Spirituality and Quality of Life in Older Adults: Path Analyse Model

CURRENT STATUS: UNDER REVIEW

BMC Geriatrics  BMC Series

Sara Lima  sara.lima@ipsn.cespu.pt
Cooperativa de Ensino Superior Politecnico e Universitario
Corresponding Author
ORCiD: 0000-0002-3421-4854

Lurdes Teixeira
Cooperativa de Ensino Superior Politecnico e Universitario

Raquel Esteves
Cooperativa de Ensino Superior Politecnico e Universitario

Fátima Ribeiro
Cooperativa de Ensino Superior Politecnico e Universitario

Ana Teixeira
Cooperativa de Ensino Superior Politecnico e Universitario

Fernanda Pereira
Cooperativa de Ensino Superior Politecnico e Universitario

Clarisse Magalhães
Cooperativa de Ensino Superior Politecnico e Universitario

DOI: 10.21203/rs.2.18813/v1

SUBJECT AREAS  Geriatrics & Gerontology

KEYWORDS  Quality of life, Social Support, Functionality, Spirituality
Abstract

Background: Study older adults’ quality of life is becoming increasingly important in the assessment, quality improvement and allocation of health and social care service. The purpose of this study was to enhance knowledge on the relationship between modifiable (psychological variables) and non-modifiable variables (sociodemographic), and quality of life in elderly, in order to inform social, health and education policies.

Methods: This is a cross-sectional study, including 604 older adults from general community. 63.6% of the sample was composed by female gender with a mean age of 71.6(SD=4.81). Participants completed the following instruments: Barthel Index to assess functionality; Satisfaction with Social Support Scale to assess social support; The Spiritual and Religious Attitudes in Dealing with Illness to assess spirituality and Short Form Health Survey 36, to assess mental and physical quality of life.

Results: A path analysis model was performed where the presence of a chronic disease, age and functionality has a direct effect on physical quality of life and spirituality had a direct effect on mental quality of life. Social support mediated the relationship between functionality and mental quality of life, and in turn, functionality mediated the relationship between age and physical quality of life.

Conclusions: Results reinforce the effect of age and chronic disease as non-modifiable variables as well as functionality, spirituality and satisfaction with social support as modifiable variables, in the quality of life of older people. Social support, health and education programs in the community should be promoted in order to improve quality of life in this population. Strategies to promote functionality and
enhance the social support network, especially in the elder with chronic illness, should be a priority. Keywords: Quality of life, Social Support, Functionality, Spirituality.

Background

The introduction of the concept of quality of life (QoL) as a measure of health outcome emerged in the seventies, in the context of medical progress. The increasing prevalence of chronic diseases, with a high incidence in the elderly population, required a focus on the effectiveness of clinical interventions (therapeutic interventions) but also on patient well-being [1].

World Health Organization (WHO), defined QoL as “an individual’s perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns” [2] (WHOQOL Group 1994). This definition includes six major domains: (1) physical health, (2) psychological status, (3) levels of independence, (4) social relationships, (5) environmental characteristics, and (6) spiritual standards. Therefore, QoL depends on intrinsic and extrinsic factors, varying from individuals and being subject to influences of their daily life, environment, habits and lifestyle. In order to have a good QoL, individuals’ need to function well, fulfilling their role and social functions in a satisfactory way [4].

There is a consensus that social support is a multidimensional concept where different dimensions have different impact on individuals. The perception of satisfaction with social support reflects on elderly’s health [5] and it is an important indicator of health-related quality of life [6]. Older adults with lower social support reported lower health status being social support a strong predictor of mortality in
elderly [7]. According the literature, in elderly people perception of satisfaction with social support was a positive relationship with quality of life [8] being also, predictor variable of quality of life [9-10].

The concept of spirituality is extremely general [11] anchored in subjective reasons and influenced by each person's life experiences. It may involve a set of practices and rituals, prescribed by a religious doctrine or a set of beliefs of the order of the transcendent or supernatural, and represents a fundamental variable for spiritual health and quality of life in the third age.

Several studies [11-12] have shown the relationship between spirituality and mental health. Although the results cannot be applied to all social groups of the elderly, but there is relative scientific support for these relationship [13], in order to improve the quality of life, promote social exchanges and social life, give meaning to life, help face the finitude of life and promote a positive attitude towards aging. The belief in the transcendent or in the divine represents an important dimension for the quality of life in the third age, contributing to the meaning of life, to resilience to difficulties, acting positively as a factor of health promotion [11]. Therefore, the present study it was to enhance knowledge on the relationship between psychological variables such as social support, functionality and the spirituality and sociodemographic variables, and quality of life in elderly, in order to promote social support, health and education policies adjust to the elderly people needs.

