Author's response to reviews

Title: Examining Research Collaboration in Tehran University of Medical Sciences': whether integrated context is enough?

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Author's response to reviews: see over
Dear Editor,

Thank you for taking time to respond.

We have carefully read your reviewers’ comments. We have used their valuable comments and re-written the article as a whole. Therefore some questions raised may not have been answered here and some answers may seem too short, but they have been implemented in the text.

In response to Ms Rodriguez’s comments:

1. Is the question posed by the authors new and well defined?
As stated by the authors, the research question to be answered is twofold: â##How the behavior of the researchers in this university towards collaboration in research is? Which factors affect this behavior?â## (page 5). The key problem here is that the authors do not define what they consider â##collaboration in researchâ##. Does this concept concern cooperation between/among researchers working in the same faculty, and/or working in other faculties/centres/divisions of the same institution? Does it include cooperation with colleagues working in other academic institutions? Does it include a cooperative behavior among researchers and other academic decision-makers? Further, does it also concern policy decision-makers? Likewise, does it involve practitioners? This is a crucial issue, which should be adequately explained.

“Cooperation between researchers and decision makers throughout the research process i.e. choosing the research topic up to its implementation, and not just securing grants is considered as collaboration in research.” was added on page 3.

Decision makers are different on the basis of research. For example, practitioners can be included in the clinical research group, and managers and policy makers can be included in the basic science group. In any case, according to this definition this group does not include other researchers or researchers in other research centers and universities.

I would also suggest that the authors clearly highlight in this section whether or not they will use a conceptual frame that will help make sense the results of their investigation. In this sense, they refer to â##the Deliberative and/or Interactive modelâ##. The authors however neither adequately explain this model nor state that they will adopt it.

Knowledge utilization models play an important role in the better understanding of conditions and designing of interventions. Collaboration has been emphasized on in knowledge utilization models. The Deliberative and/or Interactive model was mentioned because of its importance and background. Nevertheless, since the model was not meant for conceptual framework use, we did not mention it and only knowledge utilization models were mentioned. The model which lays more emphasis on the structure is the ‘Promoting Action on Research Implementation in Health Systems (PARIHS)’ model. However, since these models study knowledge translation from the
‘pull’ perspective more, and here we were more concerned with knowledge producers and ‘push’ activities we have not presented them here.

In more general terms, the Background section of the manuscript is fairly poor, both in content and length. In addition to a clear definition of what research collaboration means for the authors, I would thus strongly recommended that they develop and summarize and adequate literature review on this topic, which would appropriately frame their study and illuminate the discussion of its results.

The background has changed.

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?

Population under study. It is not clear if the population considered by the authors is comprised of research projects or of researchers who have been principal investigators in granted research projects. This point should be well explained and adequately justified.

As mentioned on page 5, two populations i.e. both researchers and research projects were under study.

If one considers the first option, what is the rationale behind selecting the research projects granted in 2004 and still active in the second half of 2006 as the sample? How many were there?

The reason behind choosing projects which had begun in 2004 was to pick the nearest possible duration in which the results would comply with the present conditions. According to a study done in 2002 the mean time spent for a TUMS research project was 12.7 months. So more than half the projects that had begun in 2004 would be over by 2006, their results would’ve been published and collaboration could be assessed at different levels of research. That is why projects that had begun in 2004 and ended by 2006 were chosen.

As mentioned in the ‘population under study’ section on page 5, “all TUMS' research projects that had gotten grants in 2004 and ‘were over’ by the time this study was done (the second half of 2006) were studied.” There were 315 projects.

Furthermore, what are the â##inclusion criteria of this studyâ##, which determine a sample size of 315 studies? Such criteria are not specified.

There were no specific criteria in selecting the projects; all the projects that had undergone peer review were included.

In addition, what are the reasons for the non-availability of some of the projects, which reduces the sample to 301?

