Author's response to reviews

Title: Effects of case management in community aged care on client and carer outcomes: a systematic review of randomized trials and comparative observational studies

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Version: 2 Date: 18 October 2012

Author's response to reviews: see over
Reviewer's report

Title: Effects of case management in community aged care on client and carer outcomes: a systematic review of randomized trials and comparative observational studies

Version: 1 Date: 26 July 2012

Reviewer: Osama Altayar

Reviewer's report:

I used the PRISMA and AMSTAR for this review. A. Major Compulsory Revisions

1. Abstract

a. Results

- Numbers are not clear. Section should be repeated and be clear!

Numbers have been clarified, e.g. “of the six studies reporting ……, five studies found that……”

- Misleading in general.

This part has been revised as below:

Results: Ten RCTs and five comparative observational studies were identified. One RCT was rated high quality. Client outcomes included mortality (7 studies), physical or cognitive functioning (6 studies), medical conditions (2 studies), behavioral problems (2 studies), unmet service needs (3 studies), psychological health or well-being (7 studies), and satisfaction with care (4 studies), while carer outcomes included stress or burden (6 studies), satisfaction with care (2 studies), psychological health or well-being (5 studies), and social consequences (such as social support and relationships with clients) (2 studies). Five of the seven studies reported that case management in community aged care interventions significantly improved psychological health or well-being in the intervention group, while all the three studies consistently reported fewer unmet service needs among the intervention participants. In contrast, available studies reported mixed results regarding client physical or cognitive functioning and carer stress or burden. There was also limited evidence indicating significant effects of the interventions on the other client and carer outcomes as described above.

- Mortality results are misleading and should be more specific (specify the period, i.e. improved at 6 months but not at 12 months)
As we were aware of the word limit—350, we only presented the principal findings in the Abstract. In the Result section of our paper, we clearly described the study periods for different outcomes (such as mortality during the first six months or the whole study period) that were examined by the original studies.

- Results of client's functioning status, health status/medical condition and behavioural problems not reported or not reported adequately. And also carer's medical condition.

We did not present these findings in detail in the Abstract, as they were not our principal research findings compared with the other findings. The reasons include: First, quite few studies examined these outcomes (e.g. only two studies examined client behavioral problems); second, few studies reported significant effects of case management in community aged care interventions on these outcomes.

2. Methods

a. Was a pre-specified protocol used? If yes, did you stick on it or you had to modify it during the research?

We did not use a pre-specified protocol to conduct this review. We stated this as one limitation of this review.

b. Data extraction and synthesis:

- Study selection process is not clear:

We revised this information in the paper as below:

The first author (EY) independently screened titles and abstracts of all originally searched articles (3704 in total). If doubt existed, the second author (DD) reviewed the abstracts. Following this step, EY and DD reviewed abstracts and/or full texts of all potential, relevant articles (141 in total). EY reviewed full texts of most articles at least once. DD reviewed abstracts and where necessary full texts of these articles. For some obscure or important articles, he reviewed the full texts. After this process, EY and DD exchanged their results.

= Difference in numbers between Figure 1 and the text on page 6 (141 and 144 full-text articles)?

We corrected the number as 141.

= How were the duplicates and articles of low relevance determined?

We used Endnote to identify the duplicates.

Low relevant articles were identified by the database. Specifically, in the database, we sorted all searched papers in order (from highest relevant to lowest relevant). We screened these low relevant articles in the Scopus database and confirmed that they were not eligible for review against our inclusion criteria.

= Who did the study selection? How many people? Blinded? Dealing with conflicts? How many times did you review the full-text articles and why?
EY and DD (Please see details above).

= Numbers should be mentioned under results not the methods.

**We moved this information to the Result section.**

- Who extracted the data? How many people? Blinded? Dealing with conflicts?

**We described this information in the paper as below:**

The two reviewers independently extracted information on the characteristics (country of origin, sample size, participants, length of follow-up and intervention details), and client and carer outcomes of the studies.

