Author’s response to reviews

Title: The relationship between marital satisfaction and depression in infertile couples: An Actor-Partner Interdependence Model approach

Authors:
Saman Maroufizadeh (saman.maroufizadeh@gmail.com)
Mostafa Hosseini (mhossein110@yahoo.com)
Abbas Rahimi Foroushani (rahimifo@tums.ac.ir)
Reza Omani-Samani (samani@royaninstitute.org)
Payam Amini (payam.amini87@gmail.com)

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Author’s response to reviews:

Dear Editor in Chief,

First of all, we thank the respected reviewers and the editorial board for their valuable comments that have helped us in improving the manuscript.

Best regards

Mostafa Hosseini
Department of Epidemiology and Biostatistics
Tehran University of Medical Sciences, Tehran, Iran

Technical Comments:
1. Please include Declarations heading in the Declarations section.
Response: Many thanks for your comment. Correction has been made (Ethical consideration has been removed from the Methods section).
Reviewer(s)' Comments to Authors:

Reviewer #1

I would like to congratulate the authors for their work. Some suggestions are provided that may increase the contribution of the study to the literature.

1) To include in the abstract when the couples' assessment was conducted.
Response: Thanks for valuable comment. Correction has been done as suggested (“in the evaluation phase of treatment” and “before starting the treatment” were added in the Methods section).

2) To improve the background regarding the association between marital satisfaction and depression. For example, the authors stated that no studies examined the relationship between marital satisfaction and depression in infertile couples, but some studies published in Human Reproduction have examined this association.
Response: We searched in the Human Reproduction Journal and international electronic databases, with the keywords marital satisfaction and depression (and similar keywords); Based on our search, no studies were found in the infertility context that looked at the relationship between marital satisfaction and depression. Some studies in this context have used both measures but not its relationship. Some sentences were also added in Background section (According to the comments of Reviewer #1).

3) To better justify the aims and hypothesis of the study. Why the authors hypothesize effects of marital satisfaction on depression and not the reverse effects (of depression on marital satisfaction)? The robustness of the statistical analysis is well justified. However, the contribution of the study to the knowledge and practice on couples' infertility is not sufficiently presented.
Response: In this study, we evaluated the effect of marital satisfaction on depression based on the Marital Discord Model of Depression (MDMD) in the literature. In addition, the results of a meta-analysis, in which the effect of marital satisfaction on depression has been examined, was reported. Although, some studies examined the impact of depression on marital satisfaction, but we think the MDMD seems more reasonable in the infertility context; thus, we tested this model. In addition, we cited the high-quality review article regarding the regarding the effect of marital satisfaction on depressive symptoms. Some sentences were also added in Background section (According to the comments of Reviewer #1).

4) To better described participants and procedures
4.1) The authors stated that couples were assessed when they were presenting for infertility treatment. All the couples were starting a new infertility treatment?
Response: Our cases were in evaluation phase and before starting the infertility treatment procedure. It was corrected in Abstract and Methods sections.

4.2) The authors should describe the total number of couples who were contacted.
Response: Thanks for the valuable comments. Of the 170 couples, 21 couples did not participate in the study, and 8 couples did not fill out the questionnaires completely. So, response rate was 82.9% (141/170). Method of sampling and eligibility criteria also have been added in the Method section.

5) Measures - The authors should include a Cronbach's alpha coefficient for women and for men.
Response: Thanks for valuable comment. Corrections have been done in the Measures section as suggested as follow:
EMS Scale: In the current study, the Cronbach’s alpha coefficients of EMS Scale for men and women
were 0.752 and 0.790, respectively.
HADS-D: In the current study, the Cronbach’s alpha coefficients of HADS-D subscale for men and women were 0.708 and 0.722, respectively.

5) Results
5.1) Characteristics of infertile couples
5.1.1) The authors should clarify if none of the infertile couples have children.
Response: As presented in Table 1, the prevalence of secondary infertility was 27.7% (n=39).

5.1.2) The authors described in Table 1 that almost half of infertile couples did not experience failure of previous infertility treatment. What this means?
Response: They were referred to our clinic for the first time and without any previous treatment.

5.2) Preliminary analyses
5.2.1) As the authors used the HADS-D subscale scores, I suggest they describe the variable as depression symptoms and not depression.
Response: Correction has been done as suggested by reviewer (depression to depression symptoms).

5.3) APIM analysis
5.3.1) Did the authors consider testing the effects of depression symptoms on marital satisfaction?
Response: Many thanks for your comment. In this study, we only evaluated the effect of marital satisfaction on depression based on the Marital Discord Model of Depression (MDMD) in the literature. Although, some studies examined the impact of depression on marital satisfaction, but we think the MDMD seems more reasonable in the infertility context; thus, we tested this model. In addition, we cited the high-quality review article regarding the regarding the effect of marital satisfaction on depressive symptoms.

5.3.2) Did the authors consider testing the characteristics of couples' infertility as possible moderators of these effects?
Response: Thanks for your valuable comment. For simplicity, only the actor and partner effects of marital satisfaction on depression symptoms were considered to test the Marital Discord Model of Depression (MDMD). The evaluations of the effect of covariates such as age, educational level, cause of infertility, duration of marriage, and infertility duration were not the aim of our study.

