Author’s response to reviews

Title: Cognitive, functional, physical, and nutritional status of the oldest old encountered in primary care: a systematic review

Authors:

Emile Escourrou (emile.escourrou@dumg-toulouse.fr)
Florence Durrieu (florence.durrieu@dumg-toulouse.fr)
Bruno Chicoulaa (bruno1.chicoulaa1@dumg-toulouse.fr)
Julie Dupouy (julie.dupouy@dumg-toulouse.fr)
Stéphane Oustric (stephane.oustric@dumg-toulouse.fr)
Sandrine Andrieu (sandrine.andrieu@univ-tlse3.fr)
Virginie Gardette (virginie.gardette@univ-tlse3.fr)

Version: 2 Date: 19 Feb 2020

Author’s response to reviews:

FAMP-D-19-00308R1 - BMC Family Practice

Cognitive, functional, physical, and nutritional status of the oldest old encountered in primary care: a systematic review

Emile Escourrou, M.D.; Florence Durrieu, MD; Bruno Chicoulaa, MD; Julie Dupouy, MD PhD; Stéphane Oustric, MD; Sandrine Andrieu, MD PhD; Virginie Gardette, MD PhD

Dear Tillie Cryer,

Dear Claire Goodman, Dear Kirsten Moore,

We sincerely thank you for the time spent in reviewing our work a second time and for allowing us to have the chance to improve it further.

We have taken your remarks into account, and we hope that the changes made meet your expectations.

We are at your disposal for any further corrections in form or substance.
The revisions made, and the entire manuscript were checked by an experienced English editor.

On behalf of all the authors,

Yours sincerely,

E. Escourrou

Dr Emile Escourrou, MD
Faculté de Médecine Rangueil, Université Paul Sabatier
Département Universitaire de Médecine Générale
133 route de Narbonne
31400 Toulouse
France
emile.escourrou@dumg-toulouse.fr
+33 603906615

Reviewer reports:

Claire Goodman (Reviewer 1): Thank you for the opportunity to review the resubmitted manuscript.

The authors have systematically addressed many of the points/comments raised.

We sincerely thank you for your remark and are pleased that the changes meet your expectations.

There are a few phrases that should be corrected or rewritten.

We asked the language editor to correct all the manuscript a second time.

Kirsten Moore (reviewer 2) also pointed out a few sentences that we corrected.

for clarity, e.g. L 283 suggest replace functional functions with physical function and the some of the statements about the implications of the findings.

We agree that the term functional function can be awkward. However, in this manuscript, we studied 4 different dimensions: cognitive, functional, nutritional and physical status. The functional status was based on the evaluation of the ability to realize tasks of daily living, whereas the physical status was based on the physical performance of the oldest old (i.e. gait speed, grip strength). We tried to keep the distinction between these four outcomes throughout
the manuscript, in order to maintain readability. It seemed difficult to replace functional functions with physical functions as you suggest, because it refers to two different notions in this manuscript. Therefore, we would like to suggest the following change: we replaced “functions” by “status”, hoping it would clarify the sentence.

L.281: “Longitudinal and cohort studies appeared to focus mostly on cognitive and functional status.”

We hope this suggestion will be suitable for the reviewer.

Kirsten Moore, PhD (Reviewer 2): Thank you for the opportunity to review this revised version. The revisions to the table have made it easier to interpret and my previous comments have been addressed.

We are pleased that the changes made were considered appropriate.

In the results, on page 12 it would be helpful to indicate whether the MNASF score ranges reported indicate good or poor nutrition on average.

We thank you for this remark that will help the understanding of the manuscript. As it was a score from MNA-SF, the results assessed a risk of malnutrition. MNASF rates from: normal = 12-14, at risk of malnutrition = 8-11, malnourished: < 7. The sentence has been corrected as follows:

L.240: “The mean BMI ranged from 23.68 (SD: 3.96) [27] to 25.1 (SD: 4.1) [42]. The Mini Nutritional Assessment Short Form mean score ranged from 10.3 (SD: 1.8) [34] to 11.1 (SD: 2.4) [28] (a score ≤ 11 indicates a risk of malnutrition).”

Most of my comments relate to the discussion. I find the section 'comparison with younger elderly' confusing. It starts with cognitive impairment, then goes onto the other measures and then goes back to cognitive function.

