The Social Science Journal 54 (2017) 336–345

Contents lists available at ScienceDirect

The Social Science Journal

journal homepage: www.elsevier.com/locate/soscij

Evaluation of the psychometric properties of two scales of work–family conflict among Ghanaian employees

Francis Annor[a,*], Kwesi Amponsah-Tawiah[b]

[a] Department of Psychology, University of Ghana, Ghana
[b] University of Ghana Business School, Ghana

ARTICLE INFO

Article history:
Received 29 March 2016
Received in revised form 4 April 2017
Accepted 8 April 2017
Available online 6 May 2017

Keywords:
Work-to-family conflict
Family-to-work conflict
Work–family conflict scale
Ghana

ABSTRACT

This study examines the psychometric properties of Carlson, Kacmar, and Williams' (2000) multidimensional scale of work–family conflict and Matthews, Kath, and Barnes-Farrell's (2010) abbreviated version of the instrument in Ghana. Five hundred and forty-one (541) employees selected from different organizations responded to structured questionnaires administered in English. Results from confirmatory factor analysis supported the six-dimensional factor structure of Carlson et al.'s (2000) measure. The instrument was found to have good internal consistency, adequate convergent validity and discriminant validity, as well as invariance of factor structure across gender. The results also supported the two-dimensional factor structure of Matthews et al.'s (2010) abbreviated version of the work–family conflict scale. The dimensions of work–family conflict on the abbreviated measure correlated strongly with respective dimensions of the original multidimensional version. Latent mean comparisons suggested that men reported more work–family conflict than women on both measures. The study demonstrates the applicability of both the six-dimensional work–family conflict scale and the abbreviated work–family conflict measure for research in Ghana.

1. Introduction

Research over the past four decades has shown that difficulties in managing the work–family interface constitute a major source of stress with deleterious consequences for the well-being of employees and their contributions to their families and organizations (Allen, Herst, Bruck, & Sutton, 2000; Ford, Heinen, & Langkamer, 2007; Shockley & Singla, 2011). Despite the global nature of the phenomenon of work–family conflict (see Annor, 2016a), the extant literature has been dominated by studies conducted mainly in Western, and to some extent Asian countries. The sub-Saharan African context is almost missing from scholarly discourse on the work–family interface. In a recent systematic review of the literature on the work–family interface, Shaffer, Joplin, and Hsu (2011) excluded African countries from their analysis "because of the paucity of studies that have been conducted there" (p. 252). Despite calls for researchers to examine how employees socially construct and experience work and family roles in African countries (e.g., Aryee, 2005), relatively few studies have attempted to explore the extent to which existing knowledge on work–family conflict generalizes to the African context.

However, research on work–family conflict in sub-Saharan African countries has been hampered by lack of validated measures that adequately capture the complexity of work–family conflict. A review of the few studies

* Corresponding author.
E-mail addresses: fannor@ug.edu.gh (F. Annor), kamponsah-tawiah@ug.edu.gh (K. Amponsah-Tawiah).

http://dx.doi.org/10.1016/j.soscij.2017.04.006

on work–family conflict in sub-Saharan Africa shows a lack of consistency in measurement of the construct across studies, with researchers randomly choosing measures from existing pool of instruments. For example, Adekola's (2010) study among female executives in Nigeria used an eight-item work–family conflict scale developed by Frone, Russell, and Cooper (1992). Both Annor (2016b) and Okurame (2011) in their studies in Ghana and Nigeria, respectively, used a ten-item instrument developed by Netemeyer, Boles, and McMurrian (1996). Yet, Gamor, Amissah, & Boakye's (2014) study among hotel employees in Ghana used a modified version of Netemeyer et al.'s (1996) scale. As noted by Shaffer et al. (2011, p. 228), "without consistent measurement of work–family conflict, it is difficult to compare studies and interpret results across studies in a meaningful way."

While the majority of existing instruments on work–family conflict have been validated in Western countries, their applicability in the sub-Saharan African context is yet to be established. The present study was aimed at examining the psychometric properties of a multidimensional scale of work–family conflict developed by Carlson, Kacmar, & Williams (2000) as well as the performance of an abbreviated version of the scale in Ghana. Thus, the present study not only contributes to paving the way for a consistent measurement of work–family conflict in sub-Saharan Africa but also enhances our understanding of the extent to which the conceptualization of work–family conflict in the work and family literature applies to sub-Saharan African contexts. Several researchers (e.g., Ollier-Malaterre, Valcour, Den-Dulk, & Kossek, 2013; Shaffer et al., 2011) have emphasized the need to understand the contextual influences that shape experiences in the work–family interface, and others (e.g., Annor, 2016a; Aryee, 2005) have called for the inclusion of sub-Saharan African countries in this line of inquiry. Thus, the present study further contributes to enhancing cross-cultural research on work–family conflict.

2. The Ghanaian context

The increased participation of women in paid employment and the concomitant changes in work and family structures have been recurring themes in the work and family literature. These socio-demographic changes are, however, not limited to Western and developed countries. In Ghana, evidence from the Ghana Statistical Service (GSS) points to a steady increase in women's participation in paid employment over the past four decades (GSS, 2005, 2008). In tandem with the changing nature of female employment are the changes occurring in the work and family roles of men. Although division of housework remains considerably gendered with women bearing much of the responsibilities, empirical evidence points to a gradual increase in men's involvement in domestic roles (GSS, 2008, 1995, 2000). Furthermore, the high cultural premium on procreation and the strong emphasis on extended family relationships contribute to an increasing need to provide care for young children and vulnerable relatives (Ardayfio-Schandorf, 2006). Additionally, family-friendly provisions from government and organizations for reconciling work and family life are significantly limited, as work–family issues are largely relegated to the private realm (Aryee, 2005).

