Original Article

A Path Model of Job Stress Using Thai Job Content Questionnaire (Thai-JCQ) among Thai Immigrant Employees at the Central Region of Thailand

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Abstract

Background: The aim of this study was to verify a path model of job stress using Thai-JCQ.

Methods: The population of this cross-sectional study was 800 immigrant employees in the central region of Thailand in 2015 by stratified random sampling. Instruments used both the applied and standard questionnaires. Job stress was measured using Thai-JCQ dealt with psychosocial work factors. A path model of job stress using Thai-JCQ was verified using M-plus.

Results: Variables could explain the job stress change by 22.2%. Working conditions, job securities, workloads had direct effect on job stress while, workloads had indirect effect as well. Wages did not have any significance.

Conclusion: The results of this study have implications for public health under occupational health research and practice by making public health and occupational health professionals aware of the importance a comprehensive approach to job stress prevention in the vulnerable population.

Keywords: Job stress, Thai job content questionnaire, Thai immigrant employees, Central region of Thailand

Introduction

In global era and resulting from ASEAN economic community (AEC)'s policy to induce rapid economic, social, and environmental changes. These changes led to the change of employee system, especially, Thai immigrant employees in Asia. AEC and Eastern Asia have an incremental trend of moving change of employees. It appears that the complexity of employment conditions increases (1). The characteristic of employees' movement among all employees in many countries has the employee, native as well as foreigners, moving within countries and between countries. The incremental employee movement increased from past became an important turning point in employees lifestyle. It is associated with working conditions, workloads, job insecurities, and wages. These resulted in stress to both immigrant employees, that is to say native and foreign immigrant employees within countries and between countries in AEC group (2).

Thailand is one of ASEAN countries within AEC. It still needs many employees like other ASEAN countries. Implementation of AEC's policy led to the incremental working's turning lifestyle among Asian professional employees from western countries to ASEAN countries (2), as the same times, the majority of Thai immigrant employees who are the major empowerment to drive Thai economic. They still need to work in Thailand.

Statistical data from National Statistical Office in 2014 found that Thai employees were stressed/ neurosis which were the third health problems in 2010 (56.42%), in 2011 (60.43%), and in 2011 (53.65 %). In 2011, mental and behavioral problems, and mental health problems were 62.35%, and 63.3%, respectively (3).

Job stress as social determinants of health and public health perspective explained about poverty, health inequality and inequity, discrimination, housing and environmental conditions, working conditions, which related to physical and mental health under public health working. This concept linked to working conditions so that characteristic of job /employment conditions became a pressure, and tensions bringing job stress. Previous researchers found that monopoly of capitalist government policy, rapid social network, high competitive labor market, workloads, differences job and environmental conditions were linked to different stress level among Thai farmers, and farm workers (4, 5), as the same for academic staffs in universities (6-8). Working conditions are a factor linked to health inequalities. Different job conditions and wages among female academic university employees were related to occupational stress (9), besides, Thai immigrant employees National Research Council of Thailand. The causes of occupational stress among native employees and immigrant employees in conclusion were workloads (10, 11), working conditions (12, 13), low wages (14, 15) and job insecurities (16). As a result, occupational stress led to sickness absence (17), turnover, atherosclerosis (18), hypertension, silicosis (19), lung cancer (4), stress at work and home (20), and health inequality (13, 21).

The hypothesis is an increment in hard working conditions, high workloads, low job securities, and low wages lead to job stress among Thai immigrant employees at the central region of Thailand.

Operational definitions of this research consisted of working conditions, workloads, job securities by using a 4-point Likert scale ranging from none (1) to (4) as the most, and job stress by using the Thai Job Content Questionnaire (Thai-JCQ) (22) which it applied from Karasek. Total items were 54 questions (6 domains). Working conditions were taken to be factors such as the exploitation of the employees by the employers, characteristic of occupation and environment at workplace had effect on job stress. Workloads were taken to be the controlling of job task/ products per hour or day, the consideration of the amount of working hours per day related to wage, the evaluation of job task in a period to collect data for promotion/ qualification, the control to determine how suitable is the job task. Job securities were taken to be employment conditions used for a short contracted, employment condition had effect to job insecurity, a long term for working, better working, turnover, got higher position. Wages were taken to be total income per month (baht=1 US dollar equaled to 36 baht). Immigrant employees referred to as Thai immigrant employees who worked in Phranakron Si Ayutthaya, Nonthaburi, and Bangkok provinces but previously lived in other provinces in the central region of Thailand including the other regions. They were not natives of these provinces.

