

ORIGINAL ARTICLE

THE MEDIATING ROLE OF HEALTH RELATED BEHAVIORS IN THE RELATIONSHIP BETWEEN WORK-FAMILY CONFLICT AND PHYSICAL HEALTH

Sanaz Aazami¹, Khadijah Shamsuddin², Syaquirah Akmal²

¹ Department of Nursing, Faculty of Nursing and Midwifery, Ilam University of Medical Science, Ilam, Iran

² Department of community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia, 56000 Cheras, Kuala Lumpur, Malaysia.

ABSTRACT

Purpose of the present study was to assess effect of work-family conflict (along with its four dimensions) on physical health status. In particular, we examined the mediating role of health related behaviors on the linkage between all dimensions of work-family conflict and physical health status. The current cross-sectional research was conducted among 567 women who were working in the public departments of Malaysia. Self-administrated questionnaire was used for data collection. Our findings showed that work-family conflict (along with its four dimensions) significantly and negatively correlated with physical health status. The findings from mediational analysis showed that all dimensions of work-family conflict indirectly deteriorate physical health status via increasing the chance of not using food strategies. However, our results did not support the mediating function of physical activity on the proposed relationship. Results of the current study indicated that women with greater level of work-family conflict are more likely to suffer from poor physical health status. Having multiple strategies for managing food and eating reduce the adverse effect of work-family conflict on physical health. Organizations may benefit from Family Friendly Policies (FFP) that can alleviate level of conflict and eventually avoid or decrease rate of engagement in unhealthy behavior that have detrimental effect on health status.

Keywords: Work-family conflict; Food choices coping strategies; physical activity; smoking; mediational analysis; physical health status.

INTRODUCTION

Work-Family Conflict (WFC) refers to a form of inter-role conflict with lack of compatibility between job and family responsibilities¹. Two directions have been proposed for WFC and these directions are Work Interference into Family (WIF) and Family Interference into Work (FIW). However, WFC has also been considered as a multi-dimensional construct in nature with four sub-dimensions which include time-based Work Interference into Family (WIFt), strain-based Work Interference into Family (WIFs), time-based Family Interference into Work (FIWt) and strain-based Family Interference into Work (FIWs)².

WFC has been related to many adverse health consequences, such as poor physical symptoms, obesity, high blood pressure, high blood cholesterol and somatic complaints³⁻⁶. However, the mechanisms that link WFC to physical health status have not been well established. Changes in health-related behaviors might be due to work-family conflict, consequently leading to poor physical health. Possible mechanisms which can explain the influence of WFC on health-related behaviors are the time scarcity and stress theories.

The time scarcity theory considers time as a finite resource that is available for people to accomplish their work and meet their family and personal demands. Individuals devote their time to fulfill

responsibilities based on the priority placed on each role. Being a good worker, spouse, parent, friend and a group member which is of significant importance for individuals, consume much of their time. These conflicting demands from work and family roles might limit the available time for physical exercise and other health-related behaviors, which in turn lead to a sedentary lifestyle.⁷ Stress among employees is attributed to the negative spillover effect associated from work-to-family demands. Consequently, employees are discouraged from spending more time for pursuing personal interests, such as exercise; rather their time is devoted to perform family demands. Moreover, employees also tend to push themselves to consume comfort foods as a source of pleasure and are commonly used for tension-reduction from stress associated with heavy work demand.^{8,9}

Allen and Armstrong¹⁰ found FIW is related to high intake of fatty food and low level of physical exercise while WIF is associated with eating less healthy food. Furthermore, Roos et al¹¹ revealed work-family conflict is a barrier against healthy lifestyle by decreasing level of physical activity and steering employees away from healthy food choices.

