

Quality of Nursing Work Life, Work-Family Conflict, and Self-Regulation: A Structural Equation Modeling

ISAAC RAHIMIAN BOOGAR¹, SIAVASH TALEPASAND², BEHNAM BARATI
MASHHADI³

¹*Department of Clinical Psychology, Faculty of Psychology and Educational Sciences, Semnan University, Semnan, Iran;*

²*Department of Educational Psychology, Faculty of Psychology and Educational Sciences, Semnan University, Semnan, Iran;*

³*Department of Clinical Psychology, Faculty of Psychology and Educational Sciences, Semnan University, Semnan, Iran.*

Received April 06, 2018; Revised July 19, 2018; Accepted August 20, 2018

This paper is available on-line at <http://ijoh.tums.ac.ir>

ABSTRACT

The quality of nursing work life is an important index for assessing the professional health of nurses and providing tailored care services to patients. The study investigates the role of work-family conflict and self-regulation in predicting the quality of work-life among nurses. In this retrospective cross-sectional study, 230 nurses were selected randomly from public and private hospitals. They were asked to fill out Work-related Quality of Life Scale-2, Work-Family Conflict Scale, and Self-Regulation Questionnaire. Moreover, structural equation modeling was used to analyze the data by SPSS-19 and LISREL-8.80 software. The results showed that the model had a good fit to the observed data (RMSEA=0.06, GFI=0.93, AGFI=0.87, NFI=93, CFI=95, IFI=95, and P-value=.073) and the final model was verified. The results also revealed that “behavior-based and time-based work-family conflicts”, “assessing the plan’s effectiveness”, “searching for options”, and “implementing the plan” could significantly predict “stress at work”, “general well-being”, “working conditions”, employees’ engagement”, “job career satisfaction”, and “work-home interference” ($p<0.05$). It is indispensable to design tailored programs and professional health plans for improving family-work interference and self-regulatory actions, as two leading causes for the quality of nursing work life.

KEYWORDS: *Conflict, Job satisfaction, Nurses, Quality of life, Work performance*

INTRODUCTION

Quality of work-life (QWL) is an important index of the professional health results and is the basis to draw up tailored interventions [1-3]. It is the extent to which employees are internally satisfied with job demands by engaging in the workplace while attaining their work goals [2]. The QWL has been defined in various ways, as an action at the workplace, a set of interventions at work,

and qualitative characteristics of employees’ life at the workplace [1, 3]. It is an important index of the professional health results and is the basis to draw up tailored interventions [1-3]. Worsened quality of nurses’ work-life correlates with lower health services and poor health of patients [4- 5]. There are different theoretical frameworks and various models for the assessment and development of QWL among nurses, each of which includes several different assumptions [2, 5-6]. Martel and Dupuis [7] mentioned that the main theoretical QWL models include the transfer model,

* *Corresponding Author: Isaac Rahimian*
Email: i_rahimian@semnan.ac.ir

segmentation model, compensation model, and accommodation model. According to these theoretical models, general well-being, work-home interference (WHI), job and career satisfaction, employee engagement, control at work, working conditions, and stress at work are associated with the QWL [7-8]. Based on research evidence, nurses' QWL is associated with the factors, such as burnout, turnover intention [7], job satisfaction, and productivity [9]. Therefore, identifying the effective causes of QNWL plays an influential role in improving nursing efficiency and promoting the quality of nursing care.

Several factors are involved, directly or indirectly, in QNWL, one of which is the work-family conflict [4, 10]. Family and work, in nursing, are often in conflict. This may lead to unfavorable outcomes, such as fatigue, worsened health, absenteeism, and intention to leave work [4, 11].

Work-family conflict is defined as a type of friction, in which role demands from workplace and home are mutually incompatible in some important respects [12]. In other words, it is an inner role conflict, in which some of the role pressures from work and home are mutually incompatible [10]. Self-regulation also influences on quality of work-life in nurses. It refers to cognitive and behavioral capacities to direct behavior and control impulses [13-14]. Self-regulation involves goal-directed behaviors that lead to long-standing emotional stability, comprehensive well-being, and proper quality of life [14]. Self-regulation in health deals with the capacity to cope with or adapt to health threats and manage the quality of life [15-16]. The capacity of psychological health, including self-regulation, directly and indirectly, influences the QWL of nurses and their clinical performance [17]. Evidence highlights the significant role of self-regulation in the QWL among nurses [14, 18]. Despite the important role of self-regulation in QNWL, a knowledge gap is found in the relevant studies. It is still unclear which components of self-regulation are involved in predicting nurses' QWL. By recognizing the most important self-regulatory components affecting QWL, this study can help bridge this gap in the literature. Therefore, it is important to identify effective self-regulation components that can affect the QNWL.

