

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Organizational commitment, Job satisfaction and Intention to leave among Physicians in the Public Health Sector of Cyprus: a cross-sectional survey
AUTHORS	Gregoriou, Ioanna; Papastavrou, Evridiki; Charalambous, Andreas; Economidou, Eleftheria; Soteriades, Elpidoforos; Merkouris, Anastasios

VERSION 1 – REVIEW

REVIEWER	El-Shafei, Dalia Zagazig University
REVIEW RETURNED	26-Dec-2022

GENERAL COMMENTS	<p>Organizational commitment, Job satisfaction and Intention to leave among Physicians in the Public Health Sector of Cyprus</p> <p>The present study supports that evaluating physicians' demographics and examining organizational commitment and job satisfaction constitutes an important administrative approach to address health professionals' intention to leave their job in the public healthcare system.</p> <p>Overall the study is interesting and I hope that you revise the article. I look forward to reading it again once certain issues have been addressed.</p> <p>Title: concise and informative.</p> <p>Abstract: Period of the study should be mentioned. Should highlight the main findings and end with an informative, concise, and clear conclusion.</p> <p>Introduction: Paragraph No. 4 do not has a reference, please add the reference.</p> <p>Materials and Methods: The period of the study is missing, need clarification. Did the authors conducted a pilot study to test the used tools? If not, why?. If yes, please mention that with main modifications as a result of the pilot. Statistical analysis: ANOVA test should be used for analyzing quantitative data for more than 2 groups as age groups. Ethical consideration needed to be added in a separate paragraph at the end of methods section.</p> <p>Results</p>
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	<p>The results section generally need summarization and highlighting only highly significant findings. The authors should not repeat results in tables & texts but only present them in tables with general comment in text then referring to tables.</p> <p>In Table 1, Mann-Whitney test should be replaced by ANOVA test. Presentation of the results should be rearranged in the same order of the methods.</p> <p>Discussion I suggest beginning with a statement related to the current research and focusing on the current study and the importance of the operated research question followed by displaying the key findings of your work.</p> <p>Conclusion: Limitations of the study should be added to the end of the discussion section. Meaningful recommendations and suggestions for future research should be mentioned.</p> <p>General comments: The topic is interesting and of relevance to the journal's audience. However, its quality is not (yet) of a high enough standard for a scientific publication. Please revise manuscript carefully and respond to my comments attached to each paragraph. I suggest you reply to each comment.</p>
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REVIEWER	Martinussen, Pål Norwegian University of Science and Technology, Sociology and political science
REVIEW RETURNED	17-Jan-2023

GENERAL COMMENTS	<p>The paper investigates the role of organisational commitment and job satisfaction for the intention to leave among physicians in the public health sector in Cyprus. The study builds on a cross-sectional survey to estimate logistic regressions, also examining the associations with demographic background, workplace, job position, etc. The study finds that job satisfaction and commitment is negatively correlated with intention to leave. The paper is generally well written, both in terms of language and structure. While I remain sympathetic towards the paper and its general theme, there is however some aspects that I think need to be addressed better. I also have some methodological concerns.</p> <p>First of all, I think the paper should address the “so what”-question better. As the paper itself points out, there is now a large literature on turnover intention among physicians, documenting that both organisational commitment and job satisfaction is a main contributor, so why do we need another study of this? The paper should clarify better what the contribution of this study is to the literature. What is new with this study? As far as I can understand, it only confirms what numerous other studies have shown.</p> <p>Secondly, I have some methodological concerns. Although the response rate is quite high for this type of surveys among physicians, the study would benefit from some kind of missing values analysis. How representative are the respondents for the population, etc? Are there any systematic patterns among those who chose to not participate in the survey?</p>
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	<p>Furthermore, the study also reports a record high intention to leave of 72,8 %. There is no descriptives reported on the dependent variable (which there should be!), and the paper should discuss possible explanation as to why the share with quitting intentions is so much higher in Cyprus than those reported in other studies.</p> <p>Most importantly, I am concerned about possible collinearity problems between the independent variables. I would assume that several of the demographics are strongly related, such as for instance age, experience, tenure, contract, gender, etc. This also applies to the two main independent variables reflecting job satisfaction and job commitment: I guess that the individual indicators within each of the two dimensions are likely to be strongly positively correlated: if you have a high affective commitment, you are also likely to have a high continuance and normative commitment. The same goes for the 9 indicators for job commitment, which I also expect can be strongly positively related. And finally, it is also reasonable to assume a strong positive relationship between the three commitment measures and the 9 satisfaction measures. The paper should include a correlation matrix and tests for collinearity.</p> <p>The paper should also include a discussion of the strengths and limitations of the study. For instance, many studies have shown the importance of leadership and contextual aspects (such as hospital size, economy, etc.) for intentions to leave. Could for instance the study include variables reflecting hospital type in a multilevel analysis?</p> <p>Finally, the literature review is very short and incomplete. There are several other contributions to the study of intention to leave that could be included in the literature review:</p> <p>Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family practice and actually leaving among family physicians in England. <i>Eur J Pub Health</i>. 2010;21:499–503.</p> <p>Kroezen M, Dussault G, Craveiro I, et al. Recruitment and retention of health professionals across Europe: a literature review and multiple case study research. <i>Health Policy</i>. 2015;119:1517–28.</p> <p>Martinussen, P. E., J. Magnussen, K. Vrangbæk & J. C. Frich (2020). Should I stay or should I go? The role of leadership and organisational context for hospital physicians' intention to leave their current job, <i>BMC Health Services Research</i> 20.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Dalia El-Shafei, Zagazig University