Divergence regarding data extraction and synthesis was addressed through discussion between EY and DD.

3. Results
   a. Table 3:

   - As your studies are heterogenic: Inclusion criteria for each study should be included.

   **We did not show inclusion criteria for each study in table 3, as all studies were selected according to the overall study selection criteria (there was no specific inclusion criteria for each study). In our flow chart, we also explained why irrelevant articles were deleted at each step.**

   b. Effects on client/carer outcomes:

   - Didn't specify how many RCT's and the quality of studies for each outcome.

   Can't judge the applicability of the intervention and generalizability of the results for the outcome!

   **In the Result section, the type of studies (including whether they are RCTs or not, as well as their quality level—low quality, moderate quality or high quality) reporting different outcomes has been clearly specified.**

   - Better to specify what measures were used for each outcome by the studies

   (e.g. like in "functioning status of client")

   **We added a column in table 3 to present the measurement tools of different outcomes.**

4. Limitations
   a. Why meta-analysis was not possible? (not clear and it "looks" possible according to the
results)

As we emphasized in the paper that due to the heterogeneity in study design, participants, interventions, outcome measures and measurement tools among studies, we conducted a systematic review, rather than a meta-analysis.

B. Minor Essential Revisions

1. Abstract a. Methods:

- Outcomes of interest are not shown.

This information has been presented in the Abstract (see below):

Client outcomes included mortality (7 studies), physical or cognitive functioning (6 studies), medical conditions (2 studies), behavioral problems (2 studies), unmet service needs (3 studies), psychological health or well-being (7 studies), and satisfaction with care (4 studies), while carer outcomes included stress or burden (6 studies), satisfaction with care (2 studies), psychological health or well-being (5 studies), and social consequences (such as social support and relationships with clients) (2 studies).

- How data extraction was performed?

As described in the Abstract that “two reviewers independently screened studies, extracted information, and assessed study quality.”

2. Methods

a. Data extraction and synthesis:

- Outcomes of interest not specified.

We described this information as below:

Based on previous studies, we focused on the following outcome variables:

- Client outcomes included mortality/survival days, physical or cognitive functioning, medical conditions, psychiatric symptoms and associated behavioral problems, unmet service needs, psychological health or well-being (related to self-perceived health status, such as depression, stress, anxiety, life satisfaction etc.), and satisfaction with care.

- Carer outcomes included stress or burden, psychological health or well-being, satisfaction with care, and social consequences (such as social support, and relationships with care clients—getting on well or not).

- Any steps to avoid double counting and piece together data from multiple reports on the same study?
One strategy was to use Endnote to delete duplicates. Furthermore, all the included studies examined different client or carer outcomes and thereby involving no double counting.

3. Results:

a. Study selection results and the flow chart should be included here.

We moved this information to the Result section.

b. Table 3:

- Needs editing and should be uniformed and more clear (lines in the first page and no lines in the other pages)

We edited the layout and made necessary rewording.

New information was added to Table 3, including adding information on the mean ages of the study sample; adding one column specifying measurement tools for different client and carer outcomes; revising the “result column” of the table to present the intervention effects (describing whether significant intervention-control group differences in different outcomes existed).

4. Discussion

a. Clarify the status of evidence (enough evidence or not)

We clarified the evidence level as largely consistent evidence for client psychological health or well-being and unmet service needs, mixed evidence for client physical or cognitive functioning and carer stress or burden, and limited evidence for the other client and carer outcomes.

b. Rephrase the sentences. Refer to the studies included in the review rather than the review when presenting results (i.e. "studies included showed …” or “available evidence showed …” instead of "review showed …")

We revised this information in the paper where it was applicable. For instance, in the Discussion section, we reported that “This review provided largely consistent evidence that case management interventions improve older clients’ psychological health or well-being and also deliver significant improvements in unmet service needs. Clear effects of the interventions on other client outcomes and carer outcomes are not so evident, with mixed evidence for the other outcome variables reviewed here. We found that studies reported inconsistent results regarding client physical or cognitive functioning and carer stress or burden. There was also limited evidence supporting that case management in community aged care interventions improve client length of survival, health conditions, behavioral problems or satisfaction with care, as well as carer satisfaction with care, psychological health or well-being and social consequences.
c. Applicability of the findings.

