

Development and Validation of Work/Family Conflict Scale for Women

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Abstract: *The present study was carried out to develop and validate an indigenous tool for assessing work/family conflict of working women. The study was carried out in three phases. In phase I, semi-structured interviews were conducted with 38 working women both married and unmarried belonging to diverse professions. Initial item pool of 74 items was generated from qualitative data; review of literature and from existing measures of work/family conflict. After an extensive scrutiny and evaluation by a panel of 5 judges, 62 items were selected or the final scale using a five-point rating format. In phase II, dimensionality and reliability of the scale were established. It was then administered to a sample of 463 participants (married =228, unmarried =235) with the age ranged from 24 to 53 years ($M = 30.49$, $SD = 4.17$). exploratory factor analysis using principal component analysis was carried out to determine the dimensionality of the scale, based on the result of factor analysis certain items were removed resulting in a 57 item measure of work/family conflict having two subscales (work to family*

conflict and family to work conflict) each measuring three aspects of the conflict time-based, strain-based and behavior-based. In Phase III, validity of scale was established, the results showed that the scale has convergent validity with negative spillover scale ($r = .56, p < .001$) and discriminant validity with positive spillover scale ($r = -.18, p < .01$).

Keywords: *work/family conflict, positive spillover, negative spillover, work/family interface, working women.*

Introduction

In contemporary emerging economies, the issue of work/family conflict has garnered considerable attention among researchers. This focus stems from the recognition of work and family as pivotal facets of an individual's life, with the necessity to adeptly manage the demands of both spheres demanding heightened efforts and time investment (Obrenovic et al., 2020). Consequently, scholars in the field of social science have dedicated their efforts to scrutinizing the reciprocal impacts of work and family. The examination of work/family conflict holds relevance not only for social science researchers but also extends to management researchers and organizational leaders, particularly in light of the rising prevalence of working women and dual-earner families (Molina, 2020; Campana et al., 2018).

Work/family conflict has been theorized by a multitude of researches as a bidirectional and multi-dimensional construct. Its bi-directional nature incorporates both sides of the conflict i.e work interfering with family and family interfering with work (Frone et al., 1992). Moreover, it has three dimensions namely (a) time-based (b) strain-based and (c) behavior based. Time-based conflict occurs when time demands made by one role i.e work takes away from the time that can be spent on performing household responsibilities. Strain-based conflict occurs when stress and strain created in one role, such as work, extends and effects performance in the other role, i.e family. Finally, Behavior-based conflict occurs when behavioral demands of one role are incompatible with the behavioral demands of the other role. these three forms combine with the dual nature of the conflict result in creating six underlying dimensions of the construct of work/family conflict (a) time-based work interfering with family, (b) strain-based work interfering with family, (c) behavior-based work interfering with family, (d) time-based family interfering with work, (e) strain-based family interfering with work, and (f) behavior-based family interfering with work (Gutek et al., 1991). Thus, all six dimensions must be incorporated while measuring work/family conflict. Still, research literature is full of measures that are developed to measure either the bi-directional or the multi-dimensional aspect of work/family conflict, thus failing to take into account the complexity of the construct (Herst, 2003).

The three initial studies carried out to develop a measure of work/family conflict were by

Holahan and Gilbert (1979), Burk et al (1979) and Pleck et al (1980). Holahan and Gilbert (1979) developed a scale to measure six types of role conflict using summated rating system: a) worker vs. spouse (3 items) b) worker vs. parent (4-items) c) worker vs. self (4 items) d) spouse vs. parent (3 items) e) spouse vs. self (4 item) and f) parent vs. self (3 items). However, the scale did not have sound psychometric properties as the authors did not provide any information regarding scale development procedure (Herst, 2003). Burke et al (1979) in their scale took the opinion of wives with regards to the extent of their husbands work/home interference, completely ignoring the point of view of the person who might actually be experiencing the interference (i.e. husband).

Pleck et al (1980) scale measured the extent and type of work/family conflict as experienced by individuals living in different types of family setups (i.e. with children, employed wives etc). However, all these scales Holahan and Gilber (1979) and Burk et al (1979), and Pleck et al (1980) did not take into account the bi-directional and multi-dimensional nature of work/family conflict.