Logically, according to the theoretical tenets, outlined above, it is important to consider the role of self-regulation along with work-family conflict in predicting QNWL. Self-regulation, as a psychological capital, moderates the relationship between work-family conflict and QNWL. In addition, it is a positive resource to promote nurses skills and work-life [17]. Diminished self-regulation can exacerbate the effects of work-

family conflict on QNWL. On the contrary, minimal work-family conflict can enhance the effect of self-regulation on the increase of QNWL [15, 17]. For promotion of professional nursing care, the influential causes of QNWL should be identified. Work-family conflict and self-regulation affect the nursing competence, health care provision, and responsibility at the workplace, which in turn, influence the QNWL. Various psychological models on work-family conflicts and balances have been proposed to explain QWL [5, 19- 20]. This study presents an integrated model based on the theoretical models, outlined by van der Heijden, Demerouti, and Bakker [12], Sirgy and Lee [19], Cullen and Hammer [20], and Spence Laschinger et al [5]. Theoretically, the model was developed based on the theoretical foundations of QNWL, containing mutual relationships between job demands and health [12], the theoretical basis of work-family conflict and employee's safety [20], the well-being of nurses at the workplace (according to the job demands-resources model) [5], and work-life balance (as a quality of life model) [19]. Although QNWL is the most important topic of workplace health, previous researchers showed that work-family conflict and self-regulation have connections with it. Thus far, the role of these factors on the QNWL has not been studied in an integrated manner. The present study contributes to the literature in some ways. This model, unlike most of the relevant studies on the influential QNWL factors, considers work-family conflict along with self-regulation. Moreover, by integrating the available theoretical models, this study develops an exploratory model to explain QNWL. The other main contribution of this research, compared to the other studies already published on the same topic, is the study of indirect role of work-family conflict in QNWL through self-regulation. The aim of this study is to examine the role of work-family conflict and self-regulation on QNWL, using the model depicted in Fig. 1. According to the changing nature of the studied variables and the research goals, instead of global variables, the subscales of QWL, work-family conflict, and self-regulation were used. From the perspective of inductive reasoning, combining these subscales constructs a latent variable, which is very close to the theoretical level. Although a global variable maybe more suitable, however, it cannot indicate more detailed and exact relations between the indicators at the operational level. Therefore, in order to consider more detailed and specific relations, the subscales were investigated as indicators. The first hypothesis of this study is that the work-family conflict and self-regulation cooperatively have direct and indirect effects on the QNWL. The second hypothesis is that the assumed model well fits the observed data.

MATERIALS AND METHODS

Design and sampling

The present research was designed as a retrospective, cross-sectional study to identify the role of work-family conflict and self-regulation in predicting the QNWL. The independent variables in this study were work-family conflict and self-regulation, and the dependent variable was QNWL. The causal direct and indirect relations of the variables were investigated by the structural equation modeling. The study was conducted in teaching hospitals.

The statistical population consisted of all of the nurses working at the hospitals affiliated with Semnan University of Medical Sciences in Semnan City in Iran, from October 2016 to May 2017. The sample size included 230 participants, calculated based on the model parameters and the sample size required for the structural equation model [21]. Mueller [21] stated that the sample size of the model parameters should be at least 1:5 up to 1:50.

In this study, the ratio of about 1:8 was used to estimate the sample size. The participants were permanent nurses of the private and public hospitals, selected by the random sampling method. The nurses with severe mental disorders, chronic medical diseases, or severe functional disability were excluded from the study.

Measurements

The data were gathered using the following instruments:

Quality of Nursing Work Life: The Work-related Quality of Life Scale- 2 (WRQoL-2) was designed by van Laar et al [22]. This scale has 36 items (e.g., item 22: working conditions are satisfactory) that assesses QNWL using a 5-point Likert scale, ranging as 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree).

WRQoL-2 includes the subscales of control at work (3 items), employees' engagement (6 items), general well-being (6 items), WHI (3 items), job career satisfaction (7 items), stress at work (5 items), and working conditions (3 items). In this scale, the items of 7, 9, 19, 24, 32, and 33 contain negative phrases (e.g., item 24: I have unachievable deadlines), that should be scored, reversely.

The items of 14, 23, and 36 are not included in the WRQoL-2 scoring. In a report by Edwards et al [23], the value of Cronbach's alpha coefficient was estimated at 0.94 for the whole scale and in a range between 0.72 and 0.90 for the subscales. In addition, Van Laar et al [22] reported that the test-retest reliability coefficient was 0.87 for the whole scale and from 0.77 up to 0.89 for the subscales.

Work-Family Conflict: Work-family conflict scale was developed by Carlson et al [24] and assesses the facets of work-family conflict. This scale has 18 items (e.g., item 10: "Due to stress at home, I am often preoccupied with family matters at work") and 6 subscales. The subscales include time-based work interference with family (3 items), time-based family interference with work (3 items), strain-based work interference with family (3 items), strain-based family interference with work (3 items), behavior-based work interference with family (3 items), and behavior-based family interference with work (3 items). The employees were asked to rate the items based on the degree of conflict they experienced. Their responses were classified based on the Likert scale from 1 (strongly disagreed) to 5 (strongly agreed). The Cronbach's alpha coefficient was reported in a range from 0.78 up to .87, suggesting the suitable reliability of the scale [24]. Lim et al [25] confirmed the Korean version of the work-family conflict scale. According to their estimates, the Cronbach's alpha reliability coefficients ranged between 0.89 and 0.94.

Self-Regulation: The self-regulation questionnaire (SRQ) was developed by Brown et al. [13]. This scale has 63 items (e.g., 42: I set goals for myself and keep track of my progress) and 7 subscales, including "receiving relevant information", "evaluating the information and comparing its norms", "triggering change", "searching for options", "formulating a plan", "implementing the plan", and "assessing the plan's effectiveness". Scoring is performed by the Likert scale, as 1 (strongly disagree), 2 (disagree), 3 (uncertain or unsure), 4 (agree), and 5 (strongly agree).