Food choice is a dynamic process that evolves through multiple factors including individual and cultural characteristics, surrounding environment and eating experiences¹². Work role is a kind of life

experiences that influence food choices of employees¹³. Food choices coping strategy is a behavioral mechanism that is adapted by working women to alleviate stress and tiredness, lessen meal time and balance eating against other family demands.¹⁴ These strategies include missing meal, speeding up strategies such as consuming canned and frozen entrees, planning such as cooking more on days off, taking food away from home and individualizing meal¹⁴. Poor work condition is associated with negative food choices coping strategies, such as skipping breakfast, eating while working and watching TV during mealtime, which in turn affect healthy dietary intake. These findings suggest that having strategies to manage food choices might mediate the linkage between work and family condition and quality of dietary intake¹⁵. Hence, investigating “food choices coping strategies” help us to understand how health related behaviors are influenced by work context and family setting. Nevertheless, no study has focused on the association between WFC and physical health with especial regard towards the mediating function of “food choices coping strategies”.

Job conditions and especially stress experienced at the workplace have been associated with smoking¹⁶. Recently researchers have also shown a significant link between experiencing WFC and smoking^{17, 18}. It could be concluded that smoking might play a mediating role which link adverse effect of WFC to physical health.

Work-family conflict is an area of research which has received a lot of attention not only in western countries but also in non-western countries such as Malaysia throughout the past twenty years. The consequences of WFC among Malaysian population have been investigated by several indicators such as psychological distress, physical health, family satisfaction and job satisfaction¹⁹⁻²². However, no study has examined the mediating function of health related behaviors on the linkage between WFC and physical health. Therefore, the aims of the current study are to assess the mediating function of health related behaviors on the relationship between physical health and all dimensions of WFC. The selected health related behaviors in this study are physical activity, “food choices coping strategies” and smoking.

MATERIAL AND METHOD

This is an institutional and ethic approved study of 567 Malaysian women working in the public service departments of Selangor and Kuala Lumpur. The participants were recruited by using simple random sampling in three stages. Within the first stage, 10 different ministries were selected from

the list of all governmental ministries. Second, 10 departments were randomly selected from each selected ministry. Finally, women were reached by simple random sampling from the list of staff in the respective departments. After receiving approval letter from the Head/ Director/ Deputy director of each selected department, the participants were informed on the aim, benefits and importance of the survey as well as their voluntary participation rights. Malaysian women aged 18 to 56 years old with at least 6 month work experience in the current position were included in this study. Women who agreed to participate in this study signed the written consent forms and data collection was done by means of anonymous, self-administrated questionnaires which consisted of 6 parts. The questionnaires include questions on socio-demographic, family and employment background, work-family conflict questionnaire, Physical Health Questionnaire (PHQ), Brief-Cope scale, International Physical Activity Questionnaire (IPAQ) and food choices coping strategies questionnaire.

We translated the questionnaires from English to Malay Language via back to back translation. First, an expert team of translators translated the English version into Malay. Second, the questionnaires were back translated into English by a different translator’s team and the mismatched items were retranslated. Pre-test was conducted among 10 working women other than study subjects to ensure the easy understanding and proper wording of the questionnaire. In the next step, a pilot study was conducted among 50 randomly selected working women (other than study subjects) to evaluate the internal consistency and reliability of the questionnaire. The obtained Cronbach’s alpha yielded satisfactory results which indicate adequate reliability of the Malay version of questionnaires used in this study. The Malay version of the Work-Family Conflict Questionnaire has been previously validated in Malaysia²³.

INSTRUMENTS

work-family conflict questionnaire: Kelloway et al² developed the WFC questionnaire to measure work and family interface (see²³ for further information).

Physical health questionnaire (PHQ):

Schat et al²⁴ developed the Physical Health Questionnaire to measure somatic health. This questionnaire focuses on somatic symptoms in four main areas including sleep disturbance, gastrointestinal problems, headache and respiratory illness. There are 14 Likert type items with answers range from 1= not at all to 7= all of the time in 11 items. The answers for 3 items

related to respiratory illness range from 1 day to 7 days. After recoding the responses, the higher score indicates better somatic health.

International physical activity questionnaire (IPAQ):

The “International Physical Activity Questionnaire (IPAQ)” measures three levels of physical activity of low, moderate and high level for administration in people 15 to 65 years old. There are three domains under this questionnaire including walking and moderate and vigorous physical activities. Each domain asks respondents to report the number of days in a week and their length of exercise in one day. In order to further analyze the data, physical activity was coded as 1= low level of physical activity and 0= moderate/high.

