PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Does a hospital admission in old age denote the beginning of life with compromised health-related quality of life? A longitudinal study of men and women above the age of 65 participating in the Stockholm Public Health Cohort.
AUTHORS	Karampampa, Korinna; Frumento, Paolo; Ahlbom, Anders; Modig, Karin

VERSION 1 - REVIEW

REVIEWER	Gopal Netuveli Institute of Health and Human Development, UEL, UK
REVIEW RETURNED	05-Jan-2016

GENERAL COMMENTS	The authors in this paper test whether hospitalisation can be used as "a marker for shift from a life in full health into living with compromised health".[Page 4 Line s 51-52] They do so using good quality data and appropriate analyses. However implicit in that aim is the idea that any compromise on health will lead to hospitalisation. This is evidently not true. Health can be compromised without leading to hospitalisation. This assumption has affected their endeavour to causally link hospitalisation to poor quality of life because they used hospitalisation criterion in selecting their sample without considering presence of diseases without hospitalisation. The causal arrow is more often drawn from HRQoL to hospitalisation (Dorr et al. 2006; Inoue et al. 2008). Most of the literature cited to justify their study aim are self references, probably because the direction of relationship used in this paper is not commonly used. (A quick search revealed another paper: Reynolds et al. 2010). The results need to be revised or reinterpreted keeping the effect of this assumption. Surprisingly the authors have used weights from a UK study for their EQ5D calculations while an European standard is available (Greiner et al. 2003). Dorr et al. Use of Health-Related, Quality-of-Life Metrics to Predict Mortality and Hospitalizations in Community-Dwelling Seniors. Journal of the American Geriatrics Society. 2006 Apr 1;54(4):667-73. Greiner et al. A single European currency for EQ-5D health states. Results from a six-country study. Eur J Health Econ. 2003 Sep;4(3):222-31. Inouye et al. Risk factors for hospitalization among community-dwelling primary care older patients: development and validation of a predictive model. Medical care. 2008 Jul;46(7):726. Reynolds et al. Impact of hospitalization on health-related quality of life in atrial fibrillation patients in Canada and the United States:

	results from an observational registry. American heart journal. 2010 Oct 31;160(4):752-8.

REVIEWER	Ann Bowling University of Southampton, UK
REVIEW RETURNED	08-Mar-2016

GENERAL COMMENTS	Does a hospital admission in old age indicate the beginning of life with compromised quality of life? The paper is very clear grammatically. However, it needs rewriting with conceptual clarity, and appropriate references to justify choice of measure and concept/s, before publication. The title is strangely worded and could be simplified and shortened. As the paper itself related to HRQoL and not generic quality of life (QoL) (as in the title) the title needs changing to HRQoL to reflect this distinct (and quite different) concept. The question was addressed using data from a longitudinal study in Stockholm (2006-10) of 2101 people aged 65+ with no previous hospitalisations followed up for 4 years, with QoL self-reported at baseline and 4 years later, and data from admissions from national registers. The results suggested multiple but not single admissions reduced 'health-related quality of life (HRQoL)'; in particular hip fractures (the authors noted small sample sizes for other conditions 'impeded' conclusions). The Conclusion in the abstract noted the shift from 'a healthy life into a life of compromised health…'. This neither relates to QoL nor HRQoL but to the distinct concept of health. The Strengths and limitations section also switches randomly (e.g. 2nd line from end) between the different concepts of QoL and HRQOL. The paper leads to conceptual confusion and clarification is needed, and conceptual consistency should be aimed for throughout. HRQoL was measured using the EuroQol EQ5D. But this instrument – designed as a utility measure for use in economic evaluation - measures health status, not HRQOL – and the 5 domains are single item and very narrow: mobility, self-care, usual activities, pain/discomfort and anxiety/depression; each of the five dimensions has just 3 levels: no problems, some problems, extreme problems. It is frequently mislabelled and misused as a measure of HRQoL. These authors describe it as ' …a generic HRQoL instrument providing a multidimensional description of health…through a utility index…' (p4). I refer the authors to the instrument's website www.euroqol.org/ which clearly states that is: 'Applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status.' In this context (of conceptual and measurement confusion) the author's switch to discussing health status, especially in the Conclusions, rather than HRQoL, suddenly makes sense. The

	authors need to justify their choice of instrument, and rephrase the title and wording of the paper throughout in order to avoid furthering conceptual confusion between QoL, HRQoL and health status. The analyses are straightforward in terms of change 'in utility' and sensitivity analyses. Minor: Frequent reference is made to 'the elderly'. This is widely regarded as a disrespectful term, and should be replaced with 'older people' or 'respondents', as appropriate.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: Gopal Netuveli
Institution and Country: Institute of Health and Human Development, UEL, UK
Competing Interests: None declared

Comment #1: The authors in this paper test whether hospitalization can be used as "a marker for shift from a life in full health into living with compromised health".[Page 4 Line s 51-52] They do so using good quality data and appropriate analyses. However implicit in that aim is the idea that any compromise on health will lead to hospitalization. This is evidently not true. Health can be compromised without leading to hospitalization. This assumption has affected their endeavor to causally link hospitalization to poor quality of life because they used hospitalization criterion in selecting their sample without considering presence of diseases without hospitalization.