14 projects were unavailable because their files had gotten lost.
If one considers the second option, are the authors including research projects granted through peer-review processes and commissioned research in the same pool? If or if not, what is the rationale behind their decision?
Yes, the projects had undergone peer-review for subject relevance, appropriate methodology, affordability of cost and ethics before securing grants.

Research design. Nothing is said regarding the research design of this investigation.
Since the projects data of a single time frame is considered and follow-up was done the study was considered a historical cohort one.

Data collection tools. What is the rationale behind the use of two different tools, namely a questionnaire addressed to researchers and a collection form for projects?
Our target population was research, but the source of information was different for different variables. For example the cost of research and the list of co-investigators could be extracted from the project reports (the projects’ data collection form), but we couldn’t obtain the ‘reason of choosing the research topic’ from the same source, so we had to ask the PI (Researcher’s questionnaire).

Why was the questionnaire only addressed to principal investigators, and not to all the investigators involved in the funded project?
We chose the PI for questioning because it is the PI who usually makes the decisions regarding the project (e.g. choosing the research topic and selection of co-investigators).

Why do the authors not give any information regarding the literature review performed in order to construct the questionnaire?
The answer to this question is brought in ‘Appendix 1’ of this letter.

Who were the members of the panel of experts who assessed the content validity of this new questionnaire?
The panel of experts consisted of: the director and deputy director of research in TUMS (both are epidemiologists), the first three authors of the article and three experienced researchers. They highlighted the literature review points through brainstorming. And finally the first three authors designed the questionnaire.

Why do the authors not provide enough information about the variables (domains?), both independent and dependent (i.e. collaboration score), measured by the questionnaire?
All domains have not been discussed here. Some have been discussed elsewhere in another article that is being published. However, as mentioned on page 6: "For examining various aspects of collaboration individuals were asked about collaboration of the end-users of research at different stages of the project. These stages included all levels from choosing the research topic to publication of research results. Thereafter, a single score was given to each of these
activities. Their total was then considered as their 'collaboration score' in research and also as a
dependent variable for studying the effect of other variables. "

What is the concept of â##collaboration networkâ##? What, if any, is the relationship between
â##collaboration scoreâ## and â##collaboration networkâ##?
We thank the reviewer for her reminder. The authors decided to omit the section on collaboration
network from the article and to lay more emphasis on researchers’ collaboration with decision
makers. Therefore the length of the article is reasonable and the conclusion section is not
disturbed either.

In my view, these are some of the important questions that the authors should answer in this
section. Indeed, both tools should be added in appendices.
Both tools have been added in the appendix.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
According to the Results section, it seems that the population under study is made up of
researchers (page 9). Therefore, the confusion over the target population of this study resurfaces
here.
Our target population was research, but the source of information was different for different
variables.

Furthermore, explanation about the origin of research funds lacks clarity, as do the reasons this
different origin support the reconversion of variables shown in Table 1.
Most of the research is funded by the university but some projects are also funded by
organizations outside the university like MOHME.

Confusion is also present in the â##collaboration in researchâ## subsection. Here it seems that
collaboration is established among 11 organizational actors, to which 21 connections are added
(page 10).
As previously mentioned this section was removed from the article.

The remaining subsection, entitled â##factors related to collaboration in researchâ##, raises
doubt about the research design adopted here: does it allow the researchers to establish causal
relations between factors (independent variables) and â##collaboration scoreâ## (dependent
variable), whatever is meant by the latter? Always with caution, causal relationships can only be
reasonably established when a longitudinal research design is adopted; it seems to me that this is
nor the case in this investigation.
The authors also believe that special conditions are required in order to establish a causal relation
and an observational study alone is not enough.
“The reason behind doing linear regression in spite of having multiple independent variables was to control the confounding effect. However, since this study was more of a hypothesis formulation and proposition of possible relative variables than a hypothesis test, the 'Enter' method was used in the data analysis” was added on page 11.