Comments to the Author:

- Organizational commitment, Job satisfaction and Intention to leave among Physicians in the Public

Health Sector of Cyprus

The present study supports that evaluating physicians' demographics and examining organizational commitment and job satisfaction constitutes an important administrative approach to address health professionals' intention to leave their job in the public healthcare system.

-Overall, the study is interesting and I hope that you revise the article. I look forward to reading it again once certain issues have been addressed.

R: Thank you for your positive assessment of our study and the opportunity to revise our manuscript based on the comments provided.

Title: concise and informative.

Abstract:

- Period of the study should be mentioned. Should highlight the main findings and end with an informative, concise, and clear conclusion.

R: We have included the study period in the methods section. Also, we have revised the study findings as directed based on the overall comments received.

Introduction:

- Paragraph No. 4 do not has a reference, please add the reference.

R: We have added reference in paragraph 4. Thank you.

Materials and Methods:

- The period of the study is missing, need clarification.

R: The period of the study has been added.

- Did the authors conducted a pilot study to test the used tools? If not, why?. If yes, please mention that with main modifications as a result of the pilot.

R: Thank you for your comment. We indeed performed a pilot study and included an informative paragraph in the revised version of the manuscript. Furthermore, in the methods section (questionnaires) we describe that a specialized team of health professionals reviewed the questionnaires in order to adjust them to the cultural context of Cyprus. During this process, we also removed a question on the medical specialization of health professionals in order to avoid concerns of potential identification of respondents. Below we delineate the added paragraph regarding the pilot study:

A pilot study to assess the survey tools was conducted in July 2016, where 15 questionnaires were distributed to corresponding physicians of the Public Health Sector of Cyprus. All physicians were members of the Cyprus Medical Association and came from all hierarchical ranks of medical officers in the Public Sector of the Ministry of Health. During this process, we were able to modify the questionnaires according to the responders' feedback. For example, we removed a question on the medical specialization of health professionals in order to avoid concerns of potential identification of respondents.

- Statistical analysis: ANOVA test should be used for analysing quantitative data for more than 2 groups as age groups.

R: Age was a quantitative variable rather than a categorical one. So, we used Mann-Whitney test.

- Ethical consideration needed to be added in a separate paragraph at the end of methods section.

R: Done so. Thank you.

Results

- The results section generally need summarization and highlighting only highly significant findings. The authors should not repeat results in tables & texts but only present them in tables with general comment in text then referring to tables.

R: We have removed specific results from the text that were included in tables as suggested.

- In Table 1, Mann-Whitney test should be replaced by ANOVA test.
Presentation of the results should be rearranged in the same order of the methods.

R: Age was a quantitative variable rather than a categorical one. So, we used Mann-Whitney test.

Discussion

- I suggest beginning with a statement related to the current research and focusing on the current study and the importance of the operated research question followed by displaying the key findings of your work.

R: The discussion section has been revised based on the overall comments.

