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Structural equation model evaluating the impact of isolation and work-family conflict on burnout among teleworking professionals

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Abstract

The study of structural equation model evaluating the impact of isolation and work-family conflict on burnout among teleworking professionals aimed to scrutinize and investigate the casual relationship among isolation, work-family conflict and burnout. The research utilized a 2-step structural equation modelling technique based on review of related literature. The population and samples were selected from teleworking professionals in Thailand. Research tools were questionnaire with rating scales and a convenience sampling method was applied. The model fit, reliability and validity were analysed by using a confirmatory factor analysis. A causal relationship was analysed by structural model and path analysis. The results showed that the model was moderately fitted with empirical data and had an acceptable reliability and validity. The results yielded a positive direct effect of isolation on burnout. Moreover, work-family conflict acted as a partial mediator or indirect effect on the relationship between isolation and burnout. Based on these results, the organization should emphasize on employee work-life balance aspect even in a teleworking environment to mitigate work-family conflict risk. Furthermore, supervisors or managerial level employees should focus on communication among their subordinates even if they are working out of the office to mitigate isolation risk. Future research should be qualitative or mixed method to delve deep down for a richer qualitative interpretation and cohort or longitudinal research should be done in order to study these effects in the long run.

Introduction

Nowadays, even in the digital transformation era, a high-quality human resource requires heavy investment, both time and financial resource. The development of human capital has certainly become a quintessential component promoting organization goals. So as to meet an even higher expectation from clients, suppliers or customers, a company is required to invest in individual employees and train them to reskill and upskill in many aspects in order to make sure that they always meet high work-related expectations. The coming of new work practice can possibly enhance satisfaction at work and reduce the probability of leaving an organization (Gajendran & Harrison, 2007). However, burnout is considered as an important factor affecting employee performance, both physically and psychologically.

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In accordance with digital transformation and the coming of advanced internet and mobile technologies, professions and workplaces are disrupted. There are many fields of work done outside the office. A modern-day working environment has been changing from functional-based work to a collaborative-based project. Therefore, some workers do not need to stay at the office to work. Nevertheless, the demand and challenge in work-related assignment has not changed even in this modern working environment even though it is positive that employee autonomy can promote satisfaction. However, work-family conflict and work isolation can also negatively affect the feeling towards work (Yu, Liu, & Ren, 2019).

There are many academical studies that focus on factors affecting job satisfaction and turnover intention. Nonetheless, there are only a few manuscripts that mostly emphasize the relationship between isolation, work-family conflict and burnout in a teleworking environment. According to those factors mentioned before, this study aims to answer this question. How does the relationship between isolation stemming from teleworking affect burnout which is mediated by work-family conflict? Therefore, the objective of the study is to develop a structural equation model that scrutinizes and investigates relationship among isolation, work-family conflict and burnout in teleworking environment of modern professional practices.

Literature Review

Burnout

To generalize, burnout is a well-known variable focusing on a direct effect of stress from work, and this provides the physical and psychological issues at work encountered by employees. This is surely latent, and prolonged exposure to this negative climate can negatively impact workers performance. To summarize, burnout is a negative state of exhaustion raised by over-work (Simha, Elloy, & Huang, 2014). As this process continues, workers initially feel loss of motivation at work and a direct link to weak performance.

Isolation

Isolation is quite self-explanatory. This means a lack of social interaction and communication with team members at work and leads to a feeling of loneliness (Schrempft, Jackowska, Hamer, & Steptoe, 2019). In a teleworking environment, workers can work on their own at home or anywhere. This might promote autonomy, but on the other hand, it creates a lack of social interaction in the job resulting in less communication and social interaction and leads to a stressful situation regarding work, while a high expectation and demands are still their responsibilities.

Work-Family Conflict

A high expectation, professional role can really affect personal life. This factor is a form of conflict widely affecting family or personal life due to demanding work assignments. While a professional role demands a high level of contribution in order to meet work-related expectations, this may affect each worker's personal life (Hunter, Clark, & Carlson, 2019). This can be a dilemma at work. At present, even if flexible working hours and mobile workplace can possibly reduce this kind of problem, these teleworking and mobile workers can still be affected by other challenges, namely, isolation and burnout.

