

# Work-family conflict and project performance of construction professionals in a developing country: testing the mediating–moderating effect of project management self-efficacy

Effects of  
PMSE on  
WFC-PP nexus

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## Abstract

**Purpose** – Work-family conflict (WFC), a common problem in all sectors of every economy, has always been linked to negative consequences for individuals, families and employment organisations. However, owing to contextual and situational differences coupled with inconsistent findings, more studies on WFC are indispensable to disentangle the consequential effects of WFC, especially amongst construction professionals. More so, little is known about the dual role of project management self-efficacy (PMSE) in the WFC-performance relation. Thus, the purpose of the present study is to examine the mediating-moderating effects of PMSE on the WFC-performance nexus amongst construction professionals in a developing economy.

**Design/methodology/approach** – Data for this study came from a cross-sectional survey (questionnaire) administered to 302 construction professionals in Ghana using convenience sampling technique. And partial least square-based structural equation modelling (PLS-SEM) was performed, which included the assessment of measurement and structural models.

**Findings** – The results of this study support the mediating–moderating model of WFC, in which PMSE simultaneously mediates and moderates the negative influence of WFC on project performance of construction professionals; thus, validating the dual role of PMSE through the lens of Hobfoll's (1989) conservation of resource theory.

**Research limitations/implications** – Data were collected from a conveniently sampled construction professionals in Ghana. Thus, the sampling framework, including only the construction professionals in three regions of Ghana, does not ensure the full generalisation of the results.

**Practical implications** – The findings of the study provide significant implication for construction organisations and practitioners. Construction organisations and practitioners seeking to mitigate the negative consequences of WFC on project performance should focus on building on PMSE of the construction professionals. Further, a responsive work environment is needed to cater for family needs of the construction professionals.

**Originality/value** – This paper is one of the first to have tested a model including the mediating-moderating effects of PMSE in the construction industry from a developing country perspective. The study, therefore, enriches the prevailing literature from under-represented context by examining the mediating-moderating effects of PMSE on WFC and project performance nexus that has not been previously investigated.

**Keywords** Ghana, Work-family conflict, Project management self-efficacy, Project performance, Construction professionals

**Paper type** Research paper



## Introduction

Work-family conflict (WFC) is a common problem in all sectors of every economy (Gamor *et al.*, 2018). Work and family are two areas where people spend most of their time (Laode *et al.*, 2017; Zhang and Liu, 2011). When both married men and women are working, the family role

expectations change as both men and women try to balance the conflicting demands of work and family (Siu, 2014). WFC has always been linked to negative consequences for individuals, families and employment organisations, including job dissatisfaction, dissatisfaction with life, psychological stress, mental disorders and substance abuse and problematic alcohol use (Lingard and Francis, 2005, 2007). Construction professionals are of no exception to this phenomenon (Lingard and Francis, 2007; Wu *et al.*, 2016). The construction industry is a complex “project-based environment” with longer than average working hours compared to other industries (Turner and Mariani, 2016). In construction projects, difficult tasks, changing project requirements and complex process arrangements can hinder construction professionals from effectively performing their family responsibilities (Lingard and Francis, 2007; Liu *et al.*, 2020; Zheng and Wu, 2018). Practically, construction professionals who work all day will feel exhausted and consequently find it tough to perform extra roles at home. Tensions in this role can include “stress, elevated blood pressure, anxiety, emotional states and headaches” (Purwanto *et al.*, 2021, p. 2).

