Author's response to reviews

Title: A cross-sectional survey to investigate the quality of care in Tuscan (Italy) nursing homes: the structural, process and outcome indicators of nutritional care.

Authors:

Guglielmo Bonaccorsi (guglielmo.bonaccorsi@unifi.it)
Francesca Collini (francesca.collini@ars.toscana.it)
Mariangela Castagnoli (mariangela.castagnoli@virgilio.it)
Mauro Di Bari (mauro.dibari@unifi.it)
Maria Chiara Cavallini (mariachiara.cavallini@unifi.it)
Nicoletta Zaffarana (nicoletta.zaffarana@alice.it)
Pasquale Pepe (pasquale_pepe1@virgilio.it)
Alessandro Mugelli (alessandro.mugelli@unifi.it)
Ersilia Lucenteforte (ersilia.lucenteforte@unifi.it)
Alberto Vannacci (alberto.vannacci@unifi.it)
Chiara Lorini (chiara.lorini@unifi.it)

Version: 5  Date: 24 March 2015

Author's response to reviews: see over
Florence, 23 March 201

**Object:** Submission of the revised manuscript entitled “A cross-sectional survey to investigate the quality of care in Tuscan (Italy) nursing homes: the structural, process and outcome indicators of nutritional care.” (Authors: Guglielmo Bonaccorsi, Francesca Collini, Mariangela Castagnoli, Mauro Di Bari, Maria Chiara Cavallini, Nicoletta Zaffarana, Pasquale Pepe, Ersilia Lucenteforte, Alfredo Vannacci, Chiara Lorini)

Dear Editor, Dear Reviewers,

thank you for your comments, that have allowed us to improve our paper. Below the point-by-point response to the concerns. Changes in the main test are in red. We look forward to the referees’ new evaluation, in the hope of a positive reply as to acceptability for publication.

Chiara Lorini and the Co-Authors

**Response to reviewer 1 (Felipe Sandoval)**

*Title*

*Line 1*

_The authors should think of a different title, as the one presented, phrased as a question that could be answered immediately does not seem appropriate._

The title has been changed

*Introduction*

*Paragraph 1*

*Line 64*

_The authors should explain the context in which the concepts of effectiveness, efficiency, safety, equity, and appropriateness take place, regarding quality of care (macro, meso, etc.) and explain how and why is this relevant to the present study, please._

Some information have been added, aimed to explain the local and national context regarding quality of care in nursing home.

*Paragraph 1*

*Line 69*

_The emphasis of the authors regarding that structure, process, and outcomes "should" be used in NHs to improve quality of care and life seems misplaced. There are alternatives and modifications to this model as well being considered._

The phrase has been changed.
The authors seem to have established a hypothesis under the assumption that process and structures can be weighted independently (relative weight). However, since these elements are enabling of the element following, this idea seems rather off (Structure enables process, process enables outcome). Finally, there are no references to these relative weights in the results, discussion or conclusions, even though they appear in the introduction.

Regarding this comment, we would like to point out that we have found only two studies (Meijers et al., Clin Nutr 2014, 33: 459-65; van Nie et al, Nutr 2014, 30: 1384-90) where the relationships between process, structural and outcome indicators of nutritional care have been analyzed, while many other studies have been conducted aiming at describing the prevalence of each quality indicators. The two studies have been considered in the discussion.

In our study, we have considered the hypothesis that the outcome is dependent on the process of care and also on structural aspects of care, while we have not considered the fact that the structure influences the process, which in turn influences the outcome, according to other Authors. For this reason, we have performed a random logit model, namely a multilevel model in which inter- and intra- NH possible effects have been considered, using the NH as the clustering variable; the weight of structural and process indicators in predicting the outcome have been calculated as OR.

Methods

The authors could explain if these validations took place in Italy or elsewhere, and add the corresponding reference. In the case of partially included tests explain thoroughly the procedures followed.

