Social support network, functional capacity and mental health in older adults

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Abstract
This study aimed to describe the characteristics of the social networks of older adults and to assess associations between social support, functional capacity and mental health. The sample consisted of 134 community-dwelling older adults, assessed in terms of their social network through the Minimum Map of Older Adult Relationships; functional capacity for performance in activities of daily living; depressive symptoms, assessed through the Geriatric Depression Scale and; anxiety, assessed through the Beck Anxiety Inventory. Cluster analyses were performed. The social network was characterized by being informal, functioning as affective support that occurs through visits. Social support perceived as insufficient was more frequent in men, in those who were dependent regarding instrumental activities of daily living, and in those with anxiety and depressive symptoms. Reduced social support networks and lack of support were associated with limitations in functional capacity and worse mental health, sparking debate about the centrality of the family in the provision of support.
Keywords: Older adults; social interaction; anxiety; depression; family relationships

Rede de suporte social, capacidade funcional e saúde mental em pessoas idosas

Resumo
Este estudo objetivou descrever as características da rede social de pessoas idosas e avaliar associações entre apoio social, capacidade funcional e saúde mental. A amostra foi composta por 134 idosos comunitários, avaliados quanto à rede social pelo Mapa Mínimo das Relações do Idoso; capacidade funcional pelo desempenho em atividades de vida diária; sintomas depressivos, avaliados pela Escala de Depressão Geriátrica e; ansiedade, avaliada pelo Inventário de Ansiedade de Beck. Foram realizadas análises de conglomerados. A rede social caracterizou-se por ser informal, funcionando como suporte afetivo que ocorre por meio de visitas. O apoio social percebido como insuficiente foi mais frequente no sexo masculino, entre idosos dependentes em atividades instrumentais de vida diária, com ansiedade e sintomas depressivos. Redes de suporte social reduzidas e com baixo apoio estão associadas com limitações na capacidade funcional e pior saúde mental, colocando em debate a centralidade da família na provisão de suporte.
Palavras-chave: Idosos; Interação social; Ansiedade; Depressão; Relações familiares

Red de apoyo social, capacidad funcional y salud mental en personas mayores

Resumen
Este estudio tuvo como objetivo describir las características de la red social de personas mayores y evaluar las asociaciones entre el apoyo social, la capacidad funcional y la salud mental. La muestra estuvo compuesta por 134 ancianos comunitarios, quienes fueron evaluados en cuanto a su red social mediante el Mapa Mínimo de Relaciones del Anciano; su capacidad funcional en las actividades de la vida diaria; los síntomas depresivos mediante la Escala de Depresión Geriátrica; y la ansiedad a través del Inventario de Ansiedad de Beck. Se realizaron análisis de conglomerados. La red social se caracterizó por ser informal, funcionando como apoyo afectivo que se manifiesta a través de visitas. El apoyo social percibido como insuficiente fue más frecuente en el sexo masculino, entre los ancianos dependientes en actividades instrumentales de la vida diaria, y aquellos con síntomas de ansiedad y depresión. Las redes de apoyo social reducidas y con bajo apoyo se asocian con limitaciones en la capacidad funcional y un peor estado de salud mental, lo que plantea el debate sobre el papel central de la familia en la provisión de apoyo.
Palabras clave: Idosos; interacción social; ansiedad; depresión; Relaciones familiares

Introduction

Social networks, as the set of social relationships that people maintain, involve structural (size and composition), functional (functions that the support plays in the lives of those who receive and provide support) and contextual aspects (adequacy of social support to the situation that the individual is experiencing) (Duarte & Domingues, 2020; Gouveia et al., 2016). The process of fulfilling support needs and older adults' perceptions of support and its availability is dynamic and complex (Rabelo, 2016). There are two main groups of social support networks for older adults: formal support networks, which include state services and services organized by local authorities, social security and home support, including paid services; and

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informal support networks that include family, friends and the community (Accioly et al., 2020).

The social support network, which provides concrete help in everyday life, is considered a determining factor for the quality of life (Bélanger et al., 2016; Şahin et al., 2019; Sarla et al., 2020), health (Jesus et al. al., 2018; Wu & Sheng, 2019) and coping with stressful events in advanced age, for example, the current COVID-19 pandemic (Petermann et al., 2020; Weber et al., 2021). The presence of functional dependence (inability to maintain physical or cognitive skills necessary for an independent and autonomous life) among older adults is associated with the need for more material support to carry out tasks inside and outside the home and for personal care (Brito et al., 2018). Long-lived older adults often have a reduced social network and accumulate more health and functionality problems, therefore, they may be particularly vulnerable to social isolation and loneliness (Czaja et al., 2021).

