Iranian Journal of Pharmaceutical Research
Volume 21 · Issue 1 · e129431

OPEN PEER REVIEW

Explanation of Socio-economic Inequality in Medicine Use: A Cross-sectional Analysis from Iran

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SUBMITTED	REVISED	ACCEPTED	DOI
28 Jun 2022	9 Nov 2022	27 Nov 2022	10.5812/ijpr-129431

About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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1 Original submission

2 comments · 31 Jul 2022 – 9 Aug 2022

Referee 1 Reviewer

MAJOR REVISION 31 Jul 2022

Dear authors,
I had a chance to review your article and recommend the following major corrections to improve the manuscript:
1. All citation formats must be edited and inserted in the correct form.
2. The manuscript should be checked by a native English speaker to ensure language fluency.
3. Although the authors focus on essential drugs in “Background,” the medicines investigated are not essential ones. Please check the terminology.
4. The structure of “Background” and “objectives” should be rewritten to be more scientific.
For example: What is the study’s novelty in non-prescribed medicine use compared to reference 22? Why should this study be conducted? What are the challenges in terms of inequality in medicine use? And how could the results of the current study be helpful for policymakers or in practice?
5. In the “Methods” section of this survey:
“A sample of Iranian households (22470) living in urban and rural areas of Iran was chosen through three-stage cluster sampling”
Since the unit of analysis is the household, the data should be collected from one family member or the head of the household based on the predefined unit of analysis. Basically, this approach leads to excess and repeated data from one family without any additional information. It should be scientifically justified.
On the other hand, the criteria for selecting family members are not explicitly defined: availability? Presence? Age? Refer to this sentence: “Interviews were conducted for all selected family members (N=78 378).”
6. I could not find any report on validity and reliability or references for the medicine use questionnaire, if it is a standard tool. It should be clearly noted why a time period of 2 weeks was chosen in the questionnaire.
7- What is the difference between these 2 questions: "Have you used any non-prescribed medicines from pharmacies during the last two weeks?" and "Have you had any self-medication during the last two weeks"?
8. How do you justify the results of the study regarding non-prescribed medicine use compared to the results of the study by Rezaei et al.: Socioeconomic Inequality in Self-Medication in Iran: Cross-Sectional Analyses at the National and Subnational Levels?
7. In the “Results” section of this survey:
Where the descriptive data are presented in Table 1, the following findings are stated:
“As this table shows, females were more likely to take prescribed medicines than men, although they were less likely to take non-prescribed medicines.”
“The participants above 60 years old had higher medicine use rate, compared with other age groups”
“people who needed more health care were less likely to use prescribed and non-prescribed medicines”
Please note that we are not able to draw the above conclusions from descriptive, unadjusted, raw data. This may be because most of the participants are young, illiterate, married female housekeepers. We can say “higher rate”, “less likely”, and “more likely” if the data are analyzed with appropriate statistical methods.
Best regards,

Associate Editor

MAJOR REVISION 9 Aug 2022

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I had a chance to review your article and recommend the following major corrections to improve the

manuscript:
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Best regards,

Decision:
Major revision

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to reviewers

It is a matter of pride that our research is judged by you. Before answering them, we would like to express our gratitude for these valuable and informative comments.

1. All citation formats must be edited and inserted in the correct form.

In the new edition, the references were modified based on what you said.

2. The manuscript to be checked by a native English to ensure language fluency.

In the new version, we have tried to make our writing as close to native English as possible.

3. Although the authors focus on essential drugs in “Background,” medicines those investigated are not essential ones. please check the terminology.

Thank you very much for this important and instructive point that you mentioned. The relevant writings in the introduction were modified based on this common.

4. The structure of “Background” and “objectives” should be re-written to be more scientific.

For example: what is the study’s novelty in non-prescribed medicine use compared to reference 22? Why should this study be conducted? What are the challenges in terms of inequality in medicine use? And how the results of the current study could be helpful for policymakers or in practice?

We would like to thank you for this comment because it will enrich our work. Therefore, in the new edition, the study objectives were modified in line with what you said.

5. In the “Methods” section of this survey:

“A sample of Iranian households (22470) living in urban and rural areas of Iran was chosen through three-stage cluster sampling” since the unit analysis is the household, the data should be collected from one family member or head of household based on the pre-defined unit of analysis. Basically, this approach leads to excess and repeated data from one family without any additional information. it should be scientifically justified.

On the other hand, the criteria of family member selection are not explicitly defined; availability? Presence? Age? Refer to this sentence: “Interviews were conducted for all selected family members (N=78 378).”

In the aforementioned survey, all family members were examined in terms of their need for health services and their benefits. Of course, for people under fifteen years of age, interviews were conducted with the head of the household, which is implicitly mentioned in our study. For this reason, people under the age of fifteen were excluded to avoid recall bias.

6. I could not find any validity and reliability report or references about medicine use questionnaire if it is a standard tool. It should be clearly noted that why time period of 2 weeks was chosen in the questionnaire.

Unfortunately, we did not have access to any kind of national survey that is specific to the use of drugs. Therefore, we had to use the health service utilization survey. Many studies in Iran and abroad have used secondary data in their studies. Of course, we have implicitly mentioned this limitation in the discussion of the article. It should be noted that the survey of the use of health services in Iran is conducted by the National Research Institute and its data has been used by researchers in various studies.

