PERCEIVED QUALITY OF LIFE AND FRAILTY AMONG OLDER PEOPLE LIVING IN DIFFERENT SETTINGS

Percepção da qualidade de vida e condição de fragilidade entre idosos com diferentes situações de moradia

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ABSTRACT

OBJECTIVE: To analyze the perceived quality of life of older people living in the community and long-term care facilities, and correlate it with the presence of frailty. **METHODS:** This is a quantitative, analytical, cross-sectional study in which 136 older people were interviewed, half were living in the community and the other half were living in long-term care facilities. The Edmonton Frail Scale was used to identify frailty, and the World Health Organization Quality of Life – Bref (WHOQOL-BREF) and World Health Organization Quality of Life Assessment for Older Persons (WHOQOL-OLD) questionnaires were used to measure quality of life. Analysis of variance and Pearson correlation coefficients were used for intragroup analyses. **RESULTS:** A greater proportion of older people living in long-term care facilities were frail. Perceived quality of life was better among people living in the community, according to both questionnaires, particularly in the domains social relations, environment, and death and dying. The worst scores were observed in the autonomy domain, particularly among older people living in long-term care facilities. In the majority of domains, older people with frailty had worse perceived quality of life scores. **CONCLUSIONS:** The absence of frailty favors a better perception of the quality-of-life domains, as does living in the community.

KEYWORDS: older people; quality of life; frailty.

RESUMO

OBJETIVO: Analisar a percepção de qualidade de vida de idosos residentes na comunidade e em residenciais de cuidados de longa permanência, correlacionando-a com a presença de fragilidade. **METODOLOGIA:** Trata-se de um estudo quantitativo e analítico do tipo transversal, no qual foram entrevistados 136 idosos, dos quais metade era residente na comunidade e a outra metade vivia em residenciais de cuidados de longa permanência. Utilizaram-se a Escala de Fragilidade de Edmonton para identificar fragilidade e os questionários World Health Organization Quality of Life – Bref (WHOQOL-BREF) e World Health Organization Quality of Life Assessment for Older Persons (WHOQOL-OLD) para mensurar qualidade de vida. Foram empregados o teste de análise de variância e a correlação de Pearson para análise intragrupos. **RESULTADOS:** Observou-se um maior número de idosos frágeis vivendo em residenciais de cuidados de longa permanência. A percepção de qualidade de vida foi melhor entre os residentes na comunidade, nos dois questionários, com destaque para os domínios relações sociais, meio ambiente e morte e morrer. O domínio autonomia apresentou a pior percepção, sobretudo entre os idosos que moravam em residenciais de longa permanência. Entre os idosos com fragilidade, estão as piores percepções de qualidade de vida na maioria dos domínios. **CONCLUSÃO:** A ausência de fragilidade favorece a melhor percepção dos domínios de qualidade de vida, bem como residir na comunidade.

PALAVRAS-CHAVE: idoso; qualidade de vida; fragilidade.

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INTRODUCTION

Frailty in older people is associated with a range of conceptual markers, indicating that it is a complex and dynamic concept,¹ encompassing both biomedical and psychosocial aspects.^{2,3} There is no consensus on the pathophysiology of this syndrome, but it is widely accepted that frailty constitutes a “nonspecific state of increased risk of mortality and adverse health events”.² Negative outcomes include (but are not limited to) dependence, disabilities (such as falls), predisposition to (and slow recovery from) acute diseases, and increased rates of hospital admissions and admission to long-term care facilities (LTCF).^{2,4,5}

Frailty is understood as a dynamic state that is potentially reversible and responsive to interventions of preventative nature.¹⁻⁶ This state of increased physiological vulnerability may compromise functional abilities and reduce intrinsic capacity in pre-frail or frail older people.⁷ With compromised functional capacity and, very often, autonomy, there are increases in the need for long-term care and in material, financial, and human costs of care, with direct or indirect repercussions for perceived quality of life (QoL).^{2,3,5}