WFC, defined as an inter-role conflict occurring when pleasing one role makes it more difficult to please the other role (Kossek *et al.*, 2011), is a phenomenon of considerable interest to researchers and practitioners worldwide (Allen *et al.*, 2015). The WFC debate is also ongoing in Ghana (Asiedu-Appiah, 2015). However, empirical research on the work-family interface from a Ghanaian perspective is limited. Additionally, literature contends that the WFC–performance relationship is conditional upon the context within which WFC occurs (Annor, 2016). To this end, previous results on the consequences of WFC are inconsistent (An *et al.*, 2020; Kazmi *et al.*, 2018). Therefore, owing to contextual and situational differences couples with inconsistency findings, more studies on WFC are indispensable to disentangle the consequential effects of WFC specific to the Ghanaian context, especially amongst construction professionals. More so, little is known about the dual role of project management self-efficacy (PMSE) in the WFC-performance relation. Thus, empirical findings on the mediating-moderating effects of PMSE on the WFC-performance nexus are missing.

The object of the present study was to better comprehend the mediating-moderating effects of PMSE on the WFC-performance nexus amongst construction professionals in a developing economy. This understanding is vital for improving the project performance of construction professionals. Besides, illuminating the dual roles of PMSE would permit the development and implementation of customised policy interventions to address the needs of construction professionals. Consequently, this current study contributes to the WFC literature in the following ways. First, we expand on previous literature on WFC by examining its effect on PMSE and project performance by focussing on building and construction environment. Second, we enrich the prevailing literature from under-represented context by examining mediating-moderating model, that is, the mediating-moderating effects of PMSE on WFC and project performance nexus that has not been previously investigated.

## Literature background and hypotheses development

### *WFC and project performance*

Project performance, a significant pointer for appraising construction projects’ success is narrowly defined as an iron triangle of cost, time and quality (Wu *et al.*, 2018). Past research suggests that WFC significantly affects workers’ behaviour and outcomes (An *et al.*, 2020; Bowen and Zhang, 2020; Rasheed *et al.*, 2018; Rahnima and Pousa, 2017; Yu *et al.*, 2018; Zainal *et al.*, 2020; Zhang *et al.*, 2020). Specifically, Zainal *et al.* (2020) examined the link between WFC and job performance amongst employees in Malaysian service sector and reported a significant negative nexus. In another study by An *et al.* (2020), WFC inversely influenced seafarer performance in China. Similarly, Wu *et al.* (2018) found a significant negative effect of

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WFC on project performance for construction professionals in Zhejiang Province, Jiangsu Province and Shanghai. These findings were confirmed by Liu *et al.* (2020) who reported negative link between WFC and performance of construction professionals in China. Lastly, WFC negatively influenced performance of bankers in Indonesia (Widyarini and Muafi, 2021). Therefore, we have developed our first hypothesis as follows:

*H1.* WFC negatively influences project performance of construction professionals.

#### *WFC and PMSE*

Self-efficacy is an individual's judgement about how well they can perform in a particular task situation (Farashah *et al.*, 2019). It is also described as individuals' beliefs about their capabilities to produce designated levels of performance (Bandura, 1994), and it can be seen as a personal resource (Guarnaccia *et al.*, 2018). PMSE is a form of occupational self-efficacy that is described as a domain specific measure of self-efficacy (Chaudhary *et al.*, 2012) or context-specific form of self-efficacy (König *et al.*, 2010). Literature suggests a negative link between WFC and self-efficacy (Netemeyer *et al.*, 1996; Wang *et al.*, 2010). Specifically, Netemeyer *et al.* (1996) found a significant negative nexus between WFC and self-efficacy in a sample of salespeople. Similarly, results by Wang *et al.* (2010) showed that WFC was negatively linked with self-efficacy. This study, therefore, contends that construction professionals who experienced more situational constraints such as challenging time demands were unlikely to believe that they could successfully complete construction projects (Mathieu *et al.*, 1993). Consequently, we hypothesised as follows:

*H2.* WFC negatively influences PMSE of construction professionals.