For the greater part of the tools the validation took place in Italy, for a few of them elsewhere, as described in the references cited in table 1, where each test or tool has been cited. Some details have been added for what concerns to the selection of partially included tests.

Would you kindly add a formula reference for the random logit model. Also a reference to the criteria to define random and fixed effects.

What was the procedure to set the exclusion criteria for no statistically significant associations. Is this a conditional model?
Would you kindly add the goodness-of-fit of this model, please.

The description of the model, as well as two references, have been added.

Line 183

There are no mentions on what kind of statistical software was used. Especially regarding the multilevel model.

Information about the statistical software have been added.

Results

Paragraph 7

Line 242

The definition of quality indicators seems rather imprecise. Could you elaborate more on the definition used for Quality Indicators in this study as shown in figure 1 (prevalence?) or the selection process, please. Also, there is no clear distinction among structural and process indicators as shown in figure 1.

In Table 1, a column with the list of the selected indicators has been added.

Paragraph 9

Line 320

Since nutritional status may affect the physical functioning of the users, there should be a mention on the cross-sectional design of this study as a limitation.

This limitation has been added at the end of the discussion.

Quality of written English: Not suitable for publication unless extensively edited

The manuscript has been edited by American Journal Expert.

Response to reviewer 2 (Jiro Okochi)

Major points

In Table 3 “Eating I in the bed room” showed the largest OR. However, there was not much discussion about this explanatory valuable. Is it really a proxy of mobility and global health status as written in the line 292? If so, more direct variable such as Barthel scale score should give larger odd ratio. A nursing home that considers eating as an important elderly activity and participation, it is possible to bring the elderly person to the dining hall. If the elderly person eating in the bedroom, this is a kind of restriction, that may result in low activity and participation. If so, this variable is not a personal variable, but a process variable of the NH. To analyze this, a further analysis of interaction among the factors in table 3, especially Barthel scale score and Eating in the bedroom.

The results related to the variable “eating in the bedroom” have been more discussed. In our opinion, this variable reflects only partially the level of physical disability of the subjects. We
think that, based on direct observation, in the NHs included in the study the elderly people who eat in the bedroom are, more frequently, bedridden or affected by either acute diseases or exacerbations of chronic diseases that impede them from moving from the bedroom. This consideration is supported by the fact that the weight of Barthel scale in predicting the outcome is low (OR = 1.01), even if statistically significant. To better understand the relationship between “eating in the bedroom” and “Barthel scale score” and to get confirmation of the above considerations, we have performed a logistic regression analysis, considering “eating in the bedroom” as the dependent variable and “Barthel scale score” as the independent variable. The results are reported below:

Logistic regression                               Number of obs   =       2497
                                    LR chi2(1)      =     283.43
                                    Prob > chi2     =     0.0000
                                    Log likelihood = -609.71431                  Pseudo R2       =     0.1886
********************************************************************************
camera_letto | Odds Ratio   Std. Err.          z           P>|z|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
ccm_barthel_classi |    1.05847     .0053964    11.15   0.000     1.047946      1.0691
    _cons |   .0011334   .00052 46   -14.65   0.000     .0004575    .0028079
********************************************************************************
The logistic regression analysis confirm there is a statistically significant association between the two variables but the strength of the association is low (OR=1.06).

Another, and a major limitation lies in the cross sectional nature of this study. Further study is required to assess the association of the development of the malnutrition using a cohort model. Please describe this limitation in the discussion section.

The limitation related to the study design (cross sectional survey) has been added.

Minor essential revisions.

Line121 The collection of anthropometric measurements and the evaluation of the risk of malnutrition were described in a previous article [10].

This sentence needs to be explained for those who do not have the access to this article. Or you have already explained it in line146?

Yes, the collection procedures for anthropometric measurements were already explained.

Line168 Many of the readers are not familiar with the random intercept logit model. Please describe it briefly in the method section.

The description of the model, as well as two references, have been added.