Research Article

Association Between Quality of Life Perception and Five Years Mortality in Community Living Older People

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Abstract

Aim: To estimate the relationship between quality of life and five years survival rate in Chilean adults over 60 years, residing in the community.

Materials and Methods: The study was carried out based on a historical cohort, in which the analyzed variables are quality of life and survival. Quality of life was evaluated using the WHOQOL-BREF (World Health Organization Quality of Life, brief version) in a representative sample of 1681 older people residing in Santiago during 2009 and 2010. The follow-up period was of five years and those who died during the 60 first days after the evaluation, were excluded. Survival analysis was carried out using Wilcoxon (Breslow) tests and Weibull regression models.

Results: We demonstrated that quality of life (Hazard ratio (HR) =0.97, 95% confidence intervals (CI) =0.96-0.99), subjective self-perception of health (HR =0.99, 95%CI=0.98-1) and physical health domain score (HR=0.97, 95%CI=0.96-0.98) are significant predictors of five years mortality.

Conclusions: To have a low perception of quality of life, a bad self-perception of health and a low punctuation in the physical health dimension, are significant predictors of five years mortality in Chilean older people residing in the community.

Introduction

The subjective perception of quality of life is associated with future adverse health events, hospital admissions and mortality. A recent study performed in Unites States showed that subjective health quality perception is associated with short and long-term mortality [1]. In China, a strong association between health-related quality of life and 10 years mortality was observed [2]. Other studies performed in Europe have shown the same association between quality of life and mortality [3-5]. The simplest explanation for this association is that people who report a low quality of life are already sick, and that illnesses are obviously generating a sensation of feeling unwell that results in reporting a low quality of life. Studies aiming to determine prognostic markers for mid-term mortality in older adults often incorporate functional measures as significant indicators [6] and the loss of functionality always has an impact on subjective quality of life [7]. However, when older people are asked to predict their own survival time subjectively, the concordance of the prediction with objective survival is poor or absent [8]. Therefore, it is still worth investigating the association between self-perceived quality of life and survival in older people, since the former parameter may become a prognostic indicator, useful in healthcare planning.

During 2009 and 2010, we performed a quality of life survey among older people aged 60 years or more, living in the community using a quality of life questionnaire proposed by the World Health Organization (WHO), called WHOQoL bref. It has 24 questions grouped in four domains, namely physical and psychological health, social relations and environment and two general questions about an overall self-assessment of physical health and quality of life [9]. The Spanish version of this instrument was validated in Chile by us (Espinoza et al, 2011) [10]. In that study, we found a strong association between quality of life and socioeconomic variables [11]. Thus, the aim of this study is to report the association

between quality of life scores with survival during the following five years.

Material and Methods

The information obtained in the aforementioned quality of life survey during 2009 and 2010, using the WHOQoL bref. The scores of the survey were calculated according to the instruction manual developed by the WHO [12]. The overall score and that of each domain fluctuates between 0 and 100 points. The two questions assessing subjective perception of health and quality of life are scored separately. The survey was answered by a representative sample of older people of different socioeconomic levels, living in Metropolitan Santiago. Marital status of participants was recorded at the moment of the survey. The socioeconomic level of participants was determined according to the socioeconomic level of the commune of residence, as wealthy, intermediate or poor [13].

Death certificates of participants were requested to the Chilean Civil and Identification Registry on March 2015, considered the date of censoring for follow up purposes. In Chile, all deaths must be notified and registered before obtaining a burial authorization. The national ID number is unique and required for all purposes of identification and this registry is highly accurate to determine death or survival of a given cohort.

Data Analysis

All participants who died within 60 days of answering the quality of life questionnaire, were excluded from further analyses to avoid including people already sick at the moment of the survey. The normality of variable distribution was analyzed using Shapiro Wilks test. Those variables with a normal distribution are expressed as mean ± standard deviation, otherwise as median (interquartile range). A univariate analysis of survival according to sex, socioeconomic level, marital status and quality of life variables was carried out using Wilcoxon(Breslow) test for equality of survivor functions. The effect of age and quality of life scores were assessed in a Weibull regression model. Those variables significantly associated with survival were incorporated in several Weibull multiple regression models where the dependent variable was survival time. More than one model was necessary since some of the independent variables significantly associated with survival were highly correlated.

