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Social support among older adults understood through structural equation modeling

Apoio social entre mulheres e homens idosos compreendido por meio da modelagem de equações estruturais

Apoyo social entre mujeres y hombres mayores entendido a través de modelos de ecuaciones estructurales

Débora Aparecida Silva de Jesus[I]
ORCID: 0000-0002-3386-3967

Nayara Gomes Nunes Oliveira[I]
ORCID: 0000-0003-4170-8761

Neilzo Nunes Oliveira[I]
ORCID: 0000-0002-8581-5369

Alisson Fernandes Bolina[II]
ORCID: 0000-0002-1364-0176

Gianna Fiori Marchiori[I]
ORCID: 0000-0001-6363-0059

Darlene Mara dos Santos Tavares[I]
ORCID: 0000-0001-9565-0476

[I]*Universidade Federal do Triângulo Mineiro. Uberaba, Minas Gerais, Brazil.*
[II]*Universidade de Brasília. Brasília, Distrito Federal, Brazil.*

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Corresponding author:
Darlene Mara dos Santos Tavares
E-mail: darlenetavares@enfermagem.uftm.edu.br

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ABSTRACT

Objectives: to analyze factors associated, directly and indirectly, with lower social support of older adults, according to sex. **Methods:** a cross-sectional study, with 941 older adults from a health micro-region in Minas Gerais. Descriptive and trajectory analyzes were carried out (p<0.05). **Results:** in groups of women and men, direct and significant associations were observed between a smaller social network (p<0.001;p<0.001), single-person housing (p=0.046;p<0.001), greater number of depressive symptoms (p<0.001;p=0.010) and lower participation in advanced activities (p<0.001;p=0.005) with lower social support. In women, younger age was directly and significantly associated with outcome (p<0.001). In men, older age, mediated by lower participation in advanced activities, was indirectly associated with outcome. **Conclusions:** men and women showed less social support associated with social network, housing arrangement, depressive symptoms and participation in advanced activities. Understanding the context of social support among older adults makes it possible to establish more effective measures to improve care.
Descriptors: Aged; Health of the Elderly; Gender and Health; Social Support; Models, Statistical.

RESUMO

Objetivos: analisar os fatores associados, direta e indiretamente, ao menor apoio social de idosos, segundo o sexo. **Métodos:** estudo transversal, com 941 idosos de uma microrregião de saúde de Minas Gerais. Realizaram-se análises descritiva e de trajetórias (*p*<0,05). **Resultados:** observaram-se, nos grupos de mulheres e homens, associações diretas e significativas entre menor rede social (p<0,001;p<0,001), moradia unipessoal (p=0,046;p<0,001), maior número de sintomas depressivos (p<0,001;p=0,010) e menor participação nas atividades avançadas (p<0,001;p=0,005) com menor apoio social, respectivamente. Nas mulheres, a menor idade se associou direta e significativamente ao desfecho (p<0,001). Nos homens, a maior idade, mediada pela menor participação nas atividades avançadas, associou-se indiretamente ao desfecho. **Conclusões:** os homens e mulheres apresentaram menor apoio social associado à rede social, arranjo de moradia, sintomatologia depressiva e participação nas atividades avançadas. A compreensão do contexto do apoio social entre idosos possibilita o estabelecimento de medidas mais eficazes na melhoria do cuidado.
Descritores: Idoso; Saúde do Idoso; Gênero e Saúde; Apoio Social; Modelos Estatísticos.

RESUMEN

Objetivos: analizar los factores asociados, directa e indirectamente, al menor apoyo social de los ancianos, según sexo. **Métodos:** estudio transversal con 941 ancianos de una microrregión de salud de Minas Gerais. Se realizaron análisis descriptivos y de trayectoria (p<0,05). **Resultados:** en los grupos de mujeres y hombres se observaron asociaciones directas y significativas entre menor red social (p<0,001;p<0,001), vivienda unipersonal (p=0,046;p<0,001), mayor número de síntomas depresivos (p<0,001;p=0,010) y menor participación en actividades avanzadas (p<0,001;p=0,005) con menor apoyo social, respectivamente. En las mujeres, la menor edad se asoció directa y significativamente con el resultado (p<0,001). En los hombres, la mayor edad, mediada por una menor participación en actividades avanzadas, se asoció indirectamente con el resultado. **Conclusiones:** hombres y mujeres mostraron menor apoyo social asociado a la red social, arreglo de vivienda, síntomas depresivos y participación en actividades avanzadas. Comprender el contexto de apoyo social entre los ancianos permite establecer medidas más eficaces para mejorar la atención.
Descriptores: Anciano; Salud del Anciano; Género y Salud; Apoyo Social; Modelos Estadísticos.

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INTRODUCTION

Population aging, a global phenomenon, occurs in an accelerated manner in Brazil, which has 13.8% of the population composed of individuals aged 60 years or older[1]. This change in demographic profile raises new demands in elder care, reinforcing the need for technical-assistance models that consider, in addition to determinants of health, social aspects as a support strategy for managing comprehensive care to older adults[2].