We added one paragraph to analyze applicability of our research findings (see below).

In general, this study answers the review question: “What are the effects of case management in community aged care interventions on carer and client outcomes?” The evidence from this review may enlighten policy makers to design appropriate case management interventions and reasonable intervention goals in the area of community aged care in future. Moreover, it may advise care professionals to focus on the areas where the interventions have significant effects, so as to make appropriate decisions on resource allocation in their practice.

d. Comparison with similar/close reviews findings might be useful (e.g. reviews on case management in other populations)

We added one paragraph to compare our research findings with previous reviews (please see below).

Although we did not find systematic reviews specifically assessing the effects of case management in community aged care interventions on client and carer outcomes, our findings, to some degree, were consistent with previous related systematic reviews that examined the effects of case management interventions on various outcomes.

First, previous reviews reported that the effects of case management interventions on many client outcomes were inconclusive. For example, one review revealed that most included studies found no significant intervention-control group differences in client satisfaction, physical functioning, mortality, or quality of life. Regardless of different care settings, study populations, and interventions previous reviews and our study focused on, case management interventions cannot improve all client outcomes. Our findings here suggest that case management interventions alone might not reverse or significantly improve some health conditions in the frail elderly.

Second, previous reviews concluded that case management interventions have moderate or no significant effects on carer burden and depression. One reason for this finding is that it might be difficult to improve carer outcomes in reality, since caregiving always leads to carers experiencing high levels of stress, burden and other negative consequences; or the finding could be attributed to measurement difficulties. Furthermore, many case management interventions include no or only moderate intervention components for carers themselves. This should be addressed in designing new case management programs in future, if carer outcomes are one of the target goals.

5. Limitations

a. Address the validity and reporting of included studies

Two reviewers have now been involved in extracting information from the included studies. In addition, we conformed to the PRISMA Statement to conduct this systematic review. We thought we could guarantee the validity and reporting of
C. Discretionary Revisions

1. Abstract  
   a. Methods:

   - Address whether analysis was performed or not.

   As described in the Method section, “We summarized the effects of case management in community aged care interventions based on whether the majority of studies reported significant, positive outcomes that favored the intervention group. Where the majority of available studies (in particular those with higher quality) reported that the intervention group had statistically favorable outcomes (such as greater satisfaction and better functioning status) compared with those of the control group, we reported in the results below that case management in community aged care interventions had significant effects on these outcome measures.”

   **Level of interest:** An article whose findings are important to those with closely related research interests

   **Quality of written English:** Needs some language corrections before being published

   **Statistical review:** No, the manuscript does not need to be seen by a statistician.

   **Declaration of competing interests:**

   I declare that I have no competing interests.
Reviewer's report

Title: Effects of case management in community aged care on client and carer outcomes: a systematic review of randomized trials and comparative observational studies

Version: 1 Date: 30 July 2012

Reviewer: Susanne Hempel

Reviewer's report:

Essential revisions

Abstract

1. The expression "In accordance with the PRISMA checklist" should be revised

(PRISMA is a reporting guideline, not a systematic review guideline; you could potentially cite the PRISMA statement but the PRISMA checklist is a explicitly a tool for authors helping them to remember what to report)

In the Method section of this paper, we revised the sentence as “We conformed to the PRISMA statement to conduct a systematic review (rather than a meta-analysis)”.

2. If the databases were searched from inception this should be stated rather than listing the individual inception dates

We revised the sentence as “We searched Web of Science, Scopus, Medline, CINAHL (EBSCO) and PsycINFO (CSA) from inception to 2011 July”.

