

Stress Among Thai Farm Workers Under Globalization: A Causal Model

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ABSTRACT

This objective study was carried out to discover and model the causal relationships between globalization and stress. The study used a simple random sampling of 600 Thai farm workers. The variables measured were general demographic variables, globalization (i.e. transnational corporations, transnational practices and transnational economics), land holding, the Thai market, Thai state regulation, Thai state social protection and a self-analysed and self-evaluated stress test (SSST). The instrument was modified from the instrument used in past studies. The items were answered using a 4-point Likert-type of scale. However, SSST is a standardised instrument used in Thailand. It was developed by the Department of Mental Health, Ministry of Public Health, Thailand. This instrument was employed to evaluate the respondents' levels of stress. It was assessed based on 20 items. Its scores were interpreted by stress level and points. It was found to have a Cronbach's Alpha reliability coefficient of 0.91. Validity was verified by content and construct validity was done by questionnaire. These materials were sent to five professors in order to verify content and construct validity. Reliability was proofed by test-retest reliability. The reliability was

0.94. Data were analysed using the M plus path modelling software i.e. indirect and direct relationships. The results showed direct relationship between stress and globalization i.e. transnational corporations and transnational economics. The modelling revealed that globalization i.e. transnational corporations and transnational economics

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had a direct effect on farm worker stress, and transnational practices showed weak associations among Thai state regulation, Thai state social protection, Thai market, land holding and technology variables and their effects upon stress by indirect effect. The authors recommend that these issues should be studied further to confirm the validity of this relationship.

Keywords: globalization, stress, Thai farm workers, a causal model, Thailand

INTRODUCTION

Globalization, or global capitalism, is a fundamental structural dynamic in the twenty-first century that is pervasive throughout the world, and driven by socio-economic, cultural, political, technological and biological factors (Robinson, 2004; Rosenau, 2003; Sklair, 2002).

The effects of globalization on health follow complex pathways, including changes in the economic growth and distribution of national income, economic instabilities, the partial presence or complete absence of access to the resources needed to support physical and mental health (Chiengkul, 2008; Mustard, 2004; Wilkinson *et al.*, 2003).

LITERATURE REVIEWS

The potential for globalization processes to effect negatively health outcomes both physical and psychological for different population groups in Thailand, notably rural agricultural workers, led to such workers

being one of six occupational groups for which the Thai government began mapping social protection strategies in 2007 (National Economic and Social development Board, 2004) to track the increase in stress through changes in the workplace (Aoki *et al.*, 2010; Department of Mental Health in the Ministry of Public health, 2003; Moustaka, 2010; Muntaner *et al.*, 2010; Ragins *et al.*, 2007; Vischer, 2007; Sukprasert *et al.*, 2003). In Thailand in 2008, workers in the non-formal sector accounted for 63.8% of the employed workers (Institute of Population and Social Research, 2009). Agricultural workers also accounted for the highest percentage (57.5%) of all workers; the next largest groups were workers in service industries, elementary occupations and the craft industry. There are three categories of workers in the agricultural sector: independent workers, contract farmers and casual laborers. A 2005 study (Social Security Office, 2005) revealed that more than 30% of agricultural workers were in debt. The amount of debt among agricultural workers increased significantly as compared to the level of household debt among workers in general.

In 2008-2009 in Thailand, a survey of approximately 52,000 participants reported major mental health problems in the country. The results showed that one fifth of the study participants reported the highest levels of stress, especially participants from the Central Region of Thailand (Chumratrithirong *et al.*, 2010). Thai farmers generally suffer many disadvantages in their lives such as a heavy debt load and a

decrease in their landholdings, to which the encroachment of international capitalism and state policies have contributed.