The Relationship between Isolation, Work-Family Conflict and Burnout

In a teleworking context, the utilization of a mediation model to understand the mediating impact of work-family conflict on solation and burnout has not been given much attention as this context is considered as a new method of work, that will soon replace the traditional work practice. However, similar past research in healthcare context indicated that work-family conflict played a mediation role among the relationship between role overload and emotional exhaustion (Ahmad, 2010). Besides, in aviation context, past study regarding antecedents and consequences of burnout and isolation showed that burnout role was significant in the relationship between job demands and isolation, and finally, this could lead to health problems (Chen & Kao, 2012). So as to confirm these past findings, this study aimed to study those three negative work factors relating to teleworking context in Thailand.

Job Demand-Resource Theory (JD-R)

According to previous researches, job demands and resource theory is a classic and well-known theory that is greatly referenced as the main framework for a work-related issue in many business entities. The theory is divided into 2 factors, namely, job demands and job resources (Bakker, Demerouti, & Verbeke, 2004). Job demands indicate that the company expects an employee to put an effort into their work while job resources, on the other hand, means the supporting environment at work (Lesener, Gusy, & Wolter, 2019). It is certain that job demands are negative factors, but well-provided job resources could possibly mitigate this risk.

As per a review of related literature, hypotheses are that isolation directly affects burnout, and work-family conflict plays a mediating role and indirectly affects the relationship between isolation and burnout.

Methodology

This research is a social science survey with quantitative methodology. The population of the study was employees who are often assigned to work outside typical workplace, including medical representatives, real estate agent, financial auditors, salesperson and other teleworking jobs. A convenience sampling method was utilized. Self-administered 500 survey questionnaires with rating scale were solely distributed by researcher hand-on-hand to each sample. The questionnaire was classified into 4 parts; isolation, work-family conflict, burnout and demographic information. After cleaning noisy data, detecting outlier, imputating missing value and eliminating duplicated information, only 420 samples qualified for the statistical analysis. The questionnaires were managed as per actual social situation, tradition and local Thai culture. Therefore, all the measurements were translated and back-translated from English to Thai. For ethical consideration, in answering this questionnaire, the respondents were assured that their identity and information would be kept confidentially, information would not be disclosed to the public for absolute acknowledgement, and no such information would be provided to any third parties without permission. The provided information would be analyzed as a whole by using statistical program for research only.

Measures

The demographic part in the questionnaire included sex, education, work position, marital status, workplace, age and tenure. Isolation was 5 items rating scale from Golden (Golden, Veiga, & Dino, 2008) measuring individual level of isolation. An example item was: "I always miss an opportunity to be in an activity as a part of team." Work-family conflict was 5 items rating scale from Netemeyer (Netemeyer, Boles, & McMurrian, 1996) measuring a level of work-family conflict. An example item was: "The time spent at work detracts me from family or social life." Burnout scale was 5 items rating scale from Maslach Burnout Inventory (Maslach, Jackson, Leiter, Schaufeli, & Schwab, 1986) measuring a level of burnout. An example item was: "I feel tired when I get up in the morning and have to face another day on the job."

Data Analysis

The clean and qualified data of 420 samples were put into an analysis by using 2-step structural equation modeling approach to test research hypotheses. The main purpose behind the utilization of this statistical technique was that it provides for testing multiple latent variables and well described a causal relationship among them. According to the objective of the study, firstly, a confirmatory factor analysis would be analyzed to confirm reliability and construct validity in the model to see whether they are fitted with empirical data. Secondly, a structural equation model with path analysis would be developed to hypothesize the study. The analysis process from data preprocessing to structural regressions path analysis and data visualization was totally conducted by R, a statistical computer language (R Core Team, 2019).

Results and Discussion

Data analysis results were separated into 2 sections comprising of descriptive statistics for a general snapshot on samples and inferential statistics for testing the hypotheses.

Cleansed and screened 420 samples were put into the statistical analysis both descriptive and inferential parts. For the descriptive part, most of the sample were female (56.9%), holding above bachelor degree (55.2%), working in operational level position (59.5%) and being single (63.8%). Half of the samples were currently working in public sector (50.5%). Mean age of the sample was 37.22 years with standard deviation of 11.27 years, average work experience was 13.84 years with standard deviation of 11.07 years.

According to Table 1, descriptive statistics for scales was portrayed including means and standard deviation. In almost every inferential statistic method, normality of variables should be expected. Skewness and kurtosis of each variable should not exceed plus or minus 2. Moreover, correlation among factors were all statistically significant with a moderate level of correlation.