Food choices coping strategies questionnaire:

Devine ¹⁴developed the “food choices coping strategies” questionnaire for identifying the strategies that employees use to integrate the demand of work and family. This questionnaire consist of 22 items with 18 items asking about different categories of food coping strategies including missing meal, individualizing meal as well planning and speeding up strategies. The response options for these 18 items are often, sometimes and rarely used. The other 4 items ask about the frequency of taking fast food, home cooked food, take-out meals from restaurant and eating in restaurant. However, cluster analysis is a recommended method for identifying subgroups of coping strategies that people use to manage food and eating¹⁵. Therefore, we conducted the two-step cluster analysis to identify pattern of strategies used by employees and two clusters were identified. After observing the pattern of strategies, we found participants placed in the first cluster used a combination of multiple strategies while respondents in the second cluster did not use multiple strategies and mainly rely on taking food away from home (e.g. eating in the restaurant, eating fast-food and take away food from restaurants). Therefore, for further analysis we coded “use of multiple strategies” as 0 and “did not use of multiple strategies” as 1.

Smoking:

In this study, women were categorized into two groups of current smoker and non-smoker (including former smoker). In the analysis, “non-smokers” were coded as 0 and “current smokers” were coded as 1.

RESPONDENTS’ PROFILE

In this study, the mean age of the 567 women was 33.47 (SD= 8.62)years old with 25.2% having secondary school education, 36.7% with high school certificate, 33.7% bachelor and 4.4% post-graduate degree. The majority of women (93.7%) were Malays and 72.7% married with 1.72 (SD=1.50) children on average. Their mean working hours was 42.96± 5.88hours per week and participants had worked for 9.39(SD=8.70) years.

Regarding the four dimensions of WFC, women in this study reported WIFs as the most common type of conflict with means 15.87 (SD= 4.17) followed by WIFt with mean 13.09 (SD= 3.76), FIWs with mean 13.01 (SD=3.61) and FIWt with mean 11.70 (SD= 3.04), respectively. The physical health status mean score for the women in this study reported at 66.7 (SD=9.5). In this study, 66.1% used multiple strategies to manage food and eating while 33.9% did not use multiple strategies. Majority of these women (71.8%) were classified in low physical activity group while, only 28.2% of them had moderate and high level of physical activity. The numbers of non-smoker were 553 (97.5%) and only 14 (2.5%) were current smokers. We were not able to further test the association between smoking and WFC because of very few numbers of smokers.

RESULTS

In order to test the mediational role of selected health-related behaviors, the three steps suggested by Baron and Kenny’s²⁵ were used. First, independent variables (the four dimensions of WFC) should be significantly related to physical health. Second, independent variables should be significantly related to mediators (food choices coping strategies and physical activity). Third, the mediators should be significantly related to the physical health in the presence of independent variables. If all three conditions were met, partial mediation is established. Full mediation is established if there is non-significant beta for independent variables in the model that include physical health, WFC and health-related behaviors. The standardized beta coefficient in simple linear regression is equal to the correlation coefficient value. The first step was examined via correlation analysis for the linkage between the all dimensions of WFC and physical health. Table 1 shows a significant and negative relationship between all dimensions of WFC and physical health. In other words, experiencing greater level of WIFs, WIFt, FIWt and FIWs is significantly associated with poor physical health status.

Table 1 Correlations between the four dimensions of work-family conflict and physical health status (n=567)

	Mean	SD	PHQ	WIFt	WIFs	FIWt	FIWs
PHQ	66.75	9.66	1	-.22**	-.36**	-.16**	-.18**
WIFt	13.10	3.77		1	.59**	.46**	.31**
WIFs	15.87	4.17			1	.46**	.44**
FIWt	11.70	3.02				1	.66**
FIWs	13.02	3.61					1

Next, Binary Logistic Regression was used for the categorical mediators, physical activity and “food choices coping strategies”. Physical activity and “food choices coping strategies” were regressed on the four dimensions of work-family conflict. Table 2 shows that not using multiple strategies to manage food and eating was significantly predicted by WIFt (OR= 1.18, CI=1.12 - 1.24), WIFs (OR=1.16, CI= 1.11 - 1.21), FIWt (OR=1.18, CI= 1.11 - 1.26) and FIWs (OR= 1.14, CI= 1.08 - 1.20). These findings revealed that experiencing higher level of WFC significantly related to higher chance of not using multiple strategies to manage food and eating. According to these results, food choices

coping strategies has the eligibility to be assessed as a mediator in the linkages between all dimensions of WFC and physical health.