Methods

**Study design and sample**

This is a cross-section study performed in older people collect in the North of...
Portugal. After the authorization of the National Commission of Data Protection, the research team contacted several institutions of support to elderly in community in order to obtain authorization for the data collection. The data collection was also conducted in two Heath Institutions, in the Private Hospital de Paredes and University Clinic of CESPU, after the Clinical Direction committee approved the study protocol.

Participants participated voluntarily, were informed about the study aims and signed an informed consent elaborated in accordance with the Declaration of Helsinki.

The data collection took place between March and September of 2017. The questionnaires were applied by research group in the institutions where the elderly people attended.

The sample was composed by 604 older people residents in the North of Portugal (Tâmega and Sousa Region), 63.6% were female gender with an average age of 71.6 (SD = 4.81) and with one to four years of schooling (92.7%). Most of the sample was married (67.2%), living with the marital partner (57%), included in a nuclear family (22.3%). Table shows the sample characterization.

Measures

Sociodemographic questionnaire. Participants completed background information about demographic (age, educational level, marital and occupational status, family characteristics) and clinical data (presence of chronic diseases, medication).

The Barthel Index [14,15] assess the degree of functionality and focuses on physical disability. It comprises 10 items rated on a Likert 4-points scale (0 to 3). A higher score indicates higher functionality. According to the Portuguese version, the cut off score of 60 indicate greater functionality. In this study, the alpha was .74.
The Spiritual and Religious Attitudes in Dealing with Illness [16,17] assess how spirituality helps dealing with this chronic disease. It comprises 15 items rated on a Likert 5-point scale (1 to 5). A higher score indicates higher spirituality. In this study, the alpha was .95.

The Satisfaction with Social Support Scale [18] assess satisfaction with social support. It comprises 15 items rated on a Likert 5-point scale (1 to 5). A higher score indicates higher satisfaction with social support. In this study, the alpha was .86.

Short Form Health Survey (SF-36). This inventory assesses the quality of life [19] and the Portuguese version of Ferreira [20,21] was used. This scale assesses two summary measures of quality of life: The Physical Quality of Life (PQL) and the Mental Quality of Life (MQL) and comprises eight scales of the concept Health Related Quality of Life (HRQoL): Physical functioning (PF), Role limitation due to physical health (RLP), Body pain problems (BP), General health perception (GH), Vitality (VT), Social functioning (SF), Role limitation due to emotional functioning (RE) and Mental health (MH). The first four scales reflect the perception of physical health status, and the following four the perception of psychological well-being. The instrument includes 11 items and 36 questions where each scale provides a sub score. The scores in each domain are transformed into measurements on scales of 0 to 100 and a high score indicates a good HRQoL in PQL and MQL.

Results

Statistical analysis

Data were analysed using the IBM SPSS ® software, version 24.0. In order to characterize the sample, descriptive statistics were performed through means and
frequencies. Path analysis was used to determine the pathways by which the psychological, sociodemographic and quality of life, interact to influence physical and mental quality of life. Path analysis allows obtaining direct and indirect effects between the variables and an indication of the overall suitability of the model. In the first model, gender was including in the model. However, as the model did not present a good fit, the variable was deleted from the model, and a second model was tested. To determine the adequacy of the model Chi-Square Test fit value was examined taking into consideration the sample size [22]. As the significance of a chi-square test is dependent on the number of participants, other goodness-of-fit indexes were also used. Chi square/degree of freedom ratio (CMIN/DF) (<.5); goodness-of-fit statistic (GFI) and comparative fit index (CFI) and AGFI (>0.95 suggesting good fit), and root mean square error of approximation (RMSEA) (>0.05 suggesting good fit) [23,24]. Based on multivariate Lagrange Multiplier (LM) tests, post-hoc modifications to the proposed model were made to add new paths as necessary. The significance of all direct and indirect effects was evaluated to determine which variables had a direct and indirect impact on mental and physical quality of life. Standardized beta coefficients (β) were derived for each explanatory variable to allow for the comparison and estimation of the relative importance of each measure. The $R^2$ value was calculated for the outcome variables to determine the proportion of variance explained by the model [22]. Mediation analyses were evaluated by analysing the significance of the indirect effect between predictors and adjustment components by bootstrapping [25]. Significance level was set at 0.05. Path analysis was performed in IBM SPSS Amos ® software, version 23.

