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OPEN PEER REVIEW

The Phenomenon of the Fee Splitting Between Physicians and Pharmacists and Its Impacts on Healthcare Delivery

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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.

More about open peer review: brieflands.com/knowledgebase/opr

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1 Original submission

2 comments · 20 Dec 2024 – 24 Dec 2024

Referee 1 Reviewer

ACCEPT 20 Dec 2024

No comment

Referee 2 Reviewer

MAJOR REVISION 24 Dec 2024

Dear Editor,
Thank you for sending me this manuscript. Some comments are provided to improve the manuscript titled "The phenomenon of fee splitting between physicians and pharmacists and its impacts on healthcare delivery":

1. In the title, "the" should be added before "fee".
2. In the conclusions of the abstract, it is better to write suggestions for future studies.
3. Please check the keywords against MeSH.
4. In the background, the authors should refer to studies conducted in other parts of the world or Iran. Also, the last paragraph should mention the innovation of the work. What advantage does this study have over previous studies, and what gap does it fill in this field?
5. There is no detailed information written in the methodology regarding the questionnaire.
Was this questionnaire developed by the researcher? Or has it been previously evaluated by other researchers?
It is not necessary to include all the questions in the questionnaire in the article. The validity and reliability of the instrument should be mentioned in the article. The method of scoring the participants' responses and the interpretation of the results should be clearly stated. In my opinion, this section needs a major revision.

6. In the results section, it is best to present the demographic information of the participants in the form of a table and to refer to the important results in the explanation of that table. In Table 2, the results are written based on domains, but the methodology does not explain which questions are in which domains. The division of questions into different domains should be specified.
7. In the discussion, the results of the study should be compared with those of other studies. In this paper, the results are rewritten in the discussion section. The discussion should be written in a more structured way.
8. All references need to be edited based on the Vancouver style.
9. It is recommended that the entire text be reviewed for grammar and linguistic structure by a person fluent in English at the end of the work.

Please highlight all the amendments in your manuscript or indicate them by using tracked changes.

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.

In response to the article review

the manuscript titled: “The phenomenon of fee splitting between physicians and pharmacists :”and its impacts on healthcare delivery

In the title, “the” should be added before “fee”. Thanks for your insightful comment, it was .1 corrected.” The phenomenon of the fee splitting between physicians and pharmacists and its ”impacts on healthcare delivery

In the conclusions of the abstract, it is better to write suggestions for future studies. Thanks .2 for your insightful comment, it was corrected.” conclusions **:** While there was strong consensus on the need for regulation and disclosure of physician-pharmacy financial agreements, opinions vary on their practical impacts. The findings highlighted the complex nature of these relationships and the need for clear guidelines to address ethical concerns and potential effects on patient care. It is suggested that future longitudinal studies be conducted ”.to track patient outcomes in healthcare settings with different financial agreement models

Please check keywords with Mesh. It checked . **Keywords:** Physicians, Pharmacists, Delivery .3 of Health Care, Patient Care, Health Policy

4. In the background, the authors should refer to studies conducted in other parts of the world or Iran. Also, the last paragraph should mention the innovation of the work. What advantage does this study have over previous studies and what gap does it fill in this field? . Thanks for your insightful comment, it was corrected. Previous studies showed that fee splitting is an unethical act, contradicts the goals of the medical profession, and undermines patient's best interest. In Iran, there is no code of ethics on fee splitting, but in this study, it was found that the majority of general practitioners considered it unethical. However, among those who had negative attitudes toward fee splitting, there were physicians who did practice fee splitting. The results of the study showed that physicians who had a positive attitude toward fee splitting practiced it more than others. Therefore, if physicians consider fee splitting unethical, its rate will certainly decrease. The study claims that to decrease such practice, the healthcare system has to revise the tariffs (21). Another study of Nigerian doctors assessed their knowledge, perception, and attitude toward fee-splitting . this study showed that Stricter regulatory enforcement and continuous ethics education are needed to disrupt the widespread fee-splitting culture(22).

Considering the pivotal role pharmacists play, they must possess comprehensive knowledge of both their ethical responsibilities and the legal frameworks governing their interactions with patients (7, 13). This study investigated the physicians' attitude toward the challenges of stakeholder opportunism in physician-pharmacist cooperation.

5. There is no detailed information written in the methodology regarding the questionnaire. Was this questionnaire developed by the researcher? Or has it been previously evaluated by other researchers? It is not necessary to include all the questions in the questionnaire in the article. The validity and reliability of the instrument should be mentioned in the article. The

method of scoring the participants' responses and the interpretation of the results should be clearly stated. In my opinion, this section needs a major revision. Thanks for your insightful comment, it was corrected

The questionnaire was developed by the researchers. The research team initially crafted a comprehensive questionnaire consisting of four domains and 26 questions. To ensure the instrument's content validity, they sought expert input by consulting professors specialized in the relevant field. After carefully reviewing and analyzing the professional feedback received, the researchers made strategic modifications to the questionnaire. As a result of these expert recommendations, the final version was refined and streamlined, ultimately reducing the total number of questions to 17.

