequences for their health, in addition to affecting the quality of the service provided, due to the exhaustive hours, physical effort and stress demanded by the care[9].

OBJECTIVE

To evaluate musculoskeletal symptoms in formal and informal caregivers of elderly people, and check association with personal and work-related factors.

METHODS

Ethical aspects

This study complied with the terms of Resolution no. 466/2012 of the Brazilian Health Council, which deals with research involving human beings. All participants were informed of the research objectives and data confidentiality, in agreeing freely to participate, signed the informed consent form. The study was approved by the Research Ethics Committee of the Federal University of São Carlos (UFSCar) on August 28, 2014.

Study design

A cross-sectional study carried with both formal and informal caregivers of elderly people, out in the urban area of São Carlos, São Paulo, Brazil. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement was used to guide the research.

Sample, inclusion, and exclusion criteria

Participants were obtained through non-probabilistic sampling (convenience sample). All formal caregivers from the seven LTCI of the municipality were invited to participate in the research. The data on the homes of informal caregivers of the elderly were obtained through Community Health Agents who worked in Family Health Units. All Family Health Units in the municipality were visited, where the list of caregivers who indicated to receive or not remuneration to perform care for the elderly was requested. Primary caregivers participated in the study, that is, those considered to be primarily responsible for the care of the elderly, who had performed the function for, at least, one month. Caregivers who reported characteristics of formal and informal work simultaneously and homes where elderly residents were considered independent by the Katz scale were excluded, thus characterizing a companion and not a caregiver (Figure 1).

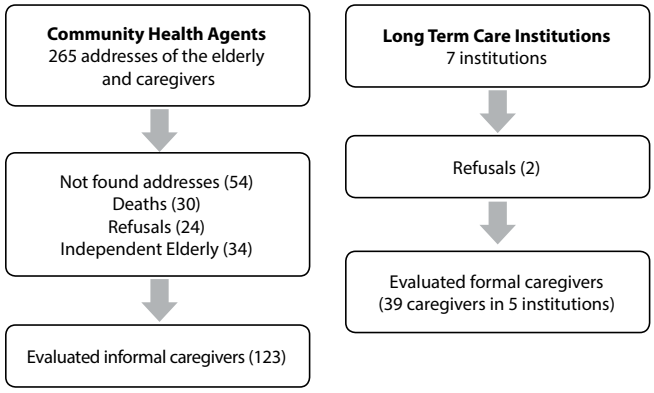

Figure 1 - Flowchart of participants selected according to the eligibility criteria, São Carlos, São Paulo, Brazil, 2016/2017

Study protocol

Data collection was carried out at the informal caregivers' home, in the form of an individual interview, previously scheduled. The instruments were always applied in the same sequence. For formal caregivers, data collection was performed at the LTCI, during working hours, in the form of individual interviews, in a previously defined private location. Each interview lasted about 30 minutes, and, in the case of the illiterate caregiver, the interviewer read the questions and recorded the answers, after checking with the interviewee. For literate caregivers who were able to respond, the instruments were filled out by the participants themselves, in the presence of the interviewer.

Data acquisition was conducted from August 2016 to December 2017, through the following instruments:

- Sociodemographic questionnaire: The questionnaire addresses personal issues, such as sex, age, educational level, income, marital status, smoking and alcohol consumption; work-related issues, such as hours of work per day and time that the person has been a caregiver, in addition to an open question: "In your opinion, what most damages your physical health when you are providing care?". The answers to this question were categorized and those that represented less than 5% of the total were grouped in the "other" category. In addition, caregivers were asked whether or not they had any guidance on caring for the elderly. Those related to undergraduate courses in health for the formal and/or guidance of a health professional for the informal were classified as basic, and specific, those acquired in a caregiver or graduate course in the field of geriatrics/gerontology.
- International Physical Activity Questionnaire - IPAQ (short version): Questionnaire proposed by the World Health Organization (WHO) validated by the studied population[10] to determine the level of physical activity of the population of different countries and socio-cultural contexts. This is a self-administered questionnaire that seeks information on the frequency and duration of walks, daily activities that require moderate or vigorous effort, in addition to the time that the individual remains in activities in the sitting position on weekdays (from Monday to Friday) and on weekends (Saturday and Sunday). In this study, individuals who met at least the following recommendations were classified as active/very active: vigorous activity (≥ 3 days/week and ≥ 20 minutes per session), moderate activity or walking (≥ 5 days/week and ≥ 30 minutes per session), or any activity that combined was ≥ 5 days/week and ≥ 150 minutes/week. The individuals were considered sedentary/non-active if they performed physical activity, but insufficient to be classified as active/very active, as they did not comply with the recommendations regarding frequency or duration.
- Self-Reporting Questionnaire (SRQ-20): Instrument developed by the WHO to detect symptoms of emotional discomfort, that is, possible mental disorders of non-psychotic origin in the population in developing countries[11]. This scale is composed of 20 questions with "yes" or "no" answer options, and a cut-off point of 8, that is, scores equal to or greater than 8 were considered positive for the possibility of non-psychotic mental disorders (emotional discomfort).
- Borg's Rating of Perceived Exertion (RPE) effort scale: Scale used to estimate the sensation of effort, tiredness, and fatigue during work. Composed of numbers ranging from 6 to 20, with 6 considered no effort and 20 considered maximum effort[12]. The scale was applied right after the moment of greatest effort reported by the caregiver.
- Nordic Musculoskeletal Questionnaire: It was validated by Pinheiro et al.[13] and consists of a human body figure divided into nine regions: shoulders, elbows, wrist/hand, neck, upper and lower back, hips/thighs, knees, and ankles/feet. In each of these regions the individual responds about the occurrence of pain or tingling/numbness in the last 12 months and in the last seven days, the search for health professionals due to the symptoms in the last 12 months and the impediment to perform activities of daily living due to symptoms. For better understanding, at the time of the analysis, it was decided to group the body regions into three macro regions. The "neck, upper and lower back" regions were grouped into the category "spine", "shoulders, elbows and wrists/hands" became the category "upper limbs" and "hips/thighs, knees and ankles/feet" became the "lower limbs" category.

Analysis of results and statistics

The results were analyzed using the Statistical Package for the Social Science (SPSS) version 19.0. Initially, descriptive analysis and the Kolmogorov-Smirnov normality test were used. As there was no normal data distribution, the Mann-Whitney test was used to compare the groups. The level of significance adopted was 5%.

Univariate logistic regression was used to verify associations between the presence of musculoskeletal symptoms in the last 12 months and in the last seven days in each body macro region. The independent variables tested were caregiver's age, sex, characteristic (formal or informal), income, marital status, educational level, physical activity level, smoking, alcohol consumption, RPE scale score, time as current caregiver, hours daily work as a caregiver, time off, carrying out other activities besides caring, SRQ-20 score, carrying out transfers of the elderly without the help of another person always, and guidance on caring for the elderly (none, basic or specific). Associations with a p value ≤ 0.2 entered the final multiple regression model using the stepwise forward method. For the interpretation of the results, a statistically significant association was considered $p \leq 0.05$.

RESULTS

The study sample consisted of 162 caregivers for the elderly, 123 informal recruited from the Family Health Units and 39 formal from LCTI of the municipality. Table 1 shows the main sociodemographic characteristics of the caregivers, revealing that the informal ones were older and had lower level of education. There was no difference between groups for the level of physical activity, marital status and use of tobacco.

Table 1 - Sociodemographic characteristics for the sample of formal (n = 39) and informal (n = 123) caregivers, São Carlos, São Paulo, Brazil, 2016/2017

	Formal	Informal	*p**
Sex [n (%)]			**<0.01**
Female	39 (100)	96 (78.1)	
Male	-	27 (21.9)	
Age in years [M (SD)]	38.6 ((1)10.1)	57.7 (13.8)	**<0.01**
Income [n (%)]			**<0.01**
> 2 salaries	20 (51.3)	30 (24.4)	
Up to 2 salaries	19 (48.7)	69 (56.1)	
No income	-(1)	24 (19.5)	
Marital Status [n (%)]			0.13
With a partner	19 (48.7)	77 (62.6)	
Without a partner	20 (51.3)	46 (37.4)	
Complete schooling [n (%)]			**<0.01**
Illiterate	-	40 (32.5)	
Fundamental school	-	47 (38.2)	
High school	3 (7.7)	22 (17.9)	
College	25 (64.1)	9 (7.3)	
University	11 (28.2)	5 (4.1)	
Physical activity level [n (%)]			0.51
Active/very active	17 (43.6)	61 (49.6)	
Sedentary/non active	22 (56.4)	62 (50.4)	
Smoking [n (%)]			0.40
No	30 (76.9)	102 (82.9)	
Yes	9 (23.1)	21 (17.1)	
Alcohol [n (%)]			**<0.01**
No	25 (64.1)	108 (87.8)	
Yes	14 (35.9)	15 (12.2)	