Path analysis Model

The multivariate linear regression final model for the mediation showed a good
global adjustment: Fit indices: $\chi^2_{(9)} = 39.6 (p < .001)$; $\chi^2 / df = 4.40$; GFI = 0.982; AGFI = 0.944; CFI = 0.967; RMSEA = 0.075 (90% CI = (0.52; 1.00)). R-square indicates that this model (Figure 1) can explain 26% of the variance in MQL and 66% of the variance in PQL.

The final model shows that the presence of a chronic disease ($\beta = -.075, p = .01$) and age ($\beta = -.104; p < .001$) has a direct effect on physical quality of life. Spirituality is the only variable to have a direct effect on mental quality of life ($\beta = -.074, p = .034$). Also, age has a direct effect on functionality ($\beta = -.161; p < .001$), which in turn, has direct effect on physical quality of life ($\beta = .118; p < .001$). Mental quality of life has a direct effect in physical quality of life (($\beta = .747; p < .001$). Functionality has an indirect effect in mental quality of life being mediated by social support ($\beta = .059; p < .01$). Age has an indirect effect in physical quality of life being mediated by functionality ($\beta = -.047; p < .01$) (Table 2).

Discussion

Although aging is considered above all a biological process, aging with quality of life is a biopsychosocial process. In fact, old age does not merely portray only a biological landmark. This is a life period characterized by marked social and psychological transformations, where various social and contextual factors interact: life conditions, family situation, support structures, personal expectations, among others [26]. In this context, aging and the way it is experienced by everyone is a process of great complexity, of individual experiences, deeply marked and influenced by external factors.

Therefore, the promotion of QoL in elders is a challenge for health and social care professionals. In order to understand the simultaneous relationship between
modifiable (psychological variables) and non-modifiable variables (sociodemographic), and QoL in the elderly, a path analysis model was performed in order to guide and inform social, health and education policies.

As expected, individual characteristics showed a direct impact on physical and mental QoL. The presence of chronic disease had a negative impact on the PQL [27] and is inversely associated with quality of life in the different domains: the elderly without any diseases present a significantly better quality of life [28] as well as the age of the individuals, i.e., older individuals had lower MQL. Being aging as a biological process this result makes an intuitive sense [29–31].

Interestingly, spirituality was the only variable to have a negative direct effect on MQL, emphasizing the role of spirituality on mental quality of life. In the face of aging, the difficulties inherent in the aging process and the inevitable sense of finitude, spirituality and religion appear as a support that helps the elderly to counter the tendency to isolation and overcome the problems of daily life [26].

In this study, was evaluated the how spirituality helps dealing with this chronic disease, and, although most of this population reported having a chronic illness, however it is verified that their degree of autonomy is high. Thus, this chronic disease doesn’t cause or increase disability allowing the maintenance of the capacity to carry out their daily tasks. In fact, this older people don’t feel the need to search in God or in High power the support for adjust, find a meaning and understand her disease [9].

However, functionality showed an indirect effect in MQL being mediated by social support. Social support is a recognized mediator between functional status and QoL [32, 33], being a resource to reduce adverse outcomes in older adults. Social support was a mediator between functional status and MQL emphasizing the
importance to promote this resource in this population. Formal and informal groups are a way to enhance social participation, which has been pointed as an effective factor to improve the mental health of the older people [34]. Older adults who perceive a high social support show beneficial effects on enjoyment, morale, depression and loneliness [35].

Finally, in this model, the mental quality of life had a direct effect on physical quality of life of individuals. This result is interesting given that this relationship should be bidirectional but, in this sample, it seems that MQL affects PQL and not on the other way.

The results reinforce the need to address the individuals with chronic diseases, with a systematic and individualized social and health care.

Physical activity should be promoted by institutions social network for the elderly as well as in the community such as churches and community gyms, in order to improve functionality and skills for daily activities due to the direct effect on PQL. Several studies have suggested that the level of physical activity recommended by WHO has a positive impact on QoL [36], especially with effects on general health, social function and mental health [37]. In addition, physical activity may protect against the cognitive decline characteristic of this population [38].