Consequently, physical activity was regressed on all dimensions of WFC (table 2). The Results revealed that only WIFs (OR= 1.06, CI= 1.01-1.078) was significantly associated with physical health status. Higher experience of WIFs is significantly associated with low physical activity performance. Thereby, the mediating function of physical activity can be investigated on the association between only WIFs dimension and physical health.

Table 2 Binary logistic regression to test the association between work-family conflict and physical activity and food choices coping strategies (n=576)

Variables	Multiple food choices strategies/Taking food away from home			
	Multiple Strategies Mean ± SD	Food away from home Mean ± SD	Crude OR	95%(CI)
WIFt	12.33 ± 3.31	14.59 ± 4.14	1.18	(1.12 - 1.24)**
WIFs	15.03 ± 3.90	17.52 ± 4.19	1.16	(1.11 - 1.21) **
FIWt	11.19 ± 2.87	12.68 ± 3.07	1.18	(1.11 - 1.26) **
FIWs	12.46 ± 3.28	14.10 ± 3.95	1.14	(1.08 - 1.20) **
Variables	Physical activity			
	Low Mean ± SD	Moderate/High Mean ± SD	Crude OR	95%(CI)
WIFt	13.20 ± 3.81	12.84 ± 3.67	1.03	(0.98-1.08)
WIFs	16.14 ± 4.22	15.19 ± 4.00	1.06	(1.01-1.08) *
FIWt	11.74 ± 3.03	11.59 ± 3.01	1.02	(0.96 - 1.08)
FIWs	13.08 ± 3.67	12.86 ± 3.44	1.02	(0.97 - 1.07)

* is significant at p<0.05, ** is significant at p< 0.01

To test the third step of mediational analysis (table 3), physical health was regressed on the

work-family conflicts in two steps. Steps 1 present the separate effects of all dimensions of WFC on

the physical health status after adjusting for control variables. Furthermore, steps 2 display the indirect influence of all dimensions of WFC on the physical health after adding the selected mediators.

In table 3, the first column presents the effect of WIFt on physical health. The first step indicates that after adjusting for control variables, WIFt ($b = -0.22$) significantly and negatively predicts physical health. Within the second step, food strategy is included in the model and the results show that WIFt ($b = -0.18$) still remains significant but weight has decreased from -0.22 to -0.18 . It is concluded that after adding food strategy to the model, the association between WIFt and physical health was weakened which is the typical sign of partial mediation. Therefore, WIFt indirectly deteriorates physical health status via increasing the chance of not using multiple strategies to manage food and eating.

The second column in Table 3 shows the effect of WIFs on physical health. The first step shows that WIFs significantly and negatively predict physical

health ($b = -0.36$). However, after adding food strategy and physical activity to the model, WIFs ($b = -0.32$) remain significant predictors of outcome but, the magnitude of the effect is diminished. Therefore, partial mediation is established for the effect of WIFs on the outcome since, food strategy significantly and negatively is associated with physical health status. However, physical activity does not significantly mediate the influence of WIFs on physical health.

The third and fourth column of table 3 shows the effect of FIWt and FIWs on physical health, respectively. The first step shows that after controlling for covariates, both FIWt ($b = -0.19$) and FIWs ($b = -0.18$) significantly and negatively predict physical health. Since within the step 2, not using multiple strategies is significantly related to physical health status and the beta for FIWt and FIWs remains significant but with reduced effect the partial mediation can be established. Therefore, FIWt and FIWs indirectly lead to poor physical health through increasing chance of not using multiple strategies for manage food and eating.