The reported prevalence of frailty is significantly dependent on the type of diagnostic instrument adopted and the characteristics of the population investigated. The agreement between the multiple diagnostic instruments for detecting frailty is not yet clear, since a considerable proportion of them were designed for assessment of risk before medical or surgical interventions, while others are intended for planning complex and long-term care.¹ Previous data suggest that the prevalence of frailty in Brazil varies from 6.70 to 74.10%, depending on the instrument used and the setting.³

Improvements in QoL have been used to test and support the efficacy and cost-effectiveness of interventions for older people living in LTCF and the community.⁸ Many different variables and conditions have been investigated and associated with changes in perceived QoL in older people living in the community and LTCF, including depression, access to health services, socioeducational level, in addition to comorbidities, presence of pain, polypharmacy, and presence of frailty itself.⁹⁻¹¹

This study is based on the hypothesis that there is a statistically significant correlation between QoL and the stage of frailty, and attempts to find answers for the following questions: Does place of residence (community or LTCF) modify the prevalence of frailty? Does the prevalence of frailty change perceived QoL in older people? Does place of residence change perceived QoL?

The objective was to analyze the perceived quality of life of older people living in the community and in LTCF and correlate it with presence of frailty.

METHODS

This is a cross-sectional observational study with descriptive and analytical characteristics, conducted with older people living in the community and in LTCF in two towns (A and B) in the Mid-West of São Paulo state, Brazil, with similar populations and socioeconomic indicators.¹²

Since it would not be possible to select a sample that was representative of the population, but to guarantee the quality of intragroup statistical analysis and internal statistical significance, a 5% significance level and 80% test power were adopted, in addition to adjustment for non-parametric procedures, based on the asymptotic relative efficiency ($n = n' / 0.91$). Thus, in order to demonstrate a minimum correlation of 0.35, 68 older people would be needed in each residence type subset — community and LTCF —, using a non-random sampling.

The inclusion criteria were:

- 60 years of age or older;
- not having a psychiatric pathology that would prevent informed consent;
- living in the areas covered by primary care health centers or in LTCF from the municipal districts' urban zone selected for the study.

Older people were excluded if: they had a diagnosis of severe cognitive deficit; the researchers adjusted the assessment of Mini-Mental State Examination (MMSE) according to educational level;¹³ they had communication disorders; they were in palliative care and/or had severe neurological diseases (such as stroke or Parkinson's disease at an advanced stage); or they had severe auditory or visual deficits.

Home visits were conducted from February 2016 to March 2017 to households that were selected by community health agents (CHA) from each of the primary care health centers, who identified a total of 68 older people living in the community. The sample of LTCF residents was recruited from three urban philanthropic facilities, 23 older people from municipal district A and 45 from municipal district B.

Data were collected *in loco* (at home or at the LTCF) by health professionals (one physiotherapist; one speech, language, and hearing therapist; and two nurses). These professionals had been trained by the lead researcher in how to approach the participant, establish communication, and collect data using scales and questionnaires.

Sociodemographic data were collected using a script covering the variables: age, marital status, number of children, religion, occupation, educational level, family income, employment status, and underlying diseases. Frailty was investigated using a clinical instrument proposed by the Canadian

Initiative on Frailty and Aging, the Edmonton Frail Scale (EFS), which is a reliable and validated instrument that is feasible for routine use, even by non-specialists.

The authors of the EFS consider that it is a complete clinical proposal for detection of frailty in older people that is easy to use and administer. It makes the list of the most comprehensive scales, since it encompasses aspects related to cognition, mood, and social support, which can also be indicators of frailty among older people.^{14,15} It is commonly used in community-dwelling older people and can be administered to critical patients incapable of performing a get-up-and-go test and to older people living in LTCF, since it is tolerant of adverse measurement conditions and is as reliable as more traditional frailty scales.^{16,17}

The EFS assesses nine domains: cognition, general health status, functional independence, social support, medication usage, nutrition, mood, continence, and functional performance, investigated with 11 items. The maximum score is 17, which is the highest degree of frailty. Scores used for analysis of frailty are as follows:

- 0–4: no frailty;
- 5/6: apparently vulnerable;
- 7/8: mild frailty;
- 9/10: moderate frailty;
- 11 or more: severe frailty.

