

Association Between Depressive Symptoms and Quality of Life in Elderly Adults in Primary Health Care: A Comparative Analysis Between Brazil and Portugal

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Abstract

Background: Depression has a major impact on physical and emotional aspects. It is more prevalent among elderly adults than among those in other age groups and has a relevant influence on the quality of life (QoL) of the population. It is believed that the best scenario for its screening and prevention is primary health care. Our objective was to compare the levels of depressive symptoms and QoL of Brazilian and Portuguese elderly people assisted in primary health care.

Method: This was a cross-sectional, comparative study and quantitative approach carried out in Brazil and Portugal between 2017 and 2018. The sample was recruited for convenience and without a sample test. We used the QoL instruments Medical Outcomes Short-Form Health Survey (SF-36) and the Beck Inventory to measure depression levels. The data were analysed using the Mann-Whitney U test and the Kruskal-Wallis test.

Results: A total of 160 elderly people comprised the sample, including 110 Brazilians and 50 Portuguese individuals. The association between the levels of depression and QoL was manifested significantly in the group from Brazil among participants without depression, in the domains of physical role functioning (p-value > 0.001), emotional role functioning (p-value = 0.030) and total score (p-value < 0.001). In Portugal, those who did not experience depression in the following domains: functional aspects (p-value < 0.001), vitality (p-value = 0.002), social role functioning (p-value = 0.020), emotional aspects (p-value = 0.005), mental health (p-value = 0.046), physical dimensions (p-value = 0.025) and mental health (p-value = 0.005). Conclusion: Our study showed an association between the absence of depressive symptoms and better QoL scores in several domains and dimensions. When comparing Brazil and Portugal, better performances were noted in Portugal for both depression and QoL.

Background

Listed as one of the most frequent mental disorders in the world population^(1, 2), depression, which has a major impact on physical and emotional aspects, manifests itself in a way that compromises the individual's well-being, causing social isolation and physical and mental suffering, which can culminate in self-destructive behaviours or suicidal ideation⁽³⁾. Depression is more prevalent in elderly adults than in individuals in other age groups, but it has different manifestations, which makes diagnosis and treatment more difficult⁽⁴⁾. Considered by the World Health Organization (WHO) as one of the main public health problems, depression affects more than 121 million people worldwide, representing the fourth-largest global cause of disease in 2000 and projected to become the second-largest global disease in 2020⁽⁵⁾. According to the 2008 National Household Sample Survey, 9.2% of people aged 60 and over in Brazil reported suffering from depression⁽⁶⁾. The National Health Survey of Portugal, carried out in 2014, shows that 16.4% of individuals over 65 years old had some level of depression⁽⁷⁾.

In light of its prominence as a public health problem and the evidence of its worsening with age^(1, 4), depression influences the quality of life (QoL) of the population⁽⁸⁾. Its tremendous negative impact on various aspects of QoL has already been demonstrated by other authors^(1, 9); this impact worsens as the individual

ages⁽¹⁰⁾. However, new knowledge about the different environments in which populations with depression are inserted raises questions on possible influences that have not been analysed, especially in countries that are very different culturally and geographically⁽¹¹⁾.

In Brazil, there is an important compromise in the population's ability to access primary health care (PHC), a service designed to meet at least 80% of the population's health demands, especially in a preventive manner^(12, 13). However, what can be seen through the data is a high prevalence of physical and mental health problems, mostly associated with failures in the process of screening, welcoming and treatment in PHC⁽¹⁴⁾.

However, the scenario in Portugal, which is not too different from that in Brazil in terms of the epidemiological aspects of chronic and mental illnesses, has a PHC that was better evaluated in relation to that in Brazil, with accessibility highlighted in this context, which proposes a more assertive and effective approach to preventive action^(15, 16). It is important to highlight that the novel coronavirus pandemic that started in early 2020 led to important changes in behaviour and high levels of anxiety in the world population, was considered a major risk factor for mental health problems, and therefore presented a new challenge in the search for the preservation of mental health and QoL, especially in the elderly population, considered to be the most vulnerable⁽¹⁷⁾.