The 'collaboration score' is the sum of collaboration items from 'choosing a research topic' to 'elaboration of the results' between 'research team' and 'research users'.

We were merely trying to show the association between the dependent and independent variables, we did not attempt to establish a causal relationship. Linear regression can be used in cross-sectional studies as well; it is not necessarily used to show causal relationships.

In short, for the sake of clarity, I believe that the Results section of this manuscript should be rewritten. In this sense, I also think that the inclusion of the major revisions suggested above for the Background and Methods sections would help the authors to better introduce the results of their study to their readers.

As mentioned above, changes were made in the text.

5. Are the discussion and conclusions well balanced and adequately supported by the data? The authors have not included a Conclusions section in their manuscript. In regard to the Discussion section, my impression after a number of readings is that a lack of clarity, as well as of structure that helps the reader follow authors’ thinking are also dominant characteristics of this part of the manuscript. For instance, there is no clear connection between the results observed and previous literature on the topic. Lack of clarity also concerns the explanation of the results in their particular context. Furthermore, although important, it appears to me that authors are more worried about discussing the possible bias present in their study than about discussing the results they have obtained. Indeed, no contribution for theory or practice appears clearly stated.

Changes were made in the text.

6. Do the title and abstract accurately convey what has been found? I would suggest that the abstract be rewritten according to the suggestions provided for the the manuscript as a whole. I would also recommend that the title be such that it better conveys the purpose of the study, for instance preceding the current title with a gerund such as 'exploring', or 'examining', or something similar, would take great steps toward an accurate title.

The title was modified to "Examining research collaboration in Tehran university of medical sciences: whether integrated context is enough?"
Appendix 1:

Literature Review for construction of the questionnaires:

Barriers

Research and Researcher

- The method of research and its undesired quality (1,2,3,4)
- The absence of relative researches (2)
- The unavailability of research at the proper time(3)
- Ineffective transfer of research
- Politicization of research (3)
- Lack of trust among individuals (5,6,7,8,9)
- Cultural differences between different individuals
- Personal rivalries
- Limitation of working hours (10,11,12,13,14,15)
- Researchers have no experience and have received no education in the field of knowledge transfer (11,14,16)
- Too much merit is given to scientific productions of academic nature like articles in scientific research magazines etc (10,11,12,13,14,15)
- Inadequate budget is allocated to knowledge transfer related activities (10,11,12,14,17,18,19)
- Lack of official structures support of the most primitive and evident aspects of knowledge transfer, like creating contact between individuals and arranging meetings etc
- Specialization of knowledge (13, 16)
- The desire to keep material among specialists and prevent its dissemination to the public (13, 16)

Research user

- Individual factors (26)
- Personal characteristics (27,28,29,30)
- Beliefs, views, values and perspectives (27,28, 29,30,31,32)
- The extent of involvement in research activities (27, 28, 29,30)
- The extent of information and knowledge demand (30)
- Level of education (30)
- The extent of information and proficiency of users in the topic of research (34)
- Socio-economic and cultural factors (30,35,36,37)
- Lack of trust among individuals (3,4,5,6,7,8,9,38)
- Personal rivalries
- Intolerance to others mistakes and unwillingness in helping them (38)
- Decision making based on past experiences (3)
- Shortage of financial and economic resources or shortage of time for using research results (3,39,40,41,42,43,44,45,46,47,48,49)
- Policy makers and leaders pay no attention to research utilization (3)
• Decision makers unawareness of the presence of relative researches (2,3,41,48,49,50,51,52,53)
• Low access to required research (2,3)
• Lack of research utilization skills (2,3,45)
• Inability to critically evaluate results (41,42,43,45,48,49,50,51,52,53)
• Organizational context of decision makers
• Lack of control and freedom in bringing changes (39,40,41,42,43,44,45,46,47,48,49,54,55)
• Lack of managers and colleagues support in implementing decisions based on research evidence (39,40,41,42,43,44,45,46,47,48,49)
• The pressure of groups on decision makers (3)
• The concentration of power and information at one point, and the hierarchy of power (3)
• Inconsistency of policies and rapid replacements of decision makers (3)
• Matters related to censorship (3)
• Lack of desire of researchers and policy makers in cooperating with each other (3)