The objective of this study was to verify a path model of job stress using Thai-JCQ.

Methods

The population of the cross-sectional study was Thai immigrant employees at the central region of Thailand in 2015. The sample size was estimated using the proportion formula of unknown population and M-plus guideline, with 95% confidence interval. Sample size calculated ≥384 populations. Thus, sample size consisted of 800 Thai immigrant employees to decrease proportional error. Inclusion criteria were made of Thai immigrant employees-aged >20 yr old and literates worked in Phranakhon Si Ayuthaya, Nonthaburi, and Bangkok provinces, which were 3 of 22 provinces in the central region of Thailand. These provinces had transitional phases of the social, economic, and high technological changes. Thai immigrant employees worked in the other

provinces in the central region of Thailand were excluded. Participants did not want to answer the questionnaire led to termination criteria.

Stratified random sampling was divided into two strata. First strata were grouped in 5 regions of Thailand by stratified random sampling. Then the central region of Thailand was selected by random sampling. Second strata had 22 provinces in the central region of Thailand. Phranakhon Si Ayutthaya, Nonthaburi, and Bangkok provinces were selected by random sampling from these 22 provinces. Therefore, Thai immigrant employees in this study totaled 800 cases worked in 3 provinces mentioned above.

Research instruments used both the applied (20 closed items) and standard (54 closed items) questionnaires. The applied questionnaires were divided to two parts. First part about individual data comprised 6 questions. Second part about path model of job stress contained 4 variables (working conditions, workloads, job securities, and wages). Working conditions consisted of 3 items (the exploitation of employee by the employer, characteristic of occupation had effect on job stress, job environment at workplace had effect on job stress). Workloads contained 4 items (the controlling of job task/ amount per hour or day, the consideration of the outcome per day related to wage, the control of job task in a period to collect data for standard, the evaluation of job task for its suitability). Job securities consisted of 6 items (employment condition used a short contracted employment, employment condition had effect on job insecurity, a long-term for working, better employment, turnover, got higher position). These items were replied using a 4-point Likert-type of scale ranging from none (code as 1) to most (code as 4). Although, wage variable was answered using code as 1 (≤ 5,000 baht), 2 (5,001-10,000 baht), 3 (10,001-15,000 baht), 4 (15,001-20,000 baht), 5 (20,001-25,000 baht), 6 (25,001-30,000 baht), 7 (30,001-35,000 baht), 8 (35,001-40,000 baht), 9 (40,001-45,000 baht), 10 (45,001-50,000 baht), and 11(> 50,000 baht). Third part of standard questionnaire by using Thai-JCQ dealt with psychosocial work factors. This questionnaire was translated into Thai with minor modifications to assess 6 major Thai-JCQ scales. Job control, psychological job demand, physical job demand, job security, social support, and hazard/ risks at work scales were measured by 11 (e.g. develop own abilities, learn new things), 12 (e.g. work hard, enough time), 6 (conflicting demand, financial risk), 5 (e.g. q32 : do your work annual year?, q33: you were faced with unemployment at last year, q34: you will become an unemployed person because of your employer in the next 2 yr), 8 (e.g. supervisor is concerned, supervisor pays attention, coworkers friendly) , and 12 items (e.g. equipment hazard, loud noise, occupational infection), respectively. For each item, the answer was recorded on a 4-point Likert-type scale, ranging from 1 (strongly disagree), 2 (disagree), 3 (agree), to 4 (strongly agree) except q 32-34. For q32, the answer was recorded on a 4-point Likert-type scale, ranging from 1 (No, I am still an employee and sometimes lay off), 2 (No, I am always laid off), 3 (No, I worked sometimes), 4 (I had worked in every year). For q33, the response was recorded ranging from 1 (I was unemployed person /laid off last year), 2 (always), 3 (sometimes), to 4 (none). For q34, the answer was recorded on a 4-point Likert-type scale, ranging from 1 (high), 2 (sometimes), 3 (seldom), to 4 (none). A sum of weighted item scores was calculated for each scale (44). Total Thai-JCQ score had slightly stress (code as 1=0-60 scores), moderate stress (code as 2=60-80 scores), and high stress (code as 3=>80 scores).