The structure and function of the social network are strongly linked to anxiety and depression symptoms in the general older adult population. An American longitudinal study (Santini et al., 2020) indicated that social disconnection (small social network and infrequent social interaction) predicts a greater amount of perceived isolation (loneliness and lack of support), which, in turn, predicts increased symptoms of depression and anxiety. Among Latin American older adults, support from family, children, and the partner was associated with a lower risk of depression and better quality of life (Bélanger et al., 2016). Data from the Fibra-RJ Study showed that older adults who believed they had someone to rely on in their informal network in the event of functional dependence were less likely to have clinically significant depressive symptoms (Ribeiro et al., 2021).

The study of social support networks in advanced age and their relationship with functional independence and mental health has intensified in recent decades, particularly at the international level (Hwang et al., 2019; Shattuck et al., 2022). In Brazil, the theme is emerging and recent data indicate social and gender inequalities regarding the role of social networks in maintaining physical and mental health (Brito, 2018). Considering the various possible social arrangements and rearrangements influenced by culture and demographic changes highlighted by the review of Guadalupe and Vicente (2021), it is highly valuable to assess and monitor the characteristics and functions of these networks in different regions of Brazil. This is especially important considering the increasing demand for care as people age, which is exacerbated by the diminishing size of social networks in advanced age.

In this context, this knowledge contributes to the performance of professionals who work with older adults and their families, and may expand the intervention possibilities in this population. Furthermore, it promotes discussions on how support networks can promote public health initiatives to reduce social isolation, favor the integration of the social network, provide more support for older adults, family members and caregivers, and encourage greater participation in community activities. The aim of this study was to describe the characteristics of the social support networks of older adults in terms of size, nature and frequency of contact, considering the types of support and their functions, and to evaluate the associations between social support, functional capacity and mental health.

Method

Design

This was a cross-sectional, descriptive, quantitative study.

Study participants and context

Participants were 134 older adults, from a city in the state of Bahia, considered a hub in the region and an important commercial and service center. Located in the area known as the *Território de Identidade do Recôncavo*, the region is characterized by high levels of social inequalities (calculated HDI of 0.621 and GINI index of 0.574). The age of the participants ranged from 60 to 95 years, with a mean age of 72 years (+8) years, with the majority being women (77.6%), black (68.7%), with low levels of education (35.1% illiterate and 50.0% with incomplete primary education) and low income (75.4% with family income of up to 2 minimum wages).

Instruments

1) Minimum Map of Older Adult Relationships (*Mapa Mínimo de Relações do Idoso* - MMRI), adapted for the older adult population by Domingues (2004). Evaluates, according to the perception of the older adult, the size, nature (informal and formal) and frequency of contact of their social support network in terms of types of support: affective (visits, companionship and emotional

support), instrumental/material (help with domestic activities, personal and financial care) and informational. This instrument allows the average and range of relationships to be identified by quadrant (identifies one of the four types of relationships studied: friends, family, community relationships, and relationships with the healthcare system), by composition, by circle (an inner circle of closer relationships with contacts occurring at least once a week; an intermediate circle of personal relationships with contacts occurring at least once a month; an outer circle of acquaintances and occasional contacts, at least once a year), and by the significant relationships mentioned. Up to two people in the first circle characterize a small network; between three and five people in the same circle, a medium network; and more than six people per circle, a large network. The study by Domingues et al. (2011) indicated that the MMRI presents a good level of test/retest reproducibility, when evaluated using Pearson's correlation, and moderate reliability, when evaluated using the Bland and Altman technique.

2) Functional capacity: a) Index of Independence in Activities of Daily Living (Lino et al., 2008). This index is obtained through a 6-item scale with three response options regarding the help needed (none, partial or total) for bathing, dressing, toileting, transferring, bladder and bowel control and eating. The instrument showed good internal consistency and a Cronbach's alpha of .92. The answers are grouped into: independent, partial dependence and total dependence. b) Performance of instrumental activities of daily living (Santos & Virtuoso-Junior, 2008), measured through scales with three response options regarding the help needed (none, partial or total) in relation to making telephone calls, using transport, shopping, cooking, doing housework, medication use and money management. The answers are grouped into: independent, partial dependence and total dependence. The scale presented satisfactory psychometric indices with a significant index and confidence interval both in relation to reproducibility (Ricc = 0.89) and objectivity (Ricc = 0.80).