Data were dichotomized by frailty scores as frail or not frail, with a cutoff point of ≥ 7 .¹⁵

Two questionnaires were used to assess QoL, the World Health Organization Quality of Life – Bref (WHOQOL-BREF) and an instrument constructed specifically for older people, the World Health Organization Quality of Life Assessment for Older Persons (WHOQOL-OLD).¹⁸

The WHOQOL-BREF is a shortened version of the original questionnaire, comprising 26 items, two of which are on general QoL and 24 on the facets from the original instrument. It covers four domains of QoL, designed to analyze, respectively, physical health, psychological health, social relationships, and the environment in which the subject lives.¹⁸

In turn, the WHOQOL-OLD is aging-oriented and contains 24 questions, divided across six domains: sensory abilities; autonomy; past, present, and future activities; social participation; death and dying; and intimacy. It has been validated in Portuguese. The total scores for each facet range from 4 to 20 and are transferred to a scale ranging from 0 to 100, on which 0 represents worst QoL and 100 represents best QoL.¹⁸

Questionnaires were processed separately and then data were cross-compared. A significance level of 0.05 ($p \leq 5$) was

adopted for the whole study and all confidence intervals were constructed with 95% statistical confidence.

The distributions of relative frequencies of demographic variables were classified using the test of equality of two proportions. Analysis of variance (ANOVA) was used to compare groups by scores on the EFS, WHOQOL-BREF, and WHOQOL-OLD scales. The central limit theorem was applied to confirm that data are parametric, guaranteeing that distributions tend towards normal — since this is a sample of more than 30 subjects. Intragroup and intergroup analyses of EFS classifications also used the test of equality of two proportions.

The study was approved by the Human Research Ethics Committee at the Universidade de São Paulo Bauru School of Dentistry under decision number 1.292.301, on October 22, 2015.

RESULTS

In municipal district A, 74 home visit interviews were conducted out of the 1997 older people registered at the health centers chosen for the study. Six persons were excluded due to their MMSE results.

Additionally, 23 older people out of 30 potential participants were interviewed at the LTCF. In municipal district B, 45 (out of 139 potentially eligible older people) were assessed.

As shown in Table 1, the majority of the older people enrolled were woman and had at least one underlying disease.

The mean age of the older people interviewed was 72.32 years (± 8) for those living at home, and 77.91 years (± 8) for those in LTCF. It was notable that the community-dwelling older people were predominantly married (67%), whereas a large proportion of the LTCF residents were single (39%) and had low educational level. Mean income was 1.30 times the minimum monthly wage for LTCF residents and twice the minimum monthly wage for community-dwelling older people (Table 1).

The prevalence of frail older people was higher among LTCF residents (51.50%) than among those living in the community (16.20%), with $p < 0.001$.

Comparing QoL by place of residence, community-dwelling older people had higher mean scores in all domains, and especially in the social relations domain (80.40%). The older people living in LTCF had discretely lower scores in the psychological (60%) and social relations domains (60.80%). The community-dwelling older people had larger standard deviations for the domains assessed, indicating greater heterogeneity in their perceived QoL (Table 2).

When QoL was assessed using the WHOQOL-OLD questionnaire, the community-dwelling subjects reported positive perceptions for all domains, with particularly high scores for sensory abilities (82%) and death and dying (86.40%). The older people living in LTCF had moderate scores for the QoL domains, scoring highest for death and dying (74.80%) and lowest for autonomy (54.60%) (Table 2).

Invariably, perceived QoL was better in all domains surveyed among older people without frailty, without statistical significance in a small number of comparisons, in which perceived QoL within the group was very similar, as was the case of the social, environment, and death and dying domains (Table 3). Perceived QoL was also better in all domains in relation to those living at home.

