

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Use of neuropsychological tests for the diagnosis of dementia: a survey of Italian memory clinics
<b>AUTHORS</b>	Di Pucchio, Alessandra; Vanacore, Nicola; Marzolini, Fabrizio; Lacorte, Eleonora; Di Fiandra, Teresa; DemObs Group, Italian; Gasparini, Marina

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Dr Terence J Quinn Institute of Cardiovascular and Medical Sciences, University of Glasgow, Glasgow, UK
<b>REVIEW RETURNED</b>	24-Jul-2017

<b>GENERAL COMMENTS</b>	<p>The authors describe a national survey of practice themed around cognitive assessment for diagnosis of dementia. I enjoyed reading this paper and the main finding of heterogeneity in assessment has face validity and aligns with findings from other countries. I felt that certain sections required greater justification or explanation.</p> <p>General Although I could understand the science, some of the writing was non-idiomatic and I would recommend proof reading by a native English speaker.</p> <p>Personally, I didn't think that the formal statistical analyse were necessary for the message of the paper. As example, it is intuitive that teams with specialist psychology staff will use more specialist psychology assessment and the difference is clear from the numbers presented. Quantifying this with a logistic regression add little. If the authors chose to keep this aspect they should define the other variables that were included in the regression models. In the analyse that accompany table 4 a single chi-square is presented but the table has over 25 differing items, which of these do the results pertain to?</p> <p>Some of the terminology used was not familiar to me and I suspect relates to the Italian Healthcare system, for example what is a ISRH and how does it differ from a University Hospital.</p> <p>Introduction Context is important for understanding the results of a national survey, especially for a journal with an international readership. I would have liked more detail on the process of dementia diagnosis. Do all patients go to memory clinics or can diagnosis be made through other routes, for example neurology, geriatric medicine. What about groups such as those with stroke/traumatic brain injury; young onset dementia; comorbid psychiatric disease.</p> <p>Methods</p>
-------------------------	---

	<p>Was there any quality control or external validation of the questionnaire responses? I suspect there may be some disparity between what a centre aspires to do and what is done in practice, the person completing the questionnaire may give the aspirational rather than the reality.</p> <p>The development and validation of the minimum core test needs better explanation. As presented in the manuscript, it seems this core set of assessments was created by the authors based on some existing guidelines. If this is the case it is not a particularly robust method and I don't think centres should be criticised for not complying.</p> <p>I also felt that the minimum core test, and several other aspects of the manuscript, had a focus on Alzheimer's disease dementia and may not be suitable for other dementia types such as vascular, lewy-body, fronto—temporal etc</p> <p>As a piece of original research based on a questionnaire the description of the methodology was superficial. The authors refer to an unpublished paper. To assess the methodological quality, if the paper in question is still unpublished, the authors should submit this paper as a confidential document for the peer reviewers to assess. This would also answer any questions the peer reviewers may have around whether the data presented in this paper justify a separate publication or should be included in the primary paper. For this reason I cant confidently answer questions about the methodology.</p> <p>Although the authors submit a reporting checklist, in fact many of the mandatory items are not reported in sufficient detail. On a related point, I would also submit the questionnaire itself as supplementary materials. There should be a clear statement on ethics.</p> <p><b>Results</b></p> <p>A lot of data are presented. It was not clear to me which analysis were primary, which were secondary but pre-specified and which were post-hoc. It would help if the Introduction or materials and methods gave a clear indication of the aims of the research.</p> <p><b>Discussion</b></p> <p>The discussion did not follow the usual structure of a scientific discussion for an original research publication. I would have preferred if the authors used the traditional format of discussing their results in context, discussing strengths and limitation of their approach and outlining implications of the results and potential future directions.</p> <p>In the discussion, and indeed throughout the paper, there are a number of statements around clinical diagnosis of dementia that require a supporting citation. Some of the more dogmatic statements, such as neuropsychological assessment is mandatory for dementia diagnosis, lack an evidence base. I am a firm believer in the value of neuropsychological assessment, but in an older adult with several years history of declining cognitive function who is now struggling with basic activities of daily living, the diagnosis is clear and detailed neuropsychological assessment only adds expense and patient burden.</p>
--	--