3) Mental health: a) Geriatric Depression Scale - GDS-15 (Almeida & Almeida, 1999) with 15 yes or no questions, about how the older adult felt during the previous week, considering dysphoric moods. The internal consistency of the GDS-15 showed a moderate accuracy of 80%, being suitable for research and screening (Pinho et al., 2010). This is a depression screening scale, with a cutoff score > 6 for mild depression and > 11 for severe depression. Subsequently, the categories were combined for dichotomous analyses (yes x no). b) Beck Anxiety Inventory – BAI (Cunha, 2001), with 21 items covering common symptoms of anxiety and asking how the individual felt in the previous week, in relation to each symptom. Each item has four response options, with the cutoff score being > 11 for mild anxiety, > 20 for moderate anxiety and > 31 for severe anxiety, considering a score that can vary between 1 and 63 points. Subsequently, the mild, moderate or severe categories were combined for dichotomous analyses (yes x no).

Data collection procedures and ethical aspects

Data were collected in 2011 by trained undergraduate students, with the assistance of community health agents who helped identify households with older adults registered in the coverage area of the Health Unit in the urban zone that had the highest number of older adults registered in the municipality at time of collection (which corresponded to 14.5% of the total number of people registered and 16.8% of the older adult residents in the city). Recruiters were instructed to consider the following inclusion criteria: age 60 years or over; permanent residence in the region and in the home; understanding of instructions; interest in participating; and signature of the consent form.

The sample exclusion criterion was based on people's performance in the Mini Mental State Examination (MMSE), a dementia screening test commonly used in population studies. Cutoff scores were adopted for each education level, according to the standards recommended in the FIBRA study (Neri & Guariento, 2011). The option to exclude older adults with a cognitive deficit suggestive of dementia was made so as not to impair the reliability of the self-report responses. A total of 207 homes were visited, indicated by community health agents or by the older adults themselves, with 7 not meeting one or more eligibility criteria. A total of 66 people scored below the MMSE cutoff score, with these being excluded from the sample. In the data collection procedure, the participant was asked for the interview to take place in a

place in the house that could provide more privacy and was quiet, avoiding interruptions by other people. This process lasted from two to three visits, with an average duration of two hours each.

Data analysis

The data were submitted to statistical analysis using the SAS System for Windows (*Statistical Analysis System*), version 9.2 package. To describe the profile of the sample according to the study variables, frequencies were calculated for the categorical variables presented in absolute frequency (*n*) and percentage (%). To study the association between the investigated groups, Pearson's chi-square test or Fisher's exact test (in the presence of expected values lower than 5) were used to compare categorical variables.

Cluster analysis was carried out using the partition method, in which the number of clusters is previously established (Pereira, 1999). This is a multivariate analysis based on the frequency distributions of a set of categorical variables, without indicating the correlation and relative weight of certain variables over others. It is useful for indicating the general trends of the joint distribution of the variables of interest. The clusters are compared with the theory and with research data, which allows for interpretation. Initially, a solution was performed with two clusters and then with three. This last solution resulted in better arrays, characterized by higher R^2 and with a greater number of variables. The method used to measure the quality of the solution found was to assess whether it was possible to discriminate between clusters based on the variables that composed them. Based on the Chi-square and Fisher's exact tests (significance level of 5%), comparisons were made between the proportions of answers to the categories of variables that composed the clusters (Kaufman & Rousseeuw, 1990).

Results

Table 1 presents the distributions regarding the size of social networks, according to the type of support and its functions. Most of the network was classified in the function of visits (medium to large = 59.0%), while in the other functions, most cited a small network (company = 47.0%; emotional = 53.0%; help with domestic activities = 70.1%; personal care assistance = 67.2%; financial assistance = 55.2%; informational support = 47.0%). They had at least one person to provide emotional support (visits = 94.8%; company = 91.8%; emotional = 86.6%), instrumental/material support (domestic help = 92.5%, personal care = 91.0% and financial assistance = 87.3%) and informational (80.6%).

It was also observed that, for affective support, 94.8% of the older adults had at least one source of support in the visits function (79.1% family, 25.4% friends, 36.6% community); 91.8% in the company function (82.1% family, 14.2% friends, 20.9% community); and 86.6% in the emotional function (73.9% family, 13.4% friends, 17.9% community). For instrumental/material support, 92.5% of the older adults had at least one person in the help with domestic activities function (77.6% family, 9.0% friends, 24.6% community), 91% in the help with personal care function (85.1% family, 4.5% friends, 11.9% community), 87.3% in the financial assistance function (83.6% family, 4.55 friends, 1.5% community); and 80.6% for informational support (70.1% family, 11.9% friends, 19.4% community).

The most cited source of informal support was family (85.1%), followed by the community (9.7%) and friends (5.2%). Most of the people mentioned provided support or were available at least once a week (visits = 64.5%; company = 67.8%; emotional = 71.15; help with domestic activities = 70.9%; personal care = 71.8%; financial assistance = 70.4%; informational support = 69.1%).

Considering the nature and frequency of contact with the social network, Table 2 shows the distribution of informal support sources in terms of the number of people mentioned in each type of support according to their functions. No type of formal support related to the health system was cited by the older adults. The highest number of people mentioned in the total was in the visits function (20.4%) and the lowest number in help with domestic activities (11.4%).

Table 3 shows comparisons between the types of perceived support (no support vs. support) with gender, age, performance in basic and instrumental activities of daily living, and symptoms of depression and anxiety. According to the results, there was a significant difference between the groups for: gender (higher frequency of males that did not have help with domestic activities and personal care activities); dependence in instrumental activities of daily living (higher frequent of those who did not receive visits); depression (higher frequent of those who did not have informational support); and anxiety (higher frequent of those who did not have support through visits, company, financial assistance and informational support).

Table 1.
Sample distribution considering the size of the social support network

Function/ Type of support	Social network	Network size (%)*			
		Nobody	Small	Medium	Large
Visits/ Affective support	Family	20.9	38.8	27.6	12.7
	Friends	74.6	23.9	1.5	-
	Community	63.4	32.8	3.0	0.7
	Total people	5.2	35.8	38.1	20.9
Company/ Affective support	Family	17.9	44.8	22.4	14.9
	Friends	85.8	13.4	0.7	-
	Community	79.1	19.4	0.7	0.7
	Total people	8.2	47.0	26.1	18.7
Help with housework/ Instrumental Support	Family	22.4	61.2	9.7	6.7
	Friends	91.0	9.0	-	-
	Community	75.4	23.9	0.7	-
	Total people	7.5	70.1	14.2	8.2
Help with personal care/ Instrumental support	Family	14.9	63.4	13.4	8.2
	Friends	95.5	4.5	-	-
	Community	88.1	11.9	-	-
	Total people	9.0	67.2	14.9	9.0
Financial assistance/ Material support	Family	16.4	52.2	14.9	16.4
	Friends	95.5	4.5	-	-
	Community	98.5	1.5	-	-
	Total people	12.7	55.2	14.9	17.2
Emotional/ Affective support	Family	26.1	46.3	19.4	8.2
	Friends	86.6	12.7	0.7	-
	Community	82.1	17.2	-	0.7
	Total people	13.4	53.0	22.4	11.2
Information/ Informational support	Family	29.9	45.5	14.9	9.7
	Friends	88.1	9.0	2.2	0.7
	Community	80.6	17.2	2.2	-
	Total people	19.4	47.0	21.6	11.9

*Small network = 1 to 2 people; Medium = 3 to 5 people; Large = > 5 people (Domingues, 2004)

In the cluster analysis, the formation with three clusters had an R^2 of 0.180, explaining 18.0% of the data variability. The variables that most contributed to the formation of the clusters (variables with the highest R^2) were support in the emotional (R^2 = 0.629914), company (R^2 = 0.481223) and informational functions (R^2 = 0.455611). Table 4 presents the results of the cluster analysis.

Analyses were performed to compare the variables between the three clusters, with a view to identifying their composition. The results of these comparisons are shown in tables 5 and 6. From the analyses, the composition of the clusters or groups with the following characteristics was identified:

Group 1: (*n* = 80; 59.7% of the sample): predominantly made up of older adults without anxiety, who received visits from family members, company, help with domestic activities and personal care, financial assistance, emotional and informational support;

Group 2 (*n* = 21; 15.7% of the sample): predominantly formed by older adults with anxiety who did not receive any kind of support;

Group 3: (*n* = 33; 24.6% of the sample): predominantly composed of older adults without anxiety, who received visits from friends and the community, company from family members, friends and the community, help with domestic activities, personal care and financial assistance from family members and

Table 2.
Sample distribution considering the frequency of contact with the social support network

Function/Type of support	Social network	People mentioned (%)		Total	Mean (*SD*)
		1st Circle At least once a week	2nd Circle At least once a month		
Visits/ Affective support	Family	74.3	73.4	20.4	3.9 (±3.4)
	Friends	9.0	11.4		
	Community	16.7	14.9		
Company/ Affective support	Family	87.3	74.6	16.5	3.2 (±2.9)
	Friends	5.1	9.4		
	Community	7.6	16.0		
Help with housework/ Instrumental support	Family	80.9	79.1	11.4	2.2 (±2.2)
	Friends	4.3	5.8		
	Community	14.8	15.1		
Help with personal care/ Instrumental support	Family	92.2	86.0	11.7	2.3 (±2.2)
	Friends	2.3	2.3		
	Community	5.5	11.7		
Financial assistance/ Material support	Family	97.1	96.5	14.9	2.9 (±3.2)
	Friends	2.2	2.6		
	Community	0.7	0.9		
Emotional/ Affective support	Family	82.5	76.4	12.4	2.5 (±2.5)
	Friends	6.5	11.8		
	Community	11.0	11.8		
Informational/ Informational support	Family	84.1	77.2	12.6	2.4 (±2.6)
	Friends	5.3	8.9		
	Community	10.6	13.9		

friends, emotional and informational support from family members**,** friends and the community.

It was evident that the type of social support network and the presence of anxiety are what differentiate these three groups. Better mental health was observed in the distribution of the first group, which represents a network with broad family support, and the third group, which represents a non-family social support network formed by friends and the community. The presence of anxiety and the absence of social support are what differentiate the second group.

Discussion

Life course factors have divergent consequences for different forms of social connection (Duarte & Domingues, 2020). Some transition events that occur at more advanced ages, such as retirement and bereavement, can lead to a stronger or weaker connection with the support network, as well as changes in social roles, depending on personal and contextual aspects (Gouveia et al., 2016). Furthermore, the functions of the support networks change between generations and over the course of life, evidencing the use of socio-emotional and compensatory selectivity strategies by the older adults and by the members of their networks, aimed at adjusting to the needs imposed by the conditions of life and health (Rabelo, 2016).

These phenomena and their complex developments can be observed in the characteristics of the social networks found in this study as a whole. First, they present themselves as informal networks with expressive (at least 1 person) and frequent (at least once a week) participation of the family, functioning

Table 3.
Comparisons of types of perceived support with other variables

Type of support	Sex		Age		BADL dependency		IADL dependency		Depression		Anxiety	
	F	M	60-74	75+	No	Yes	No	Yes	Yes	No	Yes	No
Visits												
No	85.7	14.3	71.4	28.6	100.0	0.0	14.3	85.7	28.6	71.4	57.1	42.9
Yes	77.2	22.8	66.1	33.9	96.1	3.9	60.6	39.4	16.5	83.5	21.3	78.7
p	1.000		1.000		1.000		0.021		0.345		0.049	
Company												
No	54.5	45.5	81.8	18.2	100.0	0.0	36.4	63.6	36.4	63.6	63.6	36.4
Yes	79.7	20.3	65.0	35.0	95.9	4.1	60.2	39.8	15.4	84.6	19.5	80.5
p	0.068		0.334		1.000		0.200		0.095		0.003	
Emotional												
No	61.1	38.9	77.8	22.2	94.4	5.6	44.4	55.6	33.3	66.7	38.9	61.1
Yes	80.2	19.8	64.7	35.3	96.5	3.5	60.3	39.7	14.7	85.3	20.7	79.3
p	0.124		0.273		0.520		0.203		0.085		0.129	
Domestic activities	40.0	60.0	70.0	30.0	100.0	0.0	50.0	50.0	30.0	70.0	40.0	60.0
No	80.6	19.4	66.1	33.9	96.0	4.0	58.9	41.1	16.1	83.9	21.8	78.2
Yes												
p	0.009		1.000		1.000		0.741		0.375		0.239	
Personal Care	50.0	50.0	83.3	16.7	100.0	0.0	58.3	41.7	33.3	66.7	41.7	58.3
No	80.3	19.7	64.8	35.2	95.9	4.1	58.2	41.8	15.6	84.4	21.3	78.7
Yes												
p	0.027		0.336		1.000		1.000		0.126		0.148	
Finance												
No	76.5	23.5	76.5	23.5	88.2	11.8	58.8	41.2	23.5	76.5	47.1	52.9
Yes	77.8	22.2	65.0	35.0	97.4	2.6	58.1	41.9	16.2	83.8	19.7	80.3
p	1.000		0.348		0.121		0.956		0.493		0.026	
Information												
No	69.2	30.8	76.9	23.1	96.1	3.9	53.8	46.1	34.6	65.4	38.5	61.5
Yes	79.6	20.4	63.9	36.1	96.3	3.7	59.3	40.7	13.0	87.0	19.4	80.6
p	0.254		0.207		1.000		0.615		0.017		0.039	

mainly as an affective support that occurs in the activities of visiting.

The data also suggest that families may provide insufficient support, possibly because they are overloaded with their multiple roles, as a result of the living conditions to which they are subjected and because they do not have a formal support network (Accioly et al., 2020; Rabelo, 2016). No type of formal support regarding the health system was mentioned by the older adults. The highest number of people mentioned in the total was in the visits function and the lowest number in help with domestic activities, which are more demanding and tiring.. This scenario was discussed by Brazilian researchers, who stated that although recent social changes have increased the importance of non-family relationships, informal networks still prevail among Brazilian older adults in terms of their support and care (Brito, 2018; Jesus et al., 2018).

It is important to emphasize that the particularities in the social and family dynamics that are manifested

Table 4.
Results of the cluster analysis according to the variables. Santo Antônio de Jesus, BA. 2011

Variables	Standard deviation	Coefficient of determination*	$R^2/(1-R^2)$**
Sex	1.00554	0.004089	0.004106
Age	0.99224	0.030263	0.031208
BADL	1.00133	0.012408	0.012564
IADL	0.97912	0.055746	0.059038
Depression	0.99012	0.034413	0.035640
Anxiety	0.97433	0.064958	0.069470
Visits (family)	0.86458	0.263749	0.358232
Visits (friend)	0.91199	0.180779	0.220672
Visits (community)	0.98409	0.046123	0.048353
Visits (Total)	0.89680	0.207846	0.262380
Company (family)	0.85128	0.286219	0.400990
Company (friend)	0.89092	0.218194	0.279090
Company (community)	0.95915	0.093869	0.103593
Company (Total)	0.72574	**0.481223**	0.927612
Ass. Domestic activities (family)	0.91767	0.170551	0.205619
Ass. Domestic activities (friend)	0.84239	0.301043	0.430704
Ass. Domestic activities (community)	1.00293	0.009256	0.009342
Ass. Domestic activities (Total)	0.91232	0.180183	0.219785
Ass. Personal care (family)	0.84625	0.294622	0.417680
Ass. Personal care (friend)	0.93253	0.143466	0.167496
Ass. Personal care (community)	0.99128	0.032150	0.033217
Ass. Personal Care (Total)	0.81770	0.341415	0.518406
Ass. Financial (family)	0.76821	0.418733	0.720381
Ass. Finance (friend)	0.98302	0.048210	0.050652
Ass. Financial (community)	1.00244	0.010227	0.010333
Ass. Financial (Total)	0.76995	0.416089	0.712590
Emotional (family)	0.78741	0.389310	0.637493
Emotional (friend)	0.81452	0.346538	0.530311
Emotional (community)	0.89610	0.209080	0.264350
Emotional (Total)	0.61297	**0.629914**	1.702071
Information (family)	0.82383	0.331510	0.495909
Information (friend)	0.93321	0.142222	0.165802
Information (community)	0.94675	0.117142	0.132685
Information (Total)	0.74344	**0.455611**	0.836922
Total	0.91242	**0.180011**	0.219529

*Coefficient of determination, R^2 = (Square of the correlation coefficient), used to calculate the dissimilarity between clusters. ** Proportion of variance within groups ($R^2/(1-R^2)$)

Table 5.
Comparison of sociodemographic and health variables according to clusters. Santo Antônio de Jesus, BA. 2011

Variables	Categories	Groups (%)			
		1	2	3	*P*-value
Age	60-74 years	60.0	81.0	72.7	0.132
	≥75 years	40.0	19.0	27.3	
Sex	Female	78.8	71.4	78.8	0.760
	Male	21.2	28.6	21.2	
Basic Activities	Independent	95.0	95.2	100.0	0.694
	Partial dependence	2.5	4.8	0.0	
	Dependent	2.5	0.0	0.0	
Instrumental Activities	Total dependence	6.2	14.3	0.0	0.057
	Partial dependence	38.8	42.9	24.2	
	Independent	55.0	42.9	75.8	
Depression	Yes	13.8	33.3	15.2	0.100
	No	86.2	66.7	84.8	
Anxiety	Yes	20.0	**47.6**	15.2	**0.013**
	No	**80.0**	52.4	**84.8**	

in Brazil, compared to other countries (Suanet et al., 2019), are a reflection of a family-oriented culture and the centrality of the family in legislation as a state response to issues of aging in the context of capital expansion and reproduction (Bernardo, 2017). These mechanisms place the family as the first instance for guaranteeing the basic rights of older adults, naturalize care in the family context, and consequently, unequally burden women. Although the importance of affective family ties is obvious, the political and economic interests that permeate this discussion should not be disregarded (Bernardo, 2018).

In the present study, older adults with dependence regarding instrumental activities of daily living were more frequent among those who did not receive visits. Limitations in performing activities that extend beyond the home and involve a greater diversity of social roles and cognitive complexity affect trajectories of social participation and the maintenance of social connections in advanced age (Pinto & Neri, 2017). Maintaining informal relationships, such as close friends, has a protective effect against functional decline in older adults (Suanet et al., 2019). In addition to managing common chronic diseases among older individuals, the prevention of functional loss largely depends on the cognitive stimulation provided by work and leisure activities. Data from the SABE Study (Brito et al., 2018) showed that dependent older adults received more material support, help with tasks inside and outside the home, and personal care, while independent older adults received more emotional support and companionship. The provision of social support reduced the chances of developing dependence, regardless of sociodemographic and health conditions.