Conclusion:

- Limitations of the study should be added to the end of the discussion section.
Meaningful recommendations and suggestions for future research should be mentioned.

R: Limitations and recommendations have been included in the discussion section as suggested.

General comments:

- The topic is interesting and of relevance to the journal's audience. However, its quality is not (yet) of a high enough standard for a scientific publication.

Please revise manuscript carefully and respond to my comments attached to each paragraph. I suggest you reply to each comment.

R: Thank you very much for your assessment and the opportunity to revise our manuscript. We have made every effort to revise our manuscript based on the valuable comments provided.

Reviewer: 2

Dr. Pål Martinussen, Norwegian University of Science and Technology

Comments to the Author:

- The paper investigates the role of organisational commitment and job satisfaction for the intention to leave among physicians in the public health sector in Cyprus. The study builds on a cross-sectional survey to estimate logistic regressions, also examining the associations with demographic background, workplace, job position, etc. The study finds that job satisfaction and commitment is negatively correlated with intention to leave. The paper is generally well written, both in terms of language and structure. While I remain sympathetic towards the paper and its general theme, there is however some aspects that I think need to be addressed better. I also have some methodological concerns.

R: Thank you for your positive overall assessment.

- First of all, I think the paper should address the “so what”-question better. As the paper itself points out, there is now a large literature on turnover intention among physicians, documenting that both organisational commitment and job satisfaction is a main contributor, so why do we need another study of this? The paper should clarify better what the contribution of this study is to the literature. What is new with this study? As far as I can understand, it only confirms what numerous other studies have shown.

R: We acknowledge the above comment and have revised the manuscript in order to highlight the importance of sharing our findings with the international academic community. We believe that we have made every effort to address the above question as best as we could. Related revisions have been included in the abstract, introduction and discussion methods.

- Secondly, I have some methodological concerns. Although the response rate is quite high for this type of surveys among physicians, the study would benefit from some kind of missing values analysis. How representative are the respondents for the population, etc? Are there any systematic patterns among those who chose to not participate in the survey?

R: Unfortunately, we are not able to assess potential differences between respondents and non-respondents because the survey was anonymous and we were not able to follow up on non-respondents. Although we do not have information on non-respondents, we have no reason to believe

that there are any discriminative differences between those who chose to participate and those who did not. There are no systematic patterns among those who chose to participate in the survey. As an example, we mention that in the 36 questions of the JSS questionnaire, the maximum number of missing values was 4 and in the 24 question of Organization Commitment questionnaire, the maximum number of missing values was 2. With respect to those who completed the questionnaires to those who have missing values, we examined whether there are any statistically significant differences. We have included a relevant comment in the revised manuscript.

- Furthermore, the study also reports a record high intention to leave of 72,8%. There is no descriptives reported on the dependent variable (which there should be!), and the paper should discuss possible explanation as to why the share with quitting intentions is so much higher in Cyprus than those reported in other studies.

R: With respect to the above comment, we would like to clarify that we have included all relevant descriptive and comparisons of dependent variable (physicians' intention to leave. In table 1 we have included comparison of our dependent variable with the demographics of our population. In table 2 we have compared the depended variable with the two questionnaires assessing the corresponding predictive variables (organizational commitment and job satisfaction). In addition, we have further clarified our interpretation of the high percentage of intention to leave.

- Most importantly, I am concerned about possible collinearity problems between the independent variables. I would assume that several of the demographics are strongly related, such as for instance age, experience, tenure, contract, gender, etc. This also applies to the two main independent variables reflecting job satisfaction and job commitment: I guess that the individual indicators within each of the two dimensions are likely to be strongly positively correlated: if you have a high affective commitment, you are also likely to have a high continuance and normative commitment. The same goes for the 9 indicators for job commitment, which I also expect can be strongly positively related. And finally, it is also reasonable to assume a strong positive relationship between the three commitment measures and the 9 satisfaction measures. The paper should include a correlation matrix and tests for collinearity.

R: Agree with the comment. We have added a correlation matrix as suggested.

- The paper should also include a discussion of the strengths and limitations of the study. For instance, many studies have shown the importance of leadership and contextual aspects (such as hospital size, economy, etc.) for intentions to leave. Could for instance the study include variables reflecting hospital type in a multilevel analysis?