To ensure validity, the study employed the content validity index (CVI) and content validity ratio (CVR) for assessing content validity. Regarding the CVI, all questions across three sections demonstrated simplicity, clarity, and relevance scores exceeding 0.7, while the CVR for all questions was also above 0.7. To evaluate the scientific reliability of the questionnaire, it was divided into sections, and the correlation coefficient was calculated using Cronbach's alpha, yielding a value of 0.8.

The four dimensions of the questionnaire were as follows: the first dimension was awareness and understanding, covered questions (1-3); the second dimension was ethical concerns and professional behavior, included questions (4-6); the third dimension was impact on patient care, comprised questions (7-11); and the fourth dimension was systemic and policy perspectives, encompassed questions (12-17).

6. In the results section, it is best to present the demographic information of the participants in the form of a table and to refer to the important results in the explanation of that table. In Table 2, the results are written based on domains, but the methodology does not explain which questions are in which domains. The division of questions into different domains should be specified. Thanks for your insightful comment, it was corrected

Out of 69 participants, 33 (47.8%) doctors (19 as GP and 14 as specialist) worked at public medical centers and 36 (52.2%) doctors (15 as GP and 21 as specialist) worked at private clinics. The .characteristics of respondents are shown in Table 1

Table 1: Characteristics of respondents

Variable	Status	Frequency (%)
Age	>50	50(72.5)
	<50	19(27.5)
Gender	Male	32(46)
	Female	37(54)
Hospital	Private (nonacademic) hospitals	36(52)
	Academic public institutions	33(48)
Type of job	General practitioners	34(49)
	Specialist	35(51)

7. In the discussion, the results of the study should be compared with other studies. In this paper, the results are rewritten in the discussion section. The discussion should be written in a more structured way. Thanks for your insightful comment, it was corrected

Discussion

Financial agreements between physicians and pharmacies raise significant ethical concerns, impacting patient care and contributing to healthcare disparities. There is a strong agreement on the necessity for guidelines and regulations to manage these agreements (3, 23). The current study revealed that most doctors believe these financial arrangements contradict professional conduct.

Bardet et al. reported that in Eastern Europe, common obstacles to physician–pharmacist collaboration include limited awareness of pharmacy services, challenges related to the funding structure and workload in pharmacies, as well as the absence of private consultation spaces for patients (6).

Our findings indicated that private clinic GPs exhibited higher awareness regarding financial agreements compared to their public counterparts, with higher mean scores for specialists in private clinics versus GPs in public clinics. Medical doctors who work in private clinics often have more exposure to financial agreements due to their operational models, which may prioritize profitability (25, 26). Evidence revealed that a decrease in the quality of medical services would be observed, as physicians might be inclined to prescribe suboptimal medications for patients if they receive a share of drug sales. Such practices could lead to increased treatment costs if physicians and pharmacies unfairly divide profits by circumventing regulations (27, 28). Public trust in the healthcare system may erode if society believes that medical professionals are exploiting patients' healthcare needs for personal gain. This behavior could also foster corruption within the healthcare system, potentially having adverse effects on society and the economy (29, 30).

Furthermore, gender differences were observed in attitudes towards transparency in the current study, where female physicians scored higher on willingness to disclose financial agreements. Rose et al. reported that female physicians received significantly less in payments than male physicians across various categories, with gender disparities more pronounced at higher-reputation institutions. Companies should closely evaluate gender disparities in physician payments to ensure they reflect fair market value for services (31, 32). The current study found that individual factors such as educational level, workplace, and gender significantly influence physicians' views on financial agreements with pharmacies. However, the combined effects of these variables did not show statistically significant differences. The prevalence of profit-sharing between physicians and pharmacies may weaken competition and innovation in the pharmaceutical and healthcare sectors, potentially increasing inequality in access to treatment for lower-income patients. Furthermore, criticism of physicians' conduct related to profit-sharing could undermine the credibility of the medical profession and erode public trust in healthcare providers (5, 33). Corruption in the health sector worldwide hinders access to essential healthcare and medicines for vulnerable groups, reduces the effectiveness of patient care, and negatively impacts health policies, spending priorities, and overall community health (34).

Strengths and limitations

The study highlights the perceptions of financial agreements between physicians and pharmacists, emphasizing the need for ongoing discussions and regulatory frameworks to ensure ethical practices in healthcare. It found that most doctors believe these agreements contradict professional conduct and raised concerns about prioritizing profit over patient care. The American College of Physicians (ACP) acknowledged the potential benefits of corporate involvement in healthcare but stressed the importance of maintaining physicians' ethical responsibilities. However, the study has limitations, including a small sample size that may affect the generalizability of the findings and a lack of insight into the reasons behind physicians' responses or the specific nature of the financial agreements. Future research should involve larger samples, qualitative data to explore underlying reasons for attitudes, and perspectives from pharmacists and patients for a more comprehensive understanding of the issue.

8. All references need to be edited based on the Vancouver style. ". Thanks for your insightful comment, it was corrected

9. It is recommended that the entire text be reviewed for grammar and linguistic structure by a person fluent in English at the end of the work.

Thanks for your insightful comment, it was corrected

2 Revision 1

0 comments

No public comments in this round.

