OPEN PEER REVIEW

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Shiraz E-Medical Journal
Article DOI: 10.5812/semj.110604
Published in: Shiraz E-Medical Journal: In Press(In Press); e110604

Peer Review Report for "Cost Analysis of Gestational Diabetes Screening Methods in Pregnant Women Referred to the Gynecology Hospitals Affiliated with Medical Sciences Universities in Tehran."

Author(s): Nahid Alikhani, Sedigheh Hantoushzadeh, Aziz Rezapour, Nahid Hatam

Review Timeline:

Submit Date:	25 Oct 2020
Revised Date:	1 Jan 2021
Accepted Date:	19 Feb 2021

Revision (0)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (0)

5 Dec 2020

Dear AE,
The article is rejected for the following reasons:
- In the method section, the authors stated that" Indirect costs in this study included the costs of travel, food, and diet of the patient". This sentence is wrong. This is because the costs of travel, food, and diet of the patient are classified as direct non-medical costs.
- In the method section, the authors stated that "Finally, data were analyzed by SPSS software, version 18, t-test and one-way ANOVA." But in the table, I didn't see any statistical test (P-value) such as t-test and one-way ANOVA. For this reason, we are not able to compare the One-Step Method with The Two-Step Method.
- It is not clear, how the indirect cost was estimated by the authors (Human capital method or friction cost method).
- The type of cost approach is not specified in the study (incidence approach or prevalence approach)
- The currency rate for the convert of the Iranian Rial to the Dollar (U.S) was not explained
Best Regards

REFEREE: Reviewer | **Revision** (0) 6 Dec 2020

Dear AE,
Comments for the authors:
• There are some grammatical errors, it is necessary to reform them.
• Abstract must be set based on journal structure. (Titles must be in a separate paragraph (Structured abstract))
• Delete this phrase" descriptive statistics, t-test and one-way ANOVA" in the abstract.
• In line 15, delete" ±" before money costs.
• "Indirect Costs in this study included the costs of travel, food, and diet of the patient" is a direct non-medical cost. Please reform it in method section. (line 93)
• In line 103. Use a suitable word for "experiment cost" and "requirement". Explain cost of requirements.
• In table 4, the summation of costs in the first column in the "two-step method" is wrong (315,393).
Thanks.

REFEREE: Associate Editor | **Revision** (0) 12 Dec 2020

Dear EIC,
The manuscript is studied, and there are some comments which should be addressed by the author. According to the comments, the document needs major revision.
Kind regards,

REFEREE: EIC | **Revision** (0) 13 Dec 2020

Dear Author,
The reviewers' comments are mentioned. Please correct the details as mentioned above carefully according to reviewers' request.
Thanks.

OPEN PEER REVIEW

Revision (1)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

Thank you for reviewing this manuscript; and we would also greatly appreciate the esteemed reviewers for their valuable comments for improving the quality of the article. We have answered the reviewer's questions and revised the manuscript accordingly their comments.

Since all the corrections have been made, we hope that you find our responses satisfactory and that the manuscript is now acceptable for publication; but We would be glad to respond to any further questions and comments that you may have.

Reviewer 1:

1. ***There are some grammatical errors, there is necessary to reform them.***

✶ Writing and grammatical errors were edited and the corrections were highlighted in the text.

2. ***Abstract must be set based on journal structure. (Titles must be in a separate paragraph (Structured abstract)***

✶ Given that in this article, the number of abstract words was less than the quorum of the journal structure (250-350 words), which was corrected by inserting a sentence in the background section lines 1& 2.

✶ The objectives section (line9) was also placed in a separate paragraph.

3. ***Delete this phrase" descriptive statistics, t-test and one-way ANOVA" in abstract.***

✶ We are sorry that this part was not clear in the original manuscript. we should have explained that, due to the fact the study data have been analyzed with these tests, except the "descriptive statistics" phrase, other cases cannot be omitted; But it is necessary to provide explanations to remove the ambiguity. The t-test compares the means of two independent groups, and it used to determine a significant difference between the means of an attribute of two groups from two independent communities. Therefore, t-test was used to determine a significantly the difference between the mean of indirect costs between patients and companions (Table 3). One-way analysis of variance (ANOVA) compares the means of two or more than independent groups in the statistical society, and used to determine whether any of the differences between the means are statistically significant. Therefore, this test has been used to check the significantly difference between the values of Table 1, Table 2 and Table 4. As mentioned in the results section, the P-value in all tests performed (T-test and ANOVA) were less than 0.05, so it was not considered in a separate column in the tables; therefore, to avoid ambiguity, we have revised the contents of the abstract section line 15 and methods section line 101and the tables.

4. In line 15, delete" ±" before money costs.

✶ The specified mark (" ±") before money costs (in line 17 &18) deleted.

5. ***"Indirect Costs in this study included the costs of travel, food and diet of the patient" is direct non-medical cost. Please reform it in method section. (line 93)***

- In this article, as shown in the table 2 and contents (in lines 107 & 118 &142), the cost of travel, Residence and food and diet were considered as direct non-medical costs; but unfortunately, in method section was written incorrectly, therefore were corrected in line 93.

6. ***In line 103. Use a suitable word for "experiment cost" and "requirement". Explain cost of requirements.***

- Due to the meaning of these phrases, we could be replaced them by "test cost" and "cost of supplies" respectively, in text (line 150) and table 1.
- The cost of supplies is as a direct medical costs, which in this article includes glucose powder, Oral solution preparation containers, blood collection syringes, alcoholic pads and disposable glasses.

7. In table 4, the summation of costs in first column in "two step method" is wrong (315,393).

- All calculations were performed again and the table numbers were revised. The mentioned mistake was corrected (315,205).

:Reviewer 2

1. ***In the method section, the authors stated that" Indirect costs in this study included the costs of travel, food, and diet of the patient". This sentence is wrong. This is because the costs of travel, food, and diet of the patient are classified as direct non-medical costs.***

✶ In this article, as shown in the table2 and results section, the cost of travel, Residence and food and diet were considered as direct non-medical costs; but unfortunately, in method section was written incorrectly, therefore were corrected.

2. ***In the method section, the authors stated that "Finally, data were analyzed by SPSS software, version 18, t-test and one-way ANOVA." But in the table, I didn't see any statistical test (P-value) such as t-test and one-way ANOVA. For this reason, we are not able to compare the One-Step Method with The Two-Step Method.***

✶ we are sorry that this part was not clear in the original manuscript. we should have explained that, due to the fact that the study data have been analyzed with these tests, it is necessary to provide explanations to remove the ambiguity. The t-test compares the means of two independent groups, and it used to determine a significant difference between the means of an attribute of two groups from two independent communities. Therefore, t-test was used to determine a significantly the difference between the mean of indirect costs between patients and companions (Table 3). One-way analysis of variance (ANOVA) compares the means of two or more than independent groups in the statistical society, and used to determine whether any of the differences between the means are statistically significant. Therefore, this test has been used to check the significantly difference between the values of Table 1, Table 2 and Table 4. As mentioned in the results section, the P-value in all tests performed (T-test and ANOVA) were less than 0.05, so it was not considered in a separate column in the tables; therefore, to avoid ambiguity, we have revised the tables.

3. ***It is not clear, how the indirect cost was estimated by the authors (Human capital method or friction cost method).***

✶ The indirect costs are the productivity lost by the patients' and her companions' during the illness period, which includes days of absences from work of them, use of personal savings, borrowing, or selling assets. Regarding how to calculate indirect costs, it should be said that the lost productivity of the person or his companions during the illness period (one-year period) became the basis for calculating indirect costs. For this purpose, the number of days of absence from work of the patients' or his companions' due to the disease was multiplied by the amount of income lost during this period, and through this, indirect costs were computed. It should also be noted that indirect costs were estimated using the human capital approach.