Results

Data from 1687 people was available. Six people died within three months after the survey and were excluded from further analysis. Therefore, data of 1681 participants aged 72 ± 7 years (1210 women) were analyzed. Among these, 890 lived in wealthy, 510 in intermediate and 281 in poor communes. During the observation period, 179 participants died at 2014 (711-2027) days after answering the survey). As expected, age was a strong predictor of survival. Female and married participants had a significantly higher survival (Wilcoxon x^2, $p < 0.01$). Overall and specific domain quality of life scores were significantly associated with a higher survival (Table 1).

	Hazard Ratio	95% confidence intervals	p
Overall quality of life score	0.962	(0.951-0.973)	<0.01
Specific quality of life domains:			
Physical health	0.962	(0.954-0.971)	<0.01
Psychological health	0.973	(0.964-0.982)	<0.01
Social relations	0.987	(0.979-0.994)	<0.01
Environment	0.982	(0.971-0.993)	<0.01
Self-perception of			
Physical health	0.983	(0.978-0.990)	<0.01
Quality of life	0.986	(0.978-0.994)	<0.01

Table 1: Univariate regression Weibull regression models associating survival with WHOQol bref scores and subjective perception of physical health and overall quality of life.

There were low correlation coefficients between the four different domains of the survey. A Weibull regression model including all four domains, age, gender and marital status (as confounding variables), accepted only the physical health score as significant predictor of survival. A model including subjective perception of quality of life, physical health and global WHOQol bref score along with age, marital status and gender, accepted the subjective perception of physical health and global WHOQol bref score as a significant predictors of survival. (Table 2)

	Hazard ratio	95% confidence intervals	p	Hazard ratio	95% confidence intervals	p
Age	1.09	(1.06-1.11)	<0.01	1.09	(1.07-1.12)	<0.01
Gender	2.73	(2-3.74)	<0.01	2.79	(2.02-3.85)	<0.01
Marital status	0.71	(0.51-0.98)	<0.01	0.7	(0.5-0.96)	<0.01
Quality of life domains						
Physical health	0.97	(0.96-0.98)	<0.01			
Psychological health	0.99	(0.98-1)	0.13			

Social relations	1	(0.99-1.01)	0.45			
Environment	1	(0.99-1.02)	0.38			
Overall quality of life score				0.97	(0.96-0.99)	<0.01
Self-perception of quality of life				1	(0.99-1.01)	0.52
Subjective perception of physical health				0.99	(0.98-1)	<0.01

Table 2: Multivariate Weibull regression models relating survival with quality of life measures.

Discussion

Our results show that quality of life of older adults living in the community and specifically the physical health domain or the subjective perception of physical health are significant predictors of five years survival.

The Weibull survival function was used because it renders models with a better correlation coefficient. It is a parametric model that is especially suited for situations where most of the variables are parametric as in our case [14]. The association between gender and age with mortality only confirms that the model is rendering the expected results. The fact that married older people live longer than their single counterparts is also common knowledge [15].

Noteworthy is the association between perception of physical health and mortality, either quantified as a specific quality of life domain or as its subjective perception. Other authors have reported this association before. Murray reported an association between perception of physical health and mortality in a cohort of older people born in the year 1921. However, after adjusting the model for other covariates, physical health was no longer an independent predictor [16]. Other study performed in China, showed that health related quality of life was a strong predictor of mortality and specifically, the effect of the physical health domain was significant [2]. As expected, there are numerous studies showing the same association in people with chronic diseases, but in such populations an association between survival and their subjective wellbeing is not surprising [17,18]. The importance of our findings is that the same association is observed in apparently healthy people living in the community and should have preventive implications. People who perceive their health as deficient probably are frequent users of medical services, where they may be discriminated or considered a nuisance and subjected to interventions aiming at reducing the frequency of consultations [19,20]. However, it is known that these frequent consultants have a higher mortality that the general population [21]. Adding the fact that the perception of a deranged health is a mortality predictor, maybe health professionals should change their attitude towards these patients and seek for underlying conditions.

This study has several limitations. The most important is that we do not have the causes of death and we lack a complete medical history of participants, which would contribute to determine prognostic indicators of mortality more accurately. As a strength, the number of participants followed is important and similar to other studies analyzing the relationship between quality of life and mortality.

Clinical implications

- A subjective perception of bad health should prompt clinicians about a higher mortality risk.

- The quality of life perception has a prognostic implication in older people.

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