Thus, we believe that a comparative analysis between two countries with different levels of economic development, provided that it addresses less-explored aspects of the countries, can offer innovative tools and ideas in the field of PHC and in the prevention of mental disorders through clarification of the aspects of QoL that are influenced by depression in the elderly population.

Method

The objective of our study was to compare the levels of depressive symptoms and QoL of elderly Brazilians and Portuguese treated in PHC. We started from the hypothesis that depressive symptoms alter an elderly individual's quality of life.

Design

This is a cross-sectional, comparative and quantitative study carried out in Brazil and Portugal. This research, which is part of an international project, was assessed and approved in Brazil by the Comitê de Ética em Pesquisa of Hospital Universitário Onofre Lopes, CEP/HUOL, with the opinion n° 562.318 and CAAE: 21996313.7.0000.5537, and in Portugal by the Ethics Committee in Research by the University of Évora (opinion n° 14011) and the Ethics Committee for Scientific Research in the Areas of Human Health and Welfare at the University of Évora (n° 17.006/2018). Prior to each data collection, the participants signed the informed consent form as a way of accepting the precepts used in the study and authorizing us to use the information provided for scientific purposes.

Study Population and Location

The study was conducted in the PHC scenarios of both countries. In Brazil, the research was carried out in the family health strategy units in the municipalities of Natal and Santa Cruz, both in the state of Rio Grande do

Norte. In Portugal, the study was conducted in the elderly health care services in the coverage area of the family health units of Eborae, Plaicie and Salus, which are linked to the regional health council of the Évora Council.

A non-random sample of participants was selected for convenience, and no sample test was performed. Elderly people linked to PHC in both scenarios were recruited for the sample. Initially, information was collected from Brazilian participants; this information was entered into a database, which was organized to build profiles combining variables, such as sex, age group, marital status, the presence/absence of chronic diseases, and family income categorized in minimum wages. In this way, for each group of variables, a code was created, which resulted in several profiles assigned to each participant. In other words, a code would be represented by one or more participants with the same set of variables (same sex, age group, marital status, the presence or absence of chronic diseases and the same family income). After the number of individuals represented by each code was defined among Brazilians, Portuguese participants were recruited according to the profiles already ordered. Therefore, we aim to pair these individuals and promote equality between the groups in Brazil and Portugal.

The inclusion criteria adopted for our study were as follows: being 60 (sixty) years old or over in Brazil, according to the criteria adopted by the Brazilian Elderly Statute⁽¹⁸⁾ and, in the scenario of Portugal, being 65 (sixty-five) years old or over, a criterion stipulated by the WHO for elderly adults in developed countries⁽¹⁹⁾; being registered with the PHC in the two research scenarios (Brazil/Portugal) for at least six months before the study was carried out; and an undamaged cognitive state, which would allow participants to understand all of the instruments (this criterion was assessed through the Mini-Mental Status Examination (MMSE), such that the participant should reach 17 points on the scale or more for inclusion in the study⁽²⁰⁾). The following exclusion criteria were adopted: permanent or transient physical disability at the time of data collection; and personal or family trauma reported by the participant within a period of less than or equal to six months prior to the study.

Instruments

The following instruments were used: a questionnaire with sociodemographic and health data, which contained categorized responses (age group, gender, education, family income and marital status, the presence or absence of chronic diseases); and the Medical Outcomes Short-Form Health QoL questionnaire. The survey (SF-36), which was validated in Brazil and Portugal, includes eight domains and two dimensions of QoL, with clear and objective questions about the participant's feelings of health, physical and emotional limitations and expectations about his or her health⁽²¹⁾. The MMSE questionnaire⁽²⁰⁾ was used as a cognitive screening tool through tests of calculations, drawings and logical reasoning. The Beck Inventory⁽²²⁾ was validated and adapted to the Portuguese language⁽²³⁾ and was used as a means to measure the levels of depression in this research through a score obtained through scores on 21 groups of statements, among which the participant selects the response that most identifies his or her thoughts. The content of each set of statements concerns several topics, for example, sadness, personal appreciation when living with people, interest in sex, sleep, appetite and suicidal ideation⁽²⁴⁾.