** Significant difference (p≤0.05) using the chi-square test.*

Table 2 presents the main characteristics related to the caregivers' work. It is possible to observe that, except for the final score of the SRQ-20, there was a difference between the groups for all variables, with the informal ones having more time working as a caregiver, more hours worked per day and extra activities besides caring, less time off and lack of guidance on how to care.

Transfers were considered the factor that most affected physical health in the opinion of caregivers, being more frequent for formal caregivers (69%) in relation to informal caregivers (39%). There was a statistically significant difference (p <0.05) between the means of perceived effort by the caregivers of both groups who carry out the transfer of the elderly alone, being greater in those who performed this activity always alone.

Table 3 shows the prevalence of musculoskeletal symptoms assessed using the Nordic Questionnaire for the three macro regions (spine, upper and lower limbs) for formal and informal caregivers. There was a statistically significant difference between formal and informal caregivers only for symptoms in the upper limbs in the last seven days, being greater for formal caregivers (p <0.05) (Table 3).

The results obtained in the multiple regression analysis are shown in Table 4. The analysis indicated that the degree of dependence of the elderly is associated with symptoms in the spine in the last 12 months (OR= 1.3, 95% CI= 1.1-1.6, p <0.05) and in the last seven days (OR= 1.3, 95% CI= 1.0-1.5, p <0.02). The perception of effort is also associated with symptoms in the spine in the last 12 months (OR= 1.1, 95% CI= 1.0-1.2, p <0.01), and the SRQ-20 score ≥ 8 for the last seven days (OR= 2.2, 95% CI= 1.2-4.2, p <0.05).

The diagnosis of rheumatoid arthritis (OR= 6.7, 95% CI= 1.6–28.9, p <0.05) and having a marital relationship (OR= 2.5, 95% CI= 1.1–5.6, p <0.01) are associated with upper limb symptoms in the last seven days, and the SRQ-20 score ≥ 8 (OR= 2.2, 95% CI= 1.0–4.9, p <0.05) and the perceived effort (OR= 1.1, 95% CI= 1.0-1.2, p <0.01) in the last 12 months.

Lower limb symptoms in the last 12 months were associated with perceived effort (OR= 1.1, 95% CI= 1.0-1.2, p <0.03) and, in the last seven days, age (OR= 1.0, 95% CI= 1.0 - 1.1, p <0.01) and the perceived effort (OR= 1.1, 95% CI= 1.0–1.2, p <0.01) showed a statistically significant association.

Table 2 - Characteristics of formal (n = 39) and informal (n = 123) caregivers' work, São Carlos, São Paulo, Brazil, 2016/2017

	Formal	Informal	*p**
Time as caregiver [n (%)]			0.01
Up to 1 year	18 (46.2)	28 (22.8)	
1 – 2 years	5 (12.8)	21 (17.1)	
> 2 years	16 (41)	74 (60.2)	
Hours of work/day [n (%)]			**<0.01**
Up to 6h/day	6 ((1)15.4)	20 (16.3)	
6 – 12h/day	33 ((1)84.6)	57 (46.3)	
> 12h/day	-(1)	46 (37.4)	
Day off [n (%)]			**<0.01**
None	1 (2.5)	105 (85.4)	
1/week	9 (23.1)	9 (7.3)	
2/week	9 (23.1)	5 (4.1)	
>2/week	20 (51.3)	4 (3.2)	
Other activities [n (%)]			**<0.01**
None	31 (79.5)	16 (13)	
Cooking	1 (2.5)	7 (5.7)	
Cleaning	6 (15.4)	5 (4.1)	
Cooking and cleaning	-	95 (77.2)	
Others	1 (2.5)	-	
Orientation about care [n (%)]			**<0.01**
None	-	111 (90.2)	
Basics	31 (79.5)	12 (9.8)	
Specialized	8 (20.5)	-	
Self-Reporting Questionnaire [n (%)]			0.13
< 8	28 (71.8)	82 (66.7)	
≥ 8	11 (28.2)	41 (33.3)	
Open question: [n (%)] "In your opinion, what most damages your physical health when you are providing care?"			**<0.01**
Nothing	6 (15.4)	34 (27.6)	
Emotional stress	1 (2.6)	27 (22.0)	
Transfers	27 (69.2)	48 (39.0)	
Others	5 (12.8)	14 (11.4)	