Table 1 Descriptive statistics for scale, skewness, kurtosis and correlation matrix

Scale	*M*	*SD*	*N*	Skew	Kur	ISL	WFC	BOT
ISL	2.833	0.817	420	-0.124	-0.009	1	0.43***	0.44***
WFC	3.180	0.940	420	-0.273	-0.361	0.43***	1	0.53***
BOT	2.928	0.999	420	-0.075	-0.565	0.44***	0.53***	1

Note: ISL = Isolation, WFC = Work-Family Conflict, BOT = Burnout.
***$p < .000$.

In order to check the fitness with the empirical data the confirmatory factor analysis was analysed. This included a structural validation of the model on each latent variable to analyse the relationship among manifest variables by utilizing correlation. The several presumptions of both absolute fit and relative fit indices criterion were described in Table 2.

In accordance with Table 3 and Figure 1, confirmatory factor analysis model fit indices were presented and visualization of measurement model was portrayed. As per measurement model fit indices, the model was considered moderately fit with empirical data as almost all fit indices passed the criteria except Chi-square test since this index is normally sensitive to large sample size. Therefore, no modification was required for this model.

In accordance with Table 4, confirmatory factor analysis estimated and standard coefficients, the reliability coefficient of Cronbach's Alpha, composite reliability, convergent validity and discriminant validity were presented. All confirmatory factor analysis coefficients were statistically significant. Cronbach's Alpha was used to evaluate the reliability of internal consistency of the questionnaire and it was found that all parts of the questionnaire were considered reliable. Composite reliability score was also calculated to check reliability. Both standard minimum threshold for Cronbach's Alpha and composite reliability was 0.7 or higher to indicate a proper reliability.

Convergent validity means the extent to which indicators of a construct converged or shared a high level of proportion of variance in common (Hair, Black, Babin, & Anderson, 2013). Convergent validity could be calculated via factor loadings and average variance extracted (AVE). Standard minimum threshold for average variance extracted was 0.5 or higher indicating adequacy of convergence.

Discriminant validity refers to the extent to which indicators of a construct are really discriminating from other constructs. The criteria were that the AVE should be greater than Maximum Shared Variance (MSV) and Average Shared Variance (ASV) to ensure adequacy of divergence.

Table 2 Fit indices criterion

Fit Indices	Criterion	Source
Chi-square ($\chi 2$)	Not significant	Hair et al
Relative Chi-square ($\chi 2$ /df)	Less than 3	(2013),
Goodness-of-Fit Index (GFI)	More than .90	Bagozzi & Yi
Comparative Fit Index (CFI)	More than .90	(1988),
Tucker-Lewis Index (TLI)	More than .90	Browne &
Root Mean Square Error of Approximation (RMSEA)	Less than .08	Cudeck
Standardized Root Mean Square Residual (SRMR)	Less than .08	(1993)

Table 3 Confirmatory factor analysis model fit indices

Model	$\chi 2$	df	*p*	$\chi 2$ /df	CFI	TLI	GFI	RMSEA	SRMR
CFA	252.249	87	.000***	2.899	0.960	0.952	0.925	0.067	0.045

Note: ***p < .000.

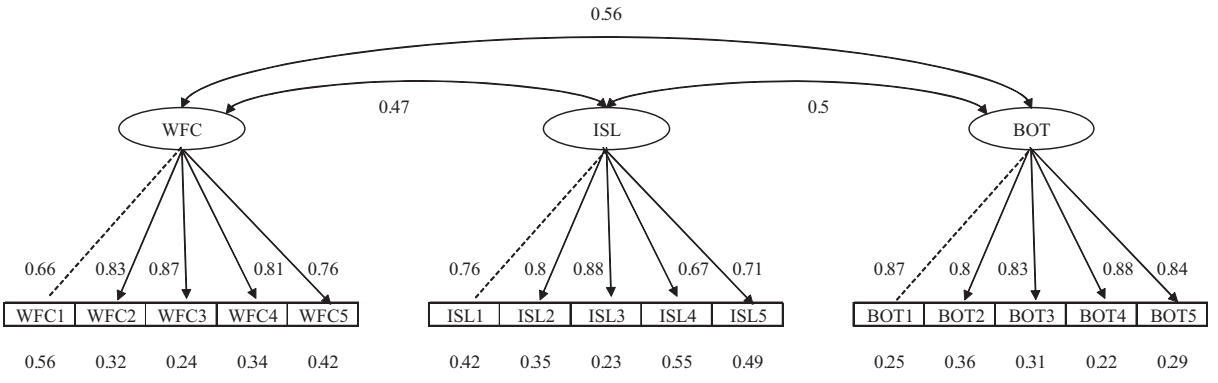

Figure 1 Measurement model

Table 4 Confirmatory factor analysis, reliability, convergent validity and discriminant validity