Parry and Warr (1982) also developed a measure of working mother's work role attitude called Home and Employment Role Scales (HER). The scale measured three components home role attitude, employment role attitude and interaction strain. Interaction strain scale consisted of 12 items, tapping into strain based work to family and family to work conflict. However, their scale was only designed for a specific group of respondent i.e working mothers with dependent children and like other scales did not take into account the multidimensional nature of the construct.

Regardless of their limitations, these measures paved the way for more comprehensive measures of work/family conflict. Bohlen and Viveros-Long (1981) addressed the shortcomings of the above-mentioned scales in their Job-Family Role Strain Scale, which was developed after rigorous psychometric testing procedures. However, it only measured stress related to "internalized values and emotions with regards to job and family", making it difficult to distinguish whether the stress is actually due to work/family interface or because of underlying personality issues (Herst, 2003).

Another scale developed to measure role conflict was developed by Kopelman et al (1983). Their scale consisted of 8 items measuring work interference with family as arising from time-based or strain-based demands. However, this scale only measures the impact of work interfering with family ignoring the bi-directionality of the construct. Moreover, Kopelman et al's (1983) scale do not take into account the behavior-based demands placed on the individual, which contribute towards the development of work/family conflict. In addition, the authors themselves admitted that one of the two samples on which the factor structure of the scale is based was small (N = 91) therefore reducing the validity of the final factor structure (Herst, 2003).

Frone et al. (1992) developed a brief measure of time-based and strain-based work to family and family to work conflict consisting of only 4 items and having sound reliability (ranging between .56 to .76). Matsui et al (1995) also constructed a scale measuring time and strain based work/family conflict. It consists of 10 items having high internal consistency (.83 to .85). However, behavior based work to family and family to work conflict was ignored in their scales. Scales by Netemeyer et al. (1996) and Kelloway et al (1999) also had the same drawback.

Another scale developed by Stephens and Sommer (1996) to measure work/family conflict was the first to tap the multi-dimension nature of the construct employing rigorous psychometric testing procedures. Their scale consisted of three factors time-based work interferes with family, strain-based work interferes with family and behavior-based work interferes with family. However, the scale did not measure the three dimensions time-based, behavior-based and strain-based with reference to family to work conflict (Herst, 2003).

It wasn't until Carlson et al (2000) that a comprehensive bi-directional and multi-dimensional scale of work/family conflict emerged consisting of six factors: time-based work interferes with family, strain-based work interferes with family, behavior-based work interferes with family, time-based family interferes with work, strain-based family interferes with work, behavior-based family interferes with work. The authors used items from previous scales as well as developed new items based on a review of the literature as well as on personal and anecdotal evidence. Their scale showed discriminant and criterion validity and further analysis revealed their six-factor solution to be the best fit to measure the construct. The authors also studied the relationship between all six dimensions of work/family conflict scale with antecedents and consequences of work/family conflict and found significant correlations between the measures. However, the cross-cultural validity of the six-factor scale is inconclusive.

Another most recently developed work and family conflict scale is the WAFCS (Work and family conflict scale) developed by Haslam et al (2015). The scale shows good psychometric properties having sound reliability and validity. The scale measures the bi-directional aspect of the work/family conflict caused by strain-based and time-based demands but does not take into account the work/family conflict that might result from behavior-based demands at work and home. Moreover, the scale was specifically designed to be used with parents and clinical sample.

Thus we can say that a variety of scales have been constructed to measure work/family conflict over the years, but some of them either do not have sound psychometric properties or consist of measures that do not tap the bi-directional and multi-dimensional nature of the construct. The only scale that captured the essence of the construct is the work/family conflict scale by Carlson et al (2000); however,

its cross-cultural validity is yet to be determined. Moreover, according to Yang et al (2000) work/family issues are linked to cultural values, beliefs, and norms. Therefore, in order to tap the complexities of the construct of work/family conflict; indigenous tools are needed to assess it in relevant cultural context. Thus, this study aims at developing indigenous measure of work/family conflict and to establish its validity and reliability. Additionally, since women are the main stakeholders of the interface between work and family domains, as their experiences might differ from men, this research aims at developing work/family conflict scale for women.

Objectives of the Study

- To construct a culturally appropriate measure for assessing work/family conflict experienced by working women in Pakistan.
- To establish the factor structure, reliability and validity of work/family conflict scale for women.

Method

Phase I: Generating an Item Pool

Step I: Item Generation

Participants. A sample of 38 married and unmarried working women belonging to diverse professions such as doctors, psychologists, nurses, teachers, bankers, IT professionals, corporate managers, business analysts, business executives, customer service officers, engineers etc were recruited, with age range varying from 25 – 50 years.

Procedure. Items were drawn mainly from two sources. (1) Based on interviews of 38 women (2) Moreover, work/family interface literature was reviewed in detail along with previously developed standardized scales of work/family conflict and work/family enrichment to generate the item pool. The above procedure resulted in generating a list of 96 items. The items were reviewed keeping in mind Greenhaus and Beutell(1985) and Gutek et al's (1991) conceptualization of the construct of work/family conflict. All those items that were dubious, vague, overlapping, and redundant were removed, merged or modified. This process of review resulted in a final list of 74 items.

Step II: Assessing content and face validity. The initial item pool of 74 items was reviews by a panel of 6 judges comprising of Professors working in the relevant domain. They rated the items on the basis of relevance to the construct, redundancy, comprehension, cultural relevance and face validity. This was done using a 10-point likert type scale. Based on judges rating several items were removed, rephrased or merged resulting in 62 items relating to work/family conflict which were used to develop the scale namely Work/Family Conflict Scale for Women (WFCSW).

Step III. Pilot testing

Participants

A purposive sample of 40 women (married = 23 and unmarried = 17) working in diverse professions was obtained from Lahore. The age range of the sample was from 23 to 59 yrs ($M = 35.5$, $SD = 9.30$).

Method: Initially constructed work/family conflict scale finalized by the judges was used in the pilot study. A five-point likert type scale was used to obtain the participants responses, where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = strongly agree.

Procedure: The participants were approached in person at their workplace and were asked to fill the questionnaires after obtaining their consent and explaining them the purpose of the study. Most of the participants completed the questionnaires at the spot; it took them almost 25 to 30 minutes to complete both questionnaires. However, some participants could not fill the questionnaire at the spot so questionnaires were given to them and were collected back the very next day. The participants were asked to read the questionnaires carefully and to mention unclear items if any. Based on the feedback of the participants some items were modified to increase clarity. The above process of analysis resulted in a pilot tested pool of 62 items of work/family conflict scale for women.

Phase II: Determining Factor Structure and Psychometric Properties of the Scale

Participants: A purposive sample of 463 women working in diverse occupations was obtained from Lahore. The age of the sample ranged between 20 to 59 years ($M = 29.80$, $SD = 6.95$) and the education level of the sample ranged from bachelors to Ph.D.

Instruments: Work/family conflict scale developed in the study was employed. The scale has 62 items and uses a 5 point-rating scale to rate each item, where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = strongly agree. All the participants were instructed to mention the extent to which they agree or disagree with each statement. Final score is calculated by adding up individual item scores, and higher the score the higher the degree of conflict.

Procedure: The 62 items of work/family conflict scale were subjected to exploratory factor analysis using Principal Component Analysis with varimax rotation. Varimax rotation was used to simplify the factor structure and it also maximizes the variance (Field, 2017). It's an orthogonal rotation technique and was used in the case of work/family conflict scale because each dimension of work-family conflict is relatively orthogonal by nature having at best a moderate correlation ($r = .30 - .55$). Moreover, the different dimensions of work to family and family to work conflict i.e strain-based, time-based and behavior-based are distinct forms of work/family experience because each outcome has different correlates (Grzywacz, 2000). Items with factor loadings .30 and above were selected for the scale (Field,

2017). Certain items were merged because of very high inter-correlations i.e. $>.80$ thus rendering the items redundant (item I4 and I8, item 47 and 51). Moreover, item 45, 53 and 54 were deleted because they had significantly high loadings on multiple factors. Thus the remaining 57 items formed the work/family conflict scale for women. The 57 item work/family conflict scale was again subjected to principal component analysis using varimax rotation in order to obtain final factor structure. It resulted in a six factor structure that accounted for 57.6 % of the total variance.

Furthermore, the current exploratory factor analysis (EFA) procedure encompassed the evaluation of two primary factors: (a) the standard for factors to be retained during EFA, and (b) the standard for determining the minimum number of items to be retained within each factor. The initial matter was resolved in accordance with the Kaiser criterion, which dictates the retention of factors with eigenvalues equal to or greater than one. The latter issue was addressed by retaining factors that included three or more items or featured three or more factor loadings exceeding a threshold of 0.4 in each factor (Field, 2017).

Reliability of the scale was assessed using cronbach's alpha coefficient for the full scale as well for the subscales of work to family conflict and family to work conflict.

Phase III: Convergent and Discriminant Validity

Participants: Purposive sampling technique was used to collect the sample. The sample consisted of 149 women (married = 73, unmarried = 76) working full-time in diverse occupations in Lahore such as bankers, managers, doctors, teachers, nurses, customer service officers etc. The age range of the sample varied from 21 to 50 years ($M = 29.69$, $SD = 6.71$). The education level of the sample ranged from bachelors to PhD..

Instruments: The newly developed WFCSW (57-item) along with demographic variables (age, gender and education) was administered to collect the data. Furthermore, Negative Spillover scale (University of Wisconsin, 2004) and Positive Spillover Scale (University of Wisconsin, 2004) were used to collect data.

Procedure: Similarly, to the phase I and II, permission was sought from the concerned authority and then participants' consent was taken prior to the data collection. The purpose and nature of the study was explained to the participants. Work/Family Conflict Scale for Women, Negative Spillover scale and Positive Spillover scale were presented to the participants to assess the convergent and discriminant validity of the scale. For convergent validity WFCSW should be correlated positively with negative spillover scale and for discriminant validity WFCSW should either have zero or negative correlated with positive spillover scale.

Results

Results were analyzed using SPSS version 21, factor analysis, reliability analysis, and correlation analysis for determining convergent and discriminant validity were used to assess the psychometric properties of the scale.

Factor Analysis:

The eigen values and the variance accounted for by the seven factors is presented in table I.

Table 5

Eigen Values and Variance explained by seven factors of 57 item Work/Family Conflict Scale for Women (N = 463)

Factors	Eigen Values	% of Variance	Cumulative Percentage
Strain-based work to family interference	19.786	34.712	34.712
Time-based work to family interference	3.737	6.557	41.269
Time-based family to work interference	2.907	5.101	46.369
Strain-based family to work interference	2.108	3.698	50.067
Behavior-based work to family interference	1.364	2.394	55.295
Behavior-based family to work interference	1.297	2.275	57.570

The final factor solution of the scale emerged with 57-item and six well-defined factors.

Table 3 represents the psychometric properties of the scale where the alpha coefficient for the final scale is .96, while the alpha coefficients of the subscales ranged from .94 to .95.

Table 3

Alpha Reliability of the Work/Family Conflict Scale for Women (WFCSW) (N = 465)

S. No	Scale and subscales	No. of Items	Reliability Coefficients
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1	Work to family conflict	35	.95
2	Family to work conflict	22	.94
3	Full Scale (WFCSW)	57	.96

Table 4 show the results of validity analysis, analysis shows that WFCSW has positive correlation with negative spillover scale showing high convergent validity. Moreover, WFCSW has negative correlation with positive spillover scale showing high discriminant validity.

Variables	NSS	PSS
Total WFCSW	.562**	-.182*

*** $p < .001$, * $p < .01$

Discussion

The present study was carried out to develop indigenous self-report measures of Work/Family Conflict for Women and to ascertain its psychometric properties. The items were generated keeping in mind Greenhaus and Beutell (1985) and Gutek et al's (1991) conceptualization of the construct of work/family conflict. The items of the scales were developed based on interviews of working women, review of literature and review of previously developed standardized scales. The lists of items were rated by a panel of experts and pilot tested to determine content and face validity. The finalized scales were then administered on a sample of 463 working women to determine the factor structure and reliability of the scales.

Principal component analysis using varimax rotation was used to determine the factor structure of the scales. Factors with eigen value above 1, having at least 3 items with significant loadings and accounting for more than 50% of the variance were retained (Field, 2017). In addition, criteria for retention of items in each factor was based on their significant loadings on a given factor (i.e. .3 or above) as well as theoretical relevance. Based on the results of factor analysis certain items were removed due to multicollinearity and cross loadings on multiple factors (Field, 2017), resulting in a final 57 item scale of work/family conflict scale having two subscales namely work to family conflict and family to work conflict each having six dimensions, three relating to the domain of work to family conflict and three relating to the domain of family to work conflict.