When comparing older adults who had some kind of support with those who did not have any, it was observed that men were more frequent among those who did not receive help in domestic and personal care activities. This finding partially contradicts the evidence on gender inequalities in social support and care. In general, the literature indicates that women tend to suffer more loneliness and isolation than men, although they have wider networks (Mechakra-Tahir et al., 2010). According to Camarano (2020), both the National Health Survey of the Brazilian Institute of Geography and Statistics (PNS/IBGE) in 2013 and the baseline of the Longitudinal Study of Health of Brazilian Older Adults (ELSI) showed that it is women who reported needing more care than men and receiving less than men.

Social networks assume different functions and impacts according to gender. It is possible to consider some explanations for the data of these men in the current study, who had no support for domestic and

Table 6.
Comparison of social network variables according to clusters. Santo Antônio de Jesus, BA. 2011

Variables	Categories	Groups (%)			
		1	2	3	*P*-value
Visits (family)	No	3.8	**47.6**	**45.4**	**<0.001**
	Yes	**96.2**	52.4	54.6	
Visits (friend)	No	**86.2**	**81.0**	42.4	**<0.001**
	Yes	13.8	19.0	**57.6**	
Visits (community)	No	**70.0**	**66.7**	45.4	0.046
	Yes	30.0	33.3	**54.6**	
Visits (Total)	No	0.0	**28.6**	3.0	**<0.001**
	Yes	**100.0**	71.4	**97.0**	
Company (family)	No	2.5	**57.1**	30.3	**<0.001**
	Yes	**97.5**	42.9	**69.7**	
Company (friend)	No	**93.8**	**100.0**	57.6	**<0.001**
	Yes	6.2	0.0	**42.4**	
Company (community)	No	**85.0**	**90.5**	57.6	**<0.001**
	Yes	15.0	9.5	**42.4**	
Company (friend)	No	0.0	**52.4**	0.0	**<0.001**
	Yes	**100.0**	47.6	**100.0**	
Ass. Domestic activities (family)	No	10.0	**57.1**	30.3	**<0.001**
	Yes	**90.0**	42.9	**69.7**	
Ass. Domestic activities (friend)	No	**100.0**	**100.0**	63.6	**<0.001**
	Yes	0.0	0.0	**36.4**	
Ass. Domestic activities (community)	No	78.7	71.4	69.7	0.538
	Yes	21.2	28.6	30.3	
Ass. Domestic activities (Total)	No	2.5	**33.3**	3.0	**<0.001**
	Yes	**97.5**	66.7	**97.0**	
Ass. Personal care (family)	No	2.5	57.1	18.2	**<0.001**
	Yes	97.5	42.9	81.8	
Ass. Personal care (friend)	No	**100.0**	**100.0**	81.8	**<0.001**
	Yes	0.0	0.0	**18.2**	
Ass. Personal care (community)	No	92.5	85.7	78.8	0.088
	Yes	7.5	14.3	21.2	
Ass. Personal Care (Total)	No	1.2	**47.6**	3.0	**<0.001**
	Yes	**98.8**	52.4	**97.0**	
Ass. Financial (family)	No	3.8	**71.4**	12.1	**<0.001**
	Yes	**96.2**	28.6	**87.9**	
Ass. Finance (friend)	No	**98.8**	**95.2**	87.9	**0.029**
	Yes	1.2	4.8	**12.1**	
Ass. Financial (community)	No	97.5	100.0	100.0	1.000
	Yes	2.5	0.0	0.0	
Ass. Financial (Total)	No	1.2	**61.9**	9.1	**<0.001**
	Yes	**98.8**	38.1	**90.9**	

(Continued)

Table 6.
Comparison of social network variables according to clusters. Santo Antônio de Jesus, BA. 2011 (Continuation)

Emotional (family)	No	5.0	**76.2**	45.5	**<0.001**
	Yes	**95.0**	23.8	**54.5**	
Emotional (friend)	No	**98.8**	**95.2**	51.5	**<0.001**
	Yes	1.2	4.8	**48.5**	
Emotional (community)	No	**91.2**	**95.2**	51.5	**<0.001**
	Yes	8.8	4.8	**48.5**	
Emotional (Total)	No	1.2	**76.2**	3.0	**<0.001**
	Yes	**98.8**	23.8	**97.0**	
Information (family)	No	16.2	**90.5**	24.2	**<0.001**
	Yes	**83.8**	9.5	**75.8**	
Information (friend)	No	**95.0**	**95.2**	66.7	**<0.001**
	Yes	5.0	4.8	**33.3**	
Information (community)	No	**86.2**	**95.2**	57.6	**<0.001**
	Yes	13.8	4.8	**42.4**	
Information (Total)	No	10.0	**81.0**	3.0	**<0.001**
	Yes	**90.0**	19.0	**97.0**	

personal care activities. It may be related to housing arrangements with a lack of support (Rabelo, 2016), or possibly related to a gendered expectation, that is, that because they are men they should not carry out these activities and that they are the obligation of a woman in the family, regardless of their functional capacity. Women are caregivers and responsible for household chores and family well-being throughout their lives and, even with functional limitations, they continue to exercise this role (Camarano, 2020). Whatever the case, this finding is a warning for men's health, as they already face several risks, such as infrequent use of healthcare services, which, in addition to insufficient social support, amplifies the effects of social vulnerability (Mechakra-Tahir et al., 2010).