DISCUSSION

In this non-probabilistic sample of 136 older people, the prevalence of frailty observed exceeded 51% in the subset living in LTCF and was 16.20% among those living in the community.

Perceived QoL was better among people living in the community on both questionnaires, with the domains social relations, environment, and death and dying of particular note. The domains autonomy and psychological health had smaller means among older people living in LTCF. This finding is corroboration of the fact that privation of liberty and the autonomy to care for oneself combined with fragility of relationships and affective bonds, of expression of positive and negative feelings, and of defense of one's own rights — which is determinant of many situations of abandonment and loneliness in old age — reflect significantly on the capacity for self-care, on older people's social relations, and on occurrence of unfavorable outcomes such as sickness, hospital admission, and death.^{19–23}

With regard to the social relations domain, the mean score among older people living in their own households is 80%, compared to 60% for institutionalized older people. Social relations are the counterpoint to social isolation. An institutionalized older person is supposedly interacting socially with other older people, with healthcare

Table 1. Distribution of older people by sociodemographic variables and place of residence in towns A and B (n=136).

Sociodemographic variables	Place of residence			
	Community-dwelling median	p-value*	LTCF median	p-value*
	(n = 68)		(n = 68)	
Age	72.31		77.92	< 0.001
Number of children	3.40		1.66	< 0.001
Participant's income	1.99		1.30	0.03
Sex				
Female	60.60	0.01	54.40	0.30
Male	39.70		45.60	
Marital status				
Has partner	67.61	< 0.001	4.43	< 0.001
No partner	32.42		95.61	
Educational level				
Illiterate	19.13	< 0.001	23.53	< 0.001
Up to 3 years' education	22.11	< 0.001	25.02	0.001
4 years or more in education	58.82	Ref.	51.51	Ref.
Has underlying disease				
No	14.71	< 0.001	14.72	< 0.001
1 or 2	72.12	Ref.	69.11	Ref.
3 or more	13.20	< 0.001	16.22	< 0.001

*The p-values for quantitative variables are for intergroup comparisons. For qualitative variables, the p-values are for intragroup analysis. Tests of equality of two proportions are used, except for binary responses, p-values were calculated taking the most prevalent as reference category (Ref.); LTCF: long-term care facilities.

teams, and with volunteers, but what is actually observed is that there is isolation. Living in the community favors contact and relationships with other people, opportunities for social participation, and access to social and leisure infrastructure and interaction, despite criticism of access to leisure and public spaces for interaction for less privileged strata.²⁴

Even isolated from their habitual interactions and without the liberty to take their own decisions, older people in LTCF can still benefit from exposure to leisure or occupational activities that promote changes in their self-esteem, their social interactions, and their disposition to improve their own physical, psychospiritual, and environmental comfort. The facet past, present, and future activities assesses older people's satisfaction with accomplishments, objectives achieved, and projects executed during their lives.²⁵ In this study, older people in LTCF had worse perceptions of past, present, and future activities, and this had a positive relationship with the majority of the other QoL domains, indicating, in line with

a study by Cordeiro et al.,²⁵ that the worse the perception of the achievability of one's life projects and accomplishments, the worse one's perceived QoL.

The physical health QoL domain exhibited the smallest difference between means by place of residence, followed by the domains death and dying, social participation, psychological health, and intimacy. These smaller differences between means were also found in other studies of the same subject conducted with participants living in the same residential settings.²⁵⁻²⁸

Just as older people living in the community reported better QoL, older people who were not frail also rated their QoL higher in the majority of domains.

Studies undertaken over recent years have found inverse associations between QoL and frailty, particularly driven by the physical domain.^{15,26} In the present study, the physical domain exhibited statistically significant relationships in comparisons of WHOQOL-OLD and WHOQOL-BREF domains by residence and frailty status.