In this questionnaire, a score higher than 239 suggests the intact self-regulatory ability, between 214 and 239 the moderate self-regulation ability, and less than 213 low or worsened self-regulation ability [13]. The test-retest reliability coefficient of the questionnaire was estimated at 0.94, and the internal consistency (measured by the Cronbach's alpha) was estimated at 0.91. In the follow-up psychometric analysis of SRQ, Neal and Carey [26] calculated the Cronbach's alpha greater than 0.89 for all of the subscales.

Data collection: At first, the Ethics Committee of Semnan University of Medical Sciences approved the study. Before getting started, an informed consent was obtained from the participants. They filled out the checklists and questionnaires and then, the completed questionnaires were collected. This study was in agreement with the accepted standards of human research. All of the nurses completed the informed consent form and agreed to participate in the research. The study respected the

rights of the participating nurses. They could leave the study at any stage, whenever desired. Their anonymity and confidentiality were also observed. Data collection lasted for eight months, with a median duration of six months. Three different series of the scales were administered in a counterbalanced manner. The data were collected based on face-to-face interviews.

Data analysis: data were analyzed by calculating the parameters of mean, standard deviation, frequency percentage, and correlations in SPSS Statistics 19. The structural equation modeling was run by maximum likelihood method in LISREL 8.80.

Ethical approval: The present study was reviewed and confirmed by the Research Ethics Committee of the Education Center at Department of Clinical Psychology, Semnan University of Medical Sciences (code of ethics: 1442037).

RESULTS

Demographic characteristics

The participants were 21 to 52 years old, with the mean and standard deviation ($M \pm SD$) of 32.73 ± 7.28 . Work experience for the nurses ranged from 2 to 30 years, with the mean and standard deviation ($M \pm SD$) of 10.09 ± 6.94 . Other demographic characteristics of the sample are presented in Table 1.

Descriptive statistics

The mean (standard deviation), correlation, and reliability coefficients of the predictors are reported in Table 2. BBFIW (Behavior-based family interference with work) and TBFIW (Time-based family interference with work) respectively have the highest mean values, while SAW (stress at work) has the lowest mean value. BBFIW has a weak correlation with many predictors. BBFIW has the highest negative correlation with SAW. TBFIW shows similar patterns. TBFIW is correlated poorly with the studied predictors. The correlation of the TBFIW, IMP, and SAW is negatively significant.

Testing the structural equation modeling

To test the impacts of work-home conflict and self-regulation on nurses' QWL, the structural equation modeling was developed in LISREL 8.80 software. Before analysis, the assumptions of the statistical method were evaluated. By checking the rectangular graph (the box plot), 7 univariate outliers were found, which were replaced by the mean data. In addition, the Skewness and Kurtosis values of the data were checked to be not more than $1 \pm$. The fitness indices, including root mean square error of approximation (RMSEA), standardized root mean square residual (SRMSR), comparative fit index (CFI), normed fit index (NFI), goodness of fit index (GFI), and adjusted goodness of fit index (AGFI), as well as maximum likelihood method were used to estimate the parameters and check the model fitness.

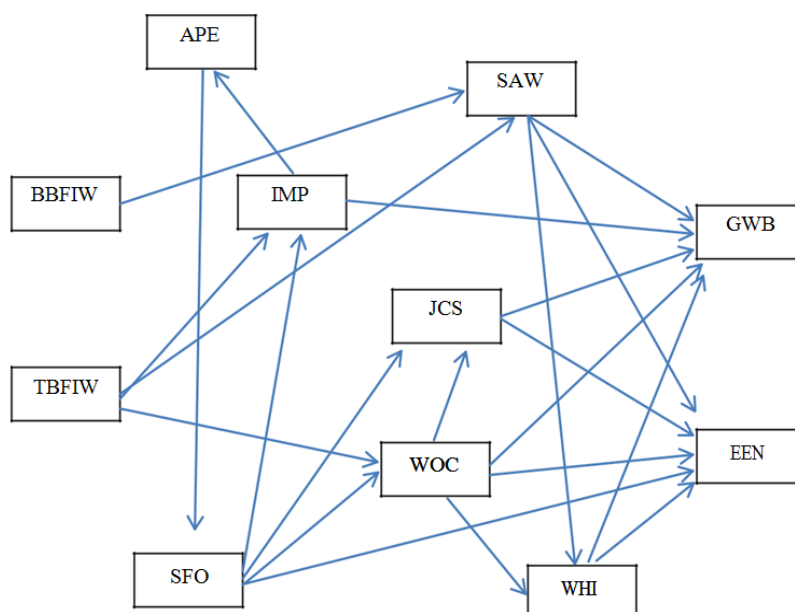


Fig 1. Assumed model for direct and indirect impacts of work-family conflict and self-regulation on the QNWL

Note. BBFIW: Behavior-based family interference with work; TBFIW: Time-based family interference with work; APE: Assessment of plan effectiveness; SFO: Searching for options; IMP: Implementing the plan; JCS: Job career satisfaction; WOC: Working conditions; SAW: Stress at work; WHI: Work-home interference; GWB: General well-being; EEN: Employee engagement

Several cut-points were proposed by the experts to fit the indices. Accordingly, RMSEA and SRMSR equal to or less than 0.07, CFI and NFI equal to or higher than 0.90, and SRMSR equal to or less than 0.07 indicate the sufficient fitness of the model [21]. In addition, CFI, GFI, and AGFI values of greater than 0.90 show a good fit, and the RMSEA and SRMSR values of less than 0.1 show an excellent fit [21]. Fitness indices for the final model are presented in Table 3. According to the table, all of the fitness indices show the best fitness of data, except for AGFI, which may be due to its sensitivity against the model complexity. Despite the lack of fitness of one index, the fitness of the final model was confirmed because most of the fitness indices perfectly fit to the observed data and poor fit of just one index cannot cause any problems in the data interpretation. Due to the reasons for the lack of fitness in the estimated parameters, the standard error of the estimates and the significance levels were examined. Additionally, standardized residuals, modification indices, and the expected values of the parameters were considered. The findings showed that the parameters in the assumed model are not inconsistent with the theoretically assumed paths.

In the covariance matrix of the residual values, no great residual was noted. According to the theoretical evidence and the indices of fitness, the assumed model was considered as the final model (Table 3). In the network of the structural relations (Fig. 2), the research findings show that BBFIW has a negative direct influence on SAW. TBFIW has a negative direct impact on IMP (Implementing the plan). TBFIW has a significant direct effect on SAW. In addition, TBFIW has indirect significant effects on other variables, except for WOC.

For endogenous variables, APE has a direct effect on SFO. The effect of APE on SFO is positively significant. SFO has a direct influence on the IMP and WOC, while SFO has a more indirect influence on EEN. However, SFO has equally direct and indirect impacts on JCS. Since IMP directly affects APE, greater than GWB; its influence on APE is also greater than GWB. IMP does not have a significant indirect effect on APE. Furthermore, IMP indirectly affects APE and GWB, although the indirect influences are not as same as the direct effects. SAW has a positive significant direct effect on GWB and WHI. The effect of SAW on WHI is higher than that on GWB.

Table 1. Demographic characteristics of the sample (N=230)

| Variable | Category | n (%) | M±SD |
|--|------------------------------|-----------|------------|
| Gender | Female | 178(77.4) | - |
| | Male | 52(22.6) | - |
| Age | 21-29 | 91(39.6) | 32.73±7.28 |
| | 30-39 | 92(40.0) | |
| | >40 | 47(20.4) | |
| Education level | Diploma | 17(7.4) | - |
| | Bachelor | 186(80.9) | - |
| | Master of science and higher | 27(11.7) | - |
| Marital status | Single | 51(22.2) | - |
| | Married | 160(69.6) | -- |
| | Divorced/Separated/Widowed | 19(8.2) | - |
| Clinical experience (yr) | <5 | 77(33.5) | 10.09±6.94 |
| | 5-9 | 44(19.1) | |
| | 10-14 | 49(21.3) | |
| | 15-19 | 28(12.2) | |
| | >20 | 32(13.9) | |
| Nursing unit | General Unit | 129(56.1) | - |
| | Intensive Care Unit (ICU) | 37(16.1) | - |
| | Emergency Room (ER) | 35(15.2) | - |
| | Critical Care Unit (CCU) | 29(12.6) | - |
| Hospital | Public teaching hospital | 125(54.3) | - |
| | Private teaching hospital | 105(45.7) | - |
| Socioeconomic status (monthly family income) | Low | 30(13.0) | - |
| | Moderate | 169(73.5) | - |
| | High | 31(13.5) | - |

M: Mean; SD: Standard deviation

SAW does not have a significant effect on EEN. WOC has effects on EEN, WHI, and JCS, which are positive and significant. WOC has the greatest effect on WHI. Consequently, WHI has negative and significant effects on GWB and EEN. WOC indirectly influences GWB. WOC, directly and indirectly, affects EEN, although the indirect effect is greater. JCS has a positive significant direct effect on EEN and GWB, and the effect on GWB is greater. In addition, WHI has direct negative impacts on both GWB and EEN ($p < 0.05$).

The effects of TBFIW on WOC and WOC on GWB are both direct and insignificant. Consequently, SAW does not have a significant direct effect on EEN ($p > 0.05$). To elaborate further the findings of the structural equation modeling, the effects coefficients of the final model are presented in Table 4. In addition, WHI has direct negative impacts on both GWB and EEN ($p < 0.05$).

DISCUSSION

According to the research findings, BBFIW and TBFIW directly affect the stress at work in the QNWL. Furthermore, BBFIW and TBFIW have direct effects on implementing the plan as a self-regulatory action. In turn, by influencing stress at work and implementing the plan, BBFIW and TBFIW affect indirectly the three components of the QNWL (general well-being, employees' engagement, and work-home interference).

These findings were consistent with the previous studies [8, 11, 27]. Hao et al [28] stated that behavioral and time-based family interference with work has an important direct role on increased stress at work, distorted job planning, decreased employees' engagement, and turnover intention. Kelly et al. [10] argued that stronger and long-lasting work-family conflict tires out the employees. It would be a leading cause for employees' discouragement and disengagement at work, and worsening work-home interference. Some researchers believe that work-family conflict is a stressor that negatively affects QNWL [2, 11].

Nurses, who experience conflict and tension at home, tend to decrease their work activities, which would result in lower levels of QNWL. In addition, BBFIW and TBFIW might decrease opportunities of nurses to obtain more work achievements, which is a leading factor for deteriorated QNWL. Besides, as Hao et al [28] declared, BBFIW and TBFIW disrupt self-regulation capability and plan implementation at work.

Accordingly, worsened self-regulation can indirectly predict employees' general well-being and occupational achievements. Nurses with many behavioral and time-based work-family conflicts, compared to those who have lower or no work-family conflict, have inappropriate work-related quality of life.

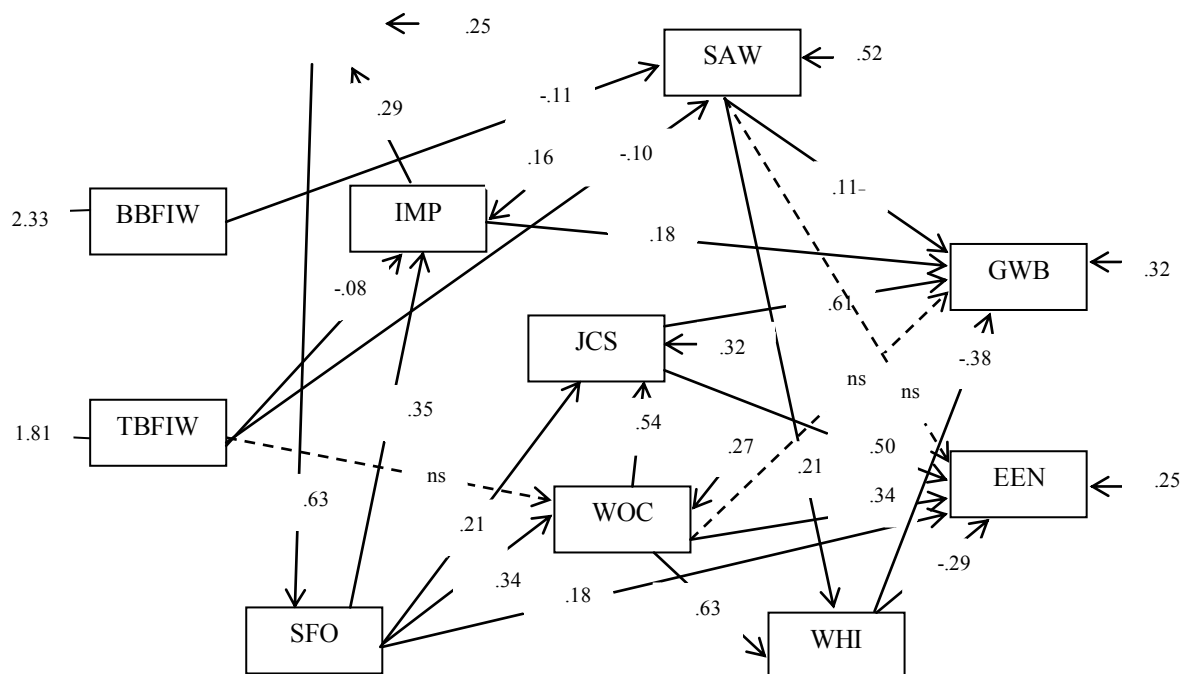


Fig. 2. Path coefficients of the model (standardized path estimates) for the direct and indirect impacts of work-family conflict and self-regulation on the QNWL

Note: BBFIW: Behavior-based family interference with work; TBFIW: Time-based family interference with work; APE: Assessing the plan's effectiveness; SFO: Searching for options; IMP: Implementing the plan; JCS: Job career satisfaction; WOC: Working conditions; SAW: Stress at work; WHI: Work-home interference; GWB: General well-being; EEN: Employee engagement.

Table 2. Mean, standard deviation, correlation, and reliability coefficients of the predictors (N=230)

| Variables | M±SD | R | | | | | | | | | | |
|-----------|-----------|--------|--------|-------|-------|-------|-------|-------|--------|--------|-------|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 1.BBFIW | 4.21±1.52 | | | | | | | | | | | |
| 2.TBFIW | 3.88±1.34 | .40** | | | | | | | | | | |
| 3.SFO | 3.60±.50 | -.12 | -.06 | | | | | | | | | |
| 4.APE | 3.60±.55 | -.08 | -.11 | .72** | | | | | | | | |
| 5.IMP | 3.37±.47 | -.22** | -.27** | .53** | .49** | | | | | | | |
| 6.SAW | 2.65±.75 | -.29** | -.26** | .01 | .05 | .06 | | | | | | |
| 7.JCS | 3.23±.64 | -.09 | .02 | .31** | .24** | .14* | .18** | | | | | |
| 8.GWB | 3.40±.59 | -.17* | -.08 | .29** | .25** | .24** | .27** | .71** | | | | |
| 9.EEN | 3.35±.77 | -.18** | -.01 | .31** | .25** | .06 | .21** | .71** | .52** | | | |
| 10. WOC | 2.86±.83 | -.14 | .02 | .20** | .04 | -.01 | .28** | .73** | .50** | .69** | | |
| 11.WHI | 2.84±.88 | -.12 | .01 | .14* | .13 | .01 | .34** | .59** | -.50** | -.57** | .64** | |

*p<.05. **p<.01. Note. BBFIW: Behavior-based family interference with work; TBFIW: Time-based family interference with work; SFO: Searching for options; APE: Assessing the plan’s effectiveness; IMP: Implementing the plan; SAW: Stress at work; JCS: Job career satisfaction; GWB: General well-being; EEN: Employee engagement; WOC: Working conditions;; WHI: Work-home interference

Table 3. Fitness indices of the modified model (N=230)

| Fit indices | X ² | df | X ² /df | RMSEA | CI (90%) RMSEA | GFI | AGFI | NFI | CFI | IFI | P value |
|-------------|----------------|-----|--------------------|-------|----------------|------|------|------|------|------|---------|
| Criterion | P>.05 | 3-5 | <.05 | <.07 | .02;.10 | >.90 | >.90 | >.90 | >.90 | >.90 | <.05 |
| Final model | 14.63 | 5 | 2.92 | .06 | (.06) | .93 | .87 | .93 | .95 | .95 | .073 |

Note: RMSEA: Root mean square error of approximation; GFI: Goodness of fit index; AGFI: Adjusted GFI; NFI: Normed fit index; CFI: Comparative fit index; IFI: Incremental fit index.

Undoubtedly, nurses with manageable work-family conflict are expected to be more satisfied with their work circumstances and consequently, achieve better general well-being and productive work engagement. Assessing the plan's effectiveness has a direct effect on searching for options, as parts of self-regulation. In turn, it influences indirectly the QWL in terms of job satisfaction, working conditions, and employees' engagement. In line with the findings by Leineweber et al [2] and Wang et al [29], this study showed that assessing the plan's effectiveness affects the search for options, as a self-regulatory action. It also has an effect on working conditions, job satisfaction, and employees' engagement. Osman and Georgiana [16] found that self-regulation lessens the stress at work, notices workplace threats, and helps clarify working relations. They also argued that self-regulation could support decision-making and improve nurses' job satisfaction. This can be due to the fact that the plan's effectiveness is mediated by searching for options which, in turn, will influence nurses' work demands. According to Wang et al [29], psychological factors, including self-regulation, mediate the relations between work and family conflict and job burnout. Nurses who perceived higher levels of work-family conflict would be likely suffering by diminished self-regulation skills, which in turn decreased the QWL. In addition, the conflict between family

and work refers to the association between family pressures and work demands. Personal characteristics such as self-regulation can affect this association [28]. Searching for options in a mediating role has direct influences on implementing the plan as another part of self-regulation. In addition, searching for options directly influences job satisfaction, working conditions, and employees' engagement as parts of the QWL. As a result, this search has an indirect impact on general well-being, employees' engagement, and WHI as parts of the QWL. Moreover, searching for options indirectly influences job satisfaction, general well-being, employees' engagement, and WHI as parts of the QWL through working conditions. These results agree well with Osman and Georgiana's findings [16]. Leineweber et al [2] pointed out that "searching for options" and "job career satisfaction" affect workplace characteristics and nurses' comprehensive well-being directly and indirectly. Osman and Georgiana [16] also noted that self-regulation regulates the role conflicts in the work-with-family interference and, in turn, alters the intent to turnover and absenteeism from work. Simone et al [4] showed that work-with-family or family-with-work conflicts result in changes in attitudes and behaviors and eventually influence job satisfaction and well-being. This might explain the fact that nurses, who are assessing plan's effectiveness and searching for

options, will experience job satisfaction, favorable work conditions, and proper engagement in work tasks. Furthermore, these nurses have a suitable QWL compared with those who do not have self-regulation abilities. In addition, it can be said that self-regulation, as the main source to meet work demands, was related to the improved QNWL. Implementing the plan has a direct effect on assessing the plan's effectiveness as a part of self-regulation. Moreover, it has a direct effect on general well-being as a part of the QWL. Implementing the plan has also an indirect effect on job satisfaction, working conditions, general well-being, employees' engagement, and WHI (that is, the QWL).

Assessing the plan's effectiveness and searching for options, as self-regulatory actions, have a mediating role in these effects. In a study with consistent findings, Laschinger and Fida [30] indicated that psychological agents, including emotional regulation and self-regulated behaviors, directly affect burnout and indirectly the well-being at the workplace. According to Nützi et al [18], self-regulation is an important source of managing the challenges of WHI and well-being among health providers. In addition, it can be said that nurses with the ability to implement the plan have a better assessment of the plan's effectiveness for more specialized tasks. Thus, these nurses experience general well-being and higher satisfaction at work, reduced work-home interference, and productive engagement at work. Actually, when a nurse has self-regulation and competencies required for managing the tasks at the workplace, he/she will have the necessary assets to promote the quality of his/her working life. Some researchers explained that when nurses are faced with the effect of family conflict at their workplace, they tend to take negative self-regulatory mechanisms, which affect their performance and QWL [16, 29].

From another perspective, nurses, who experienced more family-work conflict, have diminished time and energy to advance work achievements and QWL. In the final model of this study, the direct effect of time-based family interference with work on working conditions, as an index for QWL, is insignificant. This result is inconsistent with the findings of the previous studies [3, 19, 30], which may attribute to the differences in methodology, the definition of the studied factors, and measures, as well as diverse socio-cultural characteristics. The results of this study demonstrated that WHI has direct negative impacts on both GWB and EEN. This result is consistent with the previous research; such as the studies by van der Heijden et al. [12] and Kim and Ryu [3]. It can be argued that the interference of work duties with the household affairs results in

interpersonal and intrapersonal conflicts, which ultimately lead to reduced general well-being and poor employees' engagement at work. According to the results of this study, the effect of WOC on GWB is direct but not significant. SAW has not a significant direct effect on EEN.

Despite this finding, the majority of the previous studies have emphasized that working conditions affect employees' well-being [30]. Furthermore, the stress in the work environment affects work engagement, as confirmed by Jacobsen et al. [8]. This inconsistency in results may be due to the different methodologies, distinctive instruments to measure variables and culture-related nature of general well-being. SAW has significant direct effects on general well-being and work-home interference. This result confirms the previous researches in this field, such as those carried out by Kim and Ryu [3] and Sirgy and Lee [19]. Reduced job motivation, heightened feelings of fatigue, and prolonged job-related stress can result in decreased well-being at the workplace and disengagement with the work. In the developed model, the goodness of fit indices showed a good fit to the gathered and observed data.

The model fit indices could reach the acceptable values. This structural equation model was developed based on the background theories of the nurses' QWL and its leading causes. Despite the importance of this topic, there are few comprehensive and integrated studies about various parts of nurses' QWL. The new finding, in this study, approved the comprehensive and integrated model of nurses' QWL. This study faced a number of limitations. The research design was cross-sectional and descriptive, where based on the findings; the cause and effect of the explanations were not extracted. The instruments for data collection were based on self-reported scales and there was a possibility of a bias in the response of the participants. The participating nurses were selected by convenience sampling method. Therefore, the generalization of the results to other nurses should be done with caution. To overcome these limitations and obtain more accurate results in future studies, it is recommended to include causal relations in the experimental designs, and perform clinical trials to design tailored interventions for the improvement of QWL among nurses.

CONCLUSION

This study is one of the first investigations on nurses' QWL from the perspective of integrity and comprehensiveness. The study findings can facilitate our comprehension of the role of self-regulation in mediating the association between

work-family conflict and the QNWL. The study showed that low self-regulation and high work-family conflict are important problems in QNWL. This leads to a proper awareness about some of the important and effective agents of nurses' QWL. The key contribution of this study to the literature was to understand the role of some components of self-regulation in predicting the QNWL. The results call attentions to the potential problems of future studies on the development of nursing knowledge and the implications of nursing. This study has significant implications in terms of education, research, and practice. According to the results, health-care administrators in hospital settings could set flexible agendas and train nurses with technical and self-regulation skills, as well as the ability to set up and manage home affairs. Attempts should be made to improve strategies to reduce nurses' BBFIW and TBFIW in order to enhance QNWL.

These findings should encourage health-care administrators to be conscious about the risk factors such as work-family conflict and self-regulation deteriorating the QNWL. It is an effective and feasible strategy for health-care administrators and hospitals to develop schedules increasing self-regulation skills of nurses and thus, improve the QNWL in a long-term. Interventions for improving nurses' QWL in hospital settings should include attempts to intervene self-regulation and work-family associations. Some previous strategies, focused solely on developing plans to reduce job stress and increase job satisfaction for the promotion of QWL among nurses, may not be effective. This is mainly due to the fact that the demographic characteristics of nurses are changing, and high proportion of nurses currently belong to single-parent or dual-earner families. The research line suggests that nurses are likely to endeavor with work-family conflicts. The study provides an obvious understanding of how self-regulation can mediate the association between work-family conflict and QNWL. It suggests that those plans increasing self-regulation can improve the QNWL in nursing settings. Eventually, it is suggested that nursing departments and hospitals promote the personal capabilities, such as self-regulation, which promote the balance of work-family responsibilities to improve QNWL.

Future Recommendations: Further studies and advances in this field would play a great role in designing the tailored interventions to improve nurses' QWL. It is suggested that in the future studies, professional health researchers use integrated qualitative-quantitative-based research methods, perform clinical trials, repeat the same study for other professions, and identify the other affective causes of QNWL. In addition, more studies are needed to explore how other

psychological characteristics such as self-efficacy and resiliency, as well as some socio-cultural characteristics influence work-family conflict among nurses.

ACKNOWLEDGEMENTS

The authors are thankful for the support of Department of Clinical Psychology at Semnan University of Medical Sciences. The authors also appreciate all the participants in this study.

REFERENCES

1. Xu L, Song R. Influence of work-family-school role conflicts and social support on psychological wellbeing among registered nurses pursuing advanced degree. *Appl Nurs Res* 2016; 3: 6-12.
2. Leineweber C, Westerlund H, Chungkham HS, Lindqvist R, Runesdotter S, Tishelman C. Nurses' practice environment and work-family conflict in relation to burn out: a multilevel modeling approach. *PLoS ONE* 2014; 9:e96991.
3. Kim M, Ryu E. Structural equation modeling of quality of work life in clinical nurses based on the culture-work-health model. *J Korean Acad Nurs* 2015; 45(6): 879-89 [In Korean].
4. Simone SD, Lampis J, Lasio D, Serri F, Gianfranco, Cicotto G, Putzu D. Influences of work-family interface on job and life satisfaction. *Appl Res Qual Life* 2014; 9(4): 831-861.
5. Spence Laschinger HK, Grau AL, Finegan J, Wilk P. Predictors of new graduate nurses' workplace well-being: Testing the job demands-resources model. *Health Care Manage Rev* 2012; 37(2): 175-86.
6. AlAzzam M, AbuAIRub RF, Nazzal AH. The Relationship between work-family conflict and job satisfaction among hospital nurses. *Nurs Forum* 2017; 52(4): 278-288.
7. Martel JP, Dupuis G. Quality of Work-Life: theoretical and methodological problems, and presentation of a new model and measuring instrument. *Soc Indic Res* 2006; 77 (2): 333-368.
8. Jacobsen HB, Reme SE, Sembajwe G, Hopcia K, Stoddard AM, Kenwood C, Stiles TC, Sorensen G, Buxton OM. Work-Family Conflict, Psychological Distress and Sleep Deficiency among Patient Care Workers. *Workplace Health Saf* 2014; 62(7): 282-291.
9. Makabe S, Takagai J, Asanuma Y, Ohtomo K, Kimura Y. Impact of work-life imbalance on job satisfaction and quality of life among hospital nurses in Japan. *Ind Health* 2015; 53(2):152-159.
10. Kelly EL, Moen P, Oakes JM, Fan W, Okechukwu C, Davis KD, Hammer LB, Kossek EE, Berkowitz King R, Hanson GC, Mierzwa F, Casper LM. Changing Work and

11. Work- Family Conflict: Evidence from the Work, Family, and Health Network. *Am Sociol Rev* 2014; 79(3):485–516.
11. Wang ML, Tsai LJ. Work-family conflict and job performance in nurses: the moderating effects of social support. *J Nurs Res* 2014; 22(3): 200-207. van der Heijden BI, Demerouti E, Bakker AB. Work-home interference among nurses: reciprocal relationships with job demands and health. *J Adv Nurs* 2008; 62(5): 572–584.
13. Brown JM, Miller WR, Lawendowski LA. *The self-regulation questionnaire*. In: VandeCreek L, Jackson TL, editors. *Innovations in clinical practice: A sourcebook*. Vol. 17. Sarasota, FL: Professional Resource Press/Professional Resource Exchange, 1999: pp 281–292.
14. Lewis P, Kimiecik J, Horn T, Zulling KJ, Ward RM. Can Becoming My Self Influence My Health?: Exploring the Effects of a Eudaimonic-Enhancement Process on Psychological Indicators of Well- Being and Physical Activity. *Appl Res Qual Life* 2014; 9(3): 643-665.
15. Shi R, Zhang S, Xu H, Liu X, Miao D. Regulatory focus and burnout in nurses: The mediating effect of perception of transformational leadership. *Int J Nurs Pract* 2015; 21(6): 858-67.
16. Osman MK, Georgiana K. The effect of psychological capital on conflicts in the work-family interface, turnover and absence intentions. *Int J Hosp Manag* 2014; 43: 132-143.
17. Kuiper R, Pesut D, Kautz D. Promoting the self-regulation of clinical reasoning skills in nursing students. *Open Nurs J* 2009; 3:76–85.
18. Nützi M, Koch P, Baur H, Elfering A. Work–family conflict, task interruptions, and influence at work predict musculoskeletal pain in operating room nurses. *Saf Health Work* 2015; 6(4): 329–337.
19. Sirgy MJ, Lee, D. Work-life balance: a quality-of-life model. *Appl Res Qual Life* 2016; 11(4): 1059-1082.
20. Cullen JC, Hammer LB. Developing and testing a theoretical model linking work-family conflict to employee safety. *J Occup Health Psychol* 2007; 12(3): 266-278.
21. Mueller, R. *Basic fundamentals structural equation modeling: introduction LISREL and EQS softwares*. NY: Springer-Verlage, 2011.
22. Van Laar DL, Edwards J, Easton S. The Work-Related Quality of Life (WRQoL) Scale for Healthcare Workers. *J Adv Nurs* 2007; 60:325-333.
23. Edwards J, Van Laar DL, Easton S, Kinman G. The Work-Related Quality of Life (WRQoL) scale for Higher Education Employees. *Qual High Edu* 2009; 15(3): 207-219.
24. Carlson DS, Kacmar KM, Williams LJ. Construction and Initial Validation of a Multidimensional Measure of Work–Family Conflict. *J Vocat Behav* 2000; 56(2): 249–276.
25. Lim DH, Morris ML, McMillan HS. Construct validation of the translated version of the work–family conflict scale for use in Korea. *Hum Resour Dev Q* 2011; 22(4): 519-543.
26. Neal DJ, Carey KB. A follow-up psychometric analysis of the self-regulation questionnaire. *Psychol Addict Behav* 2005; 19(4): 414–422.
27. Pu J, Hou H, Ma R, Sang J. The effect of psychological capital between work-family conflict and job burnout in Chinese university teachers: Testing for mediation and moderation. *J Health Psychol* 2017; 22(14):1799-1807.
28. Hao J, Wu D, Liu L, Li X, Wu H. Association between Work- Family Conflict and Depressive Symptoms among Chinese Female Nurses: The Mediating and Moderating Role of Psychological Capital. *Int J Environ Res Public Health* 2015; 12(6): 6682-6699.
29. Wang Y, Chang Y, Fu J, Wang L. Work-family conflict and burnout among Chinese female nurses: the mediating effect of psychological capital. *BMC Public Health* 2012; 12(915): 1-8.
30. Laschinger HK, Fida R. New nurses burnout and workplace wellbeing: The influence of authentic leadership and psychological capital. *Burnout Res* 2014; 1(1): 19-28.