In addition, as noted in previous research (Annor, 2014; Aryee, 2005), lack of adequate infrastructure such as reliable transport, electricity, water supply, healthcare systems, and other basic amenities that characterize low-income countries further increases demands on individuals' time and energy, especially among women. The economic realities of meeting basic needs of the family also present a significant challenge to employees' ability to combine work and family life in Ghana. The relatively high unemployment rate and weak labor market regulations in Ghana may make it difficult for employees to resist adverse working conditions such as long working hours and overtime work (see Annor, 2016a). These economic circumstances have significant implications for how employees manage work and family responsibilities (Annor, 2014).

Furthermore, Ghana is considered as predominantly collectivistic. According to Hofstede (2001, p. 225), "collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty". As a collectivistic society, Ghanaians emphasize identification with the extended family and social relationships are characterized by a high sense of reciprocity (Debra, 2001). For example, employed members of the extended family in Ghana are morally obliged to provide financial and material support for the aged and 'poor' ones. Applied to work–family research, cultural collectivism has implications for how work and family interactions may be appraised. Luk and Shaffer (2005) noted that in most collectivistic societies the primary responsibility of the individual is to maintain the household. Consequently, work is regarded as contributing to family welfare, rather than competing with it (Yang, Chen, Choi, & Zou, 2000).

The above socio-economic and cultural realities suggest that the challenge of participating in work and family roles may be significantly different for employees in Ghana than in developed economies. Therefore, it cannot be assumed that instruments developed for measuring work–family conflict in Western countries would be readily applicable in Ghana in particular and sub-Saharan Africa in general.

3. Conceptualization and measurement of work–family conflict

Role stress theory has served as theoretical foundation for much of the research on work–family conflict. This perspective assumes that individuals have limited resources (time and energy) to expend on multiple role obligations (Goode, 1960); hence involvement in work and family roles inevitably leads to work–family conflict, as limited physiological and psychological resources are depleted. Work–family conflict is defined as "a form of interrole conflict in which role pressures from the work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985, p. 77). In other words, participation in one domain (e.g., work) precludes participation

in the other (e.g., family). Greenhaus and Beutell (1985) identified three forms of work–family conflict: time-based conflict, strain-based conflict and behaviour-based conflict. Time-based conflict occurs when time pressures associated with participation in one role make it physically impossible to meet competing demands in another role, or produce preoccupation with one role when an individual is attempting to meet demands in another domain. Strain-based conflict occurs when strain resulting from participation in one role makes it difficult to meet demands in another role. Behaviour-based conflict occurs when specific behaviour patterns developed in one role are incompatible with expectations regarding behaviour in another role.

Conceptualization and measurement of work–family conflict has varied considerably in the literature. Early research measured work–family conflict as a unidirectional construct, with the direction of conflict emanating from work to family domain (e.g., Kopelman, Greenhaus, & Connolly, 1983). Gutek, Searle, and Klepa (1991) were among the first researchers to conceptualize work–family conflict as a bidirectional construct. In an eight-item instrument designed to measure work–family conflict, Gutek et al. (1991) distinguished between work-to-family conflict (WFC) and family-to-work conflict (FWC). WFC occurs when pressures from the work domain make it difficult to fulfil demands in the family role, while FWC occurs when family demands make it difficult to fulfil work-related obligations. Subsequently, Netemeyer et al. (1996) developed a 10-item instrument to measure work-to-family conflict and family-to-work conflict. Although these measures were an improvement over previous measures, because they considered the bidirectionality in work–family conflict, they failed to consider the different forms of work–family conflict proposed by Greenhaus and Beutell (1985). In an attempt to address the limitations in prior measures, Stephens and Sommer (1996) developed a measure of work–family conflict that incorporated the three forms of conflict (i.e., time-based, strain-based and behaviour-based). However, Stephens and Sommer (1996) considered the three forms of conflict in one direction (i.e., work-to-family conflict).

Carlson et al. (2000) developed the first comprehensive instrument to measure work–family conflict. Carlson et al. (2000) combined the three forms of conflict (time-based, strain-based and behaviour-based conflict) with the two directions of conflict (WFC and FWC) resulting in six dimensions of work–family conflict (see Fig. 1). However, the length of Carlson et al.'s (2000) scale has been highlighted as a major drawback, particularly in situations where researchers are restricted with regards to survey length. Consequently, Matthews, Kath, and Barnes-Farrell (2010) developed an abbreviated six-item version of Carlson et al.'s (2000) scale. Matthews et al.'s (2010) abbreviated version of the multidimensional scale incorporates the two directions of work–family conflict (i.e., WFC and FWC) into a two-dimensional factor structure with each factor consisting of an indicator for each of the three forms of conflict.

Despite the strengths of the six-dimensional scale of work–family conflict and its abbreviated version, in terms of incorporating the nature and direction of conflict, little effort has been directed at investigating the applicability of these scales in non-Western contexts. We found only one study (Karimi, 2008) that investigated the full six-dimensional work–family conflict scale in a non-Western context. To date, no empirical study has attempted to validate Carlson et al.'s (2000) six-dimensional work–family conflict scale or Matthews et al.'s (2010) abbreviated version of the scale in the Sub-Saharan African context. Consequently, there is a need for the examination of the applicability of these instruments to enhance our understanding of the various dimensions of work–family conflict in this understudied context. Thus, the present study attempts to validate Carlson's et al.'s (2000) multidimensional scale of work–family conflict and Matthews et al.' (2010) abbreviated version among employees in Ghana. The study assesses the factor structure, reliability, convergent and discriminant validity, and gender invariance of the original multidimensional scale, as well as investigates the performance of the abbreviated work–family conflict measure. The study also examines gender differences in levels of work–family conflict based on Carlson et al.'s (2000) original measure and Matthews et al.'s (2010) abbreviated measure.