Table 2. Comparison of WHOQOL-OLD and WHOQOL-BREF domains, with analysis of variance (ANOVA), by place of residence (n=68 to each place).*

WHOQOL-OLD	Place of residence	Mean	Standard deviation	p-value
Sensory abilities	Community-dwelling	82.00%	18.70%	< 0.001
	LTCF	64.50%	24.10%	
Autonomy	Community-dwelling	75.70%	24.10%	< 0.001
	LTCF	54.60%	17.00%	
Past, present, and future activities	Community-dwelling	75.70%	20.40%	< 0.001
	LTCF	58.00%	14.30%	
Social participation	Community-dwelling	77.90%	21.00%	< 0.001
	LTCF	63.30%	15.00%	
Death and dying	Community-dwelling	86.40%	20.80%	0.010
	LTCF	74.80%	30.30%	
Intimacy	Community-dwelling	78.50%	27.80%	< 0.001
	LTCF	63.10%	17.00%	
WHOQOL-BREF				
Physical health	Community-dwelling	73.00%	24.80%	0.004
	LTCF	62.40%	16.50%	
Psychological health	Community-dwelling	75.20%	19.60%	< 0.001
	LTCF	60.00%	14.10%	
Social relations	Community-dwelling	80.40%	23.00%	< 0.001
	LTCF	60.80%	16.30%	
Environment	Community-dwelling	70.70%	20.00%	0.002
	LTCF	61.70%	12.30%	

WHOQOL-OLD: World Health Organization Quality of Life Assessment for Older Persons; WHOQOL-BREF: World Health Organization Quality of Life – Bref; LTCF: long-term care facilities.

The sensory abilities domain of the WHOQOL-OLD and the WHOQOL-BREF psychological health and social relations domains were correlated with frailty, corroborating the results of other studies,²⁸⁻³⁰ which have shown that sensory impairment could negatively affect older people's functional capacity; equilibrium between positive and negative feelings; social participation; and interaction with other people.

Perceived QoL in the intimacy domain will be proportionally better to the extent that the social relations; present, past, and future activities; and social participation domains are better among older people living in their own households.¹¹ In counterpoint, the mean score for this domain is lower among institutionalized older people and, specifically in this study, although it does have a relationship with QoL, it does not appear to have a strong relationship with other intragroup domains. To a certain extent, this result was expected, since the majority of LTCF are made up of bedrooms and communal areas that are exclusively collective, compromising the reserve and introspection necessary to exercise intimacy.

Another relevant issue related to intimacy is linked to the need and desire for sexual activity and human companionship. Particularly in Western societies, sexual interest and sexual expression are associated with the aspirations of young people. There is a tendency to treat older people, particularly those who live in LTCF, in an infantilized and sometimes desexualized manner. This attitude has a negative impact on the right to exercise human sexuality by older people in LTCF, reducing their QoL.^{24,26}

The presence of frailty in the physical health domain impacts on perceived QoL in an accentuated manner in relation to those who are not frail in any type of residence. Therefore, it is necessary to develop measures that can mitigate the physical element of frailty in different settings. For community-dwelling older people, efforts should be directed at nutritional and physical stimuli, supported self-care, and accessibility to equipment for exercise. These measures should also be a focus in LTCF, in addition to multidisciplinary care, assistive technology, and nutritional support.

Table 3. Comparison of median percentage domain scores and standard deviations for WHOQOL-BREF and WHOQOL-OLD, with analysis of variance (ANOVA), by place of residence and frailty status.