Finally, the fact that MQL affects PQL indicates that emotional well-being is an important topic to include in quality of life promotion programs for the elderly. Emotional support groups and leisure activities are healthy lifestyles that should be included in interventions programs [39]. Strategies such as reminiscence, theater, etc., can be productive in promoting the quality of mental life. In addition, social relations and leisure activities are associated with better health in the elderly [40]. These results highlight the importance of developing psychosocial intervention
programs and at the level of health promotion that include strategies to develop functionality and social support in order to improve the quality of life of the elderly. This study has some limitations that must be acknowledge. The sample is limited to a geographical area where socio-cultural characteristics of urban and rural nature are mixed, that is, this area cannot be classified as entirely rural or urban, giving rise to limitations in extrapolating results to entirely urban or rural areas. The population surveyed, being representative of the Tâmega and Sousa region, is not representative of the country.

Other limitations stem from the extent of the survey applied. The data collection instrument used involved some extension, becoming difficult to apply and demanding attention to the respondents, which given the characteristics of low education of the population under study caused some difficulties in the interpretation of the questions. However, this study represents an important contribution to the identification of the main social and clinical characteristics of the elderly population of a zone of the interior of Portugal that demands answers adapted to their needs.

However, this study represents an important contribution to the identification of the main social and clinical characteristics of the elderly population of a zone of the interior of Portugal that demands answers adapted to their needs.

Conclusion

This study contributed for understand the variables who influence in quality of life of older people in the Tâmega and Sousa region in North of Portugal, that is a region where the incidence of chronic diseases is high. The finding showed that in elderly have chronic diseases reduce the physical and mental QoL, being more evidence
this reduction in the older ones, as expected. Other fact is the importance and the role of social support in the increase of functionality and increase the quality of life. The social support mediated the relationship between the functionality and physical quality of life reinforce the importance to developed psychosocial and health programs in region that include physical activity and a social active life. These results will contribute, in the future, to the development of psychosocial guidelines and health measures and in the social network that improve the quality of life of the elderly.

Declarations

**Ethics approval and consent to participate**

All procedures performed in studies were in accordance with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Written informed consent was obtained from all participants included in the study.

**Consent for publication**

Not applicable

**Availability of Data and Material**

The datasets used during the current study are available from the corresponding author on reasonable request.

**Funding**

This study was supported by CESPU_Institute of Research and Advanced Training in Health Sciences and Technologies (reference PESQVITS_CESPU). The publication charges for this article have been funded by a grant from the publication fund by CESPU_Institute of Research and Advanced Training in Health Sciences and Technologies.
**Competing interests**

The authors declare that they have no competing interests.

**Authors’ contributions**

All authors have de collect of the sample.

SF, RE e CM conceived and designed the study. AT and SL performance the statistical analysis. SL e LT wrote the first draft of the manuscript and RE, CM and AT mostly involved in several revisions of the manuscript. SL, RE e FB provided critical comments and joined other authors in revising the manuscript and approving the final submission. All authors have read and approved the manuscript in its current state.

**Acknowledgements**

The authors gratefully acknowledge the contributions of all participants in this study and the funding by CESPU, Institute of Research and Advanced Training in Health Sciences and Technologies.

**Abbreviations**

Body pain problems (BP)

Chi square/degree of freedom ratio (CMIN/DF)

Comparative fit index (CFI)

General health perception (GH)

Goodness-of-fit statistic (GFI)

Health Related Quality of Life (HRQoL)

Lagrange Multiplier (LM)

Mental Quality of Life (MQL)

Mental health (MH)
Physical Quality of Life (PQL)

Physical functioning (PF)

Role limitation due to emotional functioning (RE)

Role limitation due to physical health (RLP)

Satisfaction with Social Support Scale (SSSS)

Short Form Health Survey (SF-36).

Social functioning (SF),

Spiritual and Religious Attitudes in Dealing with Illness (SpREUK)

Vitality (VT)

References

1. Paúl MC, da Fonseca, AM. Psicossociologia da saúde. Climepsi. Lisboa; 2001

2. WHOQoL Group. The World Health Organization quality of life assessment (WHOQOL): position paper from the World Health Organization.

3. Soc Sci Med. 1995, 41(10): 1403-1409.

4. Fleck MDA. Problemas conceituais em qualidade de vida. A avaliação de qualidade de vida: guia para profissionais da saúde. Porto Alegre: Artmed, 2008, 19-28.

5. Santos CSVDB, Ribeiro JLP, Lopes C. Estudo de adaptação da Escala de Satisfação com o Suporte Social (ESSS) a pessoas com diagnóstico de doença oncológica. Psicologia, Saúde & Doenças. 2003, 4(2):185-204.

6. Costa DC, Sá MJ, Calheiros JM. Rede de apoio social e qualidade de vida de pacientes com esclerose múltipla. Arquivos de Neuro-Psiquiatria. 2017, 75(5): 267-271.