Data collection

In Brazil, data collection was performed by undergraduate students in nursing and by master's and doctoral students in the health sciences, including nurses, nutritionists and physiotherapists collaborating on the project. In Portugal, the data were collected by scholarship holders in the master's degree programme at the University of Évora and researchers in their post-doctoral internship. There was previous training of the team in the administration of the questionnaires; the team completed this training without remuneration.

Data collection occurred through convenience sampling between November and December 2017 in Brazil and between July and December 2018 in Portugal, with a fortnightly frequency and an average duration of 1 hour for each interview. In Brazil, there was an active search for elderly adults with the collaboration of community health agents and nurses from the areas covered by PHC. Elderly adults were contacted through the address provided.. With those who agreed to participate, a day and time for the interview were scheduled. In Portugal, data collection took place at the Senior University of Évora and at the Centro Dia do Idoso in Parish N. Sra. De Fátima, which refer to primary health care units (CSP) and the family health units of Eborae, Planicie and Salus, which are linked to the regional health council of Évora, members of the National Health System (SNS). The interviews took place in the homes of elderly adults and/or spaces of the health units with each participant individually. None of those involved in the research were blinded.

Data Analysis and Treatment

For the treatment and tabulation of data in tables, we used the Microsoft® Excel 2016 program (Microsoft Corporation, Washington,WA, USA). The statistical program Statistical Package for the Social Sciences (SPSS) version 20.0 (IBM, Armonk, NY, USA) allowed the analysis of data normality (Shapiro-Wilk), through which the non-normality of the sample was observed. Therefore, we used descriptive nonparametric tests (Pearson's chi-square and Fisher's exact test) for sociodemographic data. In the analyses of the association of scalar QoL, the Mann-Whitney U test was used. For the analyses of association between categorical scales and those of scalar measurement, the Kruskal-Wallis test was used, with its results displayed in tables that favour the visualization of the 25th, 50th and 75th percentiles. We consider findings with a p-value ≤ 0.05 to be statistically significant.

Results

Our sample consisted of 160 individuals, with 110 Brazilian participants and 50 Portuguese participants. In addition, eight individuals were approached and excluded in Brazil, three of whom did not reach the minimum score on the MMSE scale, two of whom lived in the community for less than six months and the other three of whom reported significant family trauma less than six months prior to the data collection. In Portugal, no participant was excluded.

As shown in Table 1, there is a similarity between the groups in Brazil and Portugal, especially on the variables sex (p-value = 0.168), age group (p-value = 0.575) and marital status (p-value = 0.359). There was a significant difference between both groups on the variables education and family income (p-value < 0.001).

Table 1
Sociodemographic and health characterization of the participants.

Sociodemographic profile								
Variable	Categories	Brazil (n = 110)		Portugal (n = 50)		Total (n = 160)		p-value*
		n	%	n	%	n	%	
Sex	Female	79	49.4	41	25.6	120	75.0	0.168
	Male	31	19.4	9	5.6	40	25.0	
Age range, years	60 to 80 years	98	61.3	43	26.9	141	88.1	0.575
	81 to 100 years	12	7.5	7	4.4	19	11.9	
Marital status	Married/cohabitating	53	33.1	28	17.5	81	50.6	0.359
	Single/widowed/divorced	57	35.6	22	13.8	79	49.4	
Educational attainment, years	≤ 5	89	55.6	26	16.3	115	71.9	< 0.001
	> 6	21	13.1	24	15.0	45	28.1	
Household income, minimum wage	≤ 1	50	31.3	50	31.3	100	62.5	< 0.001**
	> 1	60	37.5	-	-	60	37.5	
Chronic diseases	Yes	89	55.6	46	28.8	135	84.4	0.100
	No	21	13.1	4	2.5	25	15.6	
Use of medicines	Yes	96	60.0	48	30.0	144	90.0	0.152**
	No	14	8.8	2	1.3	16	10.0	
Subtitle: * Pearson's chi-square test; ** Fisher's exact test.								