The Cronbach's alpha coefficient for working conditions, workloads, job securities, wages, and job stress was 0.85, 0.82, 0.81, 0.81, and 0.82, respectively.

The content and construct validity of instruments were verified by five professors. Reliability was checked by pre-test and post-test reliability that the reliability of predictor variables and job stress were 0.82 by SPSS program.

Researchers introduced and asked to distribute questionnaires to Thai immigrant employees during a rest hour. Permission to conduct the study was obtained from each Thai immigrant em-

ployees. All study participants expressed the informed consent. A total of 800 study participants returned completed questionnaires within closed box.

The general data were analyzed by frequencies and percentages. Data for variables were analyzed by minimum, maximum, means, standard derivations (SD.), and medium using the SPSS program. A path model of job stress using Thai-JCQ was verified to analyze R square including measure the goodness of fit of the path model and to establish the direct and indirect effect among the variables measuring job stress. Rule for test of model fit of the path model for population (>250 cases) and observed variables <12 was accepta-

ble, with a chi-square and degree of freedom ≠ 0, $P > 0.05$, CFI (Comparative Fit Index) >0.95, RMSEA (Root Mean Square Error of Approximation) <0.07, SRMR (Standardized Root-Mean-Square Residual) <0.05.

Results

The general demographic characteristics of the participants are showed in Table 1. The minimum, maximum, means, standard derivations (SD.), and medium of wages, job securities, workloads, work conditions, and job stress among participants are displayed in Table 2.

Table 1: Frequency and percent among Thai immigrant employees at the central region of Thailand

Data	Frequency	Percent
Province at workplace: Nonthaburi province	250	31.25
: Phranakron Si Ayutthaya province	50	6.25
: Bangkok	500	62.50
Sex : Female	400	50.00
: Male	400	50.00
Age (yr) :20-29	144	18.10
: 30-39	169	21.10
: 40-49	276	34.50
: 50-59	122	15.30
: > 60	89	11.10
Educational level : Primary school	68	8.50
: Secondary school	219	27.40
: Bachelor degree	318	39.80
: Master degree	151	18.90
: Doctoral degree	44	5.50
Occupation : Civil servant	105	13.10
: Employee university	173	21.60
: State enterprise employee	93	11.60
: Government employee	90	11.30
: Permanent employee	163	20.40
: Temporary employee	176	22.00

Table 2: General statistic data among Thai immigrant employees at the central region of Thailand (n= 800)

Variable	Mean	SD.	Minimum	Maximum
Job securities	2.847 (more)	1.034	1 (none)	4 (most)
Wages (baht per month)	5.327 (20,001-25,000)	2.679	1 (≥5,000)	10 (45,001-50,000)
Workloads	2.678 (more)	1.135	1 (none)	4 (most)
Working conditions	2.906 (more)	1.063	1 (none)	4 (most)
Job stress	2.265 (moderate)	0.806	1 (slightly)	3 (stress)

Based on the goodness of fit indices among Thai immigrant employees at the central region of Thailand, the model showed a close fit. R-square or percent of variance explained, by job stress, job securities, and wages. The model fit of the path model of job stress using Thai-JCQ among Thai immigrant employees at the central region of Thailand was acceptable, with a chi-square of 0.018 (degree of freedom=1, *P* =0.8932), a CFT of 1.000, a TLI of 1.027, an RMSEA of 0.000, a SRMR of 0.001. These variables could explain the job stress change by 22.2% (R square=0.222, *P*<0.01). A path model showed a mediating effect of wages, job securities on the relationship between working conditions and job stress includ-

ing the relationship between workloads and job stress (Fig. 1).

Indirect of the variables on job stress among Thai immigrant employees at the central region of Thailand found that both working conditions and workloads had direct effects on job stress, with standardized regression weights of 0.273 and 0.259 (*P* <0.01). Job securities had direct effect on job stress, with standardized regression weight of 0.076 (*P*<0.05). Besides, workloads had indirect effect on job stress, with standardized regression weight of 0.031 (*P*<0.05). Workloads had direct effect on job securities, with standardized regression weight of 0.403 (*P*<0.01) (Fig. 1).
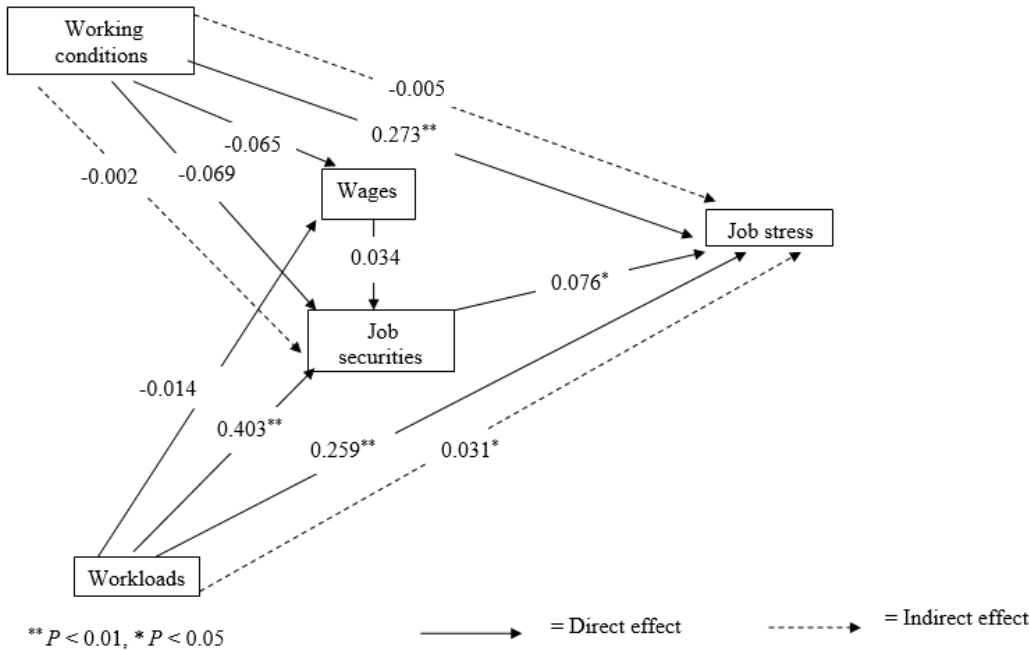

Fig. 1: A path model of job stress using Thai-JCQ among Thai immigrant employees at the central region of Thailand (N= 800)

Discussion

This study was conducted as an initiated step for developing community-based interventions with coping management, health policy toward the economic competition in ASEAN Community for preventing job stress among Thai immigrant employees in the central region of Thailand. As suggested in previous studies, migrant employees

in Korea comprise a vulnerable population with the relationship between job stress and depressive symptoms (23). Additionally, a study found that work-related psychosocial factors are salient facts that led to depression through acculturative stress among Korean-Chinese immigrant employees living in Korea (24). In current study the job stress changed by 22.2%. Job stress led to adverse health behaviors and certain health prob-

lems. Additionally, job stress has been displayed to be a predictor of poor health and mental health status (11, 13, 18). Job stress is also known to decrease job performance, increase absenteeism, high turnover, and job confliction (25).