#### *PMSE and project performance*

Empirical evidence suggests that general self-efficacy significantly and positively predicts performance (Çetin and Aşkun, 2018; Kappagoda, 2018). Kappagoda (2018) reported that self-efficacy directly correlated with job performance in the context of the Sri Lankan banking sector. Similarly, Carter *et al.* (2018) in their study found a direct nexus between self-efficacy and job performance within Australian financial services firm. Within the construction industry, PMSE was reported to directly influence project performance (Blomquist *et al.*, 2016). Thus, this study posits that construction professionals with higher self-efficacy will exhibit high project performance. Based on this discussion, a hypothesis on PMSE and project performance was drawn as follows:

*H3.* PMSE positively influences project performance of construction professionals.

#### *Mediating-moderating effect of PMSE*

The mechanisms through which WFC affects job performance remain blurred. However, reflecting on the impact of WFC on employees' self-efficacy and affective commitment (Cao *et al.*, 2020; Wang *et al.*, 2010) and the influence of self-efficacy on project performance (Blomquist *et al.*, 2016; Çetin and Aşkun, 2018), this study introduces PMSE to explore the indirect bearing of WFC on project performance of construction professionals. Studies have reported the indirect effect of WFC on employee outcomes including job performance. For instance, a study by Novitasari *et al.* (2020) found that WFC indirectly influenced worker performance through readiness to change. Asbari *et al.* (2020) reported WFC indirectly influenced job performance through job satisfaction of Indonesian employees. Similarly, Cao *et al.* (2020) reported an indirect effect of WFC on job satisfaction through affective commitment of construction professionals in China. Thus, this study posits that PMSE as a mediating variable between the WFC and project performance nexus. The study argues that

when construction professionals are stressed by WFC and become frustrated, they may experience low levels of PMSE that will subsequently lead to low project performance.

Self-efficacy is considered an individual's characteristic that fosters stress resistance (Hobfoll, 1989). According to Hobfoll's (1989) conservation of resource theory, self-efficacy helps to cope with stressful situations. König *et al.* (2010) reported that occupational self-efficacy moderated the relationship between job insecurity and job performance. Equally, Onyishi *et al.* (2018) found that occupational self-efficacy moderated the relationship between work demands and psychological well-being. Ma *et al.* (2021) accounted for the moderating effect of job self-efficacy on the link between techno-stressors and work–life balance. In this regard, PMSE is regarded as a resource that can make construction professionals less susceptible to the negative bearings of WFC on project performance. The study contends that when WFC is experienced, PMSE is applied to mitigate the negative effect of WFC on project performance of construction professionals. The ensuing hypotheses are proposed as follows:

- H4. PMSE has a mediating effect between WFC and project performance of construction professionals
- H5. PMSE has a mediating–moderating effect between WFC and project performance of construction professionals

Based on these five hypotheses, the ensuing research model (Figure 1) was established for testing during the research.

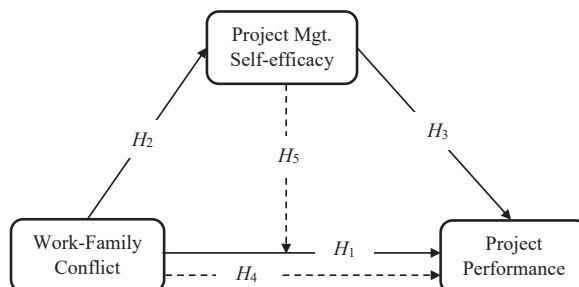
### Methodology

#### *Sample and procedure*

Data for this study came from a cross-sectional survey administered to construction professionals in Ghana. The questionnaire was utilised to gather information from the respondents because of its enormous and “heterogeneous nature” in a moderately brief period (Saunders *et al.*, 2016; Sekaran and Bougie, 2016). A total of 430 construction professionals were invited in 2019 to participate in the study using convenience sampling technique owing to the difficulty in constituting a sample frame due to the dynamics of the construction industry. However, of those 430 construction professionals, 302 consented and responded to the questionnaires representing 70.2%. According to Reinartz *et al.* (2009), a sample size of 100 is sufficient to conduct a PLS-SME. The respondents were assured confidentiality and anonymity of data provided.