4. Methods

4.1. Participants and procedure

Participants for the study were recruited using a snowball sampling technique. This technique, which utilizes

		Directions Work-Family Conflict	
		Work-to Family Conflict	*Family-to-Work Conflict*
Forms of Work-Family Conflict	*Time*	Time-Based Work-to-Family Conflict	Time-Based Family-to-Work Conflict
	Strain	Strain-Based Work-to-Family Conflict	Strain-Based Family-to-Work Conflict
	Behavioural	Behaviour-Based Work-to-Family Conflict	Behaviour-Based Family-to-Work Conflict

Fig. 1. Dimensions of work–family conflict (Source: Carlson et al., 2000).

individuals' professional and social contacts, has been used frequently in organizational research (e.g., Chen, Powell, & Greenhaus, 2009). Executive MBA students at a large public University in Ghana volunteered in distributing questionnaire packages to employees in their respective organizations. A cover letter was included in each questionnaire package to explain the purpose of the study and the voluntary of nature of participation in the study. The participants were also assured that their responses and identities would be kept confidential and anonymous. The study was not limited to only married employees or those with children, as past research suggests that single employees or those without children may have family responsibilities (Rothausen, 1999).

Of 637 questionnaires that were distributed, 541 were completed and returned, representing a response rate of 84.9%. Fifty-four per cent of the respondents were males, 57.3% were married, and 66.2% had a preschool child (less than age 6). The median age was 25–34, with majority (42.6%) of the respondents within this age category. In terms of job level, about 33% of the respondents were junior staff, 46% were in middle management positions, and the remaining were in senior management positions.

4.2. Measures

As indicated earlier, data for the present study were collected through structured questionnaires administered in English. The questionnaire consisted of the multidimensional work–family conflict scale and questions for collecting demographic information from participants. The work–family conflict scale developed by Carlson et al. (2000) consists of 18 items, with nine items measuring work-to-family conflict (WFC) and nine other items measuring family-to-work conflict (FWC). Each direction of work–family conflict has three items measuring each of the three types of work–family conflict (time-based, strain-based, and behaviour-based), thus resulting in six subscales.

Using confirmatory factor analysis, Carlson et al. (2000) found support for the six-dimensional factor structure of the scale. Estimates of internal consistency, using alpha coefficients, showed that all the six subscales were reliable (time-based WFC = .87; time-based FWC = .79; strain-based WFC = .85; strain-based FWC = .87; behaviour-based WFC = .78; behaviour-based FWC = .85). In the present study, each item was rated on a five-point scale, ranging from 1 ('strongly disagree') to 5 ('strongly agree'). Item responses were averaged for each subscale such that scores on each subscale ranged from 1 to 5, with higher scores indicating more conflict. Although English is the official language in Ghana, it was important to ensure the vocabulary level was appropriate for the participants. This led to a change of the word *frazzled* in *Item 5* (for strain-based WFC; see Table 2) to *exhausted*. Prior to data collection, both authors studied the items to ensure that they would be understood in Ghana.

As indicated earlier, Matthews et al.'s (2010) abbreviated scale consists of six items, with three items measuring each of WFC and FWC. The items on each component represent the time-based, strain-based, and behaviour-based dimensions of conflict. We did not administer a separate set of items for Matthews et al.'s (2010) scale, as all the items on this scale are part of the original 18-item instrument.

4.3. Data analysis

The data were analysed using IBM AMOS (version 21.0) software, which provides parameter estimates and several fit indices for assessing both measurement and structural models (Arbuckle, 2012). A confirmatory factor analysis (CFA), with maximum likelihood estimation, was performed to assess the factor structure, reliability, convergent validity and discriminant validity of the work–family conflict scale. In using CFA, the factor structure of an instrument is specified *a priori*, based on measurement theory, and items are forced to load on specific factors. The validity of the measurement model is determined by how well an *a priori*, theoretical pattern of factor loadings on prespecified factors fit the actual data (Hair, Back, Babin, & Anderson, 2010). A six-factor model was specified with each of the six dimensions represented as a separate construct. The fit of the model was assessed using chi-square goodness-of-fit test. However, given the sensitivity of this test to sample size, alternative fit indices including the comparative fit index (CFI) and the root-mean-square error of approximation (RMSEA) were assessed. Generally, CFI values higher than .90 and RMSEA values of .08 or lower are indicative of a well-fitting model (Browne & Cudeck, 1992; Hu & Bentler, 1999).

For comparison purposes, three alternative theoretically nested models were specified to determine the best-fitting model. First, a three-factor model, which represented the three forms of work–family conflict, time, strain, and behaviour (collapsing across direction), was estimated. Next, a two-factor model representing the two directions of work–family conflict (WFC and FWC) was tested. Finally, a one-factor model in which all items were constrained to load on a common factor was tested. Model comparisons were assessed using the chi-square difference test. A significant chi-square difference is indicative of change in model fit. The results are presented in Table 2.