7. White AM, Philogene GS, Fine L, Sinha S. Social support and self-reported
health status of older adults in the United States. Am J Public Health. 2009, 99(10): 1872-1878.

8. Unsar S, Erol O, Sut N. Social Support and Quality of Life Among Older Adults. International Journal of Caring Sciences. 2016, 9(1): 249-257.

9. Mahmoud AS, Berma AE, Gabal SAAS. Relationship between social support and the quality of life among psychiatric patients. Journal of Psychiatry and Psychiatric Disorders. 2017, 1(2): 57-75.

10. Lima S, Gago M, Garrett C, Pereira MG. Predictors and Moderators of Quality of Life in Alzheimer’s Disease Patients. J. Alzheimers Dis. 2016, 54(3): 1113-1121.

11. Şahin DS, Özer Ö, Yanardağ MZ. Perceived social support, quality of life and satisfaction with life in elderly people. Educational Gerontology. 2019, 45(1): 69-77.

12. de Assis CL, Gomes JM, Zentarski LDOF. Religiososidade e qualidade de vida na terceira idade: uma revisão bibliográfica a partir da produção científica. REVER-Revista de Estudos da Religião. 2013, 13(2): 119-148.

13. Lucchetti G, Lucchetti ALG, Peres MF, Leão FC, Moreira-Almeida A, Koenig HG. Validation of the duke religion index: DUREL (Portuguese version).

14. J Relig Spiritual Aging. 2012, 51(2): 579-586.

15. Shaw R, Gullifer J, Wood K. Religion and spirituality: A qualitative study of older adults. Ageing International. 2016, 41(3): 311-330.

16. Mahoney FI, Barthel DW. Functional Evaluation: The Barthel Index. Maryland State Medical Journal. 1965, 14: 61-66.

17. Araújo F, Ribeiro JLP, Oliveira A, Pinto C. Validação do Índice de Barthel numa amostra de idosos não institucionalizados. [Validation of Barthel Index in a portuguese sample of erderly persons not institutionalized]. Rev. Port. Sau.
18. Büssing A, Ostermann T, Matthiessen PF. Role of religion and spirituality in medical patients: Confirmatory results with the SpREUK questionnaire. Health and Quality of Life Outcomes. 2004,3(10):1-10.

19. Pereira MG, Vilaça M, Pedras S, Vieira S, Lima S. (2019). Validation of the spiritual and religious attitudes in dealing with illness (SpREUK) in Portuguese Alzheimer’s patients. Journal of Religion, Spirituality & Aging. 2019,1-16.

20. Ribeiro JLP. Escala de Satisfação com o Suporte Social (ESSS). Análise Psicológica. 1999,3(17):547-558.

21. Ware JE, Keller SD, Gandek B, Brazier JE, Sullivan M. Evaluating translations of health status questionnaires. Methods from the IQOLA Project. Int J Technol Assess Health Care. 1995,1(3): 525-551.

22. Ferreira PL. Criação da versão Portuguesa do MOS SF-36: Parte I – Adaptação cultural e linguística. 2000, Acta Médica Portuguesa. 13:55-63.

23. Ferreira PL, Ferreira LN, Pereira LN. Medidas sumário física e mental de estado de saúde para a população portuguesa. Revista Portuguesa de Saúde Pública. 2012,30(2):163-171.

24. Kline, R. B. (2011). Principles and practice of structural equation modeling. New York, NY: Guilford Press.

25. Hooper D, Coughlan J, Mullen M. Evaluating model fit: a synthesis of the structural equation modelling literature. In 7th European Conference on research methodology for business and management studies. 2008, (pp. 195-200).

26. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation
modeling: a multidisciplinary journal. 1999, 6(1): 1-55.

27. Preacher KJ, Kelley K. Effect size measures for mediation models: quantitative strategies for communicating indirect effects. Psychological methods, 2011, 16(2): 93-115.

28. Braga IB, Braga EB, de Araújo Oliveira MC, Guedes JD. A percepção do Idoso sobre a Saúde e Qualidade de Vida na Terceira Idade. Id on Line Revista de Psicologia. 2015, 9(26): 211-222.

29. World Health Organization. World Health Statistics 2017: Monitoring health for the SDGs. 2017
https://www.who.int/gho/publications/world_health_statistics/2017/en/. Accessed 20 Sept 2019.

30. Dawalibi NW, Goulart RMM, Prearo LC. Fatores relacionados à qualidade de vida de idosos em programas para a terceira idade. Ciência e Saúde Coletiva. 2014, 19 (8): 3505-3512.