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.

Associate Editor 1:

Major Comments:

Lack of detailed statistical methods and handling of quantitative variables. We acknowledge the need for more detailed statistical methods. In this study, we employed MANOVA using Pillai's Trace to analyze differences between groups based on educational degree, workplace type, and gender. Quantitative variables were reported as means ± standard deviations (SD), and categorical variables were expressed as frequencies and percentages. To enhance clarity, we will provide additional details on how quantitative variables were handled, including the assumptions tested prior to performing MANOVA (e.g., normality, homogeneity of variance) and the rationale for selecting specific statistical tests.

Absence of discussion on potential biases and limitations.

Thanks a lot, the study has limitations, including the use of convenience sampling and small sample size that may affect the generalizability of the findings. Additionally, responses to the questionnaire may be influenced by social desirability bias. Also, this design restricts our ability to infer causality between financial agreements and their impact on healthcare delivery. So, future research should involve larger samples, qualitative data to explore underlying reasons for attitudes, and perspectives from pharmacists and patients for a more comprehensive understanding of the issue.Missing information on the generalisability of the study results.

Missing information on the generalisability of the study results.

Thanks a lot, the study was conducted in Rasht, Iran, with participants from both public and private medical centers. While this provides valuable insights into physician-pharmacist relationships in this region, the findings may not be fully generalizable to other regions or healthcare systems with different regulatory frameworks or cultural contexts. We will explicitly state this limitation in the revised manuscript.

Minor Comments:

More detailed demographic data and eligibility criteria could enhance understanding. The eligibility criteria included licensed general practitioners (GPs) and specialists working in public or private healthcare centers in Rasht. Participants provided informed consent before completing the survey. Demographic data such as age, years of experience, and specialization were collected

Explanation of how the study size was determined would be beneficial. Thanks for your insightful comment. The sample size (69 participants) was determined based on feasibility and accessibility within the selected healthcare centers. While no formal power analysis was conducted due to resource constraints, we ensured that

the sample included a balanced representation of GPs and specialists across public and private settings.

Inclusion of funding information and potential conflicts of interest. Thanks for your appreciative comment. We regret omitting funding information and conflict-of-interest declarations in the original submission. This study was self-funded by the authors, with no external financial support received. Additionally, all authors declare no conflicts of interest related to this research. We will add this information to the revised manuscript under a separate "Funding and Conflicts of Interest" section

Funding/Support

This study was not supported in part by grant.

Conflict of Interests Statement

The authors of this research have no relevant financial or non-financial interests to disclose

3 Revision 2

0 comments

No public comments in this round.

4

Revision 3

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.

Categorization of Comments

Major Comments:

- Lack of discussion on potential sources of bias.

  Thank you for raising this important point. We acknowledge that the manuscript did not explicitly address potential sources of bias. We now include a discussion of the following:

  Selection Bias: Our sample was drawn from physicians in Rasht, Iran. This may limit the generalizability of our findings to other regions with different healthcare systems or cultural norms.

  Social Desirability Bias: As the survey instrument addressed sensitive topics (ethical conduct, influence on prescribing), participants may have provided responses they perceived as socially acceptable rather than their true beliefs or behaviors. We attempted to mitigate this by ensuring anonymity and emphasizing the importance of honest responses.

  Recall Bias: The questionnaire relied on physicians' recall of their experiences and attitudes. This may be subject to recall bias, particularly regarding the frequency of encountering fee-splitting arrangements.

- Absence of explanation for study size determination.

We appreciate the opportunity to clarify the rationale for our study size. The sample of 69 physicians was determined by a combination of factors:

Feasibility: This number was realistically achievable given the study's resources and timeframe.

Representativeness: We aimed to recruit a diverse group of physicians, including both GPs and specialists from public and private centers in Rasht, Iran, to capture a range of perspectives.

Similar Studies: Our sample size is comparable to those used in similar studies investigating physician attitudes in specific geographic areas.

We acknowledge that a larger sample size could have increased the statistical power of our analyses and improved generalizability. However, based on these considerations and the significant findings obtained, we believe that our sample size was sufficient to address the study objectives.

- No mention of statistical methods used to control for confounding.

Thank you for raising this point. While our study primarily aimed to assess associations and explore differences in attitudes, we acknowledge the potential influence of confounding variables. We addressed this by:

Stratified Analyses: We performed subgroup analyses based on educational degree, workplace type (public vs. private), and gender to examine whether these factors were associated with the outcomes of interest.

MANOVA: We used MANOVA to determine if differences between these groups were statistically significant, helping to account for potential confounding effects.

We acknowledge that more sophisticated methods, such as regression analysis, could have been used to explicitly control for multiple confounders simultaneously. However, given our sample size, the MANOVA approach was considered appropriate for identifying key differences between groups.

- Lack of discussion on study limitations.

  Thanks a lot, limitation is end of discussion

- No information on the generalisability of the results.
- Thanks a lot, this issue added to limitation.

Minor Comments:

- Absence of specific eligibility criteria for participants.

We apologize for the omission. The specific eligibility criteria have now been clearly stated in the Methods section: 1. Licensed general practitioners (GPs) and specialists.2. Currently working in public or private healthcare centers in Rasht, Iran. 3.Willingness to provide informed consent to participate in the study.