Quality of life domains	Community-dwelling			LTCF			All		
	Frail (%) n = 11	Not frail (%) n = 57	p-value	Frail (%) n = 35	Not frail (%) n = 33	p-value	Frail (%) n = 46	Not frail (%) n = 90	p-value
Physical health	43.51 ± 23.45	78.63 ± 20.78	< 0.001	54.20 ± 17.56	71.10 ± 9.67	< 0.001	51.64 ± 19.53	75.87 ± 17.85	< 0.001
Psychological health	51.52 ± 23.29	79.77 ± 15.24	< 0.001	54.52 ± 13.34	65.78 ± 12.71	0.001	53.80 ± 16.03	74.64 ± 15.81	< 0.001
Social relations	62.88 ± 29.67	83.77 ± 20.07	0.005	59.52 ± 15.67	62.12 ± 17.06	0.51	60.33 ± 19.58	75.83 ± 21.64	< 0.001
Environment	53.70 ± 20.58	74.00 ± 18.25	0.002	60.50 ± 12.10	62.98 ± 12.48	0.40	58.87 ± 14.61	69.96 ± 17.15	< 0.001
Sensory abilities	68.81 ± 29.00	84.50 ± 15.00	0.009	55.00 ± 22.60	74.61 ± 21.60	0.001	58.30 ± 24.70	80.94 ± 18.20	< 0.001
Autonomy	59.71 ± 28.60	78.80 ± 22.10	0.01	48.21 ± 14.70	61.42 ± 16.80	0.001	51.00 ± 19.20	72.44 ± 21.90	< 0.001
Past, present, and future activities	61.90 ± 23.00	78.41 ± 19.00	0.01	52.33 ± 13.80	64.00 ± 12.40	0.001	54.61 ± 16.70	73.10 ± 18.20	< 0.001
Social participation	60.81 ± 26.70	81.30 ± 18.30	0.002	60.00 ± 13.00	66.90 ± 16.30	0.05	60.23 ± 16.90	76.00 ± 18.80	< 0.001
Death and dying	85.82 ± 23.90	86.51 ± 20.40	0.91	75.72 ± 29.30	73.91 ± 31.70	0.80	78.11 ± 28.20	81.90 ± 25.70	0.43
Intimacy	58.50 ± 35.70	82.32 ± 24.70	0.008	61.11 ± 17.90	65.30 ± 16.10	0.30	60.52 ± 22.80	76.11 ± 23.30	< 0.001

WHOQOL-OLD: World Health Organization Quality of Life Assessment for Older Persons; WHOQOL-BREF: World Health Organization Quality of Life – Bref; LTCF: long-term care facilities.

In counterpoint, psychological disability does not appear to directly impact on older people's lives in either residential setting, but an absence of frailty or psychological good health is reflected in significantly better QoL among older people living in the community.

Probably, older people with psychological fragility living in the community are less likely to be perceived as frail than those in LTCF, since they still maintain their daily activities of living to a certain extent. This shows that we should be alert to psychological frailty in the community, since it enables us to provide care earlier and delay disability.

Concluding the discussion, this study is subject to reservations or limitations related to its cross-sectional nature and the quality of the evidence produced; to the design that does not enable cause-effect relationships to be established; to the sample size, which limits generalization of results and answers to the research questions; and to certain biases and confounding factors that probably negatively impact on perceived QoL and its correlations with frailty status, such as: not having assessed polypharmacy, health self-perception, mood, quality of sleep, or presence/absence of depression and chronic pain.

Expression of these limitations and biases could drive construction of epidemiological and clinical study designs that seek wider understanding of the phenomenon and the correlations between perceived QoL and frailty status with a focus on variables of reversion and population aging in conditions of social and gender inequality.

CONCLUSIONS

In this study, it was possible to identify that, in common with other locations, the place of residence alters the prevalence of frailty. Older people living in LTCF are notoriously

more frail than those who live in the community. Living in the community was favorable for QoL, whereas living in LTCF appears to predominantly impact on the psychological health and social relations domains. Invariably, frailty affects the QoL of all older people, especially from the perspective of the physical health, psychological health, intimacy, and social relationship domains.

The phenomenon of frailty can be interrupted or delayed by means of interventions of a protective and preventative nature. Identifying and differentiating frail older people from those who are not frail and investigating the QoL domains that most impact on these people's living processes appear to be essential to guiding public policies and providing a foundation for healthcare models for older people with a view to developing efficient programs that are effective at preventing conditions of risk for increasing frailty and long-term complex care.

CONFLICTS OF INTEREST

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AUTHORS' CONTRIBUTIONS

VCBP: all stages of writing the article. MLC: concept and writing of final version of article. MJSM: concept and writing of final version of article. PRMD: writing of final version of article. PAW: writing of final version of article.

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