Social support, characterized as the set of resources offered by other individuals, representing the totality of the relationships that a person has at their disposal[3], is an essential part of elder care[2], as it contributes to improving their physical and mental health[4]. In research developed with older adults, it was found that social support is determined by a complex network of factors, such as sex, age, income[5-6], housing arrangement[7], social support network[8], depressive symptomatology[4,6,9-10] and functional capacity[5,11-12]. This context shows the relevance of sociodemographic, economic and health aspects in the establishment and maintenance of social support in this age group.

Although there are few national studies[6] and international studies[5] that analyzed social support in relation to sex, investigations suggest differences between older adults[5-6]. Research developed with older adults registered in a Family Health Unit of Recife observed that social support, when analyzed concomitantly with depressive symptoms, mental status and resilience, was lower among women[6]. A survey conducted in Ghana, Africa, identified that the frequency and type of social support received by older adults, such as family contacts and friends, emotional bonding with other people, participation in social events and receiving children and distant relatives, positively impacted their psychological well-being[5]. Disparity in social support of older adults occurred according to education, income, comorbidities, functional limitations and sex; however, no analysis of individual factors between men and women was performed[5]. These findings raise the need to analyze the perspective of differences between older adults in living in their roles and opportunities throughout their lives[13], reinforcing the need for such an approach in public policy planning.

Moreover, although there is literature on the subject[2-9], there are few studies that have analyzed the explanatory factors of the relationship between sociodemographic, economic and health variables with lower social support from older adults, through models previously tested in mediation analyses, i.e., indirect relationships, and this justifies the performance of this study. From this perspective, for a better understanding of the event, analyses that consider the direct and mediation effects are necessary, such as structural equation models[14].

Thus, given the results of investigations with this theme[5-12], it is understood that less social support can be influenced by sociodemographic, economic and health characteristics of older adults, without, however, detailing which of these factors act directly or through mediation, differing according to sex, which raises the analysis of the relationship of these variables, to improve elder care

OBJECTIVES

To analyze the factors directly and indirectly associated with lower social support of older adults, according to sex.

METHODS

Ethical aspects

The project was approved by the Research Ethics Committee of a university in *Triângulo Mineiro*. The interviews were conducted after consent by older adults and the signing of the Informed Consent Form.

Study design, period, and location

This is a cross-sectional and analytical study, guided by the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE)[15], and developed with older adults living in the urban area of a health micro-region in the state of Minas Gerais. Data collection was carried out from May 2017 to June 2018, through a direct interview. Although the data were collected before the pandemic, it is considered a timeless theme, given that the pandemic period emphatically highlighted the need for social support for older adults.

Population and sample; inclusion and exclusion criteria

To select the population, we used the multiple-stage cluster sampling technique. In the first stage, an arbitrary drawing was considered through systematic sampling of 50% of the census sectors of each municipality in the health micro-region. For each municipality, the number of households to be selected was calculated in proportion to the total number of older adults residing in the eight cities of that micro-region. Then, the number of households was divided by the number of census tracts, obtaining a similar number of older adults to be interviewed in each census tract. Finally, in each census sector, the first household was randomly selected, and the others, in a standardized clockwise direction, until the sector sample was saturated. In addition to this, one older adult per household was recruited, and if there was more than one person aged 60 years or older living in the place, the one who had the first contact with the interviewer was interviewed.

The sample size calculation considered the coefficient of determination R^2=0.02 in a multiple linear regression model with 10 predictors, with a significance level or type I error of α=0.05 and type II error of β=0.2, resulting, therefore, in an a priori statistical power of 80%. Using the application Power Analysis and Sample Size, version 13, the values described above were introduced, obtaining a sample size of at least 798 older adults. Considering a 20% sample loss, the final number of interview attempts was 958.

We included older adults aged 60 years or older and living in the urban area of the health micro-region. We excluded those with cognitive decline, assessed through the Mini Mental State Examination[16], with severe sequelae from a stroke with loss of muscle strength in the lower and upper limbs, Parkinson's disease in a severe or unstable stage, with impairments in motor skills, speech and/or affectivity.

In total, 956 older adults were interviewed, of which 15 presented cognitive decline. Thus, the final sample consisted of 941 older adults.

Study protocol

For data collection, ten health interviewers were selected, who underwent training, qualification and approach on ethical research issues. It is noteworthy that the interviewers were trained by the researchers, Public Health Research Group members, and followed up until they demonstrated the necessary skills to apply the instruments used in the current study.

Sociodemographic, economic and morbidity data were obtained by applying the structured questionnaire prepared by Public Health Research Group members. To verify depressive symptoms, we used the Abbreviated Geriatric Depression Scale, validated in Brazil, composed of 15 questions and with a total score ranging from 0 to 15 points[17].

Regarding functional capacity, basic (BADL)[18], instrumental (IADL)[19] and advanced (AADL)[20] activities of daily living were assessed. BADL was measured using the Katz Index, adapted to the Brazilian reality and composed of six items that measure individuals' performance in self-care activities[18]. For IADL, the Lawton & Brody Scale, adapted in Brazil, was used, with scores ranging from 7 (highest level of dependence) to 21 points (complete independence), categorizing older adults as total dependent (7 points), partial (8 to 20 points) and independent (21 points)[19]. AADL were verified using the Advanced Activities of Daily Life Scale, which assesses the participation of older adults in activities: making and receiving visits; going to church, social gatherings, and cultural events; drive a car; travel and volunteer and/or paid work; and participate in boards, universities open to older adults and social groups. The scale consists of 13 questions of a social nature, with the answer options: I never did it, I stopped doing it and I still do it[20]. The performance in activities in each of the scales was considered, with the highest scores being for BADL, and the lowest for IADL, and AADL indicating greater functional disability.