Construct	Estimate	Standard	Alpha	CR	AVE	MSV	ASV
Isolation							
ISL1	1.000	.758	.875	.876	.588	.250	.360
ISL2	1.004	.805					
ISL3	1.146	.878					
ISL4	0.863	.669					
ISL5	0.942	.712					
Work-Family Conflict							
WFC1	1.000	.662	.888	.891	.624	.313	.424
WFC2	1.269	.826					
WFC3	1.361	.870					
WFC4	1.216	.811					
WFC5	1.151	.760					
Burnout							
BOT1	1.000	.868	.925	.925	.714	.313	.438
BOT2	0.896	.799					
BOT3	0.975	.829					
BOT4	1.037	.884					
BOT5	1.001	.840					

After the process of confirmatory factor analysis, structural regressions were fitted and visualized. This model was considered a small model with only 3 latent variables and both measurement model and structural model were quite similar. According to Hair et al. (2013), and it was possible that both measurement model and structural model fit indices could possibly share the same exact number. The structural model of this study comprised of 3 latent variables. Isolation was an exogenous variable that was hypothesized to effect Burnout directly and indirectly via Work-Family Conflict. Work-Family Conflict was hypothesized to play a mediation role in the model and Burnout was an ultimate dependent variable. The results of the analysis and model fit indices and factor loadings showed that the structural model was also in concordance with the empirical data, according to Table 5 and Figure 2.

Table 5 Structural equation model fit indices

Model	$\chi 2$	df	*p*	$\chi 2$ /df	CFI	TLI	GFI	RMSEA	SRMR
SEM	252.249	87	.000***	2.899	0.960	0.952	0.925	0.067	0.045

Note: ***$p < .000$.

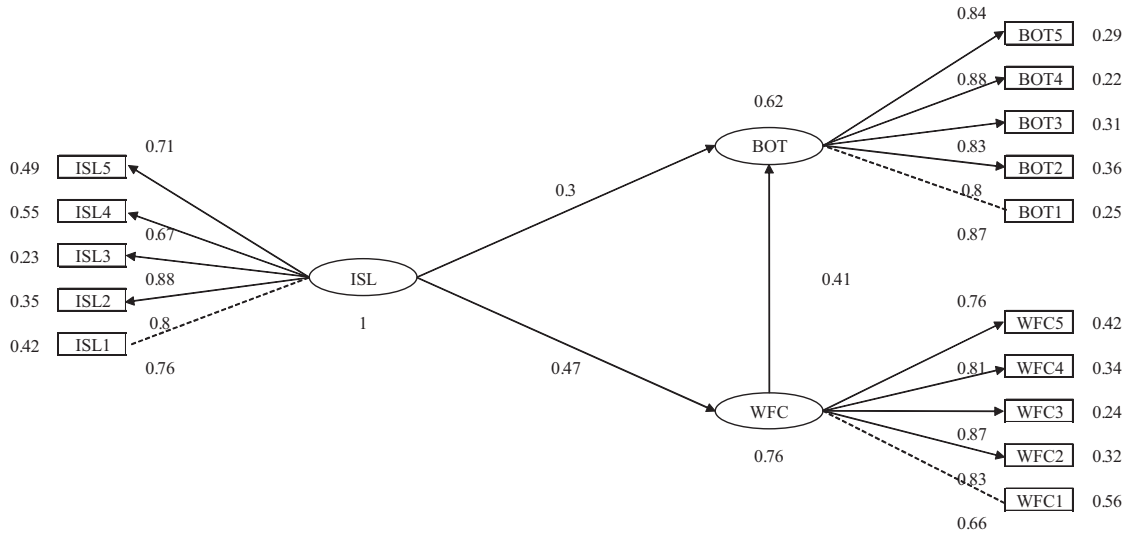

Figure 2 Structural model

As per Table 6, all estimated and standard coefficient of structural model were significant. Besides, in considering the value for coefficient of determination of the structural equation, it was found that the amount of variability of burnout was determined by work-family conflict and isolation by 38.1 percent and the amount of variability of burnout was determined by isolation by 22.4 percent.