31. Sorond FA, Cruz-Almeida Y, Clark DJ, Viswanathan A, Scherzer CR, De Jager P, Csiszar A, Laurienti PJ, Hausdorff JM, Chen WG, Ferrucci L. Aging, the central nervous system, and mobility in older adults: neural mechanisms of mobility impairment. J. Gerontol. A Biol. Sci. Med. Sci. 2015, 18;70(12):1526-32.

32. Gonçalves LC, de Souza Vale RG, Barata NJF, Varejão RV, Dantas, EHM. Flexibility, functional autonomy and quality of life (QoL) in elderly yoga practitioners. Archives of Gerontology and Geriatrics. 2011, 53(2):158-162.

33. Pernambuco CS, Rodrigues BM, Bezerra JC, Carrielo A, Fernandes AD, Vale R, Dantas E. Quality of life, elderly and physical activity. Health. 2012, 1;4(2):88-93.

34. Newsom JT, Schulz R. Social support as a mediator in the relation between
functional status and quality of life in older adults. Psychology and aging, 1996, 11(1): 34-39.

35. Wedgeworth M, LaRocca MA, Chaplin WF, Scogin F. The role of interpersonal sensitivity, social support, and quality of life in rural older adults. Geriatric Nursing. 2017, 38(1): 22-26.

36. Rashedi V, Gharib M, Yazdani AA. Social participation and mental health among older adults in Iran. Iran. J. Public Health. 2014, 12(1): 9-13.

37. DuPertuis LL, Aldwin, CM, Bossé R. Does the source of support matter for different health outcomes? Findings from the Normative Aging Study. J Aging Health 2001, 13(4): 494-510.

38. Krzepota J, Biernat E, Florkiewicz B. The relationship between levels of physical activity and quality of life among students of the university of the third age. Cent Eur J Public Health. 2015, 23(4): 335-39.

39. Ludendorff Queiroz L, Silveira de Brito C, Gomes de Almeida F, Martins Pereira N, de Almeida Silva H, Pena Porto J, ... & Marques Ribas R. Quality of life and impact of physical activity time in the health of elderly. Rev Fac Ciênc Méd Sorocaba. 2016, 18(1):24-29.

40. Wang HX, Jin Y, Hendrie HC, Liang C, Yang L, Cheng Y, Unverzagt FW, Ma F, Hall KS, Murrell JR, Li P. Late life leisure activities and risk of cognitive decline. Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences. 2012;68(2):205-213.

41. Hutchinson SL, Nimrod G. Leisure as a resource for successful aging by older adults with chronic health conditions. The International Journal of Aging and Human Development. 2012, 74(1):41-65.

42. Chang PJ, Wray L, Lin Y. Social Relationships, Leisure Activity, and Health in
Tables

Table 1

Sociodemographic and clinical characteristics of the sample

| Categorical variables       | % (n)   |
|-----------------------------|---------|
| Gender (female)             | 63.6 (384) |
| Marital Status              |         |
| Single                      | 6.6 (40) |
| Married                     | 67.2 (406) |
| Divorced                    | 1.2 (7)  |
| Widow                       | 25.0 (151) |
| Education Level             |         |
| Illiterate                  | 4.6 (28) |
| 1 a 4 years                 | 92.7 (560) |
| 5 a 12 years                | 2.5 (14) |
| >12 years                   | 0.3 (2)  |
| Co-habitation status        |         |
| Partner                     | 57.0 (343) |
| Nuclear Family              | 22.3 (134) |
| Extended family             | 3.2 (19) |
| Institution / Senior Residence | 0.8 (5) |
| Alone                       | 9.1 (55) |
| Alone with assistance neighbour | 1.5 (9) |
| Alone with support of institution | 3.2 (19) |
| Alone without help          | 3.0 (18) |
| Continuous variable         | M(SD)   |
| Age                         | 71.60 (4.81) |

Table 2

Standardized indirect effects for the mediation

| Variables | Indirect Effect | CI95% | Lower | Upper |
|-----------|-----------------|-------|-------|-------|
| Predictor | Mediator        | Outcome |       |       |
| Functionality | Social support | Mental quality of life | .059 | .096 | .258 |
| Age       | Functionality   | Physical quality of life | -.047 | -.018 | -.078 |

** p < .01

CI95% = Bootstrap bias-corrected confidence interval at 95% (1000 samples)
Figures

Figure 1

Path analysis with standardized direct effects CI 95% = bias-corrected bootstrap