To identify the network and social support, the Network and Social Support Scale, translated and validated in Brazil, was used[3]. The social network was measured through two questions, among them: "How many relatives do you feel comfortable with and can talk about almost anything?" and "How many friends do you feel comfortable with and can talk about almost anything?". Social support was measured by the frequency with which older adults have material support, i.e., the provision of practical and material resources such as: work aid and/or financial aid; positive social interaction/affective support that reflect the possibility of having someone to carry out leisure activities and offer physical demonstrations of love and affection; and emotional/information support, which consists of the social network's ability to satisfy individual needs regarding emotional problems and the fact that it can count on people to advise, inform and guide[3]. The assessment of social support dimensions was carried out in order to generate a standardized score for each dimension. The score was calculated by the ratio between the sum of the values obtained in the questions of each dimension and its maximum possible score, multiplied by 100. The final score for each of the dimensions ranged from 20 to 100 points, and the higher the score, the better the level of social support[3].

Independent sociodemographic variables studied were: sex (female, male); age group, in complete years (60 ⊢70; 70 ⊢80; 80 or more); age (average years of complete life); race/color (white, non-white); housing arrangement (lives alone, lives with others); and social network (number of friends and relatives they can count on). The economic variable was: individual monthly income, in minimum wages (no income; <1; 1; 1⊣ 3; 3⊣ 5 and >5). And health variables were: morbidities (mean number of morbidities); depressive symptoms (mean number of depressive symptoms); and functional capacity (mean of BADL scores; IADL; AADL). The dependent variable was: social support (mean scores: total social support, material support, positive social interaction/affective support, and emotional/information support). It is noteworthy that, in the analysis of structural equation modeling, variables were used quantitatively, with the exception of sex (female; male), housing arrangement (living alone; living with others) and individual monthly income, in minimum wages (without income; <1; 1; 1⊣ 3; 3⊣ 5 and >5), which are qualitative variables.

Analysis of results and statistics

In Excel, an electronic database was built, double entering the data. Inconsistencies were verified between the databases, and correction was performed when necessary. Analyses were performed using the Statistical Package for the Social Sciences (SPSS®), version 24, and Analysis of Moment Structures (AMOS®), version 24.

Data were subjected to descriptive analysis using frequencies, absolute and relative, for categorical variables, and mean and standard deviation, for quantitative variables.

To construct the model, it was considered that sociodemographic, economic and health characteristics are associated with social support through direct and indirect trajectories. Thus, a hypothetical model was elaborated (Figure 1), tested through the analysis of trajectories[14], which was composed of observed variables, represented by rectangles, classified as endogenous and exogenous. Endogenous variables receive directional arrows, and measurement errors are assigned, specified by "e" in models[14].

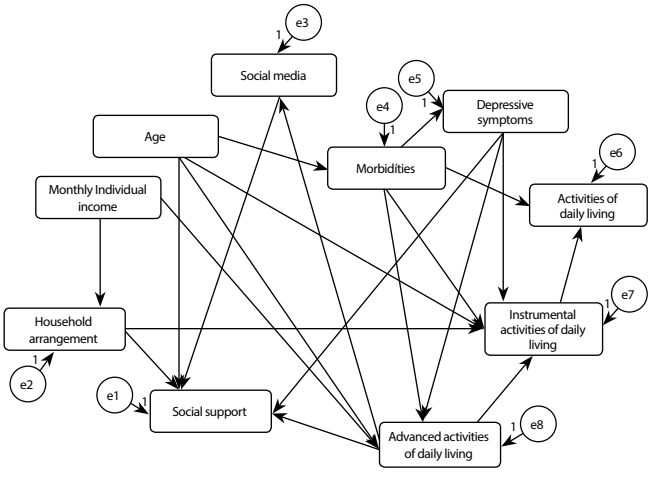


Figure 1 – Hypothetic model

From the hypothetical model specified (Figure 1), steps were carried out for the analysis of structural equation modeling, i.e., data collection, model estimation and adjustment quality assessment. Parameters were estimated by the Free Asymptotic Distribution method, and the model fit and quality indices were assessed using the chi-square test (χ^2) p>0.05, Goodness of Fit Index (GFI) ≥ 0.95, Comparative Fit Index (CFI) ≥ 0.95, Tucker-Lewis Index (TLI) ≥ 0.90 and Root Mean Error of Approximation (RMSEA) ≤ 0.05[14]. The hypothetical model was tested and, subsequently, re-specifications were performed. To this end, non-significant pathways (p>0.05) were eliminated, performing the calculations of modification indexes (≥11)[14].

Direct associations were presented by estimating the standardized coefficients in the trajectories between sociodemographic, economic and health variables and social support. Indirect associations (mediation effects) were determined from the intermediate trajectories between the aforementioned variables. Indirect standardized coefficients were obtained by multiplying the coefficients of the direct trajectories between variables, and the significance was assessed with the Goodman test. In all tests, the type I error was set at 5% (p-value<0.05)[14].