#### *Measures*

WFC was measured using the six-item scale developed by Carlson *et al.* (2000). A sample item is “The stress and anxiety felt in my family affects my performance at work”. The Cronbach's alpha was 0.83.



**Figure 1.**  
Proposed  
research model

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PMSE was measured using the six-item scale developed by Blomquist *et al.* (2016). A sample statement is “I break the work down into tangible work items with measurable completion criteria that team members will commit to delivering”. The Cronbach’s alpha was 0.91.

Project performance was measured using a five-item measure adopted from Wu *et al.* (2018). A sample item is “The project I am participating in is or will be completed on schedule”. The Cronbach’s alpha was 0.83.

All items were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The detailed scales are provided in Appendix.

### *Analytical approach*

IBM SPSS version 25.0 and SmartPLS version 3.3.2 (Ringle *et al.*, 2015) were employed for the data analyses. The research model and its related hypotheses were examined utilising partial least square-based structural equation (PLS-SEM) modelling that has a higher level of statistical power for predicting the relationships amongst all latent constructs simultaneously (Hair *et al.*, 2019; Henseler *et al.*, 2016). The evaluation of the structural model was preceded by the measurement model assessment (Hair *et al.*, 2019; Henseler *et al.*, 2016). PLS algorithm with default settings followed by bootstrapping sampling (5,000 re-sample) was applied to determine factor loadings, path coefficients and their respective significance levels. To evaluate the predictive accuracy of the tested research model, the Stone–Geisser’s  $Q^2$  test (Geisser, 1974; Stone, 1974) was estimated using the blindfolding with an omission distance of 7 (Hair *et al.*, 2011) procedure to calculate the cross validated redundancy measure,  $Q^2$  for the endogenous constructs.

## **Results**

### *Respondents’ profile*

Of the 302 respondents (see Table 1), 238 (78.8%) were males. The sample was dominated by project managers (37.4%;  $n = 113$ ), and majority (49.7%;  $n = 150$ ) were from 40 to 49 years and 64.2% ( $n = 194$ ) were married. Further, most respondents had a bachelor’s degree or higher (82.1%;  $n = 248$ ) and were working in the construction industry for 6–10 years (52.3%;  $n = 158$ ).

### *Measurement model assessment*

In determining the validity and reliability of the constructs, the measurement model was assessed. Thus, factor loadings, construct reliability, convergent and discriminant validities were examined. Factor loadings that did not meet the threshold of 0.708 were removed (Hair *et al.*, 2017). For example, one indicator of project performance was deleted, which consequently improved the construct reliability and convergent validity of project performance. Consequently, all the remaining item loadings exceeded the 0.708 threshold and significantly ( $p < 0.001$ ) loaded onto their respective constructs. The internal consistency reliability was assessed using the Cronbach’s alpha ( $>0.70$ ), composite reliability ( $>0.70$ ) and Dijkstra–Henseler’s rho ( $>0.70$ ). Remarkably, all the three constructs recorded reliability coefficients greater than 0.70 using all the three criteria (see Table 2); thus, confirming the internal consistency of constructs. Additionally, the average variance extracted (AVE) for all variables exceeded the 0.50 threshold, ranging from 0.601 to 0.705, thus confirming the reliability and convergent validity of the model’s latent variables (Hair *et al.*, 2020).

Discriminant validity was evaluated using Heterotrait-Monotrait (HTMT) criterion (Henseler *et al.*, 2015, 2016). As indicated in Table 3, the results from the correlations of pair of constructs are below the threshold values of  $HTMT_{0.85}$  (Henseler *et al.*, 2015). Thus, the model’s discriminant validity is established.