** Significant difference (p≤0.05) using the chi-square test.*

Table 3 - Prevalence of musculoskeletal symptoms assessed using the Nordic Musculoskeletal Questionnaire for grouped regions, São Carlos, São Paulo, Brazil, 2016/2017

Body regions	Formal	Informal	Total	*p**
Spine	n (%)	n (%)	n (%)	
Symptoms in the last 12 months	25 (64.1)	84 (68.3)	109 (67.3)	0.63
Symptoms in the last 7 days	19 (48.7)	47 (38.2)	66 (40.7)	0.25
Upper limbs				
Symptoms in the last 12 months	17 (43.6)	57 (46.3)	74 (45.7)	0.76
Symptoms in the last 7 days	15 (38.5)	26 (21.1)	41 (25.3)	0.03
Lower limbs				
Symptoms in the last 12 months	16 (41.0)	51 (41.6)	67 (41.4)	0.96
Symptoms in the last 7 days	14 (35.9)	50 (40.7)	64 (39.5)	0.60

** Significant difference (p≤0.05) using the chi-square test.*

Table 4 - Result of multiple regression, São Carlos, São Paulo, Brazil, 2016/2017

Outcome Variable	Independent Variable	Odds Ratio (95%CI)	*p**
Symptoms in the last 12 months			
Spine	More dependent elderly	1.3 (1.1 – 1.6)	**<0.01**
	Perceived effort	1.1 (1.0 – 1.2)	0.01
Upper Limbs	SRQ-20 Score ≥8	2.2 (1.0 – 4.9)	0.05
	Perceived effort	1.1 (1.0 – 1.2)	**<0.01**
Lower Limbs	Perceived effort	1.1 (1.0 – 1.2)	0.03
Symptoms in the last 7 days			
Spine	More dependent elderly	1.3 (1.0 – 1.5)	0.02
	SRQ-20 Score ≥8	2.2 (1.1 – 4.2)	0.03
Upper Limbs	Having rheumatoid arthritis	6.7 (1.6 – 28.9)	0.01
	Having a relationship	2.5 (1.1 – 5.6)	0.03
Lower Limbs	Age	1.0 (1.0 – 1.1)	**<0.01**
	Perceived effort	1.1 (1.0 – 1.2)	**<0.01**

95% CI: 95% confidence interval; SRQ-20: Self-Reporting Questionnaire.
** Significant difference (p≤0.05) using the chi-square test.*

DISCUSSION

The results of this study reveal that the characteristics of the sample corroborate with a study carried out with similar populations in relation to factors associated with musculoskeletal symptoms[6] and reveals that it is a population with a higher risk of developing such symptoms, since female gender and the journey of working hours/day with a high workload in both groups are recognized risk factors[5]. Higher average age, low education with consequent lower income and the lack of guidance on care in informal caregivers, seems to expose this group to a greater risk of musculoskeletal symptoms[14].

Formal caregivers had shorter working hours as a current caregiver, which suggests a high turnover in the job market[6]. Informal caregivers are responsible for long-term care since they generally care for a family member or close friend[15].

Informal caregivers report having less time off, which can lead to physical exhaustion, high stress and, in more severe cases, social isolation[8]. This situation of social isolation and less time off can be countered by verifying that almost half of informal caregivers are considered to be active/very active in relation to physical activity. Cuthbert[16] also found relatively high levels of physical activity in the population of caregivers, whose sample also obtained a high average age.