5.4) To better discuss the results
5.4.1) The findings need to be further discussed and explained.
5.4.2) The authors should include a paragraph explaining the importance of their findings to the literature and clinical intervention with infertile couples.
Response: Many thanks for your comment. We added the following paragraph in the Discussion section: “The present research offers a number of important contributions to understanding the relationship between marital satisfaction and depression. Studies regarding this relationship tend to focus on individuals, despite the obviously dyadic nature of marital satisfaction. Many researches in this area also tend to focus on general population of adolescents and couples, most of whom have probably not yet become involved in long-term, committed marital relationships or have not yet experienced a shared health problem like infertility. The present study addresses these limitations, as it sought to test the MDMD in infertile married couples from a dyadic perspective. The findings of the present study have potentially important clinical implications. Probably one of the most key findings is the importance of taking a dyadic perspective on marital satisfaction and depression. Besides the significant men and women actor effects, the study indicates that men’s marital satisfaction is also
important to their wives’ depression. Therapists working with infertile couples should be aware of these dyadic effects; thus, psychological interventions that target an enhancement of marital satisfaction and reduction of depression symptoms should treat the couple as a unit”.

The following sentence was also added in relevant section: “In addition, general population studies indicate that marital and psychological distress are more common among women than men”

Reviewer #2
A. General comments
I would like to applaud this article as it is a unique study in researching the relationship between marital discord and depression using 'An Actor-Partner Interdependence Model' approach.

B. Specific comments
1. The original Title is: The effect of marital satisfaction on depression in infertile couples: An Actor-Partner Interdependence Model approach. I think to reflect the cross-sectional research of this study, I suggest a new title of: The relationship between marital satisfaction and depression in infertile couples: An Actor-Partner Interdependence Model approach.
Response: Thanks for valuable comment. Title has been changed to “The relationship between marital satisfaction and depression in infertile couples: An Actor-Partner Interdependence Model approach” as suggested.

2. Regarding Abstract. The abstract is OK.
Response: Thanks for your kind attention.

3. Regarding Introduction. The introduction segment is fair, except some aspect of quality of life like sexual functioning, duration of infertility and frequency of sexual intercourse was not mentioned in this section.
Response: We added the following sentence in the Introduction section with regards to the infertility context: “Some of the demographic/fertility risk factors for depression in infertile couples include educational level, cause of infertility, duration of infertility, and having failure in previous infertility treatments [3-5]. One the other hand, infertility and its treatment has also a negative impact on a person’s marital satisfaction, relationship satisfaction, and sexual functioning [6-8].”
The following sentence was also added: “On the other hand, marital satisfaction is strongly influenced by sexual functioning. Satisfying marital and sexual functioning protects against the development of psychological distress but is also a factor related to depression and anxiety [13,14]”.

Regarding Methods.
An illustration of flow-chart to explain the methodology is useful in this section.
Response: Description of the clinic, sampling methods, response rate, and eligibility criteria were added in the Methods section.

It was mentioned that under the subheading of: "Participants and procedure", the participants in this cross-sectional study were infertile couples presenting for infertility treatment at the Royan Institute, in Tehran, Iran. Data collection was conducted between February to May 2017.

(a) It was not clear here how the sampling technique was performed. Please elaborate on this matter.
Response: Thanks for the valuable comments. Of the 170 couples, 21 couples did not participate in the study, and 8 couples did not fill out the questionnaires completely. So, response rate was 82.9% (141/170). Method of sampling has been added in the Method section (convenience sampling method).
Please explain a little bit about this medical Centre, i.e. Royan Institute of Tehran.
Response: Thanks for valuable comment. We added the following sentences in the Participants and Procedure section: “This clinic is one of the largest clinics for infertility treatment in Iran. Infertile couples come to this center, not only from the capital of Iran but also from all around the country”.

The participants who are on infertility treatment, is it an outpatient or inpatient? If it is outpatient follow-up, please answer (d)
Response: All our patients were outpatients and the clinic has no inpatient part and in case of complications they are referred to general hospitals.

Regarding the psychometric tool use, i.e. Hospital Anxiety and Depression Scale (HADS), why this tool is preferred in the study? Why not Hamilton Depression scale? As we know, HADS is dedicated for more inpatients rather than outpatient participants. To my understanding, HADS tend to report less depressive psychopathology than the Hamilton Depressions scale (less predictive value). Please clarify.
Response: HADS is not necessarily used for just inpatients and there are a lot of researches done on general population specially those who are referred to a clinic, hospital or health care center.

Regarding Results.
In Table 1, it was stated that the mean's age between the husband and wife was statistically significant (p < 0.001). Has a normality assumption of the data distribution has been taken prior to the statistical analysis? Please verify.
Response: Thanks for your comment. The Kolmogorov-Smirnov test indicate the normality assumption was satisfied (Kolmogorov-Smirnov Z=0.942, P=0.337).

Regarding Discussion and References.
The discussion was relevant to the results and appropriate. However, nothing was mentioned regarding the sexual functioning in this study. Marital satisfaction and discord may also contributed by sexual functioning. Please consider to cite some studies related to this, i.e. "Ahmad Faizal, Hatta Sidi, Suzaily Wahab, Leny SS, Nora Mat Zin, Najwa Baharuddin. Assessment of Marital Dissatisfaction and Its Association with Sexual Dysfunction and Psychiatric Morbidities among Primary Health Attenders in Malaysia. Int Medical J Malaysia. Volume 16 Number 2, Dec 2017: 19 – 26.

Response: The following sentence was also added: “On the other hand, marital satisfaction is strongly influenced by sexual functioning. Satisfying marital and sexual functioning protects against the development of psychological distress but is also a factor related to depression and anxiety”, and we cited the above high-quality article.