In the present study, anxiety was more frequent among those older adults who did not have support related to visits, company, financial assistance and informational support, and depression was more frequent among those without informational support. Social network functions and the perception of support received are associated with symptoms of anxiety and depression in the general older adult population (Barbosa et al., 2020; Bélanger et al., 2016; Ribeiro et al., 2021; Santini et al., 2020). Emotional, financial and informational support helps older adults manage difficulties, conflicts and emotional distress. They involve demonstrations of love, affection, esteem, encouragement and material assistance.

Concern about financial life can become a source of stress, especially for older adults, who deal with personal, family and medical expenses that increase in old age (Camarano, 2020). Informational support seemed to be especially important for the mental health of the older adults investigated, being related to the provision of guidelines and advice that can help the individual solve problems and consider possible courses of action that they should adopt (Kadambi et al., 2019).

Additionally, the cluster analysis indicated that the group with the highest number of people was the one characterized by older adults without anxiety and who positively perceived social support from family members. Perceiving support from both a restricted family network and a diverse social network seems to promote better mental health. These findings are corroborated by the literature that brings together a substantial body of robust evidence on the protective effect of social support against anxiety and depression in older adults (Hwang et al., 2019; Shattuck et al., 2022). Social relationships can provide opportunities for sharing, reciprocity, a sense of belonging, improved self-esteem and mutual help, which contributes to reducing stress, loneliness and social isolation (Rabelo, 2016). Therefore, older adults feel more protected and

confident to face adversity, which promotes greater well-being and quality of life.

Guadalupe and Vicente (2021) stated that the position of family ties, network composition and size, frequency of contacts and community participation are central in defining the types of network in this population. According to the authors, restricted and diversified networks are associated with less and greater social support, respectively, and are good indicators of well-being, health, mental health and social participation. The authors reviewed the literature and verified the magnitude of diversity and inequality in social networks as a function of culture in different countries.

Accordingly, the study of diversity and inequality in social networks with respect to aging must be conducted considering the culture and social conditions in which the older adults live. The results of the present study showed the characteristics of the social networks of older adults, mostly black, who lived in a more socially vulnerable region in Brazil, highlighting the associations of network composition and support with physical and mental health. It is important to consider social support networks beyond the centrality of the family, taking into account the limitations in providing support in view of the lack of formal support networks and public policies aimed at long-term care in advanced age.

This study has some limitations that need to be considered. This was an investigation with a localized, non-representative sample, with data collected in 2011, which may restrict the application of the findings to the current reality. Additionally, the cross-sectional nature of the data and the descriptive analysis should be highlighted. In particular, the R^2 verified in the cluster analysis, although demonstrating a significant effect (Ferguson, 2009), indicates parsimony in the interpretation of the data. Social networks are complex and there are limitations in the ability of individual variables to explain their structure and functionality.

However, the discussions encouraged in this study are relevant to stimulate the development of actions that contribute to fulfilling the social requirements that accompany the aging of peripheral social groups, which are not normally a priority target for investments in research. Accordingly, it is essential that the public sectors (health, social development, education, among others) appropriate this knowledge to implement effective strategies to support the social network of older adults, becoming more present and, therefore, allowing this network to be more diverse and provide the necessary support to maintain the quality of life of older adults.

Final Considerations

The present study investigated the characteristics of the social support networks of older adults and the associations between support, functional capacity and mental health in a municipality in Bahia, Brazil, contributing with relevant information on the social dynamics of the older adults and their perspectives regarding care. Considering the incidence of functional decline, anxiety and depression in this population, the data found demonstrate factors that influence the older adult population today, especially the most vulnerable groups, and emphasize that investments must be made in fulfilling these requirements.

The social network of the older adults was characterized as being informal, functioning as an affective support that occurs through visits. Reduced and undersupported social support networks were associated with limitations in functional capacity and worse mental health. Social support perceived as insufficient was more frequent among males, among older adults dependent regarding IADLs, with anxiety and depressive symptoms. The centrality of the family in providing support in advanced age underscores the urgency of expanding and diversifying social networks.

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