Research transfer

• Lack of time and opportunities for researchers and users to make contact (3,38)
• Organizational policies (instead of encouraging individuals to exchange knowledge, they direct them towards self-orientation) (38)
• Political and economic structures (4)
• Cultural and/or organizational pressures (4)
• Concerns about confidentiality of materials and specific magazine chief editors adopt (17,18,56,57)

Solutions

Research and Researcher

• Creating motivation in working for knowledge transfer
• Increasing the quality of research in health systems (20)
• Promoting researchers’ concept of timely and relative questions from the policy makers (3)
• Inclining researchers toward doing required, applied and practical research
• Teaching knowledge transfer skills (3,21)
• Setting new criteria for assessment of academic members’ performance (22)
• Correction of promotion and recruitment laws of the academic members (21,23,24,25)
• Financial support for knowledge transfer (11,12,14,17,19)

Research user

• Increasing credibility and mutual trust (3,5,6,7,8,9)
• Creating a positive insight into utilization of research results (3)
• Promoting policy makers concept of how to obtain authentic answers from these questions (3)
• Creating contact and involving researchers and policy makers in research and the process of policy making through meetings, emails, group discussions, electronic groups, encouragements (3)
• Creating motivation for involvement in the knowledge transfer process
- Creating supportive organizations such as an attitude based on finding and solving problems
- Access to a counselor in research (27,28,29)
- Training policy makers to apply, interpret and use research for decision making and action (9)
- Appointment of managers responsible for strengthening knowledge transfer (10,11)

**Research transfer**

- Creating an archive of the researches done (3)
- Facilitating the creation, dissemination and allotment of knowledge with internet sites, access to data banks and information banks, sending magazines and newspapers, setting up workshops, writing useful summaries of researches and their purposeful consignment (3)
- Creating various connecting networks (3)
- Strengthening the infrastructure of knowledge transfer
- Access to information technology such as information banks, artificial intelligence and tools helping in decision making; group technologies such as email and video conferences; network technologies such as internet and intranet (37,58,59,60,61,62,63,64,65) Tsoiat al 2003
- Strengthening the classic mechanisms of information exchange and also arranging conditions for unofficial relations (26,38)
- Strengthening the relations between researchers and policy makers for creating contact and long term commitments (3)
- Promoting relations through education of researchers and knowledge users (3,66)
- Collaboration of researchers and policy makers for prioritization (3)
- Exchange of ideas and mediation for creating favorable conditions of knowledge transfer (66)
- Creating information centers or using intermediators (66)
- Revolutionizing priorities, values, motivations for documentation, evaluation and valuing of scientific work (66)
- Creating organizational positions such as knowledge brokers which act as connecting bridges (3,10,11)
- Creating institutes that are committed to creating relations based on bilateral benefits between the society, government and private sector, with the help of which they can identify real and practical problems and solve them (22)
- Creating special organizations whose job is to attract the cooperation of specific groups and those which work in special fields (10,11)
- Special offices for transfer of research (10,11)
- Prioritization of knowledge transfer (10,11)
- Documentation of activities related to knowledge transfer (22,66)

**References**

3. IDRC (International Development Research Centre) and Coalition for Global Health Research and Institute of Population Health (2003). Knowledge translation in health and development. University of Ottawa, Canada

4. Young, J. (2005) Seminar Overview: Knowledge Translation. at: [www.odi.org.uk/rapid/events/UoO/docs/CHSRF_2_Internship_Talk_June_06.ppt](http://www.odi.org.uk/rapid/events/UoO/docs/CHSRF_2_Internship_Talk_June_06.ppt)