The analysis of the association of QoL, observed in Table 2, shows that the group from Portugal stands out in relation to the Brazilian group, with significant mean differences in the domains of physical functioning (p-value < 0.001), general health perceptions (p-value = 0.030), total score (p-value = 0.001) and physical health (p-value < 0.001). The Brazilian group, in turn, stood out with the best average score in the social role domain (p-value = 0.029).

Table 2
Quality of life comparison (SF-36).

QoL (SF-36)								
Study location		Brazil (n = 110)			Portugal (n = 50)			p-value*
Percentile		25	50	75	25	50	75	
QoL (SF-36) domains	Physical role functioning	35.0	65.0	90.0	50.0	75.0	90.0	0.165
	Physical functioning	0.0	50.0	100.0	75.0	100.0	100.0	< 0.001
	Pain	20.0	40.0	60.0	20.0	30.0	40.0	0.059
	General health perceptions	30.0	35.0	55.0	35.0	50.0	56.3	0.030
	Vitality	45.0	50.0	60.0	43.8	50.0	56.3	0.421
	Social role functioning	50.0	50.0	50.0	37.5	50.0	50.0	0.029
	Emotional role functioning	24.8	100.0	100.0	66.7	100.0	100.0	0.111
	Mental health	52.0	56.0	60.0	48.0	56.0	64.0	0.263
Total Score		41.8	53.0	61.0	53.9	60.8	63.9	0.001
QoL (SF-36) summary measures	Physical health	40.0	49.5	57.0	49.8	57.0	63.0	< 0.001
	Mental health	44.0	56.0	61.0	50.0	58.3	62.0	0.070
Subtitle: * Mann-Whitney U test.								

In Table 3, which refers to the association between the levels of depression on the Beck Inventory, a significant difference was observed in the intergroup analysis (p-value = 0.049); the data highlight that both groups had a majority of participants without depression, with the Portuguese group (n = 30) being proportionally better evaluated than the Brazilian group (n = 64), since the group of Brazilians had a higher total n. It is noteworthy that none of the Portuguese participants were categorized as having severe depression.

Table 3
Association between levels of depression and depressive symptoms (Beck Inventory).

Depressive symptoms		Brazil		Portugal		Total		p-value*
		(n = 110)		(n = 50)		(n = 160)		
		n	%	n	%	n	%	
Depression level	Absent	64	40.0	30	18.8	94	58.8	0.046
	Light	33	20.6	12	7.5	45	28.1	
	Moderate	6	3.8	8	5.0	14	8.8	
	Severe	7	4.4	0	0.0	7	4.4	

Subtitle: * Pearson's chi-square test.

The association between the levels of depression (Beck Inventory) and QoL (SF-36), as shown in Chart 1, was significantly manifested in the Brazilian group among participants without depression in the domains of physical role functioning (p-value > 0.001), emotional role functioning (p-value = 0.030) and total score (p-value < 0.001). In Portugal, similar to the Brazilians, those who did not have depression stood out, but in a greater number of QoL domains: physical role functioning (p-value < 0.001), vitality (p-value = 0.002), social role functioning (p-value = 0.020), emotional role functioning (p-value = 0.005), mental health (p-value = 0.046), physical health (p-value = 0.025) and mental health dimension (p-value = 0.005).

Chart 1. Association between depression (Beck Inventory) and QoL (SF-36)

Depression level (Beck Inventory)	Brazil (n = 110)					Portugal (n = 50)			
	Absent	Light	Moderate	Severe	p-value*	Absent	Light	Moderate	p-value*
QoL (SF-36) domains	Median					Median			
Physical role functioning	80.0	35.0	62.5	20.0	< 0.001	85.0	52.5	30.0	< 0.001
Physical functioning	75.0	25.0	75.0	0.0	0.023	100.0	100.0	87.5	0.059
Pain	30.0	40.0	50.0	70.0	< 0.001	20.0	45.0	45.0	< 0.001
General health perceptions	35.0	45.0	55.0	65.0	0.001	47.5	45.0	60.0	0.024
Vitality	50.0	50.0	57.5	50.0	0.276	55.0	45.0	45.0	0.002
Social role functioning	50.0	50.0	50.0	50.0	0.915	50.0	43.8	37.5	0.020
Emotional role functioning	100.0	100.0	16.7	0.0	0.030	100.0	100.0	33.3	0.005
Mental health	60.0	56.0	54.0	48.0	< 0.001	60.0	48.0	48.0	0.046
Total score	57.0	49.0	50.0	40.0	0.014	61.8	55.3	47.1	0.067
QoL (SF-36) summary measures									
Physical health	51.5	41.0	59.0	42.0	0.015	59.0	52.0	50.5	0.025
Mental health	57.0	50.0	45.0	45.0	0.453	60.9	48.1	49.7	0.005
Subtitle: *Kruskal-Wallis test.									