Table 3 Dependent variable regressed on mediators (with independent variables included)

Variables and steps	Work-Family Conflict's Dimensions			
	Standardized beta			
	WIFt	WIFs	FIWt	FIWs
Step 1				
Work Hour	0.03	0.02	0.02	0.03
Tenure	0.22	0.18	0.21	0.21
Education	0.05	0.03	0.03	0.00
marital status	-0.03	-0.03	-0.03	-0.04
Number of Children	0.10	0.09	0.09	0.07
Work-Family Conflict	-0.22	-0.36	-0.19	-0.18
R ²	0.11	0.19	0.10	0.10
F changes	9.53**	17.24**	8.60**	8.17**
Step 2				
Work Hour	0.05	0.03	0.04	0.05
Tenure	0.21**	0.16**	0.19	0.20
Education	0.05	0.04	0.04	0.02
marital status	-0.02	-0.02	-0.02	-0.03
Number of Children	0.09	0.08	0.08	0.06
Work-Family Conflict	-0.18**	-0.32**	-0.15**	-0.14*
Food Strategy	-0.17**	-0.12**	-0.18**	-0.19**
Physical Activity	-	-0.07	-	-
R ²	0.13	0.20	0.13	0.12
F changes	10.19**	14.46**	9.80**	9.64**

* is significant at $p < 0.01$, ** is significant at $p < 0.001$

DISCUSSION

This study examined work-family conflict along with the four dimensions that influence physical health and health-related behaviors. Findings of the current study showed a series of direct and indirect relationships between the four dimensions of work-family conflict, physical activity, food choices coping strategies as well as physical health status. We were not able to assess the relationship mediated by smoking status due to very few numbers of smokers (only 14 smokers) in this study.

Findings from the current study contribute to the existing knowledge in several ways. First, our study assessed the four dimensions of work-family conflict which provides a more comprehensive insight into the source (time-based, strain-based) and nature (WIF, FIW) of work and family conflict. This study is the first among Malaysian women which investigate strain-based and time-based WIF and FIW. These findings are consistent with Kelloway et al [2] which also reported that the highest mean score of conflict is attributed to strain-based WIF. Women in this study reported experiencing higher level of WIF compared to FIW. A possible explanation to this finding is the feeling of guilt due to role salience among Malaysian women who prioritize home-maker role as a result of religious belief and cultural values¹⁹.

Second, previous researches reported that work-family conflict (measured as a unidirectional construct) is associated with poor physical health status of employees^{26, 27}. The present study sought to evaluate the direct effects of the four dimensions of work-family conflict on physical health status. The adverse effect of work-family conflict on health and well-being of employee is well-studied^{3, 26, 27}. However, researchers mainly focused on mental health consequences^{28, 29} and our finding provide further understanding of employees' physical health status in the context of work and family. The results showed that the direct effect of the four dimensions of work-family conflict on physical health status was significant. In other words, poor physical health status of employees resulted from experiencing higher level of strain-based and time based WIF and FIW.

Third, our findings showed that not using multiple strategies to manage food and eating mediate the link between all dimensions of WFC and physical health status. That means experiencing higher level of WFC steer employees away from using combination of different food strategies to manage food and eating. Consequently, physical health status will be negatively affected by the chosen food strategies. Food choices coping strategies

have been associated with key job and home condition such as long work-hour, work schedule, number of children and marital status¹⁵. However, the mediating role of food choices coping strategies on the linkage between all dimensions of WFC and physical health has not been studied previously.

Women who reported higher level of strain-based WIF were more likely to be physically inactive. Previous findings by Rooset al¹¹ showed that work-interference into family (WIF) was a barrier to perform recommended amount of physical exercise. Similarly, Grzywacz & Marks⁸ revealed a significant relationship between WIF and vigorous physical exercise. Conversely, Allen & Armstrong¹⁰ found significant association between physical activity and FIW but not WIF. Subsequent analysis in this study assessed the mediating role of physical exercise on the linkage between strain-based WIF and physical health. Our results revealed no significant mediating role for physical activity. In contrast, Allen & Armstrong¹⁰ found significant pathways linking FIW to physical activity and consequently to poor physical health. The inconsistency of the findings warrants further investigation of the possible association between WFC and physical activity which may consequently influence physical health status.

In this study due to the very small number of smokers we were not capable of testing the mediating function of smoking on the linkage between work-family conflict and physical health. However evidence from a Finnish sample showed that smoking was associated with WFC among male but, not female³⁰. A study by Nelson et al¹⁸ revealed that experiencing WIF and FIW may increase the chance of smoking with a stronger influence from FIW. Additionally, WIF has been associated to increase quantity of smoking among both men and women while, FIW negatively influence quantity of cigarette smoking only among women¹⁷. Thereby, it is beneficial to examine the influence of WFC on the likelihood of smoking and its consequences. Smoking is a key determinant of many illnesses and investigation of its cause among the working population provide a basis for prevention programs at work setting. Since, rarely there are studies examining the effect of WFC on smoking, it is recommended that a study be conducted among Malaysian working women who are at greater risk of smoking.

The limitation in our study is the use of the cross-sectional design that avoid establishment of causal relationship. However, there are longitudinal research which reported that even current experiences of WFC have detrimental influence on well-being and health status of employees^{3, 29}.

An important key strengths in the current study is the investigation of WFC as a four dimensionality construct which allow us to deeply understand source and nature of conflicting demand between work and family. Furthermore, this study provides evidence regarding the capability of WFC to influence health-related behaviors which in turn act as a precursor to poor health.

Our findings have variety of practical implications in the work-setting which can be viewed in two perspectives. The first is mitigation of WFC while the second is the promoting healthy behaviors which in turn buffer the influence of WFC on physical health status. These findings also contribute to a better understanding of barriers toward food choices and performing adequate physical exercise in the context of work and family. Organizations may benefit from Family Friendly Policies (FFP) that can alleviate level of conflict and eventually avoid or decrease rate of engagement in unhealthy behavior that have detrimental effect on health status. Another effective recommendation to mitigate work-family conflict is to increase self-awareness of employees toward early indicators of WFC and its consequences. A useful approach for organizations would be incorporating health promotional activities in the workplace along with FFP.

ACKNOWLEDGEMENT

This study was funded by Universiti Kebangsaan Malaysia (project code: UKM-GUP-2011-305) and by the Research Committee, Universiti Kebangsaan Malaysia Medical Centre (project code: FF-247-2012).

CONFLICT OF INTEREST

All of the authors truly declare that there is no conflict of interest.

REFERENCES

1. Greenhaus, JH, Beutell, NJ. Sources of conflict between work and family roles. *Academy of Management Review* 1985; **10** (1): 76-88.
2. Kelloway, EK, Gottlieb, HB, Barham, L. The source, nature, and direction of work and family conflict: A longitudinal investigation. *J Occup Health Psych* 1999; **4** (4): 337.
3. Kinnunen, U, Geurts, S, Mauno, S. Work-to-family conflict and its relationship with satisfaction and well-being: a one-year longitudinal study on gender differences. *Work & Stress* 2004; **18** (1): 1-22.
4. Grzywacz, JG. Work-family spillover and health during midlife: is managing conflict everything? *American Journal of Health Promotion* 2000; **14** (4): 236-43.
5. Frone, MR, Russell, M, Cooper, ML. Relation of work-family conflict to health outcomes: a four-year longitudinal study of employed parents. *Journal of Occupational and Organizational Psychology* 1997; **70** (4): 325-35.
6. Thomas, LT, Ganster, DC. Impact of family-supportive work variables on work-family conflict and strain: A control perspective. *Journal of Applied Psychology* 1995; **80** (1): 6.
7. Nomaguchi, KM, Bianchi, SM. Exercise time: Gender differences in the effects of marriage, parenthood, and employment. *Journal of Marriage and Family* 2004; **66** (2): 413-30.
8. Grzywacz, JG, Marks, NF. Social inequalities and exercise during adulthood: toward an ecological perspective. *Journal of Health and Social Behavior* 2001: 202-20.
9. Ng, DM, Jeffery, RW. Relationships between perceived stress and health behaviors in a sample of working adults. *Health Psychology* 2003; **22** (6): 638.
10. Allen, TD, Armstrong, J. Further Examination of the Link Between Work-Family Conflict and Physical Health The Role of Health-Related Behaviors. *Am Behav Sci* 2006; **49** (9): 1204-21.
11. Roos, E, Sarlio-Lähteenkorva, S, Lallukka, T, Lahelma, E. Associations of work-family conflicts with food habits and physical activity. *Public Health Nutr* 2007; **10** (03): 222-9.
12. Furst, T, Connors, M, Bisogni, CA, Sobal, J, Falk, LW. Food choice: a conceptual model of the process. *Appetite* 1996; **26** (3): 247-66.
13. Devine, CM, Connors, M, Bisogni, CA, Sobal, J. Life-course influences on fruit and vegetable trajectories: qualitative analysis of food choices. *Journal of Nutrition Education* 1998; **30** (6): 361-70.