However, this finding is credited to the fact that many informal caregivers reported walking long distances to go to supermarkets or health centers and for considering household chores that last more than ten uninterrupted minutes as moderate or vigorous activities and not due to the fact physical activity during leisure time. Associating physical activity with daily activities is not uncommon, but it deserves attention since the beneficial effects of regular physical exercises are not observed in activities that perform physical effort, but without this purpose[17].

The transfer activity of the elderly was not associated with musculoskeletal symptoms, although this aspect deserves attention, as it was the most frequent risk factor in the report of both groups. The perception of effort was significantly higher in caregivers who handle the transfer of the elderly without help of another person, reinforcing that this activity may be a possible factor associated with musculoskeletal symptoms in caregivers. This data indicates the impact that transference has on these individuals, especially on the spine and upper limbs, in agreement with other studies[7-8], which in general recommend the use of technologies, devices and changes in the work environment, to minimize possible injuries to workers.

Actions that promote health education, guidance on work, proper posture and help from another person, in addition to better social support for workers, can play an important role in the group of informal caregivers at first. This is because it is a group with only basic or no guidance and the implementation of these practices by the health team can collaborate with the receipt of information related to care, as well as guidelines aimed at supporting these caregivers[18].

Regarding emotional aspects, this study had a lower prevalence compared to the study by Couto et al.[19], who also used the SRQ-20 as an instrument to identify emotional discomfort. It was also not found in this current research, difference between the groups of caregivers for the SRQ-20 score. This demonstrates that the positive aspects of being a family caregiver, such as moments of interaction and the relationship of care and affection with an elderly family member, seem to be addressed in informal caregivers by the positive factors of work[19].

As in another study, the spinal region had a higher prevalence of symptoms in both groups[2]. Similar studies, which evaluated nursing professionals in elderly care, show that those who work in the outpatient area and who handle the elderly, have a higher incidence of symptoms in the spine region[20] and that these symptoms are present on average five days a week[21]. However, in this study, the elderly's lower functional capacity was the only variable associated with increased symptoms in this region in the last 12 months and 7 days.

Finally, it was observed that there is a shortage not only in the information regarding the physical health of caregivers, but also in the comparison between formal and informal groups. Only a comparative research was identified between these two groups, but it assessed emotional symptoms and identified its higher frequency in informal caregivers, suggesting that the main cause of these symptoms is in low orientation and lower income[5], factors also identified here, however, in the research were considered caregivers of cancer patients, regardless of age.

Study limitations

This is a cross-sectional study that sought to assess musculoskeletal symptoms in formal and informal caregivers of elderly people and to verify its association with personal and work-related factors. A longitudinal study would allow identifying the predictive factors for the occurrence of these disorders and the extent to which each of these factors contribute to the onset of these symptoms. The sample collected is also a limitation, due to the non-probabilistic character, being a possible source of bias. The questionnaires are based on self-report, which can generate a bias in the answers, mainly to those that involve long periods, since some questions refer to symptoms in the last 12 months.

Contributions to the field of nursing, health, or public policies

Identifying which factors are related to musculoskeletal symptoms in caregivers of the elderly, can help guide strategies that reduce exposure at work. Differentiating the groups allows us to direct strategies according to the greatest need of each one, since there was a difference between them.

CONCLUSION

Personal and work-related factors, such as long hours, performing other activities in addition to care and less weekly breaks are present in both groups, but significantly more in the group of informal caregivers.

In self-report, the transfer was the factor that most harms the physical health of caregivers and, when performed without help of another person, significantly increases perception of effort. The region with the most musculoskeletal symptoms in both groups was the spine, and the chances of developing these symptoms in this region, whether in the last 12 months or the last 7 days, were greater according to the elderly's dependence, the perception of stress and symptoms of emotional discomfort.

The upper limbs region is more likely to show symptoms in caregivers with greater perceived effort, with greater symptoms of emotional discomfort, who have rheumatoid arthritis and who are married. The lower limbs region is more likely to show symptoms in older elderly and have a greater perception of effort.

Other studies are needed to compare emotional factors and physical symptoms between formal and informal caregivers. Both groups, despite having differences in their activities, have a similar prevalence of musculoskeletal symptoms. This means that one can understand the activity of informal caregiver, also as a work activity and improvement actions, such as changes in the environment, assistive devices for transportation, training, among others, must be focused on both groups of caregivers.

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