## ECAM

Characteristics	Frequency	Per cent
<i>Gender</i>		
Male	238	78.8
Female	64	21.2
Total	302	100.0
<i>Age</i>		
Less than 30 years	3	1.0
30–39 years	87	28.8
40–49 years	150	49.7
50 years and above	62	20.5
Total	302	100.0
<i>Marital status</i>		
Married	194	64.2
Single	108	35.8
Total	302	100.0
<i>Level of education</i>		
Diploma	54	17.9
Undergraduate degree	111	36.8
Master's degree	100	33.1
PhD/Doctorate	37	12.3
Total	302	100.0
<i>Position</i>		
Project manager	113	37.4
Department manager	84	27.8
Project engineer	22	7.3
Site builder	34	11.3
Foreman/Supervisor	49	16.2
Total	302	100.0
<i>Number of years working</i>		
1–5 years	76	25.2
6–10 years	158	52.3
Above 10 years	68	22.5
Total	302	100.0

**Table 1.**  
Profile of study sample

#### *Assessment of the structural model*

In assessing the structural model fit in PLS-SEM, Henseler *et al.* (2016) recommended the application of standardized root mean square residual (SRMR) criterion. For the model, SRMR was  $0.069 < 0.08$  which is a good model fit, according to Hu and Bentler (1999). The  $R^2$  and  $Q^2$  criteria were used to evaluate the predictive power and accuracy of the structural model respectively (Hair *et al.*, 2019). From Tables 4 and 5, all the  $R^2$  and  $Q^2$  values were higher than 0.25 and 0 indicating good explanatory and predictive power and accuracy of the model. Specifically, in Table 4, WFC predicts 37.3% ( $R^2 = 0.373$ ) of variation in PMSE whiles WFC and PMSE combined to predict 33.6% ( $R^2 = 0.336$ ) of change in project performance. These results show that the model has acceptable level of predictive power and relevance (Hair *et al.*, 2019; Usakli and Kucukergin, 2018). Similarly, as depicted in Table 5, the final mediating-moderating structural model accounted for 36.7% of variance in project performance of construction professional. Further, there was no problem of collinearity amongst the predictors as all the VIF values of constructs were below the threshold of 3 (Hair *et al.*, 2019).

Indicator	Loading	SE	<i>t</i> -statistic	<i>p</i> -value	CA	rho_A	CR	AVE	Effects of PMSE on WFC-PP nexus
PMSE1	0.786	0.035	22.313	<0.001	0.916	0.917	0.935	0.705	
PMSE2	0.870	0.018	48.993	<0.001					
PMSE3	0.886	0.015	59.634	<0.001					
PMSE4	0.857	0.021	41.288	<0.001					
PMSE5	0.825	0.026	32.137	<0.001					
PMSE6	0.810	0.031	25.958	<0.001					
PP2	0.820	0.029	27.867	<0.001	0.834	0.848	0.882	0.601	
PP3	0.715	0.044	15.653	<0.001					
PP4	0.725	0.051	14.125	<0.001					
PP5	0.805	0.028	29.066	<0.001					
PP6	0.821	0.020	41.202	<0.001					
WFC1	0.759	0.033	23.009	<0.001	0.833	0.843	0.882	0.601	
WFC2	0.751	0.037	20.463	<0.001					
WFC3	0.851	0.017	49.193	<0.001					
WFC5	0.755	0.037	20.221	<0.001					
WFC6	0.755	0.029	26.307	<0.001					

**Note(s):** PMSE = project management self-efficacy, PP = project performance, WFC = work-family conflict, SE = standard error, CA = Cronbach's alpha ( $\alpha$ ), rho\_A = Dijkstra-Henseler's rho ( $\rho_A$ ), CR = composite reliability and AVE = average variance extracted

**Table 2.** Reliability and convergent validity

Variable	1	2	3	<b>Table 3.</b> Discriminant validity using heterotrait-monotrait ratio (HTMT)
(1) PMSE	–			
(2) PP	0.586 (CI: 0.474–0.695)	–		
(3) WFC	0.694 (CI: 0.582–0.792)	0.608 (CI: 0.503–0.710)	–	