We apologize if this section appears confusing.

At the first reviewer’s request, in the first revision of the manuscript, we added a section discussing our results among elders aged 90 and over with results issued from the literature for elders aged 65 and over (frail or not). As it was also requested by the first reviewer, we added in a second paragraph a comparison between our results and the results issued from a sample of frail elders. In this second paragraph, we kept the same order of presentation as the one used in the whole manuscript (cognitive status, then functional status, then nutritional status, then physical status).

To clarify, we added sub-headings.
L.301: “Comparison with individual aged 65 and over

(…)

Comparison with frail individuals aged 65 and over

(…)”

We hope the section is now of an easier reading, and the modifications made will be acceptable for the reviewer.

It would be easier to read if you just reported the different groups as those over 65 compared with those over 90 rather than the 'elderly' with the 'oldest old'.

We thank you for this comment and have modified the manuscript accordingly in the whole section.

Also, I am not sure that you can say that cognitive impairment was lower in the 90+ compared with 65+? It seems that in the 65+ cohort there is a wide gap- although the upper end is relating to an 80+ group (which we would anticipate being much closer to the 90+ group than 65+). This finding would be inconsistent with most literature that shows that cognitive impairment increases with age.

We apologize for this mistake. Indeed, it increased with age. We changed the sentence as proposed below:

L.302: “The prevalence of cognitive impairment (dementia excepted) appeared lower for individuals aged 65 and over [63,64].”

Also, the proportions vary considerable between studies suggesting discrepancies in definitions, methods and/or study populations. When you report cognitive impairment it is not clear whether you are combining it with dementia or separating out the MCI component?

Cognitive impairment was indeed in reference to MCI without dementia.

L.302: “The prevalence of cognitive impairment (dementia excepted) appeared lower for individuals aged 65 and over [63,64].”

This section is also difficult to read because you include percentages for the 65+ but not 90+ groups, so it is difficult to compare. I agree that you shouldn't be repeating all the statistics in the discussion, but perhaps it would be better to add another table that summarises the key statistics for the four outcomes by papers in your analysis (90+) with other studies showing 65+. I think you could include this in the results and then you could just describe in the discussion the key differences rather than all the statistics.
As you suggest, we added a new table summarizing the data from the literature for individuals aged 65 and over, frail individuals aged 65 and over, and the data from our review (individual aged 90 and over). However, as it refers to data that are not directly the results of the review conducted and therefore could not be considered as material for the result section, we chose to present this table as a supplementary material in the discussion section.

L.300: “Comparison with younger elderly

Comparison with individual aged 65 and over

The prevalence of cognitive impairment (without dementia) appeared lower for individuals aged 65 and over [63,64]. The nutritional status was comparable between populations of individuals aged 65 and over and individuals aged 90 and over [65]. Functional status was better among individuals aged 65 and over [66]. Hand grip strength decreased with age [67,68], explaining a lower score in our result, in favor of higher prevalence of sarcopenia (See Additional file 3).

Comparison with frail individuals aged 65 and over

In a “younger” sample of 1108 frail individuals, cognitive function seemed higher [69]. Functional status was preserved while nutritional and physical status were altered but in a lower proportion compared to our results [69] (See Additional file 3).

The results of our review seem in a continuum with the data for individuals aged 65 and over [70].”

Additional file 3: Comparison between individuals aged 65 and over, frail individuals aged 65 and over, and individuals aged 90 and over regarding cognitive, functional, nutritional and physical status.

<table>
<thead>
<tr>
<th>Status</th>
<th>Individuals 65+</th>
<th>Individuals 90+</th>
<th>Frail individuals 65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive impairment</td>
<td>14.2-18% [63,64]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMSE a mean (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower: 15.3 (SD: 6.2) [43]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher: 26.3 (range 17-30) [45]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dementia 30-42.9% [25,42]
Cognitive impairment 12-50% [19,41]
No cognitive impairment 31-65% [25,45]
MMSE a mean: 24.6 (SD: 4.9) [69]

Functional
Dependent for at least one item of ADL: 34.6% [65]
Dependent for at least one item IADL: 53.5% [65]
Dependent for at least one item of ADL: 35.6-38% [44,28]
Dependent for at least one item of IADL: 20-67.9% [51,32]