We performed another latent variable CFA to examine the performance of the abbreviated work–family conflict scale. A two-factor model was specified with one latent variable representing WFC and the second representing FWC. As in the case of Matthews et al. (2010), each latent factor had three indicators representing time-based conflict, strain-based conflict, and behaviour-based conflict. Following the same procedure as Matthews et al. (2010), error terms for items measuring the three types of conflict were allowed to correlate across both directions of conflict.

5. Results

5.1. Dimensionality, convergent validity and discriminant validity

As stated earlier, we first conducted a CFA to examine the factor structure, convergent validity and discriminant validity for the original 18-item measure. Results from the CFA are presented in Table 1. As can be seen from this

Table 1
Confirmatory factor analyses on dimensionality of work–family measures.

Model	χ^2	*df*	CFI	RMSEA	$\Delta\chi^2$ (Δdf)
Original measure					
Six-factor model: unique categories of work–family conflict	391.52**	120	.969	.062	–
Three-factor model: forms of work–family conflict	2530.99**	132	.687	.183	2139.47** (12)
Two-factor model: directions of work–family conflict	1756.51**	134	.788	.150	1364.99** (14)
One-factor model: overall work–family conflict	3007.11**	135	.625	.198	2615.59** (15)
Abbreviated measure					
Two-factor model: directions of work–family conflict	12.00	6	.99	.04	–

** $p < .01$; CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

table, the six-dimensional model estimated for the original work–family conflict measure fitted the data well (χ^2 (120) = 391.52, $p < .001$; CFI = .969; RMSEA = .062). Model comparisons showed that the six-factor model fitted the data significantly better than an alternative three-factor model ($\Delta\chi^2$ (12) = 2139.47, $p < .001$), two-factor model ($\Delta\chi^2$ (14) = 1364.99, $p < .001$), and one-factor model ($\Delta\chi^2$ (15) = 2615.59, $p < .001$). Thus, the six-dimensional model represents the best fit to the data for the original measure. As shown in Table 2, each of the 18 items in the six-dimensional model loaded strongly on their respective factors, with standardized factor loadings ranging from .75 to .92.

Convergent validity and discriminant validity were assessed based on the average variance extracted (AVE) and the maximum shared variance (MSV) for each sub-

Table 2
Standardized coefficients (factor loadings), convergent validity and discriminant validity evidence of the work–family conflict scale.

Factor	Standardized coefficients	AVE	MSV	ASV
Time-based WFC		.77	.69	.28
1. My work keeps me from my family activities more than I would like.	.88			
2. The time I must devote to my job keeps me from participating equally in household responsibilities and activities.	.87			
3. **I have to miss family activities due to the amount of time I must spend on work responsibilities.**	.88			
Strain-based WFC		.70	.69	.37
4. When I get home from work I am often too exhausted to participate in family activities/responsibilities.	.87			
5. **I am often so emotionally drained when I get home from work that it prevents me from contributing to my family.**	.84			
6. Due to all the pressures at work, sometimes when I come home I am too stressed to do the things I enjoy.	.79			
Behaviour-based WFC		.63	.66	.42
7. The problem-solving behaviours I use in my job are not effective in resolving problems at home.	.75			
8. Behaviour that is effective and necessary for me at work would be counterproductive at home.	.87			
9. **The behaviours I perform that make me effective at work do not help me to be a better parent and spouse.**	.77			
Time-based FWC		.71	.78	.41
10. The time I spend on family responsibilities often interfere with my work responsibilities.	.78			
11. The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career.	.87			
12. **I have to miss work activities due to the amount of time I must spend on family responsibilities.**	.87			
Strain-based FWC		.79	.78	.40
13. Due to stress at home, I am often preoccupied with family matters at work.	.88			
14. Because I am often stressed from family responsibilities, I have a hard time concentrating on my work.	.92			
15. Tension and anxiety from my family life often weakens my ability to do my job.	.86			
Behaviour-based FWC		.71	.66	.44
16. The behaviours that work for me at home do not seem to be effective at work.	.83			
17. **Behaviour that is effective and necessary for me at home would be counterproductive at work.**	.86			
18. The problem-solving behaviour that works for me at home does not seem to be as useful at work.	.83			

Note: All standardized coefficients (factor loadings) are significant at the .001 level; AVE = average variance extracted; MSV = maximum shared variance; ASV = average shared variance; items in Carlson et al.'s (2000) scale have been reproduced with permission from the publisher, Elsevier; items in boldface represent the six items used in Matthews et al.'s (2010) shortened version.

scale on the original measure (see Table 2). For a construct to demonstrate convergent validity, Hair et al. (2010) recommends that the AVE of the construct should be greater than .50. As shown in Table 2, the AVE for all the six subscales exceeded the .50 threshold. Thus, the six-dimensional work–family conflict measure demonstrated adequate convergent validity. To assess discriminant validity, the AVE of each subscale was compared to its MSV (Fornell & Larcker, 1981). For discriminant validity to be supported, Hair et al. (2010) note that the variance extracted estimates for each construct should be greater than the variance it shares with other constructs. As can be seen in Table 2, the MSV for behaviour-based WFC and time-based FWC subscales were greater than their corresponding AVE. This suggests that the time-based FWC and behaviour-based WFC dimensions do not adequately discriminate from other dimensions on the work–family conflict scale. Inspection of correlation matrix (see Table 4) indicated that time-based FWC shared a greater variance with the strain-based FWC dimension ($r = .80$), whereas behaviour-based WFC shared a greater variance with the behaviour-based FWC dimension ($r = ..70$).