From previous research in other occupations it has been found that in general a factor of stress consists of: (i) the person and environment (Veldhoven *et al.*, 2002), (ii) expectation and intention (Ertel *et al.*, 2005; Johnston *et al.*, 2006; Isabelle *et al.*, 2005; Grzywacz *et al.*, 2009) and (iii) organisation of work and person (Hansez *et al.*, 2008; Ibrahim *et al.*, 2009; McClenahan *et al.*, 2007; Moustaka *et al.*, 2010). In addition, previous research among farmers found that the main factors of stress in general were a heavy debt load, environment change and a decline in number of landholders (Social Security Office, 2005). An important previous study among 200 Thai contract farmers under globalization in 2012 found that globalization had a direct effect on psychosocial stress (Kaewanuchit *et al.*, 2012).

The Operational Definitions of this Research

The operational definitions of this research consisted of globalization (e.g. transnational corporations, transnational practices and transnational economics), state regulations, state social protection, Thai market, technology, land holding and stress. Globalization means global capitalism or the global capitalist system that drives social, political, economic and cultural-ideological processes worldwide. It is composed of transnational corporations, a transnational capitalist class, transnational

practices and transnational economics. Transnational corporations are the multinational organisation and the Thai capitalist, who have increasing control over the working conditions of Thai farmers, possessing the means of production and the labour process. Transnational practices are the culture-ideology of consumption in the world capitalist system through the mass media. Transnational economics were the investment about agriculture in government and Thai farmers through economic rules (e.g. IMF, State regulation associated with FTA policy). State social protection is related to occupational insurance (e.g. a good price for insurance). The Thai market consists of the prices and profits of agricultural products resulting from fierce competitive markets in Thailand. Land holding was the size of land holding (in square metres). Technology is associated with water used for cultivation and the foreign technology used to help cultivate planning and conduct artificial rain management for the governmental sector. Stress is the result from psychosomatic symptoms related to stress.

Hypothesis for this Research

The working hypothesis for this research was that the decrease in the number of landholders, the increased control of scientific management, the incremental integration of local and global markets for the trading of goods affecting the price and profit of agriculture goods, and the negative feedback of state regulations and state social protection under globalization, for instance transnational corporations, transnational

practices and transnational economics, have all led to stress among Thai farm workers.

Concepts Used in this Research

For this research, we chose a political economy focused on the occupational health perspective to examine the causal relationship between globalization (e.g. transnational corporations, transnational practices and transnational economics) and stress among Thai farm workers.

METHODOLOGY

Research Setting and Participants

This study was a survey of 600 Thai farm workers who were in transition from an existing production system to a new one. The participants were from different sub-district locations in Nakhon Pathom Province in the central Thailand.

Research Sampling Method and the Sample Size

The sampling method was simple random sampling. The sample frame population did not differ; all members of the population had an equal chance of being picked. The sample size was calculated by Taro Yamane formulations. This calculation showed that the sample sizes should be 397 cases at a 95% confidence level. In this research, the total sample size was 600 cases.

Research Instruments

Perceived stress among Thai farm workers was measured using the Self-analysed &

Self-evaluated Stress Test (SSST), which is a standardised instrument in Thailand. It was developed by the Department of Mental Health, Ministry of Public Health, Thailand (Department of Mental Health in the Ministry of Public Health, 2008). This instrument was employed to evaluate the respondents' levels of stress. Level of stress was assessed based on 20 items i.e. can't sleep because of worry or anxiety; feeling annoyed or irritated; feeling too tense to do anything; confused; avoid meeting people; having migraine or headache; feeling sad and blue; feeling hopeless; feeling useless; being nervous most of the time; can't concentrate; feeling so exhausted that you can't do anything; feeling too bored to do anything; having strong and fast heartbeat; having trembling voice; twisted lips and shaking hands when feeling angry; too concerned about making mistakes when doing something; feeling pain or tension in the back, shoulder or back part of the head; feeling nervous when facing unfamiliar situation; feeling dull or dizzy; and feeling less aroused by sex. The items were answered using a 4-point Likert scale (0 = never, 1 = sometimes, 2 = often and 3 = regular). The scores of SSST were interpreted by stress level and points. These were divided into five levels: 0-5 points (less stress than a normal level), 6-17 points (stressed at a normal level), 18-25 points (moderate level of stress), 26-29 points (high level of stress) and over 30 points (severe stress). The SSST was found to have a Cronbach's Alpha reliability coefficient of 0.91.