The analysis of path coefficient results of direct effect, indirect effect and total effect of the model was portrayed in Table 7. All coefficients, both estimated and standard, were statistically significant. Path analysis R-square on burnout was 33.3 percent and path analysis R-square on work-family conflict was 18.9 percent. Indirect effect or mediation effect of work-family conflict on isolation and burnout was significant and direct effect of isolation on burnout was also significant. Moreover, the total effect of the model was significant. This indicated that work-family conflict had a partial mediating role in the relationship between isolation and burnout. Therefore, both research hypotheses were totally supported.

In accordance with the analysis result mention above, the confirmatory factor analysis was conducted and structural equation model with path analysis was developed and both were moderately fitted with empirical data. The unique selling point of this research was the context of the study derived from total samples of teleworking professionals. The study shed a light on a significant indirect effect or mediation role of work-family conflict on relationship between isolation and burnout and isolation significantly and directly led to burnout. This implied that isolation from teleworking not only led to burnout but was also mediated by work-family conflict. As it was hypothesized earlier, isolation and isolation together with work-family conflict led to burnout. These findings were interpreted the same way as previous study (Selvarajan, Singh, Cloninger, & Misra, 2019). Moreover, according to previous study, when employees felt satisfied in their job or career, there was a small chance that they felt burnout from their beloved job (Hoff, Carabetta, & Collinson, 2019). This study confirmed that even in the modern-day working environment where some kinds of employee were allowed to work from anywhere, burnout arising from isolation and high job demands from work affecting personal life could still lead to an exhaustion at work in accordance with previous study regarding moderated relationship between job burnout and organizational cynicism (Simha et al., 2014).

As aforementioned, isolation positively affected burnout and this relationship was mediated by work-family conflict. This portrayed that those negative predictors related directly to exhaustion at work of employee. Isolation problem could be remedied by work-related social support and managerial rapport although employees were working far away from team members via teleconference or conference call, for example. This would possibly make employees feel like they were still a part of a team and could maintain cohesion among them. For work-family conflict factor, flexible or on-demand working hour should be considered so as to allow employees to manage their work and life balance themselves.

Conclusion and Recommendation

In accordance with the proposed structural model mentioned in the previous section, it is obvious that isolation and work-family conflict are still the factors that

Table 6 Structural equation model

Structural Regressions	R^2	Estimate	Standard	*SE*	z-value	*p*
BOT	.381					
WFC		.545	.413	.076	7.221	.000***
ISL		.385	.303	.068	5.670	.000***
WFC	.224					
ISL		.454	.473	.057	7.97	.000***

Note: ***$p < .000$.

Table 7 Model paths analysis, direct effect, indirect effect and total effect

Model Paths Analysis	Estimate	Standard	*SE*	z-value	Lower CI	Upper CI
BOT on ISL	0.325	0.266	0.054	6.017	.219	.431
BOT on WFC	0.435	0.409	0.047	9.255	.343	.527
WFC on ISL	0.500	0.435	0.051	9.889	.401	.599
Direct Effect	0.326	0.266	0.054	6.071	.154	.281
Indirect Effect	0.217	0.178	0.032	6.757	.219	.431
Total Effect	0.543	0.444	0.053	10.159	.438	.648

affected burnout even in modern working practice like teleworking. Furthermore, burnout was said to be an unfavorable factor regarding employee work performance and led to health problems physically and mentally, and finally, created increased turnover rendering all staff training investment useless. According to paths analysis results, isolation had a significant direct effect on burnout; moreover, work-family conflict had a significant indirect effect on the relationship between isolation and burnout. This implies that it was not only isolation from teleworking practice that affected the level of burnout, but this also was mediated by work-family conflict stemming from high demands and challenges at work. As per previous studies (Cheng, Chang, & Chan, 2018), all these negative work-related factors, namely, isolation, work-family conflict and burnout once again were confirmed. There is remedy to these risks. The company should emphasize employee work-life balance aspect even in a teleworking environment to mitigate work-family conflict. Generally, when staff feel content about their job and career, they feel less burnout.

There are two major limitations in this study recommended for future research. Firstly, this research is quantitative. Future researches should use qualitative research or mixed explanatory research method as these can possibly delve deep down giving richer results with qualitative and quantitative procedures combined. Secondly, this research is cross-sectional. The result only yields a snap-shot of time. Future researches should be cohort or time-series to study these negative effects in the long run.

Conflict of Interest

There is no conflict of interest.

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