Hypotheses	Path	$\beta$	SE	<i>t</i> -value	<i>p</i> -value	VIF	$R^2$	$Q^2$	<b>Table 4.</b> Path coefficient and hypothesis assessment of direct paths
H1	WFC → PMSE	–0.611	0.047	13.052	0.000	1.000	0.373	0.261	
H2	WFC → PP	–0.320	0.061	5.231	0.000	1.595	0.336	0.193	
H3	PMSE → PP	0.327	0.069	4.744	0.000	1.595			

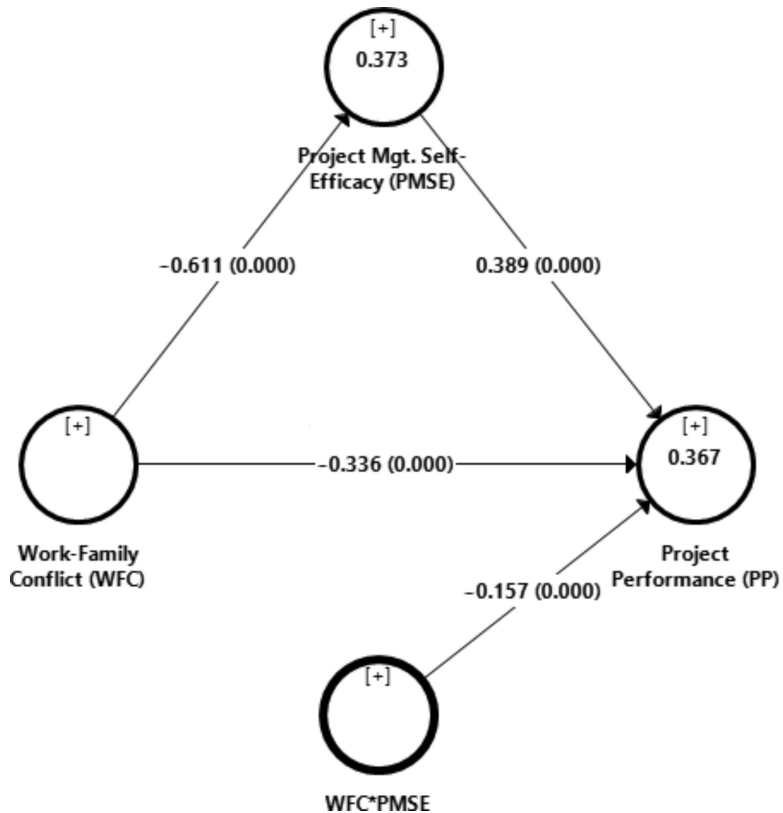
Hypotheses	Path	$\beta$	SE	<i>t</i> -value	<i>p</i> -value	$R^2$	$Q^2$	<b>Table 5.</b> Mediating-moderating effect of PMSE between WFC and PP
H4	WFC → PMSE	–0.611	0.048	12.643	0.000	0.367	0.208	
	WFC → PP	–0.336	0.061	5.488	0.000			
H5	PMSE → PP	0.389	0.064	6.083	0.000			
	WFC → PMSE → PP	–0.238	0.046	5.217	0.000			
	WFC*PMSE → PP	–0.157	0.039	3.979	0.000			

The results from the hypotheses tests revealed that WFC significantly negatively influenced PMSE ( $\beta = -0.611$ ; SE = 0.047;  $t = 13.052$ ;  $p < 0.001$ ) and project performance ( $\beta = -0.320$ ; SE = 0.061;  $t = 5.231$ ;  $p < 0.001$ ); thus, supporting hypotheses H1 and H2. It was also evident that PMSE significantly positively influenced project performance ( $\beta = 0.327$ ; SE = 0.069;  $t = 4.744$ ;  $p < 0.001$ ); consequently, supporting hypothesis H3 (see Table 4).