The general demographic instrument was based on 17 questions i.e. sub-district; age; status; number of children; education; ownership of a house; selling land; income in 2000; income in 2010; family expenditure; healthy; mental illness; physical illness; treatment with drugstore; the amount of land holding in 2000; the amount of land holding in 2010; and stress score. This level of measurement was nominal, ordinal and interval scales.

Globalization e.g. transnational corporation, transnational practices and transnational economics, land holding, technology, Thai market and state regulation and state social protection instruments were modified from the instrument used in past studies (Chiengkul, 2008; Kaewanuchit *et al.*, 2012).

The globalization instrument was divided into three variables i.e. transnational corporations, transnational practices and transnational economics.

The transnational corporation variable was based on four dimensions: (1) the dimension of multinational organisation i.e. the combined investment of multinational corporations and Thai capitalists that created many agri-businesses in your region in 2000-2010, (2) the dimension of controlling i.e. the combined investment of multi-national corporations and Thai capitalists that created many agri-businesses in your region in 2000-2010 and your produced agro-products to supply orders from multinational companies in 2000-2010, (3) the dimension of the possession's means of production i.e. as an owner you

feel your production decreased by a large amount in 2000-2010, (4) the dimension of labour process i.e. nominee companies of multinational corporations in Thailand employed agricultural professionals that taught how to produce your products so as to satisfy local and global markets in 2000-2010; multi-national corporations in Thailand cared more about new agricultural products, their quality and freshness than about farmers standard of living and quality of life; increased labour processes to produce agricultural goods resulted in job stress in 2000-2010; you have been responsible for many agricultural jobs in order to send your product to the competition in free market.

Transnational practices were related to the dimension of ideology of cultural consumption through media i.e. the government supported nominee companies of multinational corporations in Thailand through advertisements of agricultural tools and goods in 2000-2010; you tried to find money to buy foreign agricultural through the media in 2000-2010; government officials used media to influence you to buy modern agricultural tools from abroad during 2000-2010.

The transnational economics variable was based on two items i.e. you worked and earned money to repay foreign financial institution and/or other capitalist both government and private section in 2000-2010; foreign agricultural products sold in Thailand in 2000-2010 resulted in reduced production for you and indebtedness to national and intentional financial institutions. These items were answered using a 4-point

Likert-type of scale of none, coded as 1, less (2), moderate (3) and most (4). The items of transnational corporations, transnational practices and transnational economics were summed together in each variable to form an additive index that had Cronbach's Alpha reliability coefficients of 0.93, 0.88 and 0.89, respectively.

The state regulation instrument was based on three items i.e. you felt job stress when you were controlled by Thai government regulation; FTA policy, in the period of 2000-2010; how much have free trade agreements in Thailand increased the influence of trade corporations over your own work in the period of 2000-2010?; has this influence been positive or negative for you in period of 2000-2010?. These items were answered using a 4-point Likert-type of scale. The items of state regulation were summed together in each variable to form an additive index that had a Cronbach's Alpha reliability coefficient of 0.95.

State social protection was based on two items i.e. you feel that the agricultural bank of the Thai government could not help your farming from free trade agreement policies in 2000-2010; you felt job stress when you were controlled by Thai government regulation; FTA policy, in the period of 2000-2010. These items were answered using a 4-point Likert-type of scale of none (coded as 1), less (2), moderate (3) and most (4). The items of state social protection were summed together to form an additive index that had a Cronbach's Alpha reliability coefficient of 0.80.

Thai market was based on two items i.e. nominee companies of multinational companies in Thailand controlled prices to decrease prices for your agricultural products in 2000-2010; nominee companies of multinational corporations in Thailand, including Thai foreign capitalists, controlled prices when buying and selling outputs and inputs with you, and hence influenced profits. These items were answered using a 4-point Likert-type of scale of none (coded as 1), less (2), moderate (3) and most (4). The items of Thai market were summed together in each variable to form an additive index that had a Cronbach's Alpha reliability coefficient of 0.89.

