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RESEARCH ARTICLE

Can work-related stress and job satisfaction affect job commitment among nurses? A cross-sectional study [version 1; peer review: 3 approved with reservations]

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Abstract

Background: Considering the significant role of nurses in health care and the importance of commitment in public health, the aim of this study was to examine the association between work-related stress, and job satisfaction and commitment among nurses.

Methods: This cross-sectional study has been performed among 100 nurses working in a teaching hospital affiliated to Mazandaran University of Medical Sciences, northern Iran, in 2015. The participants were assessed by standard questionnaires on work-related stress, and job satisfaction and commitment. Descriptive indexes were analysed via regression and correlation.

Results: The participants were aged between 25 and 45 years. In total, 85% of nurses held a bachelor degree and the rest were postgraduates. Most of the nurses (77%) had experience in their job for more than 10 years. Total score of mean job commitment showed a high score among nurses (102.9±8.9); job satisfaction also showed a mean of (261.6±27.44). Total score of work-related stress was (112.0±11.99). The results indicated that job satisfaction and work-related stress explained 54% of variance in job commitment. The overall job satisfaction (Beta = 0.471, p<0.05) and overall work stress (Beta = -0.635, p<0.102) influenced job commitment.

Conclusion: The results of the present study showed that work stress and job satisfaction affects job commitment among nurses. Therefore, it is advisable to pay more attention to job satisfaction and stress in these sensitive occupations, to promote commitment and job efficacy.

Keywords

nurse, work-related stress, job satisfaction, commitment, management

Open Peer Review

Approval Status

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1. Ghahraman Mahmoudi , Islamic Azad University, Sari, Iran			
2. Marcello Campagna , University of Cagliari, Cagliari, Italy			
Luigi Isaia Lecca , University of Cagliari, Cagliari, Italy			
3. Amir Emami Zeydi , Mazandaran University of Medical Sciences, Sari, Iran			

Any reports and responses or comments on the article can be found at the end of the article.

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Introduction

Hospital units are the most stressful places in hospitals and hospital successful management depends on multiple collaboration of disciplines, such as nurses^{1,2}. Job performance and outcomes are inter-related to some psychological and social factors, such as job environment and leadership, positive attitude and efficacy, satisfaction, and commitment³⁻⁶. A strong relationship between job satisfaction and job commitment has been previously revealed^{7,8}. Moreover, a relationship between job commitment, job satisfaction, work experience, organizational collaboration and organizational justice has also been found. For example, Hoogendoorn *et al.* believed workers undertake duties with higher responsibility when they have commitment to the job⁹.

Job commitment, its determinants and consequences have received significant attention in the literature, since commitment is related to many organizational indicators. Wang *et al.* pointed out that organizational commitment is “the comparative power of a person’s identification with and participation in a specific organization”¹⁰. Organizational commitment can be found in the literature very frequently, with three fundamental components related to its definition: affective (employees are emotionally attached to organization), continuance (employees’ commitment), and normative (employees’ feeling to remain in the organization)¹¹⁻¹³. Some studies show that mortality and morbidity of most fire fighters are related both directly or indirectly to their stressful work condition^{14,15}. Moreover, according to Moran, emergency service organizations workers, including the ambulance service and rescue squads as well as the fire brigade, are exposed to both everyday stressors common to many work environments and extreme stressors of emergency events, including traumatic accidents or disasters¹⁶. Results from Bennett *et al.* on 78 United Kingdom fire fighters indicated a considerable amount of job stress⁷. Bowron also found similar results among emergency service workers¹⁷.

Lusa and colleagues assessed male rescue workers and fire-fighters and from fire brigades of Finland. They have reported high stress among these workers¹⁸. Murphy *et al.* indicated a relationship between work-based morale and job satisfaction of fire-fighters and paramedics. Conflict with managers was the job stressor that powerfully related to reports of poor work morale and low job satisfaction¹⁹. It has been revealed that low commitment among emergency working women was related with income, marital status, age, education and job satisfaction; singles, highly educated and low job experience were related with low job commitments²⁰. A low mental health and higher job burnout among emergency workers than the general population has been revealed^{21,22}. Cicei found a relationship between work stress and the three dimensions of organizational commitment²³, while Li *et al.* revealed a relationship between work satisfaction and job stress²⁴.