3. "non-RCTs" is too general, it should be stated clearly which study designs were eligible

“Non-RCTs” were replaced with observational comparative studies.

4. The expression 'five of the six studies' is unclear: which 6 studies? it should be stated clearly that of the 6 studies that assessed the outcome 5 reported significant improvements etc. if this was the case.

Where applicable, the sentence was revised as “of the six studies reporting ……, five studies found that……..” Other sentences were revised in the same manner.
5. The conclusion is too strong. There was no meta-analysis and the conclusion seems to be based on vague statements from the authors of the individual studies rather than actual empirical data.

This information in the Conclusion section was revised as “Available evidence in this systematic review showed that case management in community aged care interventions can improve client psychological health or well-being and unmet service needs.”

Background

6. The definition presented in the first sentence is very specific. The sentence should state the source clearly, there are other definitions of case management and the accompanying reference is a discussion paper of the Australian Case management Society which cites the WHO and the American Case Management Society definitions.

The definition was revised as “The Case Management Society of Australia defines case management as a collaborative process of assessment……”

7. It is not obvious why the 10 other systematic reviews on case management refer to "other types of community-based care settings". Judging from the titles and abstracts several seem to cover the same setting. The background section should state more clearly how the scope of this review is different from existing reviews.

We described the significance of conducting this systematic review as below:

With such a long history of service provision, it is not surprising that case management has been subject to considerable scrutiny over time through systematic reviews of its effectiveness. We have examined systematic reviews looking at case management that is applied in various community-based care settings and/or targets population with specific chronic diseases. These reviews investigated a wide range of outcome domains related to care clients, carers, care organizations (e.g. service use and costs), and care delivery systems (such as care accessibility and continuity). Nevertheless, no systematic reviews to date have specifically evaluated the effects of case management in community aged care on client and carer outcomes.

As described above, case management in community aged care differs from the other types of case management in a number of ways. Evaluating the effects of case management interventions on various outcome domains concurrently may result in heterogeneity of research findings. At this stage, a more specific, targeted review of effects is warranted. Client and carer outcomes are important effect indicators, but have been attracting less research focus compared with the other outcome measures, such as service use and costs. Therefore, we conducted this systematic review with the aim summarizing the evidence for the effects of case management in community aged care on client and carer outcomes.

Methods

8. It is not clear why disease management programs are excluded from the review. The inclusion criteria should state clearly what was included instead if the main application
was not eligible.

Disease management programs only target population with specific chronic diseases, such as diabetes and heart diseases. This review focused on aged care, which targets older people with age-related problems, such as functional disabilities and dementia.

Inclusion and exclusion criteria were combined into “study selection criteria”. Specifically, it included:

- No restriction on date
- English language
- Only involving community-dwelling frail older people (usually suffering from age-related health problems, such as disabilities and dementia) and/or carers
- Case management interventions (excluding disease management programs that target older adults with specific chronic diseases, and specific preventive measures, such as in-home visit)
- Care setting limited to community aged care (excluding the other community-based care settings, such as primary care, community mental health, etc.)
- Case management as an independent intervention (rather than as a small component of a multi-faceted intervention or an integrated care delivery system/model)
- Published in refereed journals or publications of equivalent standard
- RCTs or comparative observational studies
- Evaluating client and/or carer outcomes

9. The expression "Not only looking at old people" should be revised

It was revised as “Only involving community-dwelling frail older people (usually suffering from age-related health problems, such as functional disabilities and dementia) and/or carers”.

10. The description of reference mining should be revised ("were tracked")

It was revised as “were checked”.

11. The description of the quality assessment criteria should be revised. The Cochrane Library doesn't publish quality criteria, the authors probably mean the Cochrane Handbook for Systematic Reviews of Interventions.

