

## Depressive symptoms, emotional support and activities of daily living disability onset: 15-year follow-up of the Bambuí (Brazil) Cohort Study of Aging

Sintomas depressivos, apoio emocional e início do comprometimento das atividades da vida diária: seguimento de 15 anos do Estudo de Coorte de Idosos de Bambuí, Minas Gerais, Brasil

Síntomas depresivos, apoyo emocional y actividades del día a día, conviviendo con la aparición de una discapacidad: seguimiento durante 15 años del Estudio de Cohorte Envejecimiento de Bambuí (Brasil)

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### Abstract

Psychosocial factors appear to be associated with increased risk of disability in later life. However, there is a lack of evidence based on long-term longitudinal data from Western low-middle income countries. We investigated whether psychosocial factors at baseline predict new-onset disability in long term in a population-based cohort of older Brazilians adults. We used 15-year follow-up data from 1,014 participants aged 60 years and older of the Bambuí (Brazil) Cohort Study of Aging. Limitations on activities of daily living (ADL) were measured annually, comprising 9,252 measures. Psychosocial factors included depressive symptoms, social support and social network. Potential covariates included sociodemographic characteristics, lifestyle, cognitive function and a physical health score based on 10 self-reported and objectively measured medical conditions. Statistical analysis was based on competitive-risk framework, having death as the competing risk event. Baseline depressive symptoms and emotional support from the closest person were both associated with future ADL disability, independently of potential covariates wide range. The findings showed a clear graded association, in that the risk gradually increased from low emotional support alone (sub-hazard ratio – SHR = 1.11; 95%CI: 1.01; 1.45) to depressive symptoms alone (SHR = 1.52; 95%CI: 1.13; 2.01) and then to both factors combined (SHR = 1.61; 95%CI: 1.18; 2.18). Marital status and social network size were not associated with incident disability. In a population of older Brazilian adults, lower emotional support and depressive symptoms have independent predictive value for subsequent disability in very long term.

Activities of Daily Living; Depression; Social Support; Aged; Cohort Studies

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## Introduction

Disability in later-life is a public health concern worldwide and a new challenge in middle income countries, where the population demographic aging is occurring at an unprecedented pace<sup>1</sup>. Identifying disability predictors can potentially contribute not only to a better understanding of underlying mechanisms, but also to target vulnerable groups for prevention and early rehabilitation purposes. Psychosocial factors, particularly depression and social resources, appear to be associated with increased risk of physical disability in later life<sup>2,3,4,5</sup>. However, the exact role of these characteristics on this association remains uncertain<sup>5</sup>.

Depressive symptoms have been reported to be associated with new onset or changes in severity of activity of daily living (ADL) disability in several studies<sup>2,3,4,5</sup>. Others, however, have suggested that depression is more likely to be the result of increase in disability rather than a predictor of changes in functional status<sup>6,7,8</sup>. Social resources have also been linked to increased risk, but the kind of resource implicated on the association is debatable. For example, social network and/or social engagement were found to be associated with physical decline in some studies<sup>5,9,10</sup>, while in others social support<sup>4,11,12</sup> and loneliness<sup>13</sup> were associated. Furthermore, a recent report has suggested that the association between social support and physical decline is bidirectional<sup>14</sup>. Additionally, social support might be confounded or modified by other factors, like depressive symptoms<sup>15</sup>.

Current evidence on the prognostic value of psychosocial factors and physical decline is based on short (up to 5 years) and medium term (up to 9 years) follow-up data<sup>4,9,10,11,12,13</sup>. Therefore, there is a lack of studies examining the association between those factors with incident ADL disability in very long term. Additionally, there is also a shortage of research based on robust long-term longitudinal data on this topic from Western low-middle income countries. Given that those characteristics are likely to be influenced by social, cultural and environmental factors<sup>16</sup>, this gap in the literature is particularly relevant.