- Lack of detailed information on data measurement methods.

We agree that more detailed information on data measurement methods is needed. We have expanded the Methods section to provide the following details:

The questionnaire was developed by the researchers. The research team initially crafted a comprehensive questionnaire consisting of four domains and 26 questions. To ensure the instrument's content validity, they sought expert input by consulting professors specialized in the relevant field. After carefully reviewing and analyzing the professional feedback received, the researchers made strategic modifications to the questionnaire. As a result of these expert recommendations, the final version was refined and streamlined, ultimately reducing the total number of questions to 17.

To ensure validity, the study employed the content validity index (CVI) and content validity ratio (CVR) for assessing content validity. Regarding the CVI, all questions across three sections demonstrated simplicity, clarity, and relevance scores exceeding 0.7, while the CVR for all questions was also above 0.7. To evaluate the scientific reliability of the questionnaire, it was divided into sections, and the correlation coefficient was calculated using Cronbach's alpha, yielding a value of 0.8.

The four dimensions of the questionnaire were as follows: the first dimension was awareness and understanding, covered questions (1-3); the second dimension was ethical concerns and professional behavior, included questions (4-6); the third dimension was impact on patient care, comprised questions (7-11); and the fourth dimension was systemic and policy perspectives, encompassed questions (12-17)."

- No mention of funding sources.

  The study was conducted without external funding or financial support. This has now been mentioned in the Funding section of the manuscript to ensure full transparency.

4 Revision 3

1 comment · 21 Apr 2025

Associate Editor

MAJOR REVISION 21 Apr 2025

Revision: 1

Based on the study design described in the abstract, it is a cross-sectional study. Therefore, I will use the STROBE checklist for cross-sectional studies to conduct the peer review.
Peer Review Using STROBE Checklist for Cross-Sectional Studies

Title and Abstract
Question: Indicate the study's design with a commonly used term in the title or the abstract.
Peer Review: The abstract clearly identifies the study as a cross-sectional survey.

Abstract
Question: Provide in the abstract an informative and balanced summary of what was done and what was found.
Peer Review: The abstract provides a clear summary of the study's objectives, methods, results, and conclusions.

Introduction
Question: Explain the scientific background and rationale for the investigation being reported.
Peer Review: The background section addresses the ethical concerns regarding financial agreements between physicians and pharmacies, providing a rationale for the study.

Objectives
Question: State specific objectives, including any prespecified hypotheses.
Peer Review: The objective to assess physicians' attitudes toward financial agreements and their perceived effects on healthcare delivery is clearly stated.

Methods - Study Design
Question: Present key elements of study design early in the paper.
Peer Review: The study design is identified as a cross-sectional survey using a 17-item questionnaire.

Setting
Question: Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection.
Peer Review: The abstract mentions the inclusion of GPs and specialists from public and private healthcare centers but lacks specific dates for data collection.

Participants
Question: Give the eligibility criteria and the sources and methods of selection of participants.
Peer Review: The abstract specifies the inclusion of 69 participants who are GPs and specialists but does not detail the eligibility criteria or selection methods.

Variables
Question: Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers.
Peer Review: The outcomes related to awareness, ethical concerns, and impacts on patient care are defined, but potential confounders are not explicitly mentioned.

Data Sources/Measurement
Question: For each variable of interest, give sources of data and details of methods of assessment

(measurement).
Peer Review: The use of a 17-item questionnaire is mentioned, but further details on the assessment methods are not provided.

Bias
Question: Describe any efforts to address potential sources of bias.
Peer Review: The abstract does not discuss efforts to address potential bias.

Study Size
Question: Explain how the study size was arrived at.
Peer Review: The abstract does not explain how the sample size of 69 participants was determined.

Quantitative Variables
Question: Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why.
Peer Review: The abstract provides some quantitative results (e.g., mean agreement scores) but does not detail the handling of these variables.

Statistical Methods
Question: Describe all statistical methods, including those used to control for confounding.
Peer Review: The abstract does not specify the statistical methods used.

Results - Participants
Question: Report numbers of individuals at each stage of the study.
Peer Review: The abstract reports the total number of participants but not the numbers at each stage.

Descriptive Data
Question: Give characteristics of study participants and information on exposures and potential confounders.
Peer Review: Some participant characteristics (e.g., gender differences) are mentioned, but more detailed demographic data are lacking.

Outcome Data
Question: Report numbers of outcome events or summary measures.
Peer Review: The abstract provides summary measures related to attitudes and awareness.

Main Results
Question: Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision.
Peer Review: The abstract provides some unadjusted estimates but lacks confounder-adjusted estimates.

Discussion - Key Results
Question: Summarize key results with reference to study objectives.
Peer Review: The conclusions summarize the key findings and reference the study objectives.

Limitations
Question: Discuss limitations of the study, taking into account sources of potential bias or imprecision.
Peer Review: The abstract suggests the need for future studies but does not explicitly discuss limitations.

Interpretation
Question: Give a cautious overall interpretation considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.
Peer Review: The abstract provides an interpretation of the findings but does not discuss limitations or results from similar studies.