ADL b mean (SD)
Lower: 2.0 (0.8) [23]
Higher: 3.13 (1.98) [43]

IADL c mean (SD) 2.1 (2.2) [28]
ADL b mean (SD): 5.5 (1.0) [69]

IADL c mean (SD): 5.6 (2.4) [69]

Nutritional
Risk of malnutrition: 67% [66]
Malnutrition: 5% [66]
MNA-SF d mean 10.3 (SD: 1.8) to 11.1 (SD: 2.4): risk of malnutrition [34,28]
Risk of malnutrition: 39.5% [69]
Malnutrition: 8% [69]

Physical
Hand grip strength e mean (SD) kg:
70-79 years: 25.5 (7.96) [67]
80 and over: 21.1 (6.78) [68]

Hand grip strength e mean (SD) kg:

Lower: 14.5 (6.8) [43]
Higher: 16.1 (6.6) [23]  Hand grip strength e mean (SD) kg:
20.6 (8.2) [69]

ADL = Activities of Daily Living; IADL = Instrumental Activities of Daily Living; MMSE = Mini Mental State Examination; MNA – SF = Mini Nutritional Assessment Short Form.

In square brackets [XX]: references.

a MMSE ranged from 0 to 30 (normal), the cut off for the status of cognitive function differed between studies (mid cognitive impairment, dementia)
b ADL ranged between 0 (totally dependent) to 6 (fully independent)
c IADL ranged between 0 (totally dependent) to 8 (fully independent)
d MNASF rates: Normal = 12-14, At risk of malnutrition = 8-11, Malnourished: < 7

e Hand Grip Strength: Individuals over 75 mean (SD) in kg: Women right hand: 19.0 (5), left hand: 17.0 (4) / Men right hand: 29.8 (9), left hand: 24.9 (7)
P16 - With the exception of the last sentence, I disagree with the paragraph that begins by indicating that care plans for this sample are relatively new. The speciality of geriatrics and comprehensive assessment has been around for several decades and were available 20 years ago.

We apologize for this sentence which was confusing. We meant that comprehensive assessment available 20 years ago could not have been performed for actual centenarians when they were aged 65 or 70.

To avoid any confusion, we deleted this sentence as it did not change the meaning of the last sentence.

L.338: “As we have seen, there is more likely a continuum in the alteration of functions than a rupture with age. The solution may be to propose a care plan based on a global geriatric assessment earlier in the ageing trajectory to provide better maintenance of functions and autonomy among the oldest old in the future.”
I do not think the addition of the limitation about biological versus chronological age is necessary. There may be differences, but most research would be based on chronological age and in practical terms this would be only way you could do a review.

As you suggested we removed this limitation.

Some minor edits required:

We thank you for your careful reading.

P 3 line 67 - should be: The care of the oldest old…

We apologize for this mistake and added “the”.

“The care of the oldest old is a growing topic in medical research and challenges health care organizations.”

P3 line 99 - add (NOS) after Newcastle-Ottawa Scale as you later use this acronym

We are sorry for this mistake.

“We restricted this review to high quality studies according to the Newcastle-Ottawa Scale (NOS), adapted to cross sectional reviews based on previous studies [17].”

P14 line 287 and 288 - living in a nursing home

We apologize for this mistake and added “a” when necessary.

“For the studies with participants living at home and living in a nursing home, there was no information about the proportion of people living at home vs living in a nursing home.”

P16 line 343 - multi-professional rather than pluri

We thank you for your remark. We made the correction.

“The geriatric assessment could be realized for example by a trained nurse in the patient’s home or in multi-professional primary care health centers with good results [82].”

P17 line 377 - requires a reference

We added these references of previous studies using this scale developed by Herzog (2013).

“Third, the NOS used to assess quality has been previously used in studies [88, 89] but not strictly methodologically validated.”


In Figure 1 the perhaps delete the word 'qualitative'

We agree that the word ‘qualitative’ can be confusing. This step referred to the assessment of the quality score of studies through the Newcastle Ottawa Scale, whereas in the next step all studies with at least one star for 6 out of 7 items were included.

We replaced “Studies included in qualitative analysis” by “Quality score assessment (Newcastle Ottawa Scale)”.

Throughout - the term mild dementia is more commonly used than 'light' dementia.

We have modified the tables in the manuscript accordingly.