Multinomial logistic regression for analysis of older people´s treatment priorities if faced with serious illness with limited time to live: a study in Belo Horizonte, Brazil

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INTRODUCTION

Studies have been showing the aging of Brazilian population, being estimated that, in 2060, 25.5% of the population will be 65+ years old; actually this proportion is less than 10%. As is happening in Brazil and many countries in Europa, the majority of people die at hospitals (71.6% in Brazil, of which 68% are people aged ≥ 60.5 years). Understanding the priorities for treatment of older persons is crucial for future health-care delivery and planning more cohesive policies of the advance care.

For this study, the Portuguese version of a questionnaire, developed as part of PRISMA [1], recently culturally adapted to Brazilian Portuguese [2] was used. The questionnaire consists of two parts. The first part includes questions on preferences and priorities at the end of life. The second part includes questions on sociodemographic characteristics and experiences with illness, death, dying and general health. Some topics covered by this questionnaire have already been studied [3,4]. The objective of the present study is to examine if treatment priorities was affected by some characteristics. Treatment priorities were categorized by answering:

"When people are faced with a serious illness like cancer with limited time to live, they may have to make difficult decisions and prioritise some things over others. In this situation, would it be more important to extend your life or to improve the quality of life

for the time you had left?", where the answer options were: *"To extend life"; "To improve the quality of life for the time you had left"; "Both are equally important"* and *"You don't know".*

METHODS

We used data provided from a face-to-face survey based on the PRISMA telephone survey on public preferences and priorities for end-of-life care. Data are collected between February and July 2015 from 400 older people aged ≥60+ years living in the city of Belo Horizonte (Brazil) and considering stratified sampling based on the older population distribution by three groups (60-69years; 70-79years; +80years) and gender according to the 2010 Demographic Census. Participants were asked to define their treatment priorities in a scenario of a serious illness with less than one year to live.

Multinomial logistic regression was used to identify factors associated with the treat preference at the end of life. As pre-selection strategy, a bivariate analysis using Pearson χ^2 tests was previously executed in order to select factors potentially associated (27) with the treatment preference in the multinomial model. Statistical analyses were performed using IBM SPSS Statistics software, version 25.0 for Windows.

RESULTS

The options for treatment priorities were: 65.2% of participants selected improving the quality of life for the time left, 4% extending life, 30.8% selected extending life and improving quality of life were equally important and 0% selected "You don't know". Improve the quality of life for the time left was the most preferred option for both gender and in the age groups considered.

From bivariate analysis, 3 factors (presented in Table1) out of 27 were selected to be entered in the multinomial logistic regression model. From multivariate model only 2 factors are significantly associated with the treatment priorities of older people (Table 1).

Table 1. Multinomial logistic regression. Significant AOR are highlighted**.**

Variable	To extend life	To improve the quality of life
(Ref: Both are equally important)	AOR (95%CI)	AOR (95%CI)
Age groups (ref: +80)		
60–69 years	**0.18** (0.05–0.72)	0.54 (0.27–1.09)
70–79 years	0.32 (0.08–1.33)	0.59 (0.28–1.24)
Marital status (ref: others)		
Single or widower	**0.28** (0.09–0.89)	**0.62** (0.40–0.95)
Preference for place of death (ref: own home)		
Hospital, palliative care unit, long-term care facilities	2.53 (0.81–7.88)	1.44 (0.93–2.23)

AOR: adjusted odds ratio

CONCLUSIONS

Marital status and age group are relevant factors that should be considered in relation to treatment priorities of older persons.

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