14. Devine, CM, Farrell, TJ, Blake, CE, Jastran, M, Wethington, E, Bisogni, CA. Work conditions and the food choice coping strategies of employed parents. *Journal of Nutrition Education and Behavior* 2009; **41** (5): 365-70.
15. Blake, CE, Wethington, E, Farrell, TJ, Bisogni, CA, Devine, CM. Behavioral contexts, food-choice coping strategies, and dietary quality of a multiethnic sample of employed parents. *Journal of the American Dietetic Association* 2011; **111** (3): 401.
16. Albertsen, K, Borg, V, Oldenburg, B. A systematic review of the impact of work environment on smoking cessation, relapse and amount smoked. *Preventive Medicine* 2006; **43** (4): 291-305.
17. Macy, JT, Chassin, L, Presson, CC. The Association Between Work-Family Conflict and Smoking Quantity Among Daily Smokers. *Nicotine & Tobacco Research* 2013.
18. Nelson, CC, Li, Y, Sorensen, G, Berkman, LF. Assessing the Relationship Between Work-Family Conflict and Smoking. *American Journal of Public Health* 2012; **102** (9): 1767-72.
19. Noor, NM. Roles and women's well-being: some preliminary findings from Malaysia. *Sex Roles* 1999; **41** (3-4): 123-45.
20. Noor, NM. Malaysian women's state of well-being: empirical validation of a conceptual model. *J Soci Psycho* 2006; **146** (1): 95-115.
21. Achour, M, Boerhannoeddin, AB, Khan, A. Religiosity as a moderator of work-family demands and employees' well-being. *African Journal of Business Management* 2011; **5** (12): 4955-60.
22. Aazami, S, Shamsuddin, K, Akmal, S. Examining Behavioural Coping Strategies as Mediators between Work-Family Conflict and Psychological Distress. *The Scientific World Journal* 2015; **2015**.
23. Aazami, S, Akmal, S, Shamsuddin, K. Validation Study of the Malay Version of the Work-Family Conflict Questionnaire. *Malaysian Journal of Medical Science* 2014; **21** (1): 50-7.
24. Schat, A, Kelloway, EK, Desmarais, S. The Physical Health Questionnaire (PHQ): construct validation of a self-report scale of somatic symptoms. *J Occup Health Psych* 2005; **10** (4): 363.
25. Baron, RM, Kenny, DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 1986; **51** (6): 1173.
26. Allen, TD, Herst, DE, Bruck, CS, Sutton, M. Consequences associated with work-to-family conflict: a review and agenda for future research. *Journal of Occupational Health Psychology* 2000; **5** (2): 278.
27. Pisarski, A, Lawrence, SA, Bohle, P, Brook, C. Organizational influences on the work life conflict and health of shiftworkers. *Applied Ergonomics* 2008; **39** (5): 580-8.
28. McNamara, M, Bohle, P, Quinlan, M. Precarious employment, working hours, work-life conflict and health in hotel work. *Applied Ergonomics* 2011; **42** (2): 225-32.
29. O'Driscoll, MP, Brough, P, Kalliath, TJ. Work/family conflict, psychological well-being, satisfaction and social support: a longitudinal study in New Zealand. *Equal Opportunities International* 2004; **23** (1/2): 36-56.
30. Lallukka, T, Chandola, T, Roos, E, Cable, N, Sekine, M, Kagamimori, S, Tatsuse, T, Marmot, M, Lahelma, E. Work-family conflicts and health behaviors among British, Finnish, and Japanese employees. *Int J Behav Med* 2010; **17** (2): 134-42.