The sentence was revised as “The quality of studies was assessed by using a checklist (see Table 2) that was informed by some previous systematic reviews, the PRISMA Statement and the Cochrane Handbook for Systematic Reviews of Interventions.”
12. The Alzheimer Disease Demonstration program and Channeling Demonstration and Evaluation program should be referenced by study, not by simply referring to Table 4.

We inserted referenced studies after the two programs mentioned in the main text.

Results

13. It seems unlikely that all included studies could be described a) as "demonstration programs" and b) that targeted "frail elderly people". This should be clarified.

We replaced it with demonstration/pilot (namely non-permanent) programs.

Frail elderly people in this review were defined as older people with aged-related health issues, such as functional disabilities and dementia.

14. See comment 4 and revise the result description accordingly (e.g., "Six of the eight studies")

Please see our response to comment 4 above.

15. The client outcomes in the method and the result section should be ordered better. Eligible were clinical patient outcomes as well as satisfaction with care? These are completely different classes of outcomes, they cannot be presented in random order. There were many "psychological conditions", this heading in particular is not a good description for the outcomes stress, strain, mental health, carer depression.

Objective outcome measures, such as mortality, functioning status, psychiatric and behavioral problems, medical conditions and unmet services needs were grouped together and presented first, following which, more subjective outcome measures, such as psychological health or well-being and satisfaction with care were presented.

Referring to several published studies, psychological health or wellbeing was related to self-perceived health conditions, such as depression, anxiety, mood, etc. by this review.

As described in the Method section of this review, client outcomes included mortality/survival days, physical or cognitive functioning, medical conditions, psychiatric symptoms and associated behavioral problems, unmet service needs, psychological health or well-being (related to self-perceived health status, such as depression, stress, anxiety, life satisfaction etc.), and satisfaction with care.

Carer outcomes included stress or burden, psychological health or well-being, satisfaction with care, and social consequences (such as social support, and relationships with care clients—getting on well or not).

Discussion

16. The first sentence is too strong. The review didn't show that the interventions significantly improved client and carer satisfaction. The reference to significance implies
that statistically significant effects were shown. Presumably not all studies showed this, exact results were not extracted or documented.

The sentence was revised as “This review provided largely consistent evidence that case management interventions improve older clients’ psychological health or well-being and also deliver significant improvements in unmet service needs. Clear effects of the interventions on other client outcomes and carer outcomes are not so evident, with mixed evidence for the other outcome variables reviewed here. We found that studies reported inconsistent results regarding client physical or cognitive functioning and carer stress or burden. There was also limited evidence supporting that case management in community aged care interventions could improve client length of survival, health conditions, behavioral problems or satisfaction with care, as well as carer satisfaction with care, psychological health or well-being and social consequences.

We drew this conclusion based on the majority of available higher quality studies reporting that there were significant (p<.05) intervention-control group differences in client psychological health or well-being and unmet service needs, and better results favored participants in the intervention group.

17. The results summary need to state the comparator - improved compared to what?

**Comparator was the control group. Specifically, the effects on different outcomes between the intervention group receiving case management in community aged care interventions and the control group receiving usual care were compared.**

18. The outcomes are extremely diverse. They should not be discussed in combination and the result section does not indicate that results were equally positive for satisfaction as well as health outcomes.

**We did not discuss them in combination. Please also see our responses to item 15.**

19. The results of this review need to be compared to the existing literature in the discussion section.

**We added one paragraph to compare our research findings with previous reviews (please see below).**

Although we did not find systematic reviews specifically assessing the effects of case management in community aged care interventions on client and carer outcomes, our findings, to some degree, were consistent with previous related systematic reviews that examined the effects of case management interventions on various outcomes.

First, previous reviews reported that the effects of case management interventions on many client outcomes were inconclusive. For example, one review revealed that most included studies found no significant intervention-control group differences in client
satisfaction, physical functioning, mortality, or quality of life. Regardless of different care settings, study populations, and interventions previous reviews and our study focused on, case management interventions cannot improve all client outcomes. Our findings here suggest that case management interventions alone might not reverse or significantly improve some health conditions in the frail elderly.