4. ***The type of cost approach is not specified in the study (incidence approach or prevalence approach)***

✶ According to the definition of prevalence, which is a practical term in medicine and epidemiology. Since in this study, the basis for calculating direct medical and non-medical and indirect costs, is diagnostic and treatment services provided to pregnant women who have been identified and screened for gestational diabetes during this period; it can be said that the calculation approach Costs in this study are the prevalence approach. This approach is useful for measuring the extent of a disease, the burden of the disease, reflecting the health needs of the community, and estimating the cost of disease control programs.

5. ***The currency rate for the convert of the Iranian Rial to Dollar (U.S) was not explained.***

✶ The reference exchange rate in 2016 was 31,240 Rials according to the Central Bank, which by converting the Rial amounts to the reference exchange rate of that year, the costs have been converted into dollars. Which was added in the method section.

.Table1- The mean direct medical costs of gestational diabetes screening in the studied patients

Diagnostic Protocol / Cost Type	The One-Step Method			The Two-Step Method			ANOVA
	Mean	Standard deviation	Percent of total	Mean	Standard deviation	Percent of total	
Test	6,989	5,916	2.03	8,354	8,808	3.19	0.00
Supplies	57,753	49,529	11.1	66,297	69,901	25.24	0.00
Staff	18,681	14,619	3.66	26,031	19,276	9.9	0.00
Visit	23,959	13,891	4.7	21,976	16,665	8.37	0.00

Medication	78,729	81,308	15.2	78,729	81,308	29.96	0.00
Hospitalization	313,809	176,038	60	60,091	17,258	22.87	0.00
Ultrasound	17,131	9,888	3.31	1,224	677	0.47	0.00

Table2- The mean direct non-medical costs of gestational diabetes screening in the studied patients.

Diagnostic protocol / Direct Non-Medical Cost	The One-Step Method			The Two-Step Method			ANOVA
	Mean	Standard deviation	Percent of total	Mean	Standard deviation	Percent of total	
Travel	10,407	10,818	14.5	8,200	19,668	33.5	0.00
Residence and food	40,868	32,277	57	9,540	7,821	39	0.00
Diet	20,318	49,371	28.5	6,718	26,799	27.5	0.00

.Table3- The mean indirect costs of gestational diabetes screening in the studied patients

Diagnostic Protocol / Indirect Costs	The One-Step Method			The Two-Step Method			T-test
	Mean	Standard deviation	Percent of total	Mean	Standard deviation	Percent of total	
Companion's Indirect Costs	70,569	93,087	49	19,187	21,405	68	0.00
Patient's Indirect Cost	71,593	52,850	51	8,858	17,355	32	0.00

Table4- The mean total cost of screening for gestational diabetes in patients.

Diagnostic	The one-step method	The two-step method	ANOVA

Protocol Mean Costs	Mean	Standard deviation	Percent of total	Mean	Standard deviation	Percent of total	
Direct Medical Cost	516,960	189,275	70,74	262,702	156,149	83,35	0.00
Direct Non-Medical Cost	71,593	52,850	9,79	24,458	46,536	7,75	0.00
Indirect Cost	142,162	130,341	19,47	28,045	28,621	8,9	0.00
Total	730,715	372,466	100	315,205	231,306	100	

OPEN PEER REVIEW

Revision (1)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (1) 14 Feb 2021

Dear AE,
The study is reviewed carefully. According to comments and revisions by the author, this manuscript is accepted.
Thanks

REFEREE: Reviewer | **Revision** (1) 14 Feb 2021

Dear AE,
The study is reviewed carefully. According to comments and revisions by the author, this manuscript is accepted.
Thanks

REFEREE: Associate Editor | **Revision** (1) 14 Feb 2021

Dear EIC
Based on the authors' answers to the reviewers' comments, the reviewer(s) have recommended publication.
Kind regards.

REFEREE: EIC | **Revision** (1) 19 Feb 2021

Dear Author,
The document is reviewed carefully by the reviewers. According to their comments and your revisions as requested, this manuscript is accepted.
Thanks.