RESULTS

In both groups, women (n=631) and men (n=310), the highest percentages were for age group 70 ⊢80 years (39.6%; 46.0%), race/white (63.8%; 58.9%) and living with someone else (80.9%; 81.6%), respectively. As for individual monthly income, there was a predominance of old women who received a minimum wage (51.3%) and men with 1⊣ 3 minimum wages (46.6%).

When considering the three Social Support Scale dimensions, the mean total score achieved by the old women was 88.43 (±16.40), and for men, 89.46 (±16.37). In the analysis of each dimension, a higher material support score was observed in both sexes, female (91.83±17.65) and male (92.30±17.18) (Table 1).

Table 1 shows the Social Support Scale dimensions, according to the sex of older adults living in the urban area of the health micro-region (MG).

The mean and standard deviation of the quantitative variables included in the model, according to the sex of older adults living in the urban area of the health micro-region (MG), are described in Table 2.

In both groups, women and men, it was observed that the smaller social network (β=0.23; p<0.001; β=0.23; p<0.001), single-person housing (β=0.08; p=0.046; β=0.32; p<0.001), the highest number of depressive symptoms (β=-0.31; p<0.001; β=-0.37; p=0.010) and the lowest participation in AADL (β=0.17; p<0.001; β=0, 15; p=0.005) were directly associated with the lowest social support score, respectively. Among old women, the younger age (β=0.09; p=0.007) was also directly associated with the outcome (Table 3).

Direct and indirect estimators of associations between the variables tested and social support, according to sex of older adults of the health micro-region (MG), are presented in Table 3.

We observed, among women and men, that the greater number of morbidities (β=-0.09; β=-0.05), mediated by the greater number of depressive symptoms, was indirectly associated with the lowest social support score, as well as the lowest individual monthly income (β=0.03; β=0.02), mediated by the lower participation in AADL, respectively (Figure 2).

In the group of women, the lowest individual monthly income, mediated by single-person housing (β=-0.01), and in men, the highest number of morbidities (β=-0.02) and older age (β=-0.02), mediated by lower participation in AADL, they were indirectly associated with lower social support score (Figure 2).

Figure 2 shows the models with direct and indirect associations between variables tested and social support, according to the sex of older adults of the health micro-region: (A) Women and (B) Men.

Table 1 - Distribution of measures of central tendency of the Social Support Scale dimensions according to the sex of older adults residing in the urban area of the health micro-region, Minas Gerais, Brazil, 2021

Social support dimensions	Sex			
	Female		Male	
	Mean	Standard deviation	Mean	Standard deviation
Material support	91.83	17.65	92.30	17.18
Positive social interaction/affective support	86.94	19.10	88.16	18.39
Emotional/information support	86.52	20.06	87.92	19.07
Total social support	88.43	16.40	89.46	16.37

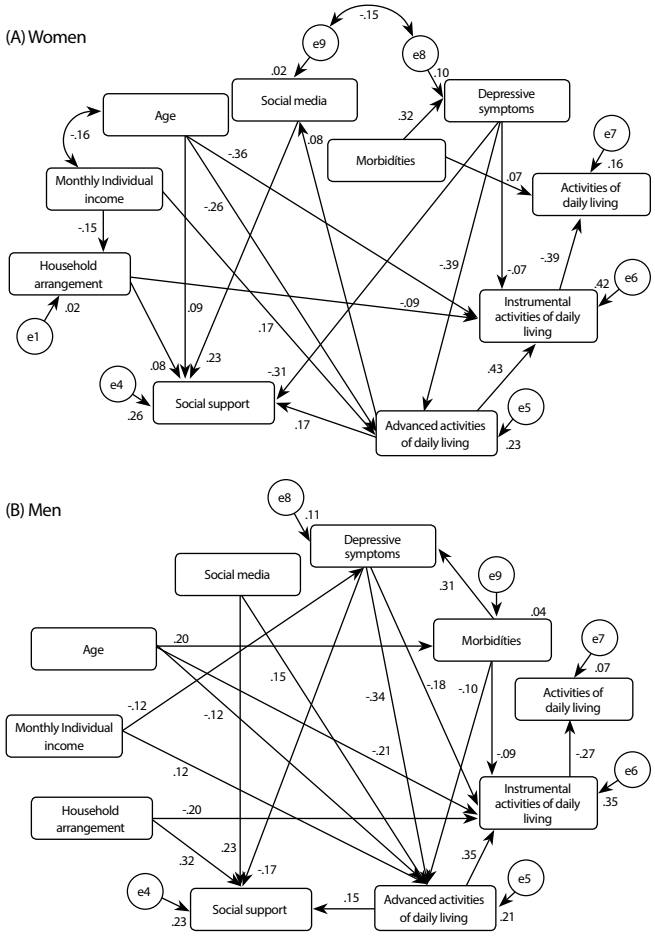
Table 2 – Distribution of means and standard deviation of sociodemographic, health and social support variables included in the model according to sex of older adults living in the urban area of the health micro-region, Minas Gerais, Brazil, 2021