Moreover, AEC in global era had effect to change as a signal of economic crisis, society, and environment such as complexity employment conditions due to job stress. These turning points to opening up to AEC led into to driving both international and national immigrant employees' movement (2).

According to the occupational health theory of psychosocial dimension, this links to job stress. It had many causal factors related to job stress (e.g. poor form working conditions, workloads, low wages, characteristic of each occupation, high job responsibility, confliction, and relationship (26-28). Job conditions, workloads, wages, job securities were found to be a significant contributor to job stress for the immigrant employee.

In this study, Thai immigrant employees in the central region of Thailand were found to be more likely to experience job stress. In previous studies, immigrant employees in Ghana expressed job stress due to work overload, job insecurity, as same as immigrant employees in Spain (11, 18). While poor working conditions are a causal relationship between job stress. They are associated with health inequity (13). In a study, working conditions among female immigrant employees became an important factor due to physical and mental health (12, 14). Besides, low wages among immigrant employees in Spain also lead into pressure and job stress (14), as the same as, stress among Thai university employees it found that job & environmental condition, and wages inequality were the exogenous causal factors. They had direct effect on stress among Thai university employees (29), including female academic university employee (9). A study about the relationship between psychosocial dimension among immigrant employees and mental health, found that job securities and psychosocial demand became factors due to job stress (16).

In the path model, variables were found to mediate the relationship between job securities and

job stress. For example, Thai immigrant employees in the central region of Thailand treated differently under employment pressures contracted, high turnover, long-term for working period, slow/little advance in job position, high quantitative demand, and emotional demand were perceived due to their job insecurities.

In fact, Thai immigrant employees who felt nervous about job stress hesitated to ask to relocate multiple questions job securities requested at a time. In addition, the exploitation of employers, career's characteristic, job environment under working conditions, over workloads, and low wages among Thai immigrant employees may intensely be absorbed by their job stress. There are all examples indicating moderate level of job stress. These results are consistent with some previous studies that found that majority of immigrant employees had job stress (28, 30), and anxiety (24-27).

Today, immigrant employees are affected by both acculturative and work-related psychosocial stress from workplace. This study is the first to investigate path model of job stress using Thai- JCQ among Thai immigrant employees in the central region of Thailand toward AEC's policy. Our findings suggest that working conditions and workloads affect job stress in particular through the influence of wages, and job securities, which are the main concerns of this study. Working conditions had direct effect on job stress. Information about the mediating effects of job stress may be emphasized in other studies and interventions targeting components of the stress process from working conditions that may affect mental health of immigrant employees.

Strength of this study was job stress instrument. It was applied using Thai-JCQ appropriates for the target Thai population because it was to express the specific and standard job stress measurement more than general stress measurement for clarification among Thai immigrant employees. The benefit of this study can be applied to create health policy with government to decrease health disaster expenditure and the risk of preventing mental health problems.

There had been several limitations of this study. Firstly, the data collection did not separate for comparisons between the groups of Thai immigrant employees who had home address without three provinces' selected and the groups of them who had home address within three provinces but worked within three provinces. Data collection focused on only addresses for workplace. They should be compared between those groups. Secondly, it lacked a causal factor about distance between home address and work address among Thai immigrant employees in Thailand because this factor had negative direct effect on mental health from previous researches (30) that still studied or precisely it should be reexamined/revisited. However, it may have had effect on job stress investigated for increasing causal factor in path model. Finally, this research focused on quantitative study that some data, may be, did not enough to discuss. It also should be adjusted to increase qualitative method or combine methods or SEM and extent enormous area for the next research.

Conclusion

Working conditions had the most direct effect on occupational stress. In line with previous studies, a significant relationship between job stress was observed, and the mediating effect of some variables was also supported. The results have implications for public health under occupational health research and practice by making public health and occupational health professionals aware of the importance of a comprehensive approach to job stress prevention in the vulnerable population toward AEC's policy.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors. The research protocol was approved by The Committee for Research Ethics, Mahidol University, Thailand (No. 2015/174.1905), and Thai Clinical Trials Registry (TCTR20150531001).

Acknowledgements

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