Reviewing previous studies indicates that they are mostly focused on teachers and there are very few studies conducted regarding commitment-related factors among domestic health care professionals^{25,26}. Performances in these kinds of jobs are critically related to life or death of people. Therefore, the aim of

this study was to investigate the role of job satisfaction and work stress in organizational commitment among nurses at a hospital in Iran.

Methods

Study design and participants

This was a cross-sectional, correlational study aimed at investigating role of job satisfaction and work-related stress in organizational commitment among nurses working in Imam Teaching Hospital affiliated to Mazandaran University of Medical Sciences, Sari, Iran in June to September 2015. Approval from the Ethics Committee of Mazandaran University of Medical Sciences for the study, as well as written informed consent from nurses for participation, was obtained (approval number: IR.Mazums.rec.95.2350).

The study population included all 138 nurses who worked in hospitals, of them 100 nurses gave consent to participate in this study and completed the questionnaires. In order to keep confidence of samples, names were not recorded and the overall results were reported to the organization without any personal information. The researcher contacted the hospital and explained the aim of study and after agreement of supervisors, nurses were invited to participate. The inclusion criteria were having at least a Bachelor of Science degree in nursing and one year job experience. The participants were insured that their results will be kept confidentially and there is no need to fill their name on the questionnaires.

Questionnaires

Organizational commitment. Allen and Meyers’s Organizational Commitment scale includes sub-scales such as Affective Organizational Commitment (AOC), Continuance Organizational Commitment (COC) and Normative Organizational Commitment (NOC). This questionnaire comprises 24 items scoring in 7 options from absolutely agree to absolutely disagree²⁷. Reliability and validity of the scale has been approved in several studies in Iran^{12,28}. A study reported Cronbach’s alpha ranging from 0.74 to 0.83 and inter correlation for AOS is 0.49 ($p<0.05$), for COS is 0.22 ($p<0.05$) and 0.12 ($p<0.05$) is for NOS²⁷. The participants filled out the questionnaires themselves during their work hours when they had free time to feel comfortable in the nurse rest room. Please see [Supplementary File 1](#) for a Farsi translation used in the present study.

Job satisfaction. Job satisfaction was evaluated using the Job Descriptive Index (JDI) introduced by Smith *et al.* The JDI was selected as it was proved to be reliable and a valid measure of job satisfaction by many studies^{29,30}. It was invented to evaluate satisfaction through 6 aspects: the work itself, pay, promotion, supervision, environment and co-workers. Participants were asked to describe a particular aspect of their job with a word or phrase. The validity of the above mentioned questionnaire was proved through content validity and factor analysis, which showed an acceptable level of validity. Reliability also was high $r=0.93$ ($p=0.01$)^{31,32}. Please see [Supplementary File 2](#) for a Farsi translation used in the present study.

Work-related stress. The HSE work-related stress questionnaire contains 35 items that enquire about 'working conditions' that are the potential causes of work related stress²⁴. The working conditions relate to the 6 stressors of Management Standards. The answers of employees were based on how they feel about these aspects of their work: demand, control, support of authorities, supporting co-workers, relationship, role, changes. The questionnaire was developed by the Health and Safety Executive (HSE) and in China, each item has 5 options (never=1, seldom=2, sometimes=3, most of the time=4, always=5). Low scores indicate higher health and safety in aspect of stress, and higher scores means high stress. In order to survey the validity and reliability of this questionnaire, a previous study surveyed 749 military staff, selected via cluster sampling, from whole country. Please see [Supplementary File 3](#) for a Farsi translation used in the present study.

Participants also completed the mental health questionnaire of Goldberg³³. Reliability of this questionnaire in Cronbach alpha and split-half was 0.78 and 0.65, respectively. This result indicates appropriate reliability and validity for work stress questionnaire²⁴.

Data analysis. Statistical Package for Social Sciences (SPSS; IBM, USA) version 16 was used to analyse the data. Descriptive indexes (frequencies) were analysed using ANOVA and regression with correlation applied to find out correlations between variables.

Results

The participants' demographic characteristics are shown in [Table 1](#).