Generalisability
Question: Discuss the generalizability (external validity) of the study results.

Peer Review: The abstract does not discuss the generalizability of the results.

Funding
Question: Give the source of funding and the role of the funders for the present study.
Peer Review: The abstract does not mention funding sources.

Categorization of Comments

Major Comments:

Lack of detailed statistical methods and handling of quantitative variables.
Absence of discussion on potential biases and limitations.
Missing information on the generalizability of the study results.

Minor Comments:

More detailed demographic data and eligibility criteria could enhance understanding.
Explanation of how the study size was determined would be beneficial.
Inclusion of funding information and potential conflicts of interest.

Revision: 2

Based on the abstract provided, the study is a cross-sectional survey. Therefore, I will use the STROBE checklist for cross-sectional studies to conduct the peer review.
Peer Review Using STROBE-Cross-Sectional Checklist

Title and Abstract
Question: Indicate the study's design with a commonly used term in the title or the abstract.
Review: The abstract clearly states that the study is a "cross-sectional survey," which is appropriate.

Abstract
Question: Provide in the abstract an informative and balanced summary of what was done and what was found.
Review: The abstract provides a concise summary of the background, methods, results, and conclusions, which is informative and balanced.

Introduction
Question: Explain the scientific background and rationale for the investigation being reported.
Review: The background section highlights concerns about ethical implications and potential impacts on patient care, providing a rationale for the study.

Objectives
Question: State specific objectives, including any prespecified hypotheses.
Review: The objective is to assess physicians' attitudes toward financial agreements with pharmacies and their perceived effects on healthcare delivery.

Methods - Study Design
Question: Present key elements of study design early in the paper.
Review: The study design is clearly mentioned as a cross-sectional survey using a 17-item questionnaire.

Setting
Question: Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection.
Review: The abstract does not specify the locations or dates of data collection, which is a minor omission.

Participants
Question: Give the eligibility criteria and the sources and methods of selection of participants.

Review: The study included 69 participants, comprising general practitioners and specialists from public and private healthcare centers. However, specific eligibility criteria are not detailed.

Variables
Question: Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers.
Review: The questionnaire covered awareness, ethical concerns, impact on patient care, and systemic perspectives, which are well-defined variables.

Data Sources/Measurement
Question: For each variable of interest, give sources of data and details of methods of assessment (measurement).
Review: The data source is a 17-item questionnaire, but details on the measurement methods are not provided.

Bias
Question: Describe any efforts to address potential sources of bias.
Review: The abstract does not mention efforts to address potential sources of bias, which is a significant omission.

Study Size
Question: Explain how the study size was arrived at.
Review: The abstract does not explain how the study size of 69 participants was determined.

Quantitative Variables
Question: Explain how quantitative variables were handled in the analyses.
Review: The abstract provides some statistical analysis (e.g., mean scores for agreement) but does not detail how quantitative variables were handled overall.

Statistical Methods
Question: Describe all statistical methods, including those used to control for confounding.
Review: The abstract mentions mean scores and standard deviations but does not detail the statistical methods used to control for confounding.

Results - Participants
Question: Report numbers of individuals at each stage of the study.
Review: The abstract reports 69 participants but does not provide a breakdown of stages.

Descriptive Data
Question: Give characteristics of study participants.
Review: The abstract provides some demographic data (e.g., gender differences in responses).

Outcome Data
Question: Report numbers of outcome events or summary measures.
Review: The abstract provides summary measures such as mean scores for agreement on ethical concerns.

Main Results
Question: Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision.
Review: The abstract provides unadjusted mean scores but does not mention confounder-adjusted estimates.

Discussion - Key Results
Question: Summarize key results with reference to study objectives.
Review: The abstract summarizes key results, highlighting the consensus on the need for regulation and disclosure.

Limitations
Question: Discuss limitations of the study.

Review: The abstract does not discuss limitations, which is a significant omission.

Interpretation
Question: Give a cautious overall interpretation considering objectives, limitations, and other relevant evidence.
Review: The abstract provides an interpretation but does not discuss limitations.

Generalisability
Question: Discuss the generalizability of the study results.
Review: The abstract does not discuss the generalizability of the results.

Funding
Question: Give the source of funding and the role of the funders.
Review: The abstract does not mention funding sources.

Categorization of Comments

Major Comments:

Lack of discussion on potential sources of bias.
Absence of explanation for study size determination.
No mention of statistical methods used to control for confounding.
Lack of discussion on study limitations.
No information on the generalizability of the results.

Minor Comments:

Absence of specific eligibility criteria for participants.
Lack of detailed information on data measurement methods.
No mention of funding sources.

Overall, the abstract provides a good overview of the study but lacks critical details in several areas that are important for a comprehensive understanding of the study's design, execution, and implications.

5

Revision 4

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.