Discussion

Our study showed as the main evidence that the absence of depressive symptoms (Beck Inventory) is associated with higher QoL scores, with participants from the Portuguese group standing out in the sample when compared to the Brazilian group. Their performance on QoL favoured, above all, those who did not present depression in the domains of physical role functioning, vitality, social role functioning, emotional role functioning and mental health, in addition to the physical health and mental health dimensions.

Given the comparative and univariate analysis of QoL between both scenarios, there was a favourable highlight for Brazil only in the social functioning domain, which is a result similar to that demonstrated by another Brazilian study, which lists the social aspect as a point of major potential in groups of elderly people⁽²⁵⁾. For the Portuguese, physical functioning and general health perceptions, in addition to the physical health dimension, were aspects that, comparatively, were significantly in their favour. These findings indicate better health status and QoL in the Portuguese group, as these domains are strongly influenced by autonomy and physical capacity, which are important predictors of better scores in several studies and regardless of the cultural scenario⁽²⁶⁻²⁸⁾.

The group from Portugal also showed better performance in the univariate analysis on the levels of depression (Beck Inventory), mainly because it did not have in its sample participants classified as having severe depression, in contrast to the group from Brazil. The results that greatly contributed to this difference were statistically significant. Even with this evidence, both groups had slightly more than half of their participants classified as not having depression. In other words, the difference between the groups occurred in the proportional distribution between the categorical variables of the levels of depression. This result may be associated with the performance of the group in Portugal in the physical domain and dimension, similarly evidenced by another Portuguese study, which associates the presence of physical activity with a reduction in depressive symptoms⁽²⁹⁾.

Considering the bivariate analysis (QoL versus depression), compared to Portugal, the group from Brazil showed similar but more incipient results with respect to the association between QoL and depressive symptoms among those who did not show symptoms of depression. In this scenario, these participants exhibited high and significant performances in four of the eight domains of the SF-36 (physical role functioning, physical functioning, emotional role functioning and mental health), beyond the total score. No dimension was impacted. Despite these findings, the Portuguese participants in our survey who did not have depression had higher and more significant QoL scores than did Brazilian participants without depression. In this regard, it is important to note that the Brazilian PHC network is ineffective in much of the country with regard to a specialized network⁽¹²⁾, the necessary demand for psychiatric monitoring and the prevention of mental suffering. In addition, there is an eminent stigma in the Brazilian population attached to being diagnosed with mental disorders, which makes the screening and prevention of depression extremely difficult, in addition to the difficulty of welcoming and monitoring of the user and encouraging his or her adherence, even if there is effective identification⁽³⁰⁾. On the other hand, family health units in Portugal have a comparatively better track record in relation to those in Brazil, especially in terms of accessibility and user satisfaction^(15, 16), which positively impacts the follow-up of the population regarding depression or any other disease or comorbidity.

The favourable results found among the Portuguese do not seem to be explained, however, by their profile, since their demographic and health data are similar to those of Brazilians, with the number of participants incidentally close in relation to diseases. This fact possibly results from the pairing between the groups carried out in the methodological path of our research, which is similar to that of other studies carried out in Portugal, where high rates of comorbidities were observed in addition to frequent depressive symptoms and obesity⁽³¹⁾. However, it is noteworthy that Brazil and Portugal are countries with very different levels of

economic development, which can lead to an important comparison bias from an economic and social point of view^(15, 16). In another study, American elderly people, for example, even at a very old age, presented good mental health, autonomy and resilience, although they had significant physical limitations and deficits in social interaction⁽³²⁾, two of the aspects that favoured the Portuguese in our research. Other authors also praise how much the preservation of the physical and social aspects prevents mental suffering⁽³³⁾. However, the social role functioning domain did not show significant performance among the levels of depression in Brazilians. Regarding these data, another Brazilian study identified that elderly adults with depression and other mental disorders indicated that they did not realize that they received some social support in PHC, unlike others without depression, but that they had arterial hypertension and diabetes, diseases for which there are policies advanced and well established in Brazilian PHC⁽³⁴⁾. This fact denounces the fragility of the health system in Brazil within the context of mental health. However, the National Health Survey of Portugal 2014 also shows a high prevalence of depressive symptoms among elderly adults⁽⁷⁾.

Identifying solutions to complex health demands is a constant challenge in the reality of any scenario, and this identification becomes even more difficult in mental health, mainly because it occurs in PHC environments, where interventions are strongly recommended, especially with health care approaches, health education, behavioural activation and incentives for logical reasoning, with strategies to problematize daily life situations and physical activities and stretching, methodologies with an evident impact, especially on QoL and reduction of depressive symptoms^(35–38). However, for the application of effective interventions, the target aspects must be well delineated, measured and worked on by professionals who are truly committed to establishing strong links with the community, since without this set of factors, the success of the interventions is compromised^(39, 40). It should be noted that the challenge is even greater in the current global situation due to the pandemic caused by the new coronavirus, as it is already known that there is a negative impact on QoL and mental health observed in all age groups⁽¹⁷⁾, which raises the same projection of difficulties for Brazil and Portugal.

Limitations

The main limitation of our study is the small sample, mainly regarding the group from Portugal, the fragility of which was motivated by the low uptake of participants in this scenario due to the reduced human resources available to carry out data collection. In addition, the transversal cut applied to our findings implies a break in the potential for generalizing the results. With the intention of mitigating these biases and limitations, the intergroup pairing promoted a certain sociodemographic similarity between the groups from the two countries, which made it possible to conduct interesting, decisive analyses to address the research objective.

Conclusion

Our study showed that elderly individuals with depressive symptoms had lower QoL scores in several of their domains and dimensions. When comparing Brazil and Portugal, better performances were noted in Portugal for both depression and QoL. In this sense, we accept our study hypothesis.

Although there were limitations in the methodological path used, it was possible to conduct an important analysis between the groups of the two countries, which are located on different continents and are inserted in different social and economic contexts.

In light of the cross-sectional diagnosis of both scenarios, the need for a longitudinal approach emerges, within which one can evaluate outcomes and therefore verify of the predictive aspects of QoL and depressive symptoms evaluated in our research, including the assessment of possible impacts in this context after the drastic behavioural changes observed recently.

Abbreviations

WHO: World Health Organization; QoL: Quality of Life; PHC: Primary Health Care; CEP: Comitê de Ética em Pesquisa; HUOL: Hospital Universitário Onofre Lopes; CAAE: Certificado de Apresentação e Apreciação Ética; MMSE: Mini-Mental Status Examination; SF-36: Medical Outcomes Short-Form Health Survey; CSP: Primary Health Care Units; SNS: National Health System; SPSS: Statistical Package for the Social Sciences.

Declarations

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Authors' contributions

ACVC and BASD contributed to the study design, data acquisition and writing of the manuscript. All authors read and approved the final manuscript. JMAM, GAST and AJD contributed to the study design, the acquisition and analysis of the data and the preparation of the manuscript. TTXN, FRPM, FANM, GVT and EMCM contributed to the analysis, draft and critical review of the manuscript.

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Availability of data and materials

The datasets generated and analysed during the current study are not publicly available because the datasets are currently being used for another project; however, they are available from the corresponding author on

reasonable request.

Ethics approval and consent to participate

We were approved by the Research Ethics Committee of Hospital Onofre Lopes (Brazil), opinion n° 562,318, and by the Research Ethics Committee of the University of Évora (Portugal), opinion n° 14011, as well as the Ethics Committee for Scientific Research in Human Health and Welfare Areas of the University of Évora (Portugal), n° 17.006/2018. Participants signed a free and informed consent form as a form of agreement to participate in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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