Total mean score of job commitment was high among nurses (102.9 ± 8.9). Moreover, mean total score of job satisfaction and work stresses were 261.6 ± 27.44 and 112.0 ± 11.99 , respectively. [Table 2](#) shows the regression between job commitment, work stress and job satisfaction.

[Table 3](#) shows the adjusted R^2 of our model is 0.245 with the $R^2 = 0.245$, which means that the linear regression explains 24.5% of the variances of job commitment of samples. It means that the liner relationship between the variables (in other words $R^2=0.245$), with $F = 15.745$ is significantly high, thus it can be assumed that there is a linear relationship between work stress, job satisfaction and job commitment variables in our model.

In addition, overall job satisfaction (Beta = 0.471, $p < 0.05$) and total work stress (Beta = -0.635, $p < 0.102$) had an influence on job commitment. Therefore, job satisfaction and work stress significantly predicts job commitment.

Dataset 1. Raw data for all variables collected in the present study, including demographic variables, and results of the job commitment, job satisfaction and work-related stress questionnaires

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Table 1. Demographic characteristics of nurses who participated in the study about work-related stress and job commitment.

Demographic		N	%
Age (years)	25–35	68	68
	36–45	32	32
	46–55	0	0
Academic degree	Bachelor	82	82
	Post-graduate	18	18
Marital status	Single	10	10
	Married	87	87
	Divorce	3	3
Work duration (years)	1–5	10	10
	6–10	13	13
	11–15	44	44
	16–20	23	23
	21–25	7	7
	26–30	3	3

Table 2. ANOVA for regression between job commitments, work stress and job satisfaction in nurses in Iran.

Sources	SS	df	MS	F	P-value
Regression	2.002	2	1.001	15.745	0.0001
Residual	6.168	97	0.064		
Total	8.170	99			

Table 3. Beta and t for regression model.

Variables	Beta	SE	Standard beta	T	P-value
Constant	3.511	0.486		7.228	0.000
Job satisfaction	0.471	0.161	0.277	2.934	0.000
Work stress	-0.635	0.115	-0.521	-5.517	0.000
R^2	0.245		Adjust. R^2	0.230	

Discussion

Considering previous theories and study results, in an organization where employees have low job satisfaction and high work stress, levels of production and productivity will be critically low³⁴. In such conditions of job commitment and job turnover³⁵, less innovation and higher employee turnover rate of employees are seen frequently³⁴. Asegid *et al.* stated that high work stress is a predictor of job dissatisfaction and intention to low job commitment³⁶.

High job satisfaction and proper performance leads to a better work environment, higher cooperation among co-workers and commitment to the organization. Individuals who feel a of in work in line with various attitudes, such as salary or other compensation plans, may have low satisfaction and try to leave the organization^{37–39}.

It has been stated that there is a significant relationship between job satisfaction and the stress of medical emergency work places. High job stress and low job security in work places result in reduced job satisfaction⁴⁰. Job stress leads to reduced job satisfaction, increased desertion and reduction quality of nursing care. Identifying nurses' job problems and the solutions of removing stressful situations can lead to increased job satisfaction and reduced desertion and absence in work places⁴¹. In addition, the more stress leads to lower satisfaction and mental health status of nurses. The higher the nurses job stress, the more they experience work place accidents⁴².

In our study among nurses, the employees' commitment is high; they were more likely to remain and work with the organization rather than leave the organization. Thus, organizational commitment is negatively correlated to affect turnover intention in our study environment. It has been advocated that employees who are emotionally associated to their organization are likely to remain with the organization past the age that would benefit them the most by retiring¹⁷. Although nursing is the second top stressful job position in the world, it seems satisfaction with work and commitment decreased their stress in this study. The finding of the present study is similar to the study by Seston *et al.*, who found that job commitment is closely related to job satisfaction⁴².

Conclusions

The findings of the present study can help rescue-related organizations, such as health care professionals, in designing

and developing strategies to enhance organizational commitment of the employees, which directly links with organizational performance, effectiveness and productivity. It may become one of the tools and guidance for further actions of management. In order to increase job commitment, leaders should provide enough facilities for staff, give appropriate benefits for those who perform well, and provide friendly and close relationships with staff. The organization also needs to understand the needs of the staff to provide social and mental support.