<b>REVIEWER</b>	David Loewenstein PhD University of Miami Miller School of Medicine
<b>REVIEW RETURNED</b>	18-Oct-2017

<b>GENERAL COMMENTS</b>	<p>I think that this is a well-written paper that highlights the use or lack of use of neuropsychological assessment in the diagnosis of dementia in Italy. I believe that it raises important issues related to dementia and public health.</p> <p>I think that the authors may want to place a greater emphasize that the use of neuropsychological measures have even greater relevance given that eventual disease modifying treatments are likely to be most effective in the early stages of disease and that more sensitive neuropsychological measures will be critical for early identification of disease, those that might benefit from clinical trials and monitoring of treatment effects over time.</p>
-------------------------	---

### VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Dr Terence J Quinn

Institution and Country: Institute of Cardiovascular and Medical Sciences, University of Glasgow, Glasgow, UK

Please state any competing interests: none declared

Please leave your comments for the authors below

The authors describe a national survey of practice themed around cognitive assessment for diagnosis of dementia. I enjoyed reading this paper and the main finding of heterogeneity in assessment has face validity and aligns with findings from other countries. I felt that certain sections required greater justification or explanation.

General

Although I could understand the science, some of the writing was non-idiomatic and I would recommend proof reading by a native English speaker.

Response

We asked a person with special training in the translation of English texts to review manuscript.

Comment: Personally, I didn't think that the formal statistical analyse were necessary for the message of the paper. As example, it is intuitive that teams with specialist psychology staff will use more specialist psychology assessment and the difference is clear from the numbers presented.

Quantifying this with a logistic regression add little. If the authors chose to keep this aspect they should define the other variables that were included in the regression models. In the analyse that accompany table 4 a single chi-square is presented but the table has over 25 differing items, which of these do the results pertain to?

Response

We partially agree with the referee. We have removed the chi square analysis from table 4. We agree that, in fact, it did not make much sense. We maintained the logistic regression analysis, as it can be useful for public health decision makers to have an idea of the size of the phenomenon. All variables included in the model are those shown in table 5 (presence of a psychologist, geographical distribution and type of Center).

For example, we estimated that the use of Minimum Core Test was 44% (OR = 0.56; 95% CI 0.35-0.89) less frequent in Italy's Southern Islands compared to Northern Italy, adjusted for presence of a psychologist and type of service, and we deem this result to be relevant from a public health point of view.

Comment: Some of the terminology used was not familiar to me and I suspect relates to the Italian Healthcare system, for example what is a ISRH and how does it differ from a University Hospital.

Response

We further specified these information in the introduction to the characteristics of the Italian health system. University hospitals and the ISRH (Institute for Scientific Research and Healthcare) are third-level structures within the organization of the Italian national health system. The only difference between ISRRH and University hospitals is the presence of a university Department of Medicine, while the qualitative level of research and assistance is similar.

Introduction

Context is important for understanding the results of a national survey, especially for a journal with an international readership. I would have liked more detail on the process of dementia diagnosis. Do all patients go to memory clinics or can diagnosis be made through other routes, for example neurology, geriatric medicine. What about groups such as those with stroke/traumatic brain injury; young onset dementia; comorbid psychiatric disease.

Response

We specified, in the new version of the manuscript, the whole process for the diagnosis of dementia within the Italian healthcare system.

Methods

Was there any quality control or external validation of the questionnaire responses? I suspect there may be some disparity between what a centre aspires to do and what is done in practice, the person completing the questionnaire may give the aspirational rather than the reality.

Response

We fully agree with the reviewer. There is no external validation of the questionnaire nor a quality control. We thank the reviewer and we'll declare in a more explicit way this point within the limits of the paper.

Comment: The development and validation of the minimum core test needs better explanation. As presented in the manuscript, it seems this core set of assessments was created by the authors based on some existing guidelines. If this is the case it is not a particularly robust method and I don't think centres should be criticised for not complying.

Response

We actually we did not "propose" a new battery, we only identified the areas to be assessed. Neuropsychologists can choose different tools, as long as they are measuring the recommended cognitive functions. We specified this point in a new Minimum Core Test paragraph .