We performed another CFA to examine the factor structure of the abbreviated work–family conflict scale. Results of the analysis are presented in Table 1. The results showed that the two-factor model specified for the abbreviated version of scale demonstrated a good fit to the data ($\chi^2(6) = 12.00$, $p > .05$; CFI = .991; RMSEA = .042). Each of the six items loaded significantly on their respective factors with factor loadings ranging from .43 to .79 on the WFC dimension and from .69 to .77 on the FWC dimension. The comparative ranges of factor loadings in Matthews et al.'s (2010) study were .61–.67 on the WFC dimension and .46–.81 on the FWC dimension. The two latent factors were moderately correlated ($r = .54$, $p < .001$), which implies discriminant validity is not a concern.

5.2. Descriptive statistics, inter-correlations, and reliability estimates

Descriptive statistics and estimates of internal consistency for dimensions of conflict on the original work–family conflict scale and the abbreviated version are presented in Table 3. For the original work–family conflict scale, the mean scores show that across all dimensions (time, strain, behaviour) WFC was consistently higher than FWC. Similarly, the mean score for WFC was higher than FWC on the abbreviated version.

Table 3
Descriptive statistics for dimensions of work–family conflict.

Factor	Mean	SD	α
Original measure			
Time-based WFC	3.21	1.04	.91
Strain-based WFC	3.05	.98	.87
Behaviour-based WFC	2.77	.88	.84
Time-based FWC	2.39	.91	.88
Strain-based FWC	2.23	.92	.92
Behaviour-based FWC	2.73	.95	.88
Abbreviated measure			
WFC	2.98	.88	.72
FWC	2.41	.87	.81

Estimates of internal consistency, based on coefficient alpha, showed that the reliability of each of the subscales on the original measure exceeded the conventional level of acceptance of .70 (Nunnally, 1978): time-based WFC = .91; strain-based WFC = .87; behaviour-based WFC = .84; time-based FWC = .88; strain-based FWC = .92; and behaviour-based FWC = .88. Thus, the items on each of the six subscales on the original scale demonstrated good internal consistency. Similarly, alpha coefficients for the WFC and FWC dimensions on the abbreviated scale were .72 and .81 respectively, suggesting good internal consistency.

In addition, we examined the correlations among the six dimensions of work–family conflict on the original scale. As shown in Table 4, the correlations among the dimensions ranged from .31 to ..80 with most of the coefficients below .60, suggesting moderate correlations among the subscales for the original measure. We also analysed the relationships among the components of work–family conflict on the original and abbreviated measures. Because one item from the abbreviated measure overlapped with each subscale on the full version, we corrected for possible inflation by removing each overlapping item from the corresponding subscales in the full version (see Matthews et al., 2010). As shown in Table 4, the WFC component of the abbreviated measure correlated strongly with the nine-item WFC dimension as well as the time-based, strain-based, and behaviour-based WFC subscales in the original measure. Likewise, the FWC component of the abbreviated scale correlated strongly with the nine-item FWC dimension as well

Table 4
Bivariate correlations of work–family conflict dimensions.

	1	2	3	4	5	6	7	8	9
1. Time-based WFC	–								
2. Strain-based WFC	.73 (.70)	–							
3. Behaviour-based WFC	.45 (.44)	.56 (.51)	–						
4. Overall WFC, nine items	.87 (.87)	.90 (.89)	.77 (.76)	–					
5. Abbreviated WFC, three items	.81 (.76)	.87 (.80)	.74 (.75)	.95 (.92)	–				
6. Time-based FWC	.36 (.35)	.44 (.39)	.57 (.47)	.53 (.48)	.49 (.49)	–			
7. Strain-based FWC	.31 (.30)	.41 (.36)	.55 (.48)	.49 (.45)	.48 (.49)	.80 (.73)	–		
8. Behaviour-based FWC	.41 (.38)	.49. (43)	.70 (.65)	.62 (.57)	.59 (.58)	.62 (.57)	.67 (.66)	–	
9. Overall FWC, nine items	.40 (40)	.50 (.45)	.68 (.61)	.61 (.57)	.59 (.60)	.90 (.87)	.92 (.91)	.86 (.85)	–
10. Abbreviated FWC, three items	.36 (.34)	.46 (.41)	.64 (.57)	.56 (52)	.54 (54)	.86 (.79)	.90 (.88)	.83 (.77)	.97 (.93)

Note: All correlation coefficients are significant at the .05 level of significance. Correlations corrected for inflation are reported in parenthesis.

Table 5
Tests of measurement invariance across gender for work–family conflict measures.

Model	χ^2	*df*	CFI	RMSEA	$\Delta\chi^2$ (Δdf)
Original measure					
Unconstrained (baseline model)	581.14**	240	.955	.051	
Factor loadings invariant	590.13**	252	.956	.050	8.99 (12)
Factor loadings & factor correlations invariant	626.46**	273	.954	.049	45.32 (33)
Factor loadings, factor correlations & error variances invariant	680.93**	291	.949	.050	99.79** (51)
Abbreviated measure					
Unconstrained (baseline model)	19.16	12	.995	.033	
Factor loadings invariant	21.83	16	.996	.026	2.67 (4)
Factor loadings & factor correlations invariant	29.21	19	.992	.032	10.05 (7)
Factor loadings, factor correlations & error variances invariant	45.04	27	.985	.035	25.88* (15)

as the time-based, strain-based, and behaviour-based FWC subscales in the original measure.