Data availability

Dataset 1: Raw data for all variables collected in the present study, including demographic variables, and results of the job commitment, job satisfaction and work-related stress questionnaires. Coding as follows: Marital Status- 1=Single, 2=Married, 3=Divorced; Education- 1=Bachelor, 2=Post-graduate; Record (work duration in year)- 1=1–5, 2=6–10, 3= 11–15, 4=16–20, 5=21–25, 6= 26–30; Commitment (Organizational Commitment)- 1= completely disagree, 2= very disagree, 3= disagree, 4= no opinion, 5=agree, 6=very agree, 7=completely agree; JDI (Job Descriptive Index)- 1=completely agree, 2=agree, 3= no opinion, 4= disagree, 5= completely disagree; WS (Work-related Stress)- 1=never, 2= seldom, 3= sometimes, 4=often, 5= always. DOI, [10.5256/f1000research.12595.d192518](https://doi.org/10.5256/f1000research.12595.d192518)⁴³

Competing interests

No competing interests were disclosed.

Grant information

The author(s) declared that no grants were involved in supporting this work.

Supplementary material

Supplementary File 1: Farsi translation of Allen and Meyers's Organizational Commitment scale used in the present study.

[Click here to access the data.](#)

Supplementary File 2: Farsi translation of Job Descriptive Index used in the present study.

[Click here to access the data.](#)

Supplementary File 3: Farsi translation of HSE work-related stress questionnaire used in the present study.

[Click here to access the data.](#)

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Version 1

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Amir Emami Zeydi

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Thank you for allowing me to have the opportunity to review the manuscript entitled "Can work-related stress and job satisfaction affect job commitment among nurses? A cross-sectional study". In a cross sectional study, the authors evaluate the association between work-related stress, and job satisfaction and commitment among nurses who worked in a teaching hospital affiliated to Mazandaran University of Medical Sciences, northern Iran. The results indicated that job satisfaction and work-related stress explained 54% of variance in job commitment. The overall job and overall work stress influenced job commitment.

I congratulate the authors for their interesting study in the field of health services management. I believe that this paper would have a moderate to high level of interest for the health care managers and administrators, as well as readers of this journal.

Overall the manuscript has been well written. However, I'd like the authors to address few issues in order to improve their manuscript.

Abstract:

For a study to receive the respect it deserves, the abstract should be as well written as possible. In the background section of the abstract, It's better to state a bit about the importance of job stress for nurses, as a sentence.

The questionnaires that have been used in the study should be stated in the method section of the abstract. Only stating that the standard questionnaires have been used is not enough. Reporting the mean job satisfaction and work-related stress scores alone is not informative. What do these scores mean? Please clarify.

All keywords should be MeSH headings and should be checked against this list

<http://www.nlm.nih.gov/mesh/>

Introduction:

One of the limitations of the introduction of this manuscript is the lack of attention and the reporting the prevalence of job stress and job commitment among nurses in general and Iranian nurses in particular. Please refer to the related published studies in this regard and address the issue in the introduction. Please clarify. I believed that the below mentioned studies are appropriate and can be used:

- Gheshlagh RG, Parizad N, Dalvand S, Zarei M, Farajzadeh M, Karami M, Sayehmiri K. The prevalence of job stress among nurses in Iran: A meta-analysis study. *Nurs Midwifery Stud* 2017;6:143-8¹.
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- Khosravani M, Khosravani M, Rafiei F, Mohsenpour M. Organizational commitment and its dimensions in nurses working in Arak's hospitals. *Med Ethics J* 2017; 11(39): 37-44⁵.

Methods:

What were the exclusion criteria? Please clarify.

How was the sample size calculated? Please clarify.

Please explain how to interpret the results of the Organizational commitment and also Job satisfaction questionnaires, in the study methodology.

You should explain each of your abbreviations the first time it appears in the text. You should write the full name first, followed by the abbreviation in parentheses. Please revise it for ANOVA (in the data analysis section)!

Discussion:

Ideally, the discussion section should have the following broad heading; a brief summary of the study and results, comparison of results with the existing literature, clinical evaluation of the work, importance of the findings, strengths and weaknesses of the study. At the end of the discussion readers must know whether the research hypothesis has been proved or not. Please revise the discussion section according the abovementioned style, as much as possible.