R: We have updated the strengths and limitation of the study as suggested by both reviewers. While a multilevel analysis might have been more information, we are unable to follow such a statistical approach since we do not have such data.

- Finally, the literature review is very short and incomplete. There are several other contributions to the study of intention to leave that could be included in the literature review:

- Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family practice and actually leaving among family physicians in England. *Eur J Pub Health*. 2010;21:499–503.

- Kroezen M, Dussault G, Craveiro I, et al. Recruitment and retention of health professionals across Europe: a literature review and multiple case study research. Health Policy. 2015;119:1517–28.

- Martinussen, P. E., J. Magnussen, K. Vrangbæk & J. C. Frich (2020). Should I stay or should I go? The role of leadership and organisational context for hospital physicians' intention to leave their current job, BMC Health Services Research 20.

R: Thank you for suggesting additional relevant references. We have enriched our references with the suggested publications as well as with six additional publications.

VERSION 2 – REVIEW

REVIEWER	El-Shafei, Dalia Zagazig University
REVIEW RETURNED	18-Feb-2023

GENERAL COMMENTS	Thanks for modifying the manuscript. All comments were addressed except for the comment of type of used test for age "ANOVA test should be used for analysing quantitative data for more than 2 groups as age groups". Accordingly, I suggest requiring specialist statistical reviewing.
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REVIEWER	Martinussen, Pål Norwegian University of Science and Technology, Sociology and political science
REVIEW RETURNED	20-Feb-2023

GENERAL COMMENTS	The authors have complied with the comments, thus making the article now mainly publishable. However, I would still argue that, except for this being the first study of its kind based on data from Cyprus, the study really doesn't find anything that we didn't know already from numerous earlier studies. I therefore have trouble seeing the article's contribution to the literature, and there is nothing new here. One more thing: as a sensitivity test, I suggest that the authors reestimate their models with the 188 undetermined respondents included in the 0 group to see if this alter the results.
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REVIEWER	AL-Jaberi, Musheer Universiti Putra Malaysia Fakulti Perubatan dan Sains Kesihatan, Community health
REVIEW RETURNED	25-Mar-2023

GENERAL COMMENTS	The manuscript is well written and performed, and contributed to the field of study. I have just a minor point to define the satisfaction and intention to leave and you could find it in this study http://dx.doi.org/10.1136/bmjopen-2017-021180
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REVIEWER	Vehko, Tuulikki
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	National Institute for Health and Welfare , Service Systems Research Unit
REVIEW RETURNED	03-Apr-2023

GENERAL COMMENTS	<p>Thank you for the opportunity to review "Organizational commitment, Job satisfaction and Intention to leave among Physicians in the Public Health Sector of Cyprus: a cross-sectional survey"</p> <p>It would have been interesting if the authors had been able to provide statistics on how many doctor vacants are currently unfilled. It's been several years since data was collected, so this would have brought the results closer to the reader. However, since I do not know enough about the country's statistical output, I did not make such a proposal.</p> <p>The specifications implemented by the authors were precise. In Table 4, decimal commas can be replaced by dots (according to the journal's instruction).</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Dr.Dalia El-Shafei, Zagazig University

Comments to the Author:

- Thanks for modifying the manuscript. All comments were addressed except for the comment of type of used test for age "ANOVA test should be used for analysing quantitative data for more than 2 groups as age groups". Accordingly, I suggest requiring specialist statistical reviewing.

R: Thank you for your positive assessment of our modifications. We have asked our statistician to evaluate the above request. Variable "Age", as well as other variables such as "Years of experience in public health" and "Years of experience in private practice" are quantitative variables. However, in order to determine whether their values differ with respect to the two categories of the outcome, which is a qualitative variable "intention to leave ", normality tests were first performed. Since the data did not follow a normal distribution, we had to use the Mann-Whintey test for "age" and other variables.

Reviewer: 2

Dr.PålMartinussen, Norwegian University of Science and Technology

Comments to the Author:

- The authors have complied with the comments, thus making the article now mainly publishable. However, I would still argue that, except for this being the first study of its kind based on data from

Cyprus, the study really doesn't find anything that we didn't know already from numerous earlier studies. I therefore have trouble seeing the article's contribution to the literature, and there is nothing new here.