Careful observation of the factors showed that the identified factors (i.e. time-based work to family interference, strain-based work to family interference, behavior-based work to family interference, time-based family to work interference, strain-based family to work interference and behavior-based

family to work interference,) were comparable to the theoretical conceptualization of the construct of work/family conflict by Greenhaus and Beutell(1985) and Gutek et al (1991) and previous empirical research work in the area of work/family conflict (Carlson et al., 2000).

Cronbach's alpha was used to assess the internal consistency of the newly developed scale. Results show that the alpha coefficient of WFCSW was .96, which is considered to be excellent for any scale (Field, 2017). The alpha coefficients of the subscales and the six dimensions ranged from .75 to .93. Moreover item to total correlation analysis also reveals that all items were significantly and positively correlated with the total score as the item total correlations ranged from .35 to .71. Moreover correlation was also calculated to analyze which of the six emerging factors had significant correlating with total score on WFCSW, results showed that all the factors were significantly and positively correlated with the score on final scale as the value for correlations ranged from .55 to .87.

Additionally, construct validity of the newly developed scale of Work/Family Conflict was determined by calculating convergent and discriminant validity. Convergent validity is said to exist when two measures are strongly and positively correlated with one another and discriminant validity is established when two measures either have negative or no correlation with one another. Thus it was hypothesized that work/family conflict scale for women will have positive correlation with negative spillover scale and negative correlation with positive spillover scale based on theoretical and empirical evidence (Greenhaus & Parasuraman, 1999).

Analysis of the results confirmed that work/family conflict scale for women (WFCSW) is positively correlated with negative spillover scale as there was a strong positive correlation between the two ($r = .562, p < .001$). Moreover the two subscales and the six dimensions of the WFCSW also have significant positive correlation with negative spillover scale. The subscale of work to family conflict has a correlation of $r = .498, p < .001$ and the subscale of family to work conflict has a correlation of $r = .555, p < .001$ with the negative spillover scale.

The results also confirmed that there was a significant negative correlation between WFCSW and positive spillover scale ($r = -.182, p < .01$). However, the magnitude of correlation is low which shows that work/family conflict and positive spillover do not fall at the opposite ends of a continuum and may exist simultaneously. Thus a person can experience both positive and negative effects from work and family at the same times, which are carried over to the other domain. Similar results have also been reported by Carlson et al (2000).

The correlation between the subscales of WFCSW i.e work to family conflict and family to work conflict and positive spillover scale was $r = -.150, p < .01$ and $r = -.199, p < .01$ respectively. Moreover

the correlation between the dimensions of WFCSW and positive spillover scale ranged from .09 to .22. All these correlations are significant but the magnitude is very low which is in line with the previous empirical work where researchers consistently report null to weak associations between indicators of work/family conflict and positive spillover like constructs (Greenhaus & Powell, 2006, Grzywacz & Marks, 2000).

Based on the analysis of the results we can conclude that work/family conflict scale for women has strong construct validity as both convergent and discriminant validity for WFCSW have been established in this study.

Limitations and Future Suggestions

The current research despite its merits is not devoid of certain limitations. Primarily, the scale exclusively concentrates on the work/family conflict experienced by employed women; hence, future iterations of this instrument should be devised to accommodate its application among men. Additionally, the scale's applicability is restricted to an educated sample, given its development in the English language. To enhance its utility across diverse populations, it is imperative to undertake translations into local languages and validate the scale for use with individuals lacking proficiency in English or those with limited formal education. Furthermore, for a more robust assessment of the factor structure, supplementary data collection is warranted to facilitate confirmatory factor analysis.

Implications

This study contributes to the extant literature on the work-family interface within the context of an indigenous population by introducing a culturally valid and reliable measure. The aim is to evaluate the challenges confronted by employed women arising from the intersection of their work and family roles. The scale specifically addresses the complexities of multiple roles experienced by working women in a non-egalitarian patriarchal societal framework, encompassing the demands imposed on them from both occupational and familial domains. Social science and business researchers can utilize this scale to examine the prevalence and underlying factors of work-family conflict within an indigenous setting, offering insights for individual and organizational interventions aimed at enhancing work-life balance.

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Conflict of Interest

The authors have no conflict of interest to disclose.

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Ethics committee approval:

As per the institutional regulations and local laws, ethics committee approval was not required for survey-based research concerning human participants.

Availability of data and materials

Obtained and evaluated data during research are highly confidential. However, it can be made accessible from the corresponding author on a request from the editorial board representative.

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