What is the limitation of the study? Please clarify

The below mentioned studies can be used in the discussion section for enriching this section:

- Naghneh MHK, Tafreshi MZ, Naderi M, Shakeri N, Bolourchifard F, Goyaghaj NS. The relationship between organizational commitment and nursing care behavior. *Electron Physician*. 2017 Jul 25;9(7):4835-4840⁶.
- Ding X, Yang Y, Su D, Zhang T, Li L, Li H. Can Job Control Ameliorate Work-family Conflict and Enhance Job Satisfaction among Chinese Registered Nurses? A Mediation Model. *Int J Occup Environ Med*. 2018 Apr;9(2):97-105⁷.
- Sepahvand F, Atashzadeh-Shoorideh F, Parvizi S, Tafreshi MZ. The relationship between some demographic characteristics and organizational commitment of nurses working in the Social Security Hospital of Khorramabad. *Electron Physician*. 2017 Jun 25;9(6):4503-4509⁸.
- Al-Aameri AS. Job satisfaction and organizational commitment for nurses. *Saudi Med J*. 2000 Jun;21(6):531-5⁹.
- Ingersoll GL, Olsan T, Drew-Cates J, DeVinney BC, Davies J. Nurses' job satisfaction, organizational commitment, and career intent. *J Nurs Adm*. 2002 May;32(5):250-63¹⁰.

Conclusion:

Conclusions must be based on the results of this study. New idea or concepts should not be introduced in conclusion section. Please revise the conclusion section.

References

1. Gheshlagh RG, Parizad N, Dalvand S, Zarei M, et al.: The prevalence of job stress among nurses

- in Iran: A meta-analysis study. *Nurs Midwifery Stud.* 2017; **6** (4).
2. Dagget T, Molla A, Belachew T: Job related stress among nurses working in Jimma Zone public hospitals, South West Ethiopia: a cross sectional study. *BMC Nurs.* 2016; **15**: 39 [PubMed Abstract](#) | [Publisher Full Text](#)
3. Najimi A, Goudarzi AM, Sharifirad G: Causes of job stress in nurses: A cross-sectional study. *Iran J Nurs Midwifery Res.* 2012; **17** (4): 301-5 [PubMed Abstract](#)
4. Veličković VM, Višnjić A, Jović S, Radulović O, et al.: Organizational commitment and job satisfaction among nurses in Serbia: a factor analysis. *Nurs Outlook.* **62** (6): 415-27 [PubMed Abstract](#) | [Publisher Full Text](#)
5. Khosravani M, Khosravani M, Rafiei F, Mohsenpour M: Organizational Commitment and Its Dimensions in Nurses working in Arak's Hospitals. *Medical Ethics Journal.* 2017; **11** (39): 37-44 [Publisher Full Text](#)
6. Naghneh MHK, Tafreshi MZ, Naderi M, Shakeri N, et al.: The relationship between organizational commitment and nursing care behavior. *Electron Physician.* 2017; **9** (7): 4835-4840 [PubMed Abstract](#) | [Publisher Full Text](#)
7. Ding X, Yang Y, Su D, Zhang T, et al.: Can Job Control Ameliorate Work-family Conflict and Enhance Job Satisfaction among Chinese Registered Nurses? A Mediation Model. *Int J Occup Environ Med.* **9** (2): 97-105 [PubMed Abstract](#) | [Publisher Full Text](#)
8. Sepahvand F, Atashzadeh-Shoorideh F, Parvizy S, Tafreshi MZ: The relationship between some demographic characteristics and organizational commitment of nurses working in the Social Security Hospital of Khorramabad. *Electron Physician.* 2017; **9** (6): 4503-4509 [PubMed Abstract](#) | [Publisher Full Text](#)
9. Al-Aameri AS: Job satisfaction and organizational commitment for nurses. *Saudi Med J.* 2000; **21** (6): 531-5 [PubMed Abstract](#)
10. Ingersoll GL, Olsan T, Drew-Cates J, DeVinney BC, et al.: Nurses' job satisfaction, organizational commitment, and career intent. *J Nurs Adm.* 2002; **32** (5): 250-63 [PubMed Abstract](#)

Is the work clearly and accurately presented and does it cite the current literature?

Partly

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Partly

If applicable, is the statistical analysis and its interpretation appropriate?

I cannot comment. A qualified statistician is required.

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 27 April 2018

<https://doi.org/10.5256/f1000research.13639.r32940>

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Marcello Campagna

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Luigi Isaia Lecca

Department of Medical Sciences and Public Health, University of Cagliari, Cagliari, Italy

In this study authors aims to investigate the role of job satisfaction and work related stress in organizational commitment among nurses of a Hospital in Sari, Iran.

In particular, authors collected data on organizational commitment, job satisfaction and work related stress by means of validated self-administered questionnaires in 100 nurses from 138 overall workforce, who give consent to participate at the study.

Methods used in this study appear appropriate, but lacking in some aspects. Statistical analysis does not need an extensive revision, but needs some specifications. The article don't need a revision of the English language.

Below authors can find some specific observation:

Introduction: literature cited about work related stress mainly take into consideration studies about fire fighters and emergency service workers, but few studies about work related stress, job satisfaction and commitment in nurses. Why don't you considerate literature about work related stress, job satisfaction and commitment in nurses?

Please review the literature about this aspect and cite papers focused on hospital nurses.

Methods:

In the first part of the section "study design" you repeated the aim of the study, already mentioned in the last part of introduction. Please, specify the hypothesis of the present study

Study population: exclusion criteria was not mentioned. Please explicit acceptance rate for study participation. Authors reported "all 138 nurses who worked in hospitals". Do they represent the total workforce? Please explain precisely the recruitment method.

The HSE questionnaire should be administered for homogenous groups. Have you recruited nurses from various hospital wards? Please specify. If yes, authors should report which wards were included, how many nurses from each ward and at last verify the homogeneity of response rates.

Complexly, it is not clear how you arrived at the sample of 100 nurses from the sample of 139 at initial phase. Authors should specify all passages of recruitment strategy, without any omission. Please report the characteristics of excluded nurses.

Questionnaires: please report Crombach's alpha for each subscale of organizational commitment, job satisfaction and work related stress.

Job satisfaction: "reliability also was high" How did you measure reliability? Why don't you report Crombach's alpha?

Work related stress: You stated that "low scores indicate higher health and safety in aspect of stress and higher scores means high stress" but this is not always true. In fact, following HSE method, job control and job support are positive factors and higher scores for this aspects generally represent a better situation. Did you overturn questions (revers items) about job control and job support to bypass this problem? If no, you cannot consider a total higher score of work stress as negative. Authors should better explain how you evaluated work stress.

The Crombach's alpha for work related stress has to be considered separately for each subscale.

Results: table 1. Add information about nurses' gender and ward provenience. Are they all female? They performed shift work and if yes, what shift work modality was performed?

The mean scores of job commitment, work stress and job satisfaction are not indicative. Authors should report results for each subscale.

Table 3. Authors should report the dependent variable and indicate other covariates in the model (age, work duration, marital status ecc). Have you considered those variables in the regression model?

Discussion: discussion is too short and maybe it would be better to in depth discuss the results. Authors should do some comparisons between results of the present paper and those obtained in other similar study, also giving an interpretation. The lack of comparisons limits the global extensions of those findings to other work settings. Authors should also give an interpretation of results.

Authors should discuss limitations of the study (e.g. small sample, possible sources of bias and the lack of some information about home stress that could influence results of the present study).

Authors should also explicit what this paper adds to knowledge of this argument and the possible contribution to the scientific community.

Is the work clearly and accurately presented and does it cite the current literature?

Partly

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Partly

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

We confirm that we have read this submission and believe that we have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however we have significant reservations, as outlined above.

Reviewer Report 05 March 2018

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Ghahraman Mahmoudi

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The authors should revise the major comments below:

Abstract: the problem in first paragraph was not accurate.

The methods section: this should mention how sample size was done or based on which statistical formula? Also what was the method used for sample?

The section of introduction: this should state the opposing and agreeing research and the gaps between this from the current literature. This needs to be stated to show how the study here differentiates from existing and accomplished works.

The section of discussion was poor and the main results need to be supported by other research that agrees and disagrees with your results. This section should also mention researchers' point of view.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Partly

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

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Are the conclusions drawn adequately supported by the results?

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Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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