Methodological issues must also be considered. For example, in the Bambuí cohort population, death is associated with many age-related outcomes, such as ADL disability, cognitive function, depressive symptoms and cardiovascular risk factors, among others<sup>17,18,19</sup>. Thus, death may represent an informative censoring of the longitudinal outcome that may result in biased estimates of the associations<sup>20</sup>. This increases the challenge of how to account for participants who have died without experiencing disability. Traditional statistical approaches to calculate disease risk, such as the Cox proportional hazard regression, can overestimate the risk of disease by failing to account for the competing risk of death<sup>20,21</sup>. Therefore, using a competing risk approach is critical to accurately assess disability predictors in later life<sup>21</sup>. To our knowledge, no previous study has considered the competing risk of death to examine the association between psychosocial factors and incident ADL disability.

We used 15-year follow-up data from the Bambuí (Brazil) Cohort Study of Aging, the longest community-based cohort study of aging in Brazil<sup>22</sup>, to examine the ability of a social support, social network and depressive symptoms baseline measures to predict onset of ADL disability in long term in a Western middle income country.

## Methods

### Study design and population

The Bambuí Cohort Study of Aging was designed to examine the prevalence and incidence of age-related health outcomes in an older population with low schooling and income levels. Bambuí, where the study was conducted, is a city of approximately 15,000 inhabitants, located in the State of Minas Gerais, in Southeastern Brazil. The cohort procedures have been described in detail elsewhere<sup>22</sup>. Briefly, the baseline cohort population comprised all residents aged 60 and over in January 1997 (1,606 from 1,742 older residents participated). Cohort members underwent subsequent annual follow-up by face-to-face interview. Deaths were reported by next of kin during the annual follow-up (death certificates were obtained for 95% of all deceased participants). Blood collection and other procedures were performed at baseline and in selected subsequent waves. The Bambuí (Brazil) Cohort

Study of Aging was approved by the Ethics Research Committee of the Oswaldo Cruz Foundation, Brazil.

### **Outcome variable**

Annually, from 1997 to 2011, cohort participants were asked about their functioning level, based on the modified version of the Katz Index<sup>23</sup> (difficulty to perform six ADL, namely showering, toileting, dressing, eating, getting in/out of a bed and walking across a room). The questions had four possible answers: no difficulty, some difficulty, great difficulty and unable to perform. New onset disability was considered when a participant reported, for the first time, great difficulty or inability to perform at least one ADL. The year when the new onset occurred was considered the date of onset.

### **Main predictor variables**

Depressive symptoms were assessed by the *12-item General Health Questionnaire* (GHQ-12). Originally, the GHQ was designed for the assessment of common mental disorders<sup>24</sup>. In the Bambuí cohort population, the GHQ-12 has been shown to have similar accuracy as the *30-item Geriatric Depression Scale* (GDS-30) to screen for depressive symptoms in a previous validation study, having as gold standard the diagnosis of major depression ascertained by the *Schedules for Clinical Assessment in Neuropsychiatry* (SCAN)<sup>25</sup>. Its validity for screening depressive disorders has been also recently demonstrated in other populations<sup>26</sup>. A score of  $\geq 5$  was recommended for the cohort population to define depressive symptoms<sup>25</sup>. In our initial analysis, we used the quartiles of the GHQ-12 scores distribution to define “major” (scores above the third quartile; i.e. scores  $\geq 9$ ), and “minor” depressive symptoms (scores below the third quartile; i.e. scores between 5 and 8), as described elsewhere<sup>17,25</sup>.

Psychosocial resources were assessed at baseline and comprised marital status, social support (assessed by positive emotional support) and social network. Marital status was coded as married/cohabiting, divorced/single and widowed. The *Close Persons Questionnaire*<sup>27</sup> was used to assess positive aspects of the relationship with the closest person (named by respondents), that encompasses suggestions and guidance, reliance, making the responded to feel good and sharing interests. The five-point Likert-scaled response was summed and divided into three groups based on tertile cut-points ( $< 6$ , 6-7 and  $\geq 8$  represent low, intermediate and high support, respectively). Social network was based on the number of friends or relatives seen monthly (coded as none, 1-2, 3-5 and  $\geq 6$ )

### **Covariates**

The covariates measured at baseline were sociodemographic characteristics (age, gender, schooling years and monthly household income per capita), lifestyle (current smoking and physical activity during previous 3 months), cognitive function (*Mini-Mental State Examination* – MMSE: applied only to participants that did not need a proxy respondent), and physical health (see below). Because some of the health measures were correlated, we used principal component analysis<sup>28,29</sup> to create a latent variable, i.e. a health score, that included the following conditions: arthritis (any joint diseases), myocardial infarction and stroke (both assessed by a medical diagnosis of the condition), angina pectoris and intermittent claudication<sup>30</sup>, overweight (body mass index  $\geq 25\text{kg/m}^2$ ), diabetes mellitus (fasting blood glucose  $\geq 126\text{mg/dL}$  and/or treatment) and heart failure (B-Type Natriuretic Peptide level  $> 100\text{pg/mL}$ ) (all as dichotomous variables), systolic blood pressure and total cholesterol level (both as continuous variables). Scores could range from  $-\infty$  to  $+\infty$ . Higher scores indicated worse health status. The health score was divided into ten groups based on cut-points tentiles.

### **Statistical analysis**

We used competing-risk regression<sup>31</sup> to estimate the multivariate sub-hazard ratios (SHR) and their 95% confidence intervals (95%CI) to model 15-year survival-time disability data, after confirming that the assumption of sub-hazards proportionality was met. To consider death that could be related to disability, we used death (i.e., date of death) as a competing risk event. Therefore, our analyses were

based on the cumulative incidence function, i.e.  $C_k(t)$ , that gives the proportion of subjects at time  $t$ , who have suffered the event  $k$ , accounting for the fact that subjects can suffer other events, as follows:

$$C_k(t) = \sum_{t_j \leq t} h_k(t_j) S(t_{j-1})$$

Where  $h_k(t_j)$  is the specific risk for the event  $k$  at time  $t_j$ , and  $S(t_{j-1})$  is the probability to survive at time  $t_{j-1}$ . Similar to Kaplan-Meier's estimations, the general survival probability  $S(t)$  is defined as:

$$S(t) = \pi \left( \frac{R(t_j) - d(t_j)}{R(t_j)} \right)$$

Where  $R(t_j)$  is the number of individuals at risk at time  $t_j$ , and  $d(t_j)$  is the total number of all events occurred.

The main advantage of using competing risk regression models is that the risk group  $R(t_j)$  includes not only those individuals who have not suffer any event, but also those who had suffer the competing event. With this structure, a different hazard function is defined as the probability of the event, given that an individual has survived up to time  $t$  without any event, or had had the competing event prior to time  $t$ . This is the sub-hazard ratio (SHR) <sup>32</sup>.

First, we implemented separate competing-risk regression models for each psychosocial variable (depressive symptoms, marital status, emotional support, and relatives/friends network – all categorized as previously described) to estimate its association with new-onset disability. All models were adjusted for age (continuous), gender, schooling years (< 4, 4-7 and  $\geq 8$ ), monthly household income per capita (< 240.00, 241.00-479.00 and  $\geq 480.00$  USD), current smoking (dichotomous), leisure-time physical activities for 20-30 minutes in previous 3 months (never, < 3 times per week and  $\geq 3$  times per week), physical health score (divided into tentile cut-off points) and MMSE score (continuous). Further, we mutually adjusted these psychosocial variables by each other.

Additionally, we used the fully adjusted competitive-risk regression models to examine the separate and combined association of baseline depressive symptoms and emotional support with onset disability. Because “minor” and “major” depressive symptoms showed similar SHR for the outcome, both categories were collapsed, and depressive symptoms were categorized into yes or no (score  $\geq 5$  or lower). Similarly, given that only low emotional support showed a statistically significant association with new onset disability, intermediate and high support levels were collapsed, and emotional support was categorized into low and high (score < 6 or higher). Based on this fully adjusted competitive-risk model, we estimated cumulative incidence rates for disability by year, according to separate and combined depressive symptoms and emotional support categories, and then plotted the results.

Statistical analyses were conducted using Stata 13.0 statistical software (StataCorp LP, College Station, USA).

## Results

Of 1,606 cohort participants, 283 had ADL disability at baseline and were excluded from the current analysis. Thus, the current analysis was based on cohort participants who reported no disability at baseline and who had complete information for all study variables (80 were excluded due to use of a proxy respondent and 229 excluded due to missing data), summing 1,014 participants (mean age = 68.6 years). During the study period, 9,252 measures of ADL were collected, 347 participants died, 359 developed ADL disability (incident rate = 38.8 per 1,000 person-years) and 96 were lost to follow-up. Sociodemographic and other baseline characteristics of study participants are displayed in Table 1.

As shown in Table 2, “minor” and “major” depressive symptoms and low emotional support showed positive statistically significant ( $p < 0.05$ ) associations with incident disability in the model adjusted for sociodemographic, health characteristics and in the model mutually adjusted for psychosocial factors. Marital status and the size of relatives and friends network did not show statistically significant associations with incident disability in any model.

**Table 1**

Characteristics of participants. Bambuí (Brazil) Cohort Study of Aging (1997-2011) (N = 1,014).

Characteristics	All
Baseline data	
Age [mean (SD)]	68.6 (6.7)
Female gender [%]	57.8
Schooling < 4 years [%]	58.2
Monthly household income per capita < USD 480.00 [%]	62.7
Current smoker [%]	17.3
Leisure-time physical activities more than 3 times a week [%]	12.8
MMSE score [median (IQR)]	22 (4)
Self-reported arthritis [%]	23.7
Self-reported myocardial infarction [%]	4.8
Self-reported stroke [%]	2.5
Angina pectoris (Rose's questionnaire) <sup>30</sup> [%]	8.7
Intermittent claudication (Rose's questionnaire) <sup>30</sup> [%]	2.7
Overweight (BMI ≥ 25kg/m <sup>2</sup> ) [%]	48.1
Diabetes mellitus (blood fasting glucose ≥ 126mg/dL and/or treatment) [%]	14.5
Heart failure (B-Type Natriuretic Peptic level > 100pg/mL) [median (IQR)]	38.6
Systolic blood pressure in mmHg [mean (SD)]	137 (21.7)
Total cholesterol in mg/dL [mean (SD)]	235 (49.0)
Physical health score [median (IQR)]	0.06 (-0.85, 0.92)
Follow-up data	
Interviews [n]	9,252
Deaths [n (%)]	347 (34.2)
Loss to follow-up [n (%)]	96 (9.5)
New-onset of ADL disability [n (rate per 1,000 person-years)]	359 (38.8)

ADL: activities of daily living; BMI: body mass index; IQR: interquartile range; MMSE: *Mini-Mental State Examination*; SD: standard deviation.

Table 3 shows the results of the separate and combined association multivariate analysis of depressive symptoms and emotional support with onset of ADL disability. Regarding those with no depressive symptoms and high support, low emotional support and depressive symptoms alone increased the risk of disability (SHR = 1.11; 95%CI: 1.01; 1.45 and SHR = 1.52; 95%CI: 1.13; 2.01, respectively). The presence of both factors increased the risk of disability by 1.61 (95%CI: 1.18; 2.18). No statistically significant interaction ( $p > 0.05$ ) between those two factors on the disability risk was found.

Figure 1 shows the disability cumulative probability by year, according to separate and combined baseline depressive symptoms and emotional support. The clearly separated lines highlights the graded association between those factors and the risk of disability showed in Table 3.

## Discussion

The key findings from our analysis are that baseline measures of both depressive symptoms and emotional support (as assessed by emotional relationship with the closest person), have predictive value for incident disability in long term, independently of an array of potential confounding variables. Moreover, when combined, the association between those factors and incident ADL disability showed a clear graded association, in that risk increases gradually from low emotional support alone to depressive symptoms alone and then to both factors together. Marital status and the size of social network were not associated with incident disability. The absence of these associations agrees with previous research, suggesting that it is the quality, not the size of the network, which counts for the prediction of disability in late life <sup>4,11,13</sup>.

**Table 2**

Baseline psychosocial measures and their association with 15-year onset of activities of daily living (ADL) disability. Bambuí (Brazil) Cohort Study of Aging (1997-2011).

Measures	Prevalence at the baseline (N = 1,014)	Number of onsets (incident rate per 1,000 person-years)	SHR (95%CI) adjusted for sociodemographic and health variables *	SHR (95%CI) adjusted for sociodemographic and health variables and mutually adjusted for psychosocial factors listed in the table
Depressive symptoms (GHQ-12 cut-off points)				
No (< 5)	66.6	208 (31.8)	1.00	1.00
Minor (5-8)	23.1	104 (54.6)	1.45 (1.14; 1.83)	1.41 (1.11; 1.79)
Major (≥ 9)	10.4	47 (57.9)	1.49 (1.08; 2.04)	1.43 (1.03; 1.98)
Marital status				
Married/Cohabiting	52.6	167 (32.5)	1.00	1.00
Divorced/Single	14.6	51 (40.0)	0.94 (0.68; 1.29)	0.89 (0.64; 1.23)
Widowed	32.8	141 (50.0)	0.97 (0.75; 1.25)	0.96 (0.74; 1.24)
Emotional support in tertiles (cut-off points)				
High (≥ 8)	32.5	97 (31.3)	1.00	1.00
Intermediate (6-7)	27.0	106 (42.2)	1.34 (1.02; 1.75)	1.26 (0.95; 1.67)
Low (< 6)	40.5	156 (42.8)	1.34 (1.04; 1.73)	1.31 (1.01; 1.69)
Number of relatives seen once a month or more				
None	15.7	60 (46.1)	1.00	1.00
1-2	15.9	51 (34.4)	0.79 (0.55; 1.14)	0.82 (0.57; 1.19)
3-5	32.9	122 (40.0)	0.90 (0.67; 1.21)	0.96 (0.71; 1.30)
≥ 6	35.5	121 (37.1)	0.97 (0.72; 1.29)	1.06 (0.78; 1.45)
Number of friends seen once a month or more				
None	5.4	23 (32.8)	1.00	1.00
1-2	11.1	51 (47.0)	1.04 (0.65; 1.67)	1.04 (0.64; 1.69)
3-5	32.4	110 (40.0)	0.83 (0.54; 1.30)	0.82 (0.53; 1.29)
≥ 6	51.2	175 (33.7)	0.83 (0.54; 1.28)	0.81 (0.57; 1.19)

95%CI: 95% confidence interval; GHQ-12: 12-item General Health Questionnaire; SHR: sub-hazard ratios.

Note: SHR (95%CI) estimated by competing-risk regression.

\* Adjusted for age (continuous), gender, schooling years (< 4, 4-7 and ≥ 8) and monthly household income per capita (< 240.00, 241.00-479.00 and ≥ 480.00 USD), current smoking (dichotomous), leisure-time physical activities for 20-30 minutes in previous 3 months (never, < 3 times per week and ≥ 3 times per week), physical health score (based on medical conditions shown in Table 1 and divided into tertile cut-off points) and *Mini-Mental State Examination* (MMSE) score (continuous).

Depression has been postulated as an important underlying mechanism for physical decline in late-life, but the direction of the association between depressive symptoms and disability is controversial <sup>2,3,4,5,6,7,8</sup>. For example, results from three recent large longitudinal studies reported that: (1) baseline severe depression is an independent predictor of incident ADL among women, but not men <sup>3</sup>; (2) depressive symptoms and disability are longitudinally associated <sup>4,8</sup>, in the sense that depressive symptoms slightly increase with approaching disability, increase at onset, and decline in the post disability phase <sup>4</sup>; (3) depressive symptoms are associated with new-onset ADL disability but not with progression of disability <sup>5</sup>; (4) the association between depressive symptoms with disability appears to be bidirectional <sup>6,7</sup>. In the current analysis, a single baseline depressive symptoms measure showed predictive value for future ADL disability in long term.

There is a vast literature, as indicated by a comprehensive meta-analysis <sup>33</sup>, that social support is a robust predictor of future morbidity and mortality. However, there is a concern that social support

**Table 3**

Separate and combined association of baseline depressive symptoms and emotional support level with 15-year onset of activities of daily living (ADL) disability. Bambuí (Brazil) Cohort Study of Aging (1997-2011).

Variables *	Prevalence at the baseline (N = 1,014)	Number of onsets (incident rate per 1,000 person-years)	SHR (95%CI) adjusted for sociodemographic, health and psychosocial factors **
No depressive symptoms and high support	41.0	119 (29.2)	1.00
No depressive symptoms and low support	25.5	89 (36.1)	1.11 (1.01; 1.45) ***
Depressive symptoms and high support	18.4	18.4 (54.6)	1.52 (1.13; 2.01) ***
Depressive symptoms and low support	15.0	67 (57.0)	1.61 (1.18; 2.18) ***

95%CI: 95% confidence interval; GHQ-12: 12-item General Health Questionnaire; SHR: sub-hazard ratios.

Note: SHR (95%CI) estimated by competing-risk regression.

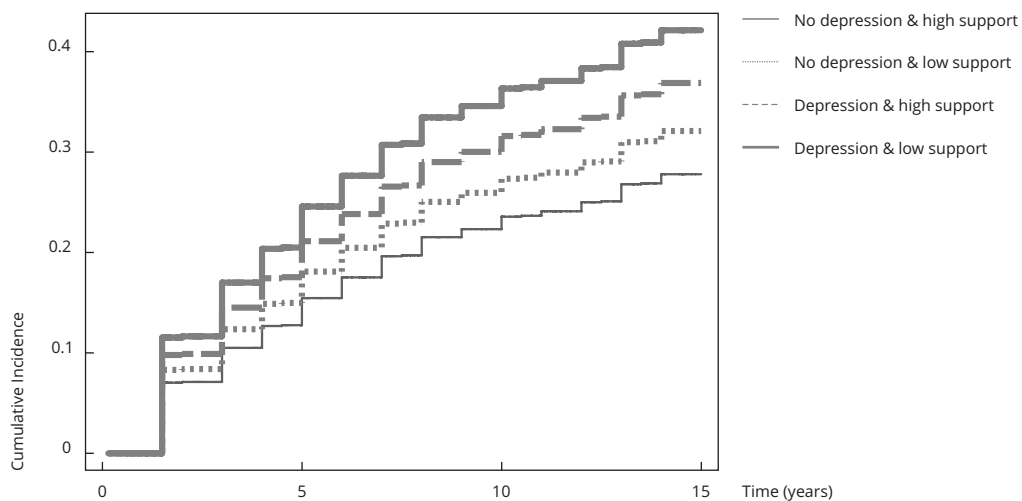
\* Depressive symptoms were categorized into GHQ-12 score  $\geq 5$  or less. Low support was defined as score  $< 6$ ;

\*\* Adjusted for age (continuous), gender, schooling years ( $< 4$ , 4-7 and  $\geq 8$ ) and monthly household income per capita ( $< 240.00$ , 241.00-479.00 and  $\geq 480.00$  USD), current smoking (dichotomous), leisure-time physical activities for 20-30 minutes in previous 3 months (never,  $< 3$  times per week and  $\geq 3$  times per week), physical health score (based on medical conditions shown in Table 1 and divided into tentile cut-off points), Mini-Mental State Examination (MMSE) score (continuous), marital status, and number of relatives and number of friends seen once a month, as specified in Table 2;

\*\*\*  $p < 0.05$ .

**Figure 1**

Fully adjusted incidence rates \* of 15-year onset of activities of daily living (ADL) disability, according to baseline separated and combined depressive symptoms and emotional support level. Bambuí (Brazil) Cohort Study of Aging (1997-2011).



\* Incidence rates were estimated by competing-risk regression and adjusted for sociodemographic variables, lifestyle and physical health score, as specified in Table 2. Number of participants is equal to 1,014.



might be confounded with other factors, especially those related to mental health<sup>15</sup>. This is because psychological mechanisms, such as depression and perceived stress, are the mostly common postulated pathways linking social support to health. An additional concern is that depression might bias perception of support<sup>15</sup>. Low emotional support, in our analysis, was associated with the onset of disability after controlling for depressive symptoms, other psychosocial factors and a wide range of relevant conditions.

To our knowledge, no previous study has specifically examined the predictive value of low positive emotional support from the closest person for disability. Negative emotional support from the closest person has been reported to predict several conditions that may predispose to physical disability and cognitive functioning decline<sup>34</sup>, sleep problems<sup>35</sup>, maintenance of recommended levels of physical activity<sup>36</sup> and coronary events<sup>37</sup>. Despite controlling for lifestyle variables and important health indicators, we do not know how these measures have changed in the subsequent wave. Thus, the effect of longitudinal changes of those variables on the association between depressive symptoms, social support and physical decline is a matter of further research.

Strengths of this study include its well-defined community-dwelling sample of older adults followed for an extended period, annual measures of functioning, and minimal follow-up loss. A limitation in our study is inherent to all longitudinal studies of aging. Older adults are at increased risk of death, which, in turn, might lead to differential censoring, that is, people who died are more or less likely to undergo the event of interest than those who have survived<sup>20</sup>. As an attempt to overcome this potential source of bias, we used a competing risk framework in our analysis<sup>31</sup>. Another limitation is the use of a single baseline measure of depressive symptoms and emotional support, which reflect recent perceptions. However, we emphasize that those single measures, independently of a wide range of health conditions that could confound the association, were associated with new-onset disability in a very long term.

In conclusion, there has been a recent interest in the usefulness of identifying psychosocial factors to screen people at increased risk of disability for the prevention and early rehabilitation purposes<sup>13</sup>. Our results show that depressive symptoms and lower emotional support from the closest person have strong predictive value for subsequent ADL disability in a cohort of Brazilian older adults with low schooling and income levels, independently of a relevant covariates array. This suggests that older adults reporting depressive symptoms and lower emotional support deserve further attention in clinical setting, especially when both conditions are present.

## Contributors

J. L. Torres and M. F. Lima-Costa participated in the conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, validation and writing of the article. E. Castro-Costa and B. S. O. Diniz contributed in the data curation, formal analysis and writing of the article. J. V. M. Mambrini participated in the data curation, formal analysis, software and writing of the article. S. W. V. Peixoto contributed in the software, formal analysis writing of the article. C. Oliveira participated in the formal analysis, investigation, project administration, software, validation writing of the article.

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## Resumo

Fatores psicossociais parecem estar associados a um aumento do risco de incapacidade em idosos. Entretanto, faltam evidências baseadas em dados longitudinais de longo prazo em países ocidentais de renda baixa e média. Investigamos se os fatores psicossociais presentes na linha de base predizem a incapacidade incidente no longo prazo em uma coorte populacional de idosos brasileiros. Usamos dados do seguimento de 15 anos de 1.014 participantes com 60 anos de idade ou mais do Estudo de Coorte de Idosos de Bambuí, Minas Gerais, Brasil. Foram medidas anualmente as limitações nas atividades de vida diária (AVD), totalizando 9.252 mensurações. Os fatores psicossociais incluíram sintomas depressivos, apoio emocional e rede social. As variáveis independentes incluíram características sociodemográficas, estilo de vida, função cognitiva e uma escala de saúde física com dez condições clínicas autorrelatadas e medidas objetivas. A análise estatística foi baseada em um modelo de risco competitivo, tendo o óbito como evento de risco competitivo. Os sintomas depressivos na linha de base e o apoio emocional da pessoa mais próxima estiveram associados à incapacidade futura nas AVD, independentemente da grande amplitude das variáveis independentes. Os achados mostraram um claro gradiente de associação, onde o risco aumentou progressivamente desde o baixo apoio emocional isoladamente (sub-hazard ratio – SHR = 1,11; IC95%: 1,01; 1,45) para sintomas depressivos isoladamente (SHR = 1,52; IC95%: 1,13; 2,01) até a combinação de ambos os fatores (SHR = 1,61; IC95%: 1,18; 2,18). O estado civil e o tamanho da rede social não mostraram associação com a mortalidade incidente. Em uma população de idosos brasileiros, o apoio emocional baixo e sintomas depressivos apresentam valores preditivos independentes em relação à incapacidade subsequente no prazo muito longo.

Atividades Cotidianas; Depressão; Apoio Social; Idoso; Estudos de Coortes

## Resumen

Los factores psicosociales parecen que estaban asociados con un aumento del riesgo de sufrir discapacidad más adelante a lo largo de la vida. Sin embargo, existe una falta de evidencias en los datos a largo plazo de carácter longitudinal, procedentes de países occidentales con una renta medio-baja. Investigamos si los factores psicosociales como base de referencia predicen un surgimiento de discapacidad a largo plazo en una cohorte de población, basada en adultos ancianos brasileños. Se realizó un seguimiento durante 15 años con datos de 1.014 participantes con 60 años y de mayor edad en el Estudio de Cohorte Envejecimiento de Bambuí (Brasil). Las limitaciones en las actividades de la vida diaria (ADL por sus siglas en inglés) fueron medidas anualmente, comprendiendo 9.252 medidas. Se trabajó con factores psicosociales, incluidos síntomas depresivos, apoyo social y tejido social. Las covariables potenciales incluyeron características sociodemográficas, estilo de vida, función cognitiva y un marcador de salud física, basado en 10 condiciones médicas autoinformadas y medidas objetivamente. El análisis estadístico estaba basado en un marco de riesgo competitivo, considerando la muerte como riesgo competitivo. Las bases de referencia de los síntomas depresivos y el apoyo emocional de la persona más cercana estuvieron asociadas con una futura discapacidad ADL, independientemente del extenso rango de potenciales covariables. Los resultados muestran una clara asociación graduada, en la que el riesgo gradualmente aumentó desde un bajo apoyo emocional solo (sub-hazard ratio – SHR = 1,11; IC95%: 1,01; 1,45) para síntomas depresivos sólo (SHR = 1,52; IC95%: 1,13; 2,01) y luego para ambos factores combinados (SHR = 1,61; IC95%: 1,18; 2,18). El estado marital y el tamaño del tejido social no estuvieron asociados con la incidencia de discapacidad. En una población de adultos mayores brasileños, un apoyo emocional más bajo y síntomas depresivos poseen un valor predictivo independiente para una consecuente discapacidad a muy largo plazo.

Atividades Cotidianas; Depresión; Apoio Social; Anciano; Estudos de Cohortes

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