5.3. Multi-group invariance

A series of multi-group CFA were performed to examine whether the hypothesized measurement models for the original and abbreviated versions of the work–family conflict scale were invariant across gender. For each of the original and abbreviated versions, four between-group measurement models were specified to examine whether the hypothesized factor configuration, factor loadings, and factor correlations were equivalent for males and females. In the first between-group models, all the model parameters were freely estimated for males and females (baseline model). These baseline models were compared with subsequent increasingly restrictive models in which the factor loadings, factor correlations, and error variances were constrained equal across gender. A non-significant increase in the chi-square for the constrained models in comparison to the baseline model supports the assumption of multi-group invariance (Byrne, 2010). The fit for the four nested models, as well as the χ^2 difference tests between the baseline models and each of the constrained models, are presented in Table 5.

The baseline model for the original six-dimensional measure fitted the data well. The additional constraints on factor loadings and factor correlations did not result in significant deterioration in model fit compared with the baseline model. Although a significant difference in chi-square was found between the baseline model and the model with equality constraint on factor loadings, factor correlations and error variances, the difference in CFI (ΔCFI) between the two models was only .006 (<.02). According to Cheung and Rensvold (2002), ΔCFI value of .02 or lower could be taken as evidence of invariance. These results indicate that the six-dimensional model of work–family conflict applies equally to both males and females. Likewise, the two-dimensional model for the abbreviated version of the scale was found to be invariant across gender. Constraining the factor loadings, factor correlations, and error variances in the two-dimensional model to be equal across gender did not result in significant change in model fit.

5.4. Gender differences in levels of work–family conflict

We conducted latent mean analyses to examine gender differences in mean levels of work–family conflict for each dimension in the original and abbreviated versions of the scale. Testing for latent mean differences requires that factor loadings and intercepts be constrained equal across groups. According to Byrne (2010), because it is impossible to define an origin for the latent variable, the latent mean is fixed to zero in one group (i.e., reference group, women) and estimated in the other group (i.e., comparison group, men). Thus, the latent means for females represent the latent mean difference relative to males. Results from

Table 6
Mean comparisons across work–family conflict measures for men and women.

	Men		Women		*t*
	Mean	*SD*	Mean	*SD*	
Original measure					
Time-based WFC	3.41	.95	2.97	1.09	5.01***
Strain-based WFC	3.20	.94	2.88	1.01	3.82**
Behaviour-based WFC	2.86	.88	2.66	.88	2.61**
Time-based FWC	2.46	.97	2.31	.84	2.04*
Strain-based FWC	2.29	.96	2.15	.85	1.71
Behaviour-based FWC	2.83	.96	2.61	.92	2.61**
Abbreviated measure					
WFC	3.21	.83	2.81	.91	4.07***
FWC	2.50	.91	2.31	.79	2.54*

* $p < .05$.
** $p < .01$.
*** $p < .001$.

the multi-group analyses of gender differences in latent means indicated significant gender differences across five of the six dimensions of conflict based on the original scale. Specifically, males reported more conflict than females on all dimensions of WFC (time, strain, behaviour) as well as time-based and behaviour-based FWC, as shown in Table 6. These differences were similar to those obtained with the abbreviated version of the scale. Thus, males reported higher levels of WFC and FWC than females on the abbreviated version of the scale.

6. Discussion

This study examined the factor structure and reliability of Carlson et al.'s (2000) multi-dimensional scale of work–family conflict as well as Matthew's et al. (2010) abbreviated version of the scale in Ghana. Results from this study support the applicability of the six-dimensional full version and the two-dimensional abbreviated version of the scale in the Ghanaian context. Consistent with previous studies (e.g., Karimi, 2008), the present study found support for the six-dimensional structure proposed by Carlson et al. (2000). The factor structures of both the full and abbreviated versions of the scale were found to be invariant across gender, which implies that items on both versions of the scale are applicable to both men and women. The two versions of the scale were found to be reliable instruments for measuring the various dimensions of work–family conflict in the Ghanaian context. Additionally, the six-dimensional measure was found to have adequate convergent and discriminant validity (cf. Carlson et al., 2000; Karimi, 2008)

A significant concern that remained with the original measure was that items on the behaviour-based WFC and time-based FWC dimensions shared more variance with items on other factors than they explained in their respective factors. This implies that the behaviour-based WFC and time-based FWC dimensions do not appear to be clearly distinct from other dimensions of the scale. This shortcoming seems to be related to two items.[1] Deleting these items seemed to resolve the concerns with discriminant validity. Although these items loaded strongly on their respective factors, they appear to explain some variance in other factors. It may, therefore, be useful for researchers to consider revising these items before they are used in the Ghanaian context. The item *the behaviours I perform that make me effective at work do not help me to be a better parent and spouse*, in particular, appears less applicable to single or unmarried employees. However, more research is needed on how the behaviour-based WFC and time-based FWC dimensions relate to antecedent and outcome variables.

The study also showed considerable degree of consistency between the abbreviated measure and the original measure. First, the three-item measures of WFC and FWC on the abbreviated version were strongly correlated with the respective nine-item measures of WFC and FWC on the full version. Secondly, the experience of conflict from the work to family direction was consistently higher than conflict from the family to work direction on both versions of the scale. Additionally, the pattern of gender difference on the six dimensions of the full measure was consistent with gender difference on the abbreviated measure, with males reporting higher WFC and FWC than females. The high degree of consistency between the two measures implies that the abbreviated measure represents an acceptable alternative to the full version. However, as suggested by Matthews et al. (2010), the decision to use the original version or the abbreviated version must be informed by the researcher's focus. Thus, the abbreviated version would be more useful in situations where researchers are focused on obtaining global or overall estimates of work–family conflict. This would be particularly useful in situations where researchers are constrained by survey length such as in diary studies or longitudinal studies. In contrast, the original version would be of greater utility in situations where researchers are concerned with understanding the multidimensional nature of work–family conflict.