Answer to comment #1: Thank you for your comment. We agree that the assumed link between hospitalization and health-related quality of life (HRQoL) was not clearly described in the paper. The reviewer is correct that health may be comprised even without being hospitalized. In this paper, however, the idea was to investigate if there was any observed decline in HRQoL sometime after a hospital admission. This is because a first hospital admission can be seen as a transition from a healthy state to an unhealthy state. All individuals are free of hospitalization from start, and we adjust for their baseline value of HRQoL, so it is already taken into account that even individuals that are not hospitalized could have a decline in their HRQoL. Further, to be hospitalized at least 1 night implied that the subject, which is an older individual, most likely have impaired health. This of course does not mean that everyone not hospitalized would be healthy. However, any such case would dilute our finding, so in realty the association between these two measures may be stronger than the one we observe. We have now tried to clarify this better in the text to avoid confusion.

Comment #2: The causal arrow is more often drawn from HRQoL to hospitalization (Dorr et al. 2006; Inoue et al. 2008).

Answer to comment #2: This is true; this association can be investigated from both ways. There are studies that focus on how disease or impaired health in general, represented by HRQoL estimates, would lead to a hospitalization. However, we wanted to see how the association would work, studying it the other way around, that is from a hospitalization to HRQoL, in order to explore whether a hospitalization could be considered a marker for the shift from healthy living to living with impairment. We have a study with a longitudinal design and the possibility to have hospitalization-free individuals at baseline, which is appropriate with the direction of the association we study.

Comment #3: Most of the literature cited to justify their study aim are self-references, probably

because the direction of relationship used in this paper is not commonly used. (A quick search revealed another paper: Reynolds et al. 2010). The results need to be revised or reinterpreted keeping the effect of this assumption.

Answer to comment #3: Thank you for your suggestion; we have added this paper to our references. To our knowledge, our study is the first one conducted in Sweden that uses this methodology to estimate the association between hospitalization and HRQoL. Therefore, we tried to compare our findings with other type of studies conducted in the country; the studies that we use as comparators do not use exactly the same methodology as ours, but results can be comparable.

Comment #4: Surprisingly the authors have used weights from a UK study for their EQ5D calculations while an European standard is available (Greiner et al. 2003).

Answer to comment #4: In the absence of relevant weights for the Swedish population, we have chosen to use the next best alternative that is UK population-based weights. Our choice is also based on experience conducting these types of studies within Sweden and Europe where the UK population-based weights are also used. The European alternative is a methodology for analysis that is not compatible with our data (we do not have EQ5D VAS scores) and therefore could not be employed; this is also the case for many other HRQoL studies conducted within Europe that in the absence of national weights use UK weights (and not the European suggestion).

Reviewer: 2
Reviewer Name: Ann Bowling
Institution and Country: University of Southampton, UK
Competing Interests: None declared

Comment #1: The paper is very clear grammatically. However, it needs rewriting with conceptual clarity, and appropriate references to justify choice of measure and concept/s, before publication. The title is strangely worded and could be simplified and shortened. As the paper itself related to HRQoL and not generic quality of life (QoL) (as in the title) the title needs changing to HRQoL to reflect this distinct (and quite different) concept.

Answer to comment #1: Thank you for this observation; we have now made the appropriate change in the title and in the manuscript.

Comment #2: The question was addressed using data from a longitudinal study in Stockholm (2006-10) of 2101 people aged 65+ with no previous hospitalizations followed up for 4 years, with QoL self-reported at baseline and 4 years later, and data from admissions from national registers. The results suggested multiple but no single admissions reduced 'health-related quality of life (HRQoL)'; in particular hip fractures (the authors noted small sample sizes for other conditions 'impeded' conclusions). The Conclusion in the abstract noted the shift from 'a healthy life into a life of compromised health…'. This neither relates to QoL nor HRQoL but to the distinct concept of health. The Strengths and limitations section also switches randomly (e.g. 2nd line from end) between the different concepts of QoL and HRQOL. The paper leads to conceptual confusion and clarification is needed, and conceptual consistency should be aimed for throughout.

Answer to comment #2: We use different, but very closely related, concepts in the paper to be able to shift the focus from a very specific finding (utility decrease) to a more general interpretation where we could explain the conclusions of the study. We have now tried to clarify (and clearly stated) this in the manuscript and hopefully conceptual confusion is avoided.

Comment #3: HRQoL was measured using the EuroQol EQ5D. But this instrument – designed as a

utility measure for use in economic evaluation - measures health status, not HRQOL – and the 5 domains are single item and very narrow: mobility, self-care, usual activities, pain/discomfort and anxiety/depression; each of the five dimensions has just 3 levels: no problems, some problems, extreme problems. It is frequently mislabeled and misused as a measure of HRQoL. These authors describe it as ' …a generic HRQoL instrument providing a multidimensional description of health…through a utility index…' (p4). I refer the authors to the instrument's website www.euroqol.org/ which clearly states that is: 'Applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status.' In this context (of conceptual and measurement confusion) the author's switch to discussing health status, especially in the Conclusions, rather than HRQoL, suddenly makes sense. The authors need to justify their choice of instrument, and rephrase the title and wording of the paper throughout in order to avoid furthering conceptual confusion between QoL, HRQoL and health status.

Answer to comment #3: Thank you for this observation. Indeed, the EQ5D instrument measures health status; however, since it is possible to translate this health status in utility, which refers to HRQoL, many studies, as mentioned, state that EQ5D measures HRQoL. This indeed is a miss-statement, which we have now clarified better in our text.

Comment #4: Frequent reference is made to 'the elderly'. This is widely regarded as a disrespectful term, and should be replaced with 'older people' or 'respondents', as appropriate.

Answer to comment #4: Thank you for your suggestion, we have now revised our manuscript accordingly.