Revision : 1

Major Comments:

1.Lack of detailed statistical methods and handling of quantitative variables.thanks alot, my response is "Demographic information such as age, sex, type of hospital, and job status was gathered from participants. In this study, a 17-item questionnaire was administered to assess medical doctors' attitudes toward stakeholder opportunism in physician-pharmacist collaboration. The questionnaire utilized a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5) and encompassed four dimensions: awareness and understanding, ethical concerns and professional conduct, effects on patient care, and systemic and policy viewpoints. Additional demographic details collected included age, years of professional experience, and area of specialization. "

2. Absence of discussion on potential biases and limitations.

Thanks, The study may be affected by several biases: Sampling bias due to voluntary participation from a limited group of physicians, which may not represent all medical professionals in the area and limits generalizability. Response bias as participants might have given socially desirable answers or underreported sensitive behaviors, potentially skewing the results. Systematic bias because respondent characteristics like gender, workplace, or education could have influenced their answers, affecting the assessment of attitudes and ethical concerns.

3.Missing information on the generalisability of the study results. I didn't understand the meaning of this question.

Minor Comments:

1.More detailed demographic data and eligibility criteria could enhance understanding. Eligibility criteria were 1) Licensed general practitioners (GPs) and specialists. 2) Currently working in public or private healthcare centers in Rasht, Iran. 3) Willingness to provide informed consent to participate in the study.

2.Explanation of how the study size was determined would be beneficial. The sampling method was census.

3.Inclusion of funding information and potential conflicts of interest.

Funding/Support

This study was not supported in part by grant.

Conflict of Interests Statement

The authors of this research have no relevant financial or non-financial interests to disclose

Revision : 2

Major Comments:

1.Lack of discussion on potential sources of bias.it was corrected

2.Absence of explanation for study size determination. it was corrected

3.No mention of statistical methods used to control for confounding. Thank you for your valuable feedback. In our study, we addressed potential confounding by employing multivariate analysis of

variance (MANOVA) using Pillai's Trace. This statistical method allowed us to simultaneously assess the effects of multiple independent variables-such as educational degree, workplace type (public/private), and gender-on the four domains of attitudes measured by our questionnaire. By including these key demographic and professional variables in the MANOVA model, we were able to adjust for their potential confounding effects when evaluating group differences in attitudes toward physician-pharmacist financial agreements. We have clarified this point in the revised Methods section as follows: “To control for potential confounding variables, we performed MANOVA using Pillai's Trace, including educational degree, workplace type, and gender as independent variables. This approach enabled us to assess the independent effect of each variable on physicians’ attitudes while adjusting for the influence of the others.”

4.Lack of discussion on study limitations. it was corrected

5.No information on the generalisability of the results. it was corrected

Minor Comments:

1.Absence of specific eligibility criteria for participants. it was corrected

2.Lack of detailed information on data measurement methods. it was corrected

3.No mention of funding sources. it was corrected

5 Revision 4

3 comments · 24 May 2025 – 26 May 2025

Referee 2 Reviewer

MINOR REVISION 24 May 2025

Dear Editor
Thank you very much for selecting me to re-review this manuscript. I have tried to carefully consider all the previous reviews and to highlight the strengths and weaknesses of this manuscript entitled “The phenomenon of the fee splitting between physicians and pharmacists and its impacts on healthcare delivery”:
- The abstract has undergone positive changes and is much improved, but the presentation of results is still somewhat fragmented. It would be better to present results in a categorized manner (e.g., awareness, ethical concerns, impact on patient care) to increase readability and coherence.

- The presented introduction has a relatively complete structure and rich content, but at the same time it has shortcomings from a scientific and writing perspective that can be corrected to make the text clearer and more scientific.
• Structural incoherence: In lines 61 to 73, there is a sudden jump to the results of the study and the findings of other studies, without a clear connection to the introduction section.
• Weakness in expressing the knowledge gap (Gap): It has not yet been clearly and explicitly stated what the existing knowledge gap is and how exactly this study fills it.
• Ambiguity in the scope of the study: It is not clear whether the study focuses only on physicians or examines the physician-pharmacist interaction bilaterally. In the final lines, the focus is only on physicians, while the introduction begins with an emphasis on bilateral cooperation.
• Repetition: Some concepts such as reduced patient trust, ineffective medication prescribing, and financial-therapeutic consequences are repeated several times with similar expressions (e.g., lines 54–58 overlap with 55–57).

- Although the method section is well written and edited, it is suggested that the weaknesses be rechecked and addressed:
• Ambiguity in the distribution and collection of the questionnaire:
The text does not specify how the questionnaire was distributed (face-to-face, online, or a combination of both) or what the response rate was.
It is also not specified how long the response period was and whether an initial pilot was conducted.
• Ambiguity in statistical analysis: Although it is mentioned that MANOVA was used, it is not clear whether the assumptions of this test (normality, equality of covariances) were checked.

• Irregular arrangement of information: Demographic information is first mentioned in line 84 and then repeated in lines 90–91. These items should be presented in an organized manner in one section. Line 82 is inappropriate in terms of placement and is illogically placed among other sections.

- In the results section:
• The sentence “The result of this study was demonstrated the mean score of medical doctors' attitudes toward…” is grammatically incorrect and should be rewritten as “The results demonstrated that…”.

Parts such as “males” appear suddenly and incongruously in the middle of a paragraph.