Indeed, the finding that WFC was higher than FWC supports previous studies that reported higher prevalence of WFC than FWC (Byron, 2005; Carlson et al., 2000; Frone et al., 1992) and corroborates the view that the work and family domains are asymmetrically permeable (Pleck, 1977). Additionally, this finding is consistent with the view that in Ghana, as in most collectivistic societies, involvement in work is seen as a means to support the welfare of the family (Yang et al., 2000). Consequently, the family boundary is more permeable to influences from the work role among collectivists. This implies that Ghanaian employees are more likely to allow work responsibilities to intrude the family domain.

The finding that men reported higher levels of work-to-family conflict than women may be explained by the gender role perspective (Pleck, 1977), which suggests that due to gender role expectations, work activities are considered more salient for men, whereas family activities are considered more important for women. Thus, work-related pressures are likely to intrude into the family domain for men than for women. However, the gender role perspective fails to explain why men reported more time-based and strain-based FWC than women. It is possible that men interpret their participation in family-related tasks more negatively, while women may have come to accept their participation in employment and family work as a fact of life. Some studies have suggested that men sometimes view participation in household chores and childcare as an *extra* work, which may be a source of inconvenience (Annor, 2014).

7. Limitations and future research

The present study is not without limitations. First, the study focused mainly on assessment of factor structures and reliability estimates of the work-family conflict measures. Although the present study examined gender differences in levels of work–family conflict, further research is needed on the unique antecedents and outcomes of the various dimensions of work–family conflict

[1] The items include: *The behaviours I perform that make me effective at work do not help me to be a better parent and spouse* (item 9; behaviour-based WFC); and *I have to miss work activities due to the amount of time I must spend on family responsibilities* (item 12; time-based FWC).

in the Ghanaian context. Secondly, the study relied on only one sample of employees. Although the results suggest that the original multidimensional work–family conflict measure as well as the abbreviated measure have cross-sample validity in terms of gender, additional validation of the scale is needed across different samples. Finally, the study focused on employees within the formal sector, where labour activities are better regulated (e.g., bankers). Therefore, further research is needed on the nature of work–family conflict and the validity of Carlson et al.'s (2000) multidimensional scale and that of Matthews et al.'s (2010) abbreviated version among informal sector workers such as petty traders and other self-employed individuals in Ghana.

8. Conclusion

The present study was an attempt to validate Carlson et al.'s (2000) multidimensional work–family conflict scale as well as Matthews et al.'s (2010) abbreviated version of the scale in Ghana. Thus, the present study represents an important first step in validating existing measures of work–family conflict in Ghana and contributes significantly to addressing measurement issues in work–family research in this context. The study has demonstrated that both the multidimensional scale of work–family conflict and the abbreviated work–family conflict measure represent reliable and valid instruments for measuring work–family conflict in the Ghanaian context. The study's findings underscore the notion that the phenomenon of work–family conflict transcends cultural boundaries (Karimi, 2008), and that employees in Ghana experience work–family conflict just as their counterparts in Western and developed countries. However, the difference might be in the extent of conflict experienced, its antecedents and consequences. Therefore, more research is needed in order to understand the antecedents and outcomes of work–family conflict in the Ghanaian and sub-Saharan African contexts, particularly those that are unique to these contexts.

References

Adekola, B. (2010). Interferences between work and family among male and female executives in Nigeria. *African Journal of Business Management*, *4*(June), 1069–1077.

Allen, T. D., Herst, D. E. L., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology*, *5*(2), 278–308. http://dx.doi.org/10.1037//1076-8998.5.2.278

Annor, F. (2014). Managing work and family demands: The perspectives of employed parents in Ghana. In Z. Mokomane (Ed.), *Work–family interface in Sub-Saharan Africa* (pp. 17–36). Cham: Springer International Publishing. http://dx.doi.org/10.1007/978-3-319-01237-7

Annor, F. (2016a). Work–family conflict: A synthesis of the research from cross-national perspective. *Journal of Social Sciences*, *12*(1), 1–13.

Annor, F. (2016b). Work/family demands and support: Examining direct and moderating influences on work–family conflict. *Journal of Workplace Behavioural Health*, *31*(2), 87–103.

Arbuckle, J. L. (2012). *AMOS (version 21.0) [Computer software]*. Chicago, IL: SPSS.

Ardayfio-Schandorf, E. (2006). The family in Ghana: Past and present perspectives. In Y. Oheneba-Sakyi, & B. K. Takyi (Eds.), *African families at the turn of the 21st century* (pp. 129–152). Westport, CT: Praeger.

Aryee, S. (2005). The work–family interface in urban sub-Saharan Africa: A theoretical analysis. In S. A. Y. Poelman (Ed.), *Work and family: An international research perspective* (pp. 261–286). Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, *21*(2), 230–258.

Byron, K. (2005). A meta-analytic review of work–family conflict and its antecedents. *Journal of Vocational Behavior*, *67*(2), 169–198. http://dx.doi.org/10.1016/j.jvb.2004.08.009

Byrne, B. M. (2010). *Structural equation modelling with AMOS: Basic concepts, applications, and programming* (2nd Ed.). New York, NY: Routledge.