Second, previous reviews concluded that case management interventions have moderate or no significant effects on carer burden and depression. One reason for this finding is that it might be difficult to improve carer outcomes in reality, since caregiving always leads to carers experiencing high levels of stress, burden and other negative consequences; or the finding could be attributed to measurement difficulties. Furthermore, many case management interventions include no or only moderate intervention components for carers themselves. This should be addressed in designing new case management programs in future, if carer outcomes are one of the target goals.

20. The systematic review conduct needs to be mentioned in the limitations. A single reviewer did the title and abstract screening, the full text screening, the data extraction and quality assessment - no attempt was made to prevent reviewer errors or bias. Review language bias also needs to be discussed.

To address such bias as one reviewer conducting study selection, we have now involved another reviewer to go through this process. As described in the Method section of this study, “The first author (EY) independently screened titles and abstracts of all originally searched articles (3704 in total). If doubt existed, the second author (DD) reviewed the abstracts. Following this step, EY and DD reviewed abstracts and/or full texts of all potential, relevant articles (141 in total). EY reviewed full texts of most articles at least once. DD reviewed abstracts and where necessary full texts of these articles. For some obscure or important articles, he reviewed the full texts. After this process, EY and DD compared results and resolved any differences by consensus.”

21. Table 2 does not contain sufficient information to be useful for the reader. It should either be deleted and the information should be added to the notes of Table 4 or the quality criteria should be specified (e.g., how was adequate randomization defined).

We merged table 2 and table 4. Adequate randomization was stated by authors for their trials under study. We also added a new column to rate the quality level of each study: Studies providing full information on all the seven items (follow-up rate being over 90% was regarded as “full information”) were rated as high-quality studies; studies providing information on at least four items were rated as moderate-quality studies; studies providing information on fewer than four items were rated as low-quality studies.

22. The comparator needs to be stated in Table 4.

We assumed that the reviewer meant table 3. Comparator was the control group.

Minor essential revisions
23. The manuscript needs to be edited by a copy editor. Almost every paragraph contains problematic sentences. Scientific accuracy would help, too (e.g.,

"Among the 13 studies related to client outcomes" should be revised to 'reporting client outcomes' etc.).

We have made necessary rewording.

Level of interest: An article of insufficient interest to warrant publication in a scientific/medical journal

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

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.
Editor's comments:

1. Please adhere to the PRISMA guidelines for reporting systematic reviews.

PRISMA ? Systematic Reviews http://www.prisma-statement.org/

We conformed to the PRISMA Statement (including referring to the PRIMSA checklist) to report our systematic review. But we did not report 27 items as it recommended since some items (such as funding and additional analyses) are irrelevant to our systematic review.

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Associate Editor's comments:

Please address all points raised by reviewers.

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Please make the following formatting changes during revision of your manuscript. Ensuring that the manuscript meets the journal's manuscript structure will help to speed the production process if your manuscript is accepted for publication.

1. Figures

We note that the figures have been included in the manuscript file. Please upload the figures as separate figure files using the "upload" form on the submission system only, and delete the figure from the manuscript file. The figure file should not include the title (e.g. Figure 1... etc.) or the figure number. The legend and title should be part of the manuscript file, given after the reference list. Please ensure that the order in which your figures are cited is the same as the order in which they are provided. Every figure must be cited in the text, using Arabic numerals. Please do not use ranges when listing figures. For more information, see the instructions for authors: http://www.biomedcentral.com/info/ifora/figures.

We have put the figure in a separate figure file.

2. Tables
Please note that we are unable to display vertical lines or text within tables, no display merged cells: please re-layout your table without these elements. Tables should be formatted using the Table tool in your word processor. Please ensure the table title is above the table and the legend is below the table. For more information, see the instructions for authors on the journal website.

We have edited our tables.