• Only one table, Table 2, is listed, but Table 1, which was about demographic characteristics, is either untitled or not properly listed.

• Descriptive results are presented without statistical significance analysis. For example, it is stated that “GPs in private clinics showed higher awareness and ethical concerns,” but it is not clear whether this difference was statistically significant.

• The data for sentences 176 to 186 overlap with the previous sections and should be presented in a more concise and precise format.

- The discussion section needs to be edited as follows:
• There is structural incoherence in some parts: some sentences (e.g., paragraphs 201–202 and 222–223) seem incomplete or poorly integrated, and their semantic connection to the preceding or following paragraph is weak.

• There is excessive repetition of findings: some information, such as the finding that private practitioners have higher awareness, is repeated several times. It would be better to focus solely on the interpretation of the results in this section and avoid reciting statistical details.

• While the study focuses on the physician–pharmacist relationship, only the perspectives of physicians are examined, and the discussion does not mention the importance of the perspectives of other stakeholders, such as patients or pharmacists.

- The Strengths and Limitations section has many strengths, but no mention is made of limitations related to the validity and reliability of the questionnaire. Also, the suggestions for future research are very general. The recommendation for a larger sample and qualitative data is useful, but could have been more specific and practical (e.g., a reference to conducting mixed-method or intervention studies).

Associate Editor

MINOR REVISION 25 May 2025

Based on the abstract provided, the study is a cross-sectional survey. Therefore, I will use the STROBE checklist for cross-sectional studies to conduct the peer review. Here are the results of the peer review based on the checklist:

Title
Question: Indicate the study’s design with a commonly used term in the title or the abstract.
Peer Review: The abstract clearly identifies the study as a cross-sectional survey.

Abstract
Question: Provide in the abstract an informative and balanced summary of what was done and what was found.
Peer Review: The abstract provides a summary of the study's background, methods, results, and conclusions. It mentions the use of a 17-item questionnaire and the main findings regarding physicians' attitudes and ethical concerns.

Background/Rationale
Question: Explain the scientific background and rationale for the investigation being reported.
Peer Review: The background section addresses concerns about ethical implications and potential impacts on patient care due to financial agreements between physicians and pharmacies.

Objectives
Question: State specific objectives including any prespecified hypotheses.
Peer Review: The objective is to assess physicians' attitudes toward financial agreements with pharmacies and their perceived effects on healthcare delivery.

Study Design
Question: Present key elements of study design early in the paper.
Peer Review: The study design is mentioned as a cross-sectional survey using a questionnaire.

Setting
Question: Describe the setting, locations, and relevant dates including periods of recruitment, exposure, follow-up, and data collection.
Peer Review: The abstract does not specify the exact locations or dates of data collection.

Eligibility Criteria
Question: Give the eligibility criteria and the sources and methods of selection of participants.
Peer Review: The study included 69 participants, both general practitioners and specialists from public and private healthcare centers, but does not detail the eligibility criteria.

Variables
Question: Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria if applicable.
Peer Review: The abstract mentions outcomes related to awareness, ethical concerns, and impact on patient care but lacks detailed definitions.

Data Sources/Measurement
Question: For each variable of interest, give sources of data and details of methods of assessment (measurement).
Peer Review: The abstract states that a 17-item questionnaire was used but does not provide details on measurement methods.

Bias
Question: Describe any efforts to address potential sources of bias.
Peer Review: The abstract does not mention any efforts to address potential sources of bias.

Study Size
Question: Explain how the study size was arrived at.
Peer Review: The abstract does not explain how the study size of 69 participants was determined.

Statistical Methods
Question: Describe all statistical methods including those used to control for confounding.
Peer Review: The abstract provides some statistical results (e.g., mean agreement scores) but does not detail the statistical methods used.

Participants
Question: Report numbers of individuals at each stage of the study.
Peer Review: The abstract reports the total number of participants (69) but does not provide a breakdown of numbers at each stage.

Descriptive Data
Question: Give characteristics of study participants and information on exposures and potential confounders.
Peer Review: The abstract provides some demographic data (e.g., gender differences) but lacks comprehensive participant characteristics.

Outcome Data
Question: Report numbers of outcome events or summary measures.
Peer Review: The abstract provides summary measures such as mean agreement scores but lacks detailed outcome data.

Main Results
Question: Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision.
Peer Review: The abstract provides some unadjusted estimates but does not mention confounder-adjusted estimates.

Discussion
Question: Summarize key results with reference to study objectives.
Peer Review: The abstract summarizes key results and discusses the need for regulation and disclosure of financial agreements.

Limitations
Question: Discuss limitations of the study taking into account sources of potential bias or imprecision.
Peer Review: The abstract does not discuss limitations of the study.

Generalisability
Question: Discuss the generalizability (external validity) of the study results.
Peer Review: The abstract does not discuss the generalizability of the study results.

Funding
Question: Give the source of funding and the role of the funders for the present study.
Peer Review: The abstract does not mention the source of funding or the role of funders.

Major Comments:

The abstract lacks detailed information on the study setting, eligibility criteria, and statistical methods. There is no discussion of potential biases, study limitations, or generalizability of the results.