Variables	Sex			
	Female		Male	
	Mean	Standard deviation	Mean	Standard deviation
Age (complete years)	72.99	8.11	73.69	7.80
Morbidities	7.15	3.36	5.20	3.07
Depressive symptoms (scale from 0 to 15)	3.86	3.42	2.82	2.89
Basic activities of daily living (scale from 0 to 6)	0.08	0.34	0.11	0.51
Instrumental activities of daily living (scale from 7 to 21)	17.94	3.09	17.80	3.34
Advanced activities of daily living (scale from 0 to 13)	5.17	2.38	5.59	2.47
Social network	4.81	4.07	5.89	6.03
Social support (scale from20 to 100)	88.43	16.40	89.46	16.37

Table 3 – Direct and indirect standardized coefficients for variables associated with social support according to sex of older adults living in the urban area of the health micro-region, Minas Gerais, Brazil, 2021

Direct and indirect associations	Sex (female)		Sex (male)	
	Estimator	*p**	Estimator	*p**
Direct associations				
Age → Social support	0.09	0.007	-	-
Social network → Social support	0.23	<0.001	0.23	<0.001
Housing arrangement → Social support	0.08	0.046	0.32	<0.001
Depressive symptoms → Social support	-0.31	<0.001	-0.17	0.010
Advanced activities of daily living → Social support	0.17	<0.001	0.15	0.005
Indirect associations				
Number of morbidities → Depressive symptoms → Social support	-0.09	<0.001	-0.05	<0.001
Individual monthly income → Advanced activities of daily living → Social support	0.03	<0.001	0.02	<0.001
Individual monthly income → Housing arrangement → Social support	-0.01	<0.001	-	-
Number of comorbidities→ Advanced activities of daily living → Social support	-	-	-0.02	<0.001
Age → Advanced activities of daily living → Social support	-	-	-0.02	<0.001

**p<0.05.*



Model fit and quality indices - (A) (χ^2 (gl=26) = 27.13; p=0.402; CFI = 0.99; GFI = 0.99; TLI = 0.98; RMSEA = 0.008); (B) (χ^2 (gl=27) = 35.17; p=0.135; CFI = 0.96; GFI = 0.97; TLI = 0.93; RMSEA = 0.031).

Figure 2 - Models with direct and indirect associations between variables tested and social support according to the sex of older adults of the health micro-region: (A) Women and (B) Men

DISCUSSION

The lower social support among women, compared to men, is in line with studies among older adults registered in a Family Health Unit in Recife, Pernambuco[6]. However, the lower score of social support was verified in the research with old women from a municipality in the state of Rio Grande do Sul (79.47±17.76)[21]. These findings may be related to the greater longevity of women[1], which increases the chances of widowhood and living alone[22-23]. Social support involves bonding, assistance, comfort and available resources[3], in addition to favoring social integration and being fundamental for physical and psychological well-being[24]. In this perspective, approaches that strengthen social support and enable integrating the family and social network components to care are resources that should be considered by managers and professionals in search of comprehensive health care for older adults[2,4].

In both sexes, the highest score in the material support dimension was also verified among older adults living in the municipality of Natal, Rio Grande do Norte[2], and in a micro-region of Minas Gerais[4]. This suggests that the solicitude and support provided while carrying out activities, such as job aid or financial aid[3], are acceptable to these older adults. Social support assessment, in addition to indicating how socially integrated older adults are, also identifies the degree to which interpersonal relationships correspond to certain functions and offer them support in times of crisis or readaptation[25]. Therefore, all dimensions must be balanced, including so that older adults have someone to share their concerns with, request information, feel loved and have moments of pleasure and relaxation[3].

Supporting our findings, studies have pointed out that, in old age, the social network may become more restricted, focusing on the family, due to changes, such as loss of spouse and/or health problems[4], which may be negatively associated with social support. In a Brazilian survey, it was observed that the home network stood out in offering social support to older adults, due to the lower number of members[8]. It is noteworthy that the social support network protects individuals in their physical, mental and psycho-affective aspects[4]. Thus, the identification of their characteristics, such as the number of friends, the frequency and intensity of contacts, the existence or not of intimate people, can contribute to the development of social practices[4,8]. Such issues are essential in preventing vulnerability and social isolation during the human aging process[4,8].

Similar to what we identified, it was observed that among the American[9] and Chinese[7] adults who lived alone, there was less propensity to receive financial resources and emotional support from their families, compared to those living with the family[7,9]. However,

it is known that living with the family, by itself, does not guarantee support in times of need, because family members are eventually not prepared to deal with the specificities of aging, especially due to the restriction in offering instrumental support in daily life[23]. Therefore, single-person housing arrangement may represent an achievement of older adults who experience the course of age with more privacy and independence[22]; however, it may be a risk factor for the lowest social support[7,9], as observed in our study, especially for males. In this context, it is necessary to pay attention to loneliness among older adults and the reduction of their social ties as eminent factors in the relationship with social support. The family is recognized as a source of social support that positively impacts older adults' mental health and degree of satisfaction with their lives[6,23].

National[4,6] and international studies[9-10] support our results, by showing an association between the presence of depressive symptoms and lower social support in community older adults[4,6,9-10]. There is evidence that social and health aspects make older adults more vulnerable to the occurrence of stressful events, favoring the emergence of depressive symptoms[4], which can negatively impact the perception of social support received[6,9-10]. The integrative and complementary practices of the Unified Health System (*Sistema Único de Saúde*), such as integrative community therapy, have been considered effective care tools in older adults' mental health care, by favoring bond construction, which reflects the feeling of belonging to a group, increasing the sense of well-being and social support received[4].