Comment: I also felt that the minimum core test, and several other aspects of the manuscript, had a focus on Alzheimer's disease dementia and may not be suitable for other dementia types such as vascular, lewy-body, fronto—temporal etc

Response

Cognitive tests are used irrespective of the pathology. The evaluation of cognitive functions does not change in patients with either vascular or fronto-temporal dementia. It is the cognitive pattern per se which varies depending on the type of dementia. Therefore, the MCT measures the core functions for all of them. We specified this point in the same paragraph.

Comment: As a piece of original research based on a questionnaire the description of the methodology was superficial. The authors refer to an unpublished paper. To assess the methodological quality, if the paper in question is still unpublished, the authors should submit this paper as a confidential document for the peer reviewers to assess. This would also answer any questions the peer reviewers may have around whether the data presented in this paper justify a separate publication or should be included in the primary paper.

Response

The methodological paper was published in July, and it is free for download from Pubmed. We included this new reference into the new version of the manuscript. We also attach the pdf file to the new submission.

Comment: For this reason I cant confidently answer questions about the methodology. Although the authors submit a reporting checklist, in fact many of the mandatory items are not reported in sufficient detail.

Response

We think that the newly published methodological paper can support the process of reviewing this article.

Comment: On a related point, I would also submit the questionnaire itself as supplementary materials.

Response

Done

Comment: There should be a clear statement on ethics.

Response

Done

Results

A lot of data are presented. It was not clear to me which analysis were primary, which were secondary but pre-specified and which were post-hoc. It would help if the Introduction or materials and methods gave a clear indication of the aims of the research.

Response

We rewrote the aims of the study. The current aims of the study are: a) to describe the use of Neuropsychological tests in the structures of the Italian health system dedicated to the diagnosis of dementia; b) to understand how this use is related to the presence or absence of a psychologist in the multidisciplinary staff. No primary, secondary, nor post hoc analysis were performed. The statistical analyses for a) were descriptive (table 3 and 4), while the analyses for b) were univariate and multivariate (table 5 and 6).

Discussion

The discussion did not follow the usual structure of a scientific discussion for an original research publication. I would have preferred if the authors used the traditional format of discussing their results in context, discussing strengths and limitation of their approach and outlining implications of the results and potential future directions.

Response

Discussion was revised, and limitations were further examined.

Comment: In the discussion, and indeed throughout the paper, there are a number of statements around clinical diagnosis of dementia that require a supporting citation. Some of the more dogmatic statements, such as neuropsychological assessment is mandatory for dementia diagnosis, lack an evidence base. I am a firm believer in the value of neuropsychological assessment, but in an older adult with several years history of declining cognitive function who is now struggling with basic activities of daily living, the diagnosis is clear and detailed neuropsychological assessment only adds expense and patient burden.

**Response**

We agree that a detailed neuropsychological assessment is not necessary for patients with a long diagnosed cognitive decline. We stated this point in the Introduction: "Once dementia is diagnosed, a simple omnibus test can provide a deterioration score, which is useful for the clinical monitoring over time". However, the survey was mainly focused on tests used in diagnosing dementia. International diagnostic criteria specifically address the neuropsychological evaluation of cognitive functions, thus its use, if not mandatory, is quite acknowledged. We further explained this point in the Discussion.

Reviewer: 2

Reviewer Name: David Loewenstein PhD

Institution and Country: University of Miami Miller School of Medicine

Please state any competing interests: None

Please leave your comments for the authors below

I think that this is a well-written paper that highlights the use or lack of use of neuropsychological assessment in the diagnosis of dementia in Italy. I believe that it raises important issues related to dementia and public health.

**Response**

We thank the reviewer for this comment.

Comment: I think that the authors may want to place a greater emphasize that the use of neuropsychological measures have even greater relevance given that eventual disease modifying treatments are likely to be most effective in the early stages of disease and that more sensitive neuropsychological measures will be critical for early identification of disease, those that might benefit from clinical trials and monitoring of treatment effects over time.

**Response**

We included this comment in the discussion

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	Dr Terry Quinn University of Glasgow, UK
<b>REVIEW RETURNED</b>	24-Nov-2017

<b>GENERAL COMMENTS</b>	The authors have responded to all comments and the paper is improved.
-------------------------	---