Lastly, in support of hypotheses H4 and H5, the findings of the study indicated that PMSE partially mediated (H4;  $\beta = -0.213$ ; SE = 0.101;  $t = 2.104$ ;  $p = 0.035$ ) as well as moderated (H5;  $\beta = -0.157$ ; SE = 0.039;  $t = 3.979$ ;  $p < 0.001$ ) the relationship of WFC and project performance of the construction professionals (see Table 5 and Figure 2). Thus, our research result revealed the mediating–moderating effect of PMSE between WFC and project performance of the construction professionals. The nature of the relationship reveals that WFC negatively influenced the PMSE and in turn negatively affects project performance of the construction professionals. However, the implication is that PMSE weakens the negative effect of WFC on project performance of the construction professionals, hence the mediating–moderating effect of PMSE.

**Discussion**

This study examined the interactions amongst WFC, PMSE and project performance including the mediating–moderating effect of PMSE of construction professionals. The results indicated that WFC has significant negative effect on PMSE and project performance of construction professionals, as was postulated in hypotheses H1 and H2. The results specifically suggest that WFC can lower both PMSE and project performance of the constructional professionals. These findings support the previous findings of Zainal *et al.* (2020), An *et al.* (2020), Wu *et al.* (2018), Liu *et al.* (2020), Netemeyer *et al.* (1996) and Wang *et al.*



**Figure 2.** Structural model depicting the mediating–moderating effect of PMSE between WFC and PP



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(2010). More related results were reported by [Wu et al. \(2018\)](#) who found a significant negative effect of WFC on project performance for construction professionals in Zhejiang Province, Jiangsu Province and Shanghai. These findings were confirmed by [Liu et al. \(2020\)](#) who reported negative link between WFC and performance of construction professionals in China. Further, [Netemeyer et al. \(1996\)](#) found a significant negative nexus between WFC and self-efficacy in a sample of salespeople. Similarly, results by [Wang et al. \(2010\)](#) showed that WFC was negatively linked with self-efficacy.

Furthermore, PMSE was found to have significant positive effect on project performance of the constructional professionals, thus supporting hypothesis H3. This suggests that PMSE leads to higher project performance of the constructional professionals. In other words, the higher the PMSE, the higher the project performance of the construction professionals. This finding is consistent with the existing literature that suggests general self-efficacy significantly and positively predicts performance ([Çetin and Aşkun, 2018](#); [Kappagoda, 2018](#)). Within the construction industry, PMSE was reported to directly influence project performance ([Blomquist et al., 2016](#)).

Further, this study argued that the impact of WFC on project performance might be indirect and moderated by PMSE. Although the relationship appears to be complex, it has been observed that PMSE significantly mediates as well as moderates WFC and project performance nexus. Thus, in the present study, PMSE has statistically significant mediating–moderating effect between WFC and project performance of construction professionals. This finding confirms that indirect effect of WFC on job outcomes as reported in [Novitasari et al. \(2020\)](#) and [Cao et al. \(2020\)](#). This suggests that when construction professionals are stressed by WFC and become frustrated, they experience low levels of PMSE that subsequently leads to low project performance. Further, the result suggests that PMSE weakened the main effect of WFC on project performance. This supports [Hobfoll's \(1989\)](#) conservation of resource theory, which posits that self-efficacy helps to cope with stressful situations. In this regard, PMSE is a resource that makes construction professionals less susceptible to the negative bearings of WFC on project performance. Thus, when WFC is experienced, PMSE is applied to mitigate the negative effect of WFC on project performance of construction professionals.