Participation in social activities, such as AADL, also favors social support for older adults, as identified in the study developed in Brazil, which identified a correlation between the functionality and social support of older adults[8], supporting in part with our results. It is essential that health professionals encourage the engagement of older adults in social activities, aiming to expand their network and, therefore, offer support in times of need[8].

In the current study, we found that, among women, younger age was directly associated with lower social support scores, which reinforces a study conducted with old women residents in a low-income region in Rio de Janeiro, Rio de Janeiro, in which it was observed that the younger the age, the lower the social support received[26]. In opposition to these data, it was evidenced in a study carried out with a sample predominantly of women that older adults presented lower social support network with advancing age[8]. Social policies should consider old women's situation, especially those most susceptible to social isolation.

In another population-based survey, it was identified, among older adults assisted in Primary Health Care in the city of Maringá, Paraná, that chronic diseases increased the chances of depressive symptoms in older adults[27], and may therefore be related to lower perceived social support[6]. Such data contribute to the understanding of our results, and evidence the need for health professionals, during the geriatric assessment, to screen depressive symptoms, especially among older adults with morbidities, in order to provide and encourage social support.

Socioeconomic vulnerability related to adverse health conditions, including functional disabilities, may affect older adults' social support[11], which is consistent with the present study, when it was verified that a lower individual monthly income, mediated by a lower participation in AADL, was indirectly associated with lower social support. It is noteworthy that no studies were identified in the scientific literature that assessed the mediating role of participation in AADL in the association between these variables. However, research developed in southeastern Brazil[28] and in other regions[29] found that older adults with low income had lower participation in AADL[28-29]. This result may be related to the fact that older adults with lower income generally reside in more socially vulnerable areas[30] and, therefore, have less participation in social activities, such as AADL, due to restricted access in these areas to services for the community and, above all, due to sanitary and urban infrastructure limitations in these locations[31].

Consequently, low participation in these activities interferes with satisfaction with personal relationships, in addition to limiting interaction and social support among community members[32], which may negatively impact the perception of social support received.

Eventually, older adults, through retirement, are the fundamental providers of their families, even if their children were married[33-34]. Based on the assumption that the family is considered the main social support for activities outside the domestic environment[35], it is possible that those with better monthly income and who collaborate financially with the support of the family nucleus receive greater assistance and incentives to participate in AADL and, consequently, perceive the social support received in a more positive way.

Our findings reinforce the importance of health professionals paying attention to aspects related to the impacts of social and determinants of health on the social support of old women with low income, especially those who live alone. It is known that households provide the first nucleus of interaction and social support, thus influencing access to goods and resources[22-23]; when they are single-person, it is necessary to verify whether older adults have social support, particularly when they have low income.

In relation to men, research conducted in seven municipalities in Brazil partially ratifies our study, since older adults with three or more self-reported diseases presented lower engagement in AADL[29], although it did not assess the mediation effect of this variable. This fact may occur due to the human aging process, which is marked by greater vulnerability to the emergence of chronic health conditions and social barriers[35], which may decrease participation in these activities. Old men with functional limitations, due to advancing age or health condition, are less socially participatory, and this lower engagement in AADL may negatively interfere with their perception of social support received[36-37].

These data reveal the need to encourage older adults, especially those with advanced age and conical health conditions, to participate in social activities, aiming at strengthening their social support network. Thus, Primary Health Care professionals can propose group educational activities aimed at old men, considering the potential improvement of health care and social integration[6].

Study limitations

The fact that this study excluded older adults with indicative of cognitive decline may have caused a more selected sample of healthy older adults. However, it is important to emphasize that the possibility of selection bias was minimized, since all eligible older adults were interviewed. It is emphasized the need

for longitudinal and multicenter research, with representative samples of this population in the various Brazilian states, in order to contribute to improving health care for older adults.

Contributions to the area of nursing, health and public policies

The study was conducted with a representative sample of a health micro-region composed of eight municipalities. We used structural equation modeling analysis, according to sex, to estimate the effects of sociodemographic, economic and health variables on social support among older adults. Thus, the results identified can help in the planning of measures aimed at older adults and provide tools for nurses for early screening of tricky situations, considering the specificities of women and men, with the recognition of characteristics that represent a greater risk of negative impact on social support in each of these subgroups, in addition to monitoring individual needs in Primary Health Care.

Moreover, the strengthening and/or implementation of social support among older adults provides improvements to their health and, therefore, should be encouraged[8]. Therefore, professionals should foster the formation of social networks between family and friends, in which older adults can effectively interact with the composition of relationships that meet the needs of this age group[8].

CONCLUSIONS

We conclude that old women have a lower level of social support. However, regardless of sex, the lowest social network, single-person housing, the highest number of depressive symptoms and the lowest participation in AADL were directly associated with the lowest social support score. We also identified indirect associations, in both groups, between the higher number of morbidities, mediated by the higher number of depressive symptoms, and the lower income, mediated by the lower participation in AADL with the outcome. Furthermore, we observed that age was a factor that differed between sexes, and in the group of old women, younger age was directly associated with lower social support. Among men, older age, mediated by lower participation in AADL, was indirectly associated with the outcome.