7- What is the difference between these 2 questions: "Have you used any non-prescribed medicines from pharmacies during the last two weeks?" and "Have you had any self-medication during the last two weeks"

In the health services utilization questionnaire, two categories of people including those who needed health services and benefited from them and those who needed health services and did not use them were examined. The first question in this comment is for the people mentioned in the first category who went to pharmacies without a prescription, and the second question is for people who did not go to health service providers and pharmacies. Of course, the number of observations for the first question was small. In our analysis, we decided to combine these questions under the heading of self-treatment.

8. How do you justify the results of the study in the scope of non-prescribed medicine use compared to the results of Rezaei et al study: Socioeconomic Inequality in Self-Medication in Iran: Cross-Sectional Analyses at the National and Subnational Levels?

In the discussion, we have pointed out and justified the difference between our findings and the previous study. You can find following expression in discussion. **“In previous research, authors used household budget data provided by the Statistic Center of Iran. These data are monetary data and do not accurately**

show health-seeking behaviors. Since poor households may not have enough affordability to pay for non-prescribed medicines, the definition of self-medication in this study may be restrictive."

7. In the "Results" section of this survey:

Where the descriptive data are presented in Table 1, the following findings are stated:

"As this table shows, females were more likely to take prescribed medicines than men, although they were less likely to take non-prescribed medicines."

"The participants above 60 years old had higher medicine use rate, compared with other age groups"

"people who needed more health care were less likely to use prescribed and non-prescribed medicines"

Please note that from descriptive, unadjusted, raw data, we are not able to conclude the above findings. This is may be because of this point that most of the participants are young, illiterate, housekeeper, married females. We can say "higher rate", "less likely" , and "more likely", if the data analyzed with appropriate statistical methods.

We would like to thank you for this informative comment. In this edition, we removed the sentences that you criticized from a scientific point of view.

2 Revision 1

2 comments · 30 Oct 2022 – 31 Oct 2022

Referee 2 Reviewer

MINOR REVISION 30 Oct 2022

Dear authors

Your paper offers an attractive and novel perspective on the pharmaceutical sector in Iran; however, the following minor revision is recommended for improvement.
In the method section
1. Please add clear definitions of "non-prescribed medicines" and "self-medication" and explain their differences in the manuscript. In addition, please clarify whether you consider both variables (non-prescribed medicines and self-medication) in your model as non-prescribed medicine. If your answer is "Yes", please justify it.
In the discussion section
2. Please justify the huge difference in the amounts of residuals of the regressions for prescribed and non-prescribed medicine.
In the result section
3. In Figure, please correct the spelling of "residual" in your graph, where it is mistakenly written as "resitual".

Best regards,

Associate Editor

MINOR REVISION 31 Oct 2022

Dear authors

Your paper offers an attractive and novel perspective on the pharmaceutical sector in Iran; however, the following minor revision is recommended to improve it.
In method section
1. Please add clear definitions of "non-prescribed medicines" and "self-medication" and explain their differences in the manuscript. In addition, please clarify whether you treat both variables (non-prescribed medicines and self-medication) in your model as non-prescribed medicine. If your answer is "Yes", please justify it.
In discussion section
2. Please justify the reason for the huge difference in the amounts of the regression residuals for prescribed and non-prescribed medicine.
In result section
3. In Figure, please correct the spelling of "residual" in your graph, where it is mistakenly written as "resitual".

Best regards,

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear editor In-chief

I would like to thank the authors of this research from you and the reviewers. This scientific interaction added to our knowledge in the field of research. Below, we have tried to answer the comments of the honorable reviewer.

With best wishes,

1. Please add clear definition on "non-prescribed medicines" and "self-medication" and their differences in the manuscript. In addition, describe that if you are consider both (non-prescribed medicines and self- medication) variables in your model as non-prescribed medicine? If your answer is "Yes", please justify it in discussion section.

Re: we tried to address this comment in the revised manuscript. The used questionnaire surveyed two groups of people who needed health services. The first group was related to those who had health-seeking behavior and the second group was about those who did not seek to meet their needs. The first group was asked about the use of both prescription and non-prescription drugs. The second group was asked about self-medication. Because the type of drug was not clearly specified in the question regarding the use of non-prescription drugs and the frequency of self-medication in our study was high, we placed these people in non-prescribed medicines category.

2. Please justify the reason of huge difference amounts of residuals of the regressions in prescribed and non-prescribed medicine.

Re: The residual in decomposition analysis is related to the impact of random or unknown factors in the model. This comment was addressed in the results as you requested.

In result section

3. In Figure, please correct "residual" dictation in your graph that is written by mistake "resitual".

Re: this figure revised in new format.

Truly yours,

3 Revision 2

2 comments · 24 Nov 2022 – 26 Nov 2022

Referee 2 Reviewer

ACCEPT 24 Nov 2022

Dear Authors

Thank you for your answers.

The subject of your paper is good, and the methods that you use to analyze this problem are good. However, it seems that your methodology, with better data sources, would provide a better explanation for inequality in medicine use. We welcome future work like this.

Good luck.

Associate Editor

ACCEPT 26 Nov 2022

The revision successfully responded to the comments.