## Conclusions

The present study examined the interplay of WFC, PMSE and project performance within the construction industry in an emerging economy. Through PLS-SEM approach, the results proved that WFC had significant negative effect on PMSE and project performance of construction professionals. PMSE was found to have significant positive effect on project performance of the constructional professionals. Further, the results of this study supported the mediating–moderating model of WFC, in which PMSE simultaneously mediates and moderates the negative influence of WFC on project performance of construction professionals. These findings show Ghanaian construction professionals' PMSE and project performance are negatively influenced by WFC. However, these negative consequences of WFC were mediated and moderated by the PMSE of the construction professionals. The current study, therefore, offers a unique and better comprehension of the mediating–moderating effects of PMSE on the WFC-performance nexus amongst construction professionals in a developing economy.

### *Implications for theory and practice*

The results of this study validated the dual role of PMSE through the lens of [Hobfoll's \(1989\)](#) conservation of resource theory. It is suggested that construction organisations and practitioners seeking to mitigate the negative consequences of WFC on project performance should focus on building on PMSE of the construction professionals.

Further, a responsive work environment is needed to cater for family needs of the construction professionals. Aside from that, the work environment should be supportive of work-family balance of the construction professionals. Wu *et al.* (2018) advocates that construction companies should provide a satisfactory working environment and a suitable work plan so that construction professionals have sufficient time to spend with their family members, which reduces WFC levels. In a nutshell, ensuring appropriate systems, services and support for work-family balance and PMSE should be a priority in the construction industry in Ghana.

#### *Limitations and future research directions*

Notwithstanding the significant contribution of this study, there are certain limitations. One central limitation of this study is that it was a cross-sectional survey of construction professionals in Ghana. Thus, inferring causation from the findings may be problematic. Future studies should, therefore, adopt longitudinal survey design.

Another limitation of the study is that data were collected from conveniently sampled construction professionals in Ghana. As such, the results cannot be extrapolated to the entire construction industry. However, the participating construction professionals were invited from three major regions (i.e. Greater Accra, Ashanti and Volta) in Ghana. These regions generally house construction professionals from different parts of the country, due to improved economic conditions in the selected regions. Notwithstanding this, future studies should employ a sample that is randomly selected.

Lastly, this study covered only two predictors (i.e. WFC and PMSE) of project performance. Thus, given that there may be other factors influencing project performance, future studies are encouraged to integrate these other factors such as financing, quality and cost into this study's model for further investigations.

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*Work-family conflict (Source: Carlson et al., 2000)*

- WFC1 My job requirements have affected my commitment to family responsibilities, e.g. not being able to share housework equally with my partner or participating in family activities
- WFC2 Because of my family, I cannot participate in activities that will help me improve my career
- WFC3 Because of the pressure I feel at work, I still have no way to do what I want when I get home
- WFC4 The stress and anxiety felt in my family affect my performance at work
- WFC5 I do not have the interest required to participate in family activities after work
- WFC6 The way I handle housework is not applicable to my work

*Project management self-efficacy (Source: Blomquist et al., 2016)*

- PMSE1 I can communicate in a way that ensures all stakeholders have the same understanding, no matter their level of technical or operational understanding
- PMSE2 I break the work down into tangible work items with measurable completion criteria that team members will commit to delivering
- PMSE3 I hold regular status meetings comparing progress to plan, analysing variances and taking corrective actions (to get back on plan) where necessary
- PMSE4 I clearly define key characteristics and business benefits of the product of the project and acquire sign off from key stakeholders on these specifications
- PMSE5 I write a project charter (or similar document) that describes the project in enough detail to obtain agreement from key stakeholders to begin work
- PMSE6 I evaluate project reviews and suggested improvements, discuss with key stakeholders and take appropriate action

*Project performance (Source: Wu et al., 2018)*

- PP1 The project I am participating in is or will be completed on schedule
- PP2 The current project is or will be completed on budget
- PP3 The project's results or deliverables meet expected goals
- PP4 If a problem arises, a friendly solution is generally found
- PP5 Partners are satisfied with the process of the project's completion
- PP6 The current partners are willing to cooperate with each other in the future

**Table A1.**  
Measures

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