Carlson, D. S., Kacmar, K. M., & Williams, L. J. (2000). Construction and initial validation of a multidimensional measure of work–family conflict. *Journal of Vocational Behavior*, *56*(2), 249–276. http://dx.doi.org/10.1006/jvbe.1999.1713

Chen, Z., Powell, G., & Greenhaus, J. (2009). Work-to-family conflict, positive spillover, and boundary management: a person-environment fit approach. *Journal of Vocational Behavior*, *74*(1), 82–93. http://dx.doi.org/10.1016/j.jvb.2008.10.009

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *9*(2), 233–255. http://dx.doi.org/10.1207/S15328007SEM0902

Debra, Y. A. (2001). Human resource management in Ghana. In P. S. Budhwar, & Y. A. Debrah (Eds.), *Human resource management in developing countries* (pp. 190–209). London: Routledge.

Ford, M. T., Heinen, B. A., & Langkamer, K. L. (2007). Work and family satisfaction and conflict: A meta-analysis of cross-domain relations. *Journal of Applied Psychology*, *92*(1), 57–80. http://dx.doi.org/10.1037/0021-9010.92.1.57

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50.

Frone, M. R., Russell, M., & Cooper, M. L. (1992). Prevalence of work–family conflict: Are work and family boundaries asymmetrically permeable? *Journal of Organizational Behavior*, *13*(7), 723–729. http://dx.doi.org/10.1002/job.4030130708

Gamor, E., Amissah, E. F., & Boakye, K. A. A. (2014). Work–family conflict among hotel employees in Sekondi-Takoradi Metropolis, Ghana. *Tourism Management Perspectives*, *12*, 1–8.

Ghana Statistical Service. (1995). *Ghana living standards survey: Report on the 3rd round (GLSS 3)*. Accra: Ghana Statistical Service.

Ghana Statistical Service. (2000). *Ghana living standards survey: Report on the 3rd round (GLSS 3)*. Accra: Ghana Statistical Service.

Ghana Statistical Service. (2005). *Population data analyses report (Vol. 1): Socio-economic and demographic trends*. Accra: Ghana Statistical Service.

Ghana Statistical Service. (2008). *Ghana living standards survey: Report on the 5th round (GLSS 5)*. Retrieved December 12, 2012. www.statsghana.gov.gh/docfiles/glss5_report.pdff

Goode, W. J. (1960). A theory of role strain. *American Sociological Review*, *25*(4), 483–496.

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, *10*(1), 76–88.

Gutek, B. A., Searle, S., & Klepa, L. (1991). Rational versus gender role explanations for work–family conflict. *Journal of Applied Psychology*, *76*(4), 560–568. http://dx.doi.org/10.1037/0021-9010.76.4.560

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. (2010). *Multivariate data analysis* (7th Ed.). Upper Saddle River, NJ: Prentice-Hall, Inc.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations* (2nd Ed.). Thousand Oaks CA: Sage.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55.

Karimi, L. (2008). A study of a multidimensional model of work–family conflict among Iranian employees. *Community, Work & Family*, *11*(3), 283–295. http://dx.doi.org/10.1080/13668800802133958

Kopelman, R. E., Greenhaus, J. H., & Connolly, T. F. (1983). A model of work, family, and interrole conflict: A construct validation study. *Organizational Behavior and Human Performance*, *215*(2), 198–215. http://dx.doi.org/10.1016/0030-5073(83)90147-2

Luk, D. M., & Shaffer, M. A. (2005). Work and family domain stressors and support: Within-and cross-domain influences on work–family conflict. *Journal of Occupational and Organizational Psychology*, *78*, 489–508.

Matthews, R. A., Kath, L. M., & Barnes-Farrell, J. L. (2010). A short, valid, predictive measure of work–family conflict: Item selection and scale validation. *Journal of Occupational Health Psychology*, *15*(1), 75–90.

Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work–family conflict and family–work conflict scales. *Journal of Applied Psychology*, *81*(4), 400–410. http://dx.doi.org/10.1037//0021-9010.81.4.400

Nunnally, J. (1978). *Psychometric theory*. New York, NY: McGraw-Hill.

Okurame, D. E. (2011). Linking work–family conflict to career commitment: The moderating effects of gender and mentoring among Nigerian civil servants. *Journal of Career Development*, *39*(5), 423–442. http://dx.doi.org/10.1177/0894845310391903

Ollier-Malaterre, A., Valcour, M., Den Dulk, L., & Kossek, E. E. (2013). heorizing national context to develop comparative work–life research: A review and research agenda. *European Management Journal*, *31*, 433–447.

Pleck, J. H. (1977). The work–family role system. *Social Problems*, *24*(4), 417–427.

Rothausen, T. J. (1999). Family in organizational research: A review and comparison of definitions and measures. *Journal of Organizational Behavior*, *20*(6), 817–836.

Shaffer, M. A., Joplin, J. R. W., & Hsu, Y.-S. (2011). Expanding the boundaries of work–family research: A review and agenda for future research. *International Journal of Cross Cultural Management*, *11*(2), 221–268. http://dx.doi.org/10.1177/1470595811398800

Shockley, K. M., & Singla, N. (2011). Reconsidering work–family interactions and satisfaction: A meta-analysis. *Journal of Management*, *37*(3), 861–886. http://dx.doi.org/10.1177/0149206310394864

Stephens, G. K., & Sommer, S. M. (1996). The measurement of work to family conflict. *Educational and Psychological Measurement*, *56*(3), 475–486.

Yang, N., Chen, C. C., Choi, J., & Zou, Y. (2000). Sources of work–family conflict: A Sino–U.S. comparison of the effects of work and family demands. *Academy of Management Journal*, *43*(1), 113–123.