Thus, the study broadens the understanding of the context in which social support is established among older adults. Thus, it enables, by professional assistants and managers, to establish more effective measures to improve care for older adults, with the potential to expand social support, such as those that promote social participation groups, capable of contributing to functional capacity in AADL and improving the profile of depressive symptoms among participants.

REFERENCES

1. Instituto Brasileiro de Geografia e Estatística (IBGE). Projeção da população por sexo e idade: indicadores implícitos na projeção - 2020/2060[Internet]. 2021 [cited 2021 Mar 20]. Available from: https://www.ibge.gov.br/estatisticas/sociais/populacao/9109-projecao-da-populacao.html?=&t=o-que-e
2. Guedes MBOG, Lopes JM, Guedes TSR, Lima AL, Oliveira DCF, Lima KC. Validade e acurácia do Guedes Tool para avaliar o apoio social informal para idosos. Rev Bras Geriatr Gerontol. 2020;23(2):e200059. https://doi.org/10.1590/1981-22562020023.200059
3. Griep RH, Chor D, Faerstein E, Werneck GL, Lopes CS. Validade de constructo de escala de apoio social do Medical Outcomes Study adaptada para o português no Estudo Pró-Saúde. Cad Saúde Pública. 2005;21(3):703-14. https://doi.org/10.1590/S0102-311X2005000300004
4. Tavares DMS, Oliveira NGN, Santos PFC. Apoio social e condições de saúde de idosos brasileiros da comunidade. Cien Enferm. 2020;26(9):1-12. https://doi.org/10.29393/ce26-2asdm30002
5. Gyasi RM, Phillips DR, Abass K. Social support networks and psychological wellbeing in community-dwelling older Ghanaian cohorts. Int Psychogeriatr. 2019;31(7):1047–57. https://doi.org/10.1017/S1041610218001539
6. Cordeiro RCC, Santos RC, Araújo GKN, Nascimento NM, Souto RQ, Ceballos AGC, et al. Mental health profile of the elderly community: a cross-sectional study. Rev Bras Enferm. 2020;73(1):e20180191. https://doi.org/10.1590/0034-7167-2018-0191
7. Mao X, Han WJ. Living arrangements and older adults' psychological well-being and life satisfaction in China: does social support matter? Fam Relat. 2018;67(4):567-84. https://doi.org/10.1111/fare.12326
8. Brito TRPD, Nunes DP, Duarte YAO, Lebrão ML. Redes sociais e funcionalidade em pessoas idosas: evidências do estudo Saúde, Bem-Estar e Envelhecimento (SABE). Rev Bras Epidemiol. 2018;21(Suppl 02). https://doi.org/10.1590/1980-549720180003.supl.2
9. Chan E, Procter-Gray E, Churchill L, Cheng J, Siden R, Aguirre A, et al. Associations among living alone, social support and social activity in older adults. AIMS Public Health. 2020;7(3):521-34. https://doi.org/10.3934/publichealth.2020042
10. Mohd TAMT, Yunus RM, Hairi F, Hairi NN, Choo WY. Social support and depression among community dwelling older adults in Asia: a systematic review. BMJ Open. 2019;9(7):e026667. https://doi.org/10.1136/bmjopen-2018-026667
11. Sant`Ana LA, D'Elboux AMJ. Suporte social e expectativa de cuidado de idosos: associação com variáveis socioeconômicas, saúde e funcionalidade. Saúde Debate. 2019;43(121):503-19. https://doi.org/10.1590/0103-1104201912117
12. Guadalupe S, Cardoso J. The informal social support networks as sources of social provision in Portugal: the case of elderly population. Soc Estado. 2018;33(1):213-48. https://doi.org/10.1590/s0102-699220183301009
13. Sousa NFS, Lima MG, Cesar CLG, Barros MBA. Active aging: prevalence and gender and age differences in a population-based study. Cad Saúde Pública. 2018;34(11):e00173317. https://doi.org/10.1590/0102-311X00173317
14. Maroco J. Análise de equações estruturais: fundamentos teóricos, software & aplicações. Perô Pinheiro: Report Number; 2014.

15. Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. Strengthening the reporting of observational studies in epidemiology (STROBE) statement: Guidelines for reporting observational studies. BMJ. 2007;335(7624): 806–8. https://doi.org/10.1016/j.jclinepi.2007.11.008

16. Bertolucci PHF, Brucki SMD, Campacci SR, Juliano Y. O Mini-Exame do Estado Mental em uma população geral: impacto da escolaridade. Arq Neuro-Psiquiatr. 1994;52(1):01-07. https://doi.org/10.1590/S0004-282X1994000100001

17. Almeida OP, Almeida SA. Confiabilidade da versão brasileira da Escala de Depressão em Geriatria (GDS) versão reduzida. Arq Neuro-Psiquiatr. 1999;57(2-B):421-26. https://doi.org/10.1590/S0004-282X1999000300013

18. Lino VTS, Pereira SRM, Camacho LAB, Ribeiro Filho ST, Buksman S. Cross-cultural adaptation of the Independence in Activities of Daily Living Index (Katz Index). Cad Saúde Pública. 2008; 24(1):103-12. https://doi.org/10.1590/S0102-311X2008000100010

19. Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist. 1969;9(3):179-86. https://doi.org/10.1093/geront/9.3_Part_1.179