The technology instrument was based on three items i.e. you feel that during 2000-2010 you were so busy with your agricultural work that you didn't have time to eat; you will plan cultivation differently in the future; you feel stressed because of the control of water (damp, artificial rain, and water conservation); and technological management systems provided by the private and government sectors for agricultural production in 2000-2010. These items were answered using a 4-point Likert-type of scale of none (coded as 1), less (2), moderate (3) and most (4). The items of technology were summed together to form an additive index that had a Cronbach's Alpha reliability coefficient of 0.95.

The land holding instrument was based on the number of land holdings (square metres). It was found to have a Cronbach's Alpha reliability coefficient of 0.82.

DATA COLLECTION PROCEDURE

Validity was verified by content and construct validity. The materials of this research were questionnaires about general data and stress of Thai farm workers under globalization. These materials were sent to five professors in order to verify content and construct validity. Reliability was proofed by test-retest reliability. Then, questionnaires were estimated for reliability of no less than 0.8 by SPSS/PC+ for Windows. The results were analysed in order to improve the tools. It was found that respondents understood every question, and the reliability was 0.94. Then, trained health volunteers of each sub-district in Phutthamonthon district, Nakhon Pathom Province, helped to collect the data through the process of teaching and approaching respondents, explaining about the questionnaires and giving consent forms to respondents. After that, the researcher/health volunteers gave questionnaires to respondents and asked them to return the questionnaires on the appointed date. The questionnaires were collected in a box that the researcher and health volunteers had prepared for the respondents.

DATA ANALYSIS

The data were analysed by minimum, maximum, percentages, means and standard derivations using the SPSS programme. The relationships of stress among Thai farm workers under globalization were verified by Path analysis using the M plus programme (version 5.2). Lists of indices for measurement of fit of the Path model in the M plus programme were Chi-square,

while degree of freedom $\neq 0$, p-value > 0.05 , the Comparative Fit Index (CFI) > 0.95 , Root Mean Square Error of Approximation (RMSEA) < 0.08 , and Standardised Root-Mean-Square Residual (SRMR) < 0.05 .

RESULTS

The respondents comprising 600 Thai farm workers completed all the questions in the questionnaire. Their demographic results are shown in Table 1.

As shown in Table 2, the age distribution was positively skewed (0.5). This meant that there was a higher proportion of younger farm workers in the sample and it also had negative kurtosis (-0.4). The means and standard deviations for the amount of land holdings in 2000 and 2010 were represented that they occurred from a downward slide for land ownership. Both distributions i.e. land holding in 2000 and 2010 showed positive skewedness (0.40 and 1.98). Kurtosis for land holding in 2000 and in 2010 was -1.17 and 4.37, respectively. It indicated a high proportion of the landless and dispossessed. The mean and standard deviation for the stress score variable was 28.17 ± 0.99 . Twenty-six and 29 points were the minimum and maximum for the stress scores among farm workers, respectively. Both the skewedness and kurtosis of the distribution of stress scores were negative: -0.97 and -0.19, respectively. It indicated a very high preponderance of high stress scores.

It was found that the means and standard deviations for the amount of land holdings among Thai farm workers had decreased

Table 1
General Demographic Results Among Thai Farm Workers (N=600)

Background	%
Subdistrict : Salaya	52
Status: Marital status	74
Number of children: Two	52.5
Education: Pre-high school	33.5
Ownership of a house: Rented house	73
Selling land	73.5
Income in 2000: 50,000-100,000 baht/ year	59
Income in 2010: 50,000-100,000 baht/ year	82.5
Family Expenditure: high	79
Healthy: poor	65
Mental illness: Anxiety and stress	73.5
Physical illness: Hypertension and diabetes mellitus	68
Treatment with drugstore	46