Minor Comments:

The abstract provides some statistical results but lacks detailed descriptions of the statistical methods used. Participant characteristics are not comprehensively described.

Overall, the abstract provides a general overview of the study but lacks specific details in several areas as outlined in the STROBE checklist for cross-sectional studies.

Editor-in-Chief

MINOR REVISION 26 May 2025

Public Comment:
Based on the abstract provided, the study is a cross-sectional survey. Therefore, I will use the STROBE checklist for cross-sectional studies to conduct the peer review. Here are the results of the peer review based on the checklist:
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outcome data.
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Discussion
Question: Summarize key results with reference to study objectives.
Peer Review: The abstract summarizes key results and discusses the need for regulation and disclosure of financial agreements.
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Question: Discuss limitations of the study taking into account sources of potential bias or imprecision.
Peer Review: The abstract does not discuss limitations of the study.
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Question: Discuss the generalizability (external validity) of the study results.
Peer Review: The abstract does not discuss the generalizability of the study results.
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Question: Give the source of funding and the role of the funders for the present study.
Peer Review: The abstract does not mention the source of funding or the role of funders.
Major Comments:
The abstract lacks detailed information on the study setting, eligibility criteria, and statistical methods.
There is no discussion of potential biases, study limitations, or generalizability of the results.
Minor Comments:
The abstract provides some statistical results but lacks detailed descriptions of the statistical methods used.
Participant characteristics are not comprehensively described.
Overall, the abstract provides a general overview of the study but lacks specific details in several areas as outlined in the STROBE checklist for cross-sectional studies.

Decision:
Minor revision

6

Revision 5

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 Reviewer Comments

Major Comments

Lack of Detailed Information on Study Setting, Eligibility Criteria, and Statistical Methods in the Abstract

Response:

Thank you for this important observation. We have revised the abstract to include additional details about the study setting, specifying that the research was conducted among general practitioners and specialists in both public and private healthcare centers in Rasht, Iran. We have also clarified the eligibility criteria, stating that only licensed physicians currently working in these centers who provided informed consent were included. Furthermore, we have added a brief description of the statistical methods, noting that MANOVA was used to analyze group differences, and that means, standard deviations, and percentages were reported as appropriate.

No Discussion of Potential Biases, Study Limitations, or Generalisability of the Results

Response:

We appreciate your suggestion to address these important aspects. The abstract has been updated to acknowledge potential sources of bias, such as the use of self-reported data and a relatively small, single-city sample, which may limit generalisability. We have also briefly mentioned that, as a cross-sectional survey, the study cannot establish causality and that findings may not be representative of all healthcare providers in Iran.

Minor Comments

Statistical Results Provided but Lack of Detailed Description of Statistical Methods

Response:

Thank you for pointing this out. In the revised abstract, we now specify that MANOVA was used to assess differences by educational degree, workplace type, and gender, and that significance was set at $p < 0.05$.

Participant Characteristics Not Comprehensively Described

Response:

We have expanded the abstract to include more participant characteristics, such as the number and proportion of general practitioners and specialists, as well as the distribution between public and private centers.

6 Revision 5

3 comments · 27 Jul 2025 – 10 Aug 2025

Referee 2 Reviewer

ACCEPT 27 Jul 2025

Dear Authors,
Thank you for your thorough revision of the manuscript entitled:
“Physicians’ Attitudes Toward Financial Agreements with Pharmacies and Their Impacts on Healthcare Delivery.”
I have carefully reviewed your revised manuscript and would like to commend you on the improvements made. You have addressed all the reviewers’ comments thoughtfully and with appropriate modifications.
The abstract has been strengthened by including essential details about the study setting, sample criteria, statistical methods, and participant characteristics. You have also acknowledged the limitations of self-reported data and addressed concerns regarding the generalizability of the results.
The methodology section is now clearer, with a well-justified explanation of your use of MANOVA. The discussion is more balanced and aligned with the study's objectives and results.
Overall, the manuscript has significantly improved in clarity, coherence, and scientific rigor. I appreciate your efforts and believe the revised version is now suitable for publication, pending the editor’s final decision.
With best regards

Associate Editor

ACCEPT 10 Aug 2025

Dear Editor-in-Chief,
I am writing to recommend the acceptance of the revised manuscript titled “The phenomenon of the fee splitting between physicians and pharmacists and its impacts on healthcare delivery” (MS ID: 158489) for publication in Comprehensive Health and Biomedical Studies. The paper has undergone rigorous peer review by independent reviewers, all of whom support publication without further revisions.
The authors have thoroughly revised the manuscript in response to previous feedback, and the reviewers confirm that all concerns have been adequately resolved. The study aligns well with the aims and scope of Comprehensive Health and Biomedical Studies, offering valuable insights into health policy, delivery of health care services and patient care.
Given the reviewers’ endorsements and the manuscript’s adherence to the journal’s standards, I recommend acceptance in its current form.
Please let me know if you require any additional information to finalize your decision.

Final Decision: Accept

Kind Regards | Publisher Supervisor

Editor-in-Chief

ACCEPT 10 Aug 2025

We sincerely appreciate the time and effort you have dedicated to this manuscript and thank you for your patience throughout the review process.