R: Thank you very much for reviewing our revised manuscript. In general, we agree with the reviewer that the results of our study are in line with other published studies. Nevertheless, ours is the first study examining this issue in Cyprus. In addition, it is also a prototype study due to the fact that it examines the above association among a homogeneous group of physicians who are exclusively working in the public health sector of Cyprus. Therefore, we believe that our study contributes to the international literature through the examination of the research hypothesis in a specific population. Thus, we believe that our study merits publication.

- One more thing: as a sensitivity test, I suggest that the authors re-estimate their models with the 188 undetermined respondents included in the 0 group to see if this alters the results.

R: This is a very interesting recommendation. We have followed the above suggestion and re-run the regression models of Table 4 after including the physicians who were undetermined with respect to their intention to leave their work. In Table 1 below we present the results of the sensitivity analysis. In general, comparing the results of Table 4 in our manuscript with Table 1 in the current response, which is based on the sensitivity analysis, we do not see any important differences. The only differences refer to the demographic variables of "age" and "job position". We note that both the direction as well as the magnitude of the association is similar in all three dimensions of organizational commitment (affective, continuance and normative). Therefore, we conclude that there were no important differences between the results of Table 4 in our manuscript and Table 1 below. This suggests that those physicians undetermined with respect to their intention to leave were closer to those who intended to stay in their job positions with respect to organizational commitment. As a result of the above sensitivity analysis, we have included a paragraph in the revised manuscript presenting the results of the suggested sensitivity analysis in the text.

Table 1. Multivariable logistic regression model on physicians' intention to leave

Independent variables	B	S.E.	Wald	Df	Exp(B)	OR	95% C.I. for EXP(B)	OR	P value
						Lower	Upper		
Age	a 0.003	0.015	0.044	1	1.003	0.974	1.034	0.834	
Gender	b -0.854	0.294	8.429	1	0.426	0.239	0.758	0.004	
Job position	c -0.358	0.358	1.003	1	0.699	0.347	1.409	0.317	
Affective commitment	a	-0.365	0.148	6.104	1	0.694	0.519	0.927	0.013
Continuance commitment	a	-0.719	0.121	35.374	1	0.487	0.384	0.618	<0.001
Normative commitment	a	-0.951	0.178	28.466	1	0.387	0.273	0.548	<0.001

Total satisfaction a -2.088 0.335 38.740 1 0.124 0.064 0.239 <0.001

A total of 20 cases were excluded from the regression analysis due to missing values on at least one variable or due to having values considered as outliers. The overall model was statistically significant when compared to the null model, [$\chi^2(7) = 196.840, p < 0.001$], and explained 54.3% of the variation of intention to leave (Nagelkerke R²), while correctly predicted 78.4% of cases.

Reviewer: 3

Dr.Musheer AL-Jaberi, Universiti Putra Malaysia FakultiPerubatan dan Sains Kesihatan

Comments to the Author:

- The manuscript is well written and performed, and contributed to the field of study.

R: Thank you very much for your positive overall assessment of our study and the opportunity to revise our manuscript.

- I have just a minor point to define the satisfaction and intention to leave and you could find it in this study: <http://dx.doi.org/10.1136/bmjopen-2017-021180>

R: Thank you for suggesting the above additional relevant reference. We have enriched our references with the above suggested publication and further clarified the relevant constructs.

Reviewer: 4

Mrs. TuulikkiVehko, National Institute for Health and Welfare

Comments to the Author:

- Thank you for the opportunity to review "Organizational commitment, Job satisfaction and Intention to leave among Physicians in the Public Health Sector of Cyprus: a cross-sectional survey"

R: We also thank you for the opportunity to revise our manuscript.

- It would have been interesting if the authors had been able to provide statistics on how many doctor vacant positions are currently unfilled. It's been several years since data was collected, so this would

have brought the results closer to the reader. However, since I do not know enough about the country's statistical output, I did not make such a proposal.

R: We have made an effort to examine the physicians' vacant positions in the current structure of the public health sector. However, we should note that since the implementation of the study, there have been many changes in the structure of the public health sector due to the implementation of the national healthcare system. Overall, we have looked into this issue and found that currently there are about 60 doctor vacant positions as compared to the period of data collection and have included this information in the text.

- The specifications implemented by the authors were precise. In Table 4, decimal commas can be replaced by dots (according to the journal's instruction).

R: We have replaced decimal commas in table 4 by dots as suggested. Thank you