20. Dias EN, Silva JV, Pais-Ribeiro JL, Martins T. Validation of the advanced activities of daily living scale. Geriatr Nurs. 2019;40(1):7-12. https://doi.org/10.1016/j.gerinurse.2018.05.008

21. Garces SBB, Figueiró MF, Hansen D, Rosa CB, Brunelli AV, Bianchi PD, et al. Resiliência entre mulheres idosas e sua associação com o bem-estar espiritual e o apoio social. Estud Interdiscipl Envelhec[Internet]. 2017 [cited 2021 Mar 20];22(1):9-30. Available from: https://seer.ufrgs.br/RevEnvelhecer/article/view/43412/48373

22. Negrini ELD, Nascimento CF, Silva A, Antunes JLF. Elderly persons who live alone in Brazil and their lifestyle. Rev Bras Geriatr Gerontol. 2018;21(5):523-31. https://doi.org/10.1590/1981-22562018021.180101

23. Bolina AF, Araújo MC, Haas VJ, Tavares DMS. Associação entre arranjo domiciliar e qualidade de vida de idosos da comunidade. Rev Latino-Am Enfermagem. 2021;29(e3401). https://doi.org/10.1590/1518-8345.4051.3401

24. López-Cerdá E, Carmona-Torres JM, Rodríguez-Borrego MA. Social support for elderly people over 65 years in Spain. Int Nursing Rev. 2019;66(1):104-11. https://doi.org/10.1111/inr.12468

25. Zanini DS, Peixoto EM, Nakano EC. Escala de Apoio Social (MOS-SSS): proposta de normatização com referência nos itens. Trends Psychol. 2018;26(1):387-99. https://doi.org/10.9788/TP2018.1-15Pt

26. Sousa AI, Silver LD, Griep RH. Apoio social entre idosas de uma localidade de baixa renda no Munícipio do Rio de Janeiro. Acta Paul Enferm. 2010;23(5):625-31. https://doi.org/10.1590/S0103-21002010000500007

27. Oliveira DV, Pivetta NRS, Oliveira GVN, Silva DA, Nascimento Júnior JRA, Cavaglieri CR. Factors influencing depression markers in elderly primary healthcare center patients in Maringá, Paraná, Brazil, 2017. Epidemiol Serv Saúde. 2019;28(3):e2018043. https://doi.org/10.5123/s1679-49742019000300010

28. Veloso MV, Sousa NFS, Medina LPB, Barros MBA. Desigualdades de renda e capacidade funcional de idosos em município do Sudeste brasileiro. Rev Bras Epidemiol. 2020;23:e200093. https://doi.org/10.1590/1980-549720200093

29. Sposito G, Neri AL, Yassuda MS. Atividades avançadas de vida diária (AAVDs) e o desempenho cognitivo em idosos residentes na comunidade: Dados do Estudo FIBRA Polo UNICAMP. Rev Bras Geriatr Gerontol. 2016;19(1):7-20. https://doi.org/10.1590/1809-9823.2016.15044

30. Bolina AF, Rodrigues RAP, Tavares DMS, Hass VJ. Fatores associados à vulnerabilidade social, individual e programática de idosos que vivem no domicílio. Rev Esc Enferm USP. 2019;53:e03429. https://doi.org/10.1590/S1980-220X2017050103429

31. Virginio JP, Lopes AI, Carvalho JL, Andrade J, Lima MG, Bolina AF. Vulnerabilidade social e cobertura do núcleo ampliado de saúde da família e atenção básica. Enferm Foco. 2021;12(2):297-304. https://doi.org/10.21675/2357-707X.2021.v12.n2.3955

32. Oliveira NGN, Tavares DMS. Envelhecimento ativo entre idosos comunitários: análise de modelagem de equações estruturais. Rev Bras Enferm. 2020;73(suppl 3): e20200110. https://doi.org/10.1590/0034-7167-2020-0110

33. Sant`Ana LA, D'Elboux AMJ. Comparison of social support network and expectation of care among elderly persons with different home arrangements. Rev Bras Geriatr Gerontol. 2019;22(3):e190012. https://doi.org/10.1590/1981-22562019022.190012

34. Sampaio TSO, Sampaio LS, Vilela ABA. Conteúdos e estrutura representacional sobre família para idosos em corresidência. Ciên Saúde Coletiva. 2019;24(4):1309-16. https://doi.org/10.1590/1413-81232018244.09122017

35. Singer L, Green M, Rowe F, Ben-Shlomo Y, Morrissey K. Social determinants of multimorbidity and multiple functional limitations among the ageing population of England, 2002–2015. SSM Popul Health. 2019;8(1):e100413. https://doi.org/10.1016/j.ssmph.2019.100413

36. Harling G, Morris KA, Manderson L, Perkins JM, Berkman LF. Age and gender differences in social network composition and social support among older rural South Africans: findings from the HAALSI study. J Gerontol B Psychol Sci Soc Sci. 2020;75(1):148–59. https://doi.org/10.1093/geronb/gby013

37. Matud MP, García MC, Fortes D. Relevance of gender and social support in self-rated health and life satisfaction in elderly spanish people. Int . Environ Rev Public Health. 2019;16(15):1-15. https://doi.org/10.3390/ijerph16152725