Table 2
Descriptive Statistics Of Measures Among Thai Farm Workers (N= 600)

Variable	Minimum (Min.)	Maximum (Max.)	Mean (M)	Standard derivations (S.D.)	Skewedness	Kurtosis
1. Age	30	60	43.99	5.3	0.5	-0.4
2. The amount of land holding in 2000 (square meters)	0	32,000	9600.36	9608	0.4	-1.17
3. The amount of land holding in 2010 (square metres)	0	16,000	1628	3201.24	1.98	4.37
4. Stress score	26	29	28.17	0.99	-0.97	-0.19

by -6401.56 square metres \pm 6401. The results showed that some of the postulated relationships were significant at the $p < 0.01$ and $p < 0.05$ level (two-tailed t-tests), although there was no significant difference in reported stress level. The most significant relationship was between the technology variable under job environment, with the transnational economics variable under

globalization ($r = 0.67$, $p < 0.01$). The least significant relationship was between the technology variable under job environment, with the state social protection variable under Thai state policies ($r = 0.20$, $p < 0.01$).

Based on the goodness of fit indices among Thai farm workers, the model showed a close fit. R square, or percent of variance explained, by the market, state

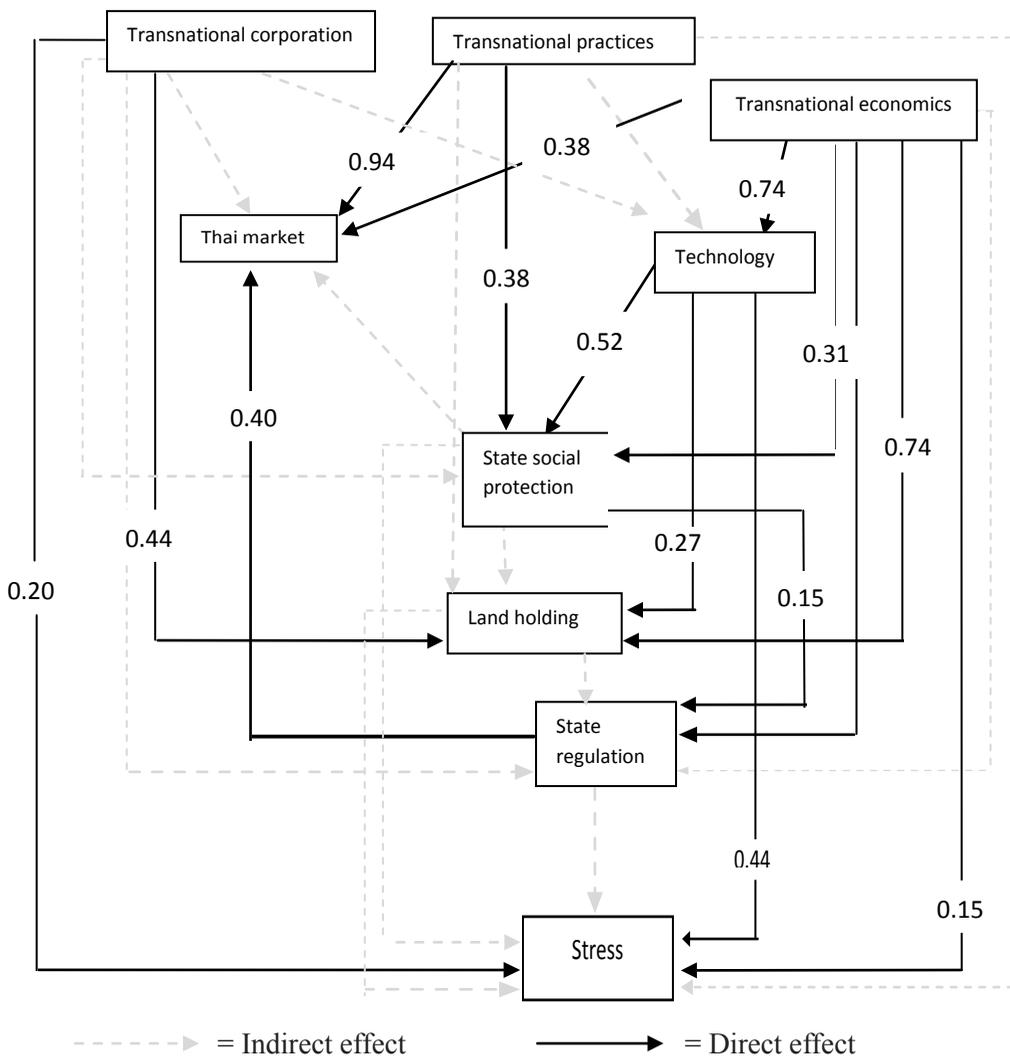


Fig. 1: Path model of stress among Thai farm workers (N= 600).

regulation, state protection, land holding and technology variables were 0.71, 0.22, 0.26, 0.33 and 0.44, respectively ($p < 0.05$), but R square for the stress variable was significant at $p < 0.05$ ($r = 0.17$).

The results of standardised direct, indirect and total effects of the variables on stress among Thai farm workers found that both state social protection and technology had direct effects on state

regulation, with standardised regression weights of 0.15 and 0.44. Globalization (e.g. transnational practices and transnational economics variables) and technology had direct effects on state social protection, with standardised regression weights of 0.38, 0.31 and 0.52. Transnational practices, transnational economics and technology showed standardised total effects (0.44, -0.44 and 0.27, respectively)

on land holding. Transnational economics had a direct effect on technology with a standardised regression weight of 0.74. Finally, transnational corporation and transnational economics had direct effect on stress with a standardised regression weight of 0.2 and 0.15, respectively. These results are displayed with the path coefficients for the relationships in Fig.1.

FINDINGS AND DISCUSSION

Our hypothesised model displayed a positive feedback relationship between globalization and variables affecting Thai farm workers. This means that transnational corporations and transnational economics had a positive effect on stress (Fig.1). However, the state social protection variable and the land holding variable both had indirect effects on the stress. But land is the important natural resource for Thai farmers. In the past, Thai farm workers had a lot of land. At present, Thai farm workers are selling land to the capitalist class, so that their land holdings have decreased. This has had an influence on stress (Table 1 and 2). This research found that 75% of the respondents had poor health and it appears that stress is the most frequent illness.

The study also confirmed that there had been an influence on stress resulting from the change of employee's conditions (market, land holding, technology, state regulation and state social protection) under globalization (transnational corporations, transnational practices and transnational economics) through questions about exploitation, pressure and dehumanisation,

indirectly (i.e. nominee companies of multinational corporations in Thailand employed agricultural professionals that taught how to produce your products so as to satisfy local and global markets in 2000-2010; you have been responsible for many agricultural jobs in order to send your product to the competition in free market; you tried to find money to buy foreign agricultural through the media in 2000-2010; government officials used media to influence you to buy modern agricultural tools from abroad during 2000-2010; the combined investment of multi-national corporations and Thai capitalists created many agri-businesses in your region in 2000-2010; you produced agro-products to supply orders from multinational companies in 2000-2010; foreign agricultural products sold in Thailand in 2000-2010 resulted in reduced production for you and indebtedness to national and intentional financial institutions). This is consistent with the findings of previous studies (Chiengkul, 2008; Goodman *et al.*, 2010).

The survey results from the questionnaire showed that among this sample of Thai farm workers, there was some degree of exploitation. The Thai state, in turn, has been a supporter of both the capitalist class and the farm workers, although it has been helping the capitalist class more than the farm workers. It appears that the intentions of the Thai government to promote the welfare of the wealthiest class in Thailand are indirectly associated with the exploitation, pressure and dehumanisation felt by the farm workers, and therefore

can be linked indirectly to stress. This is consistent with the findings of previous studies (Kaewanuchit *et al.*, 2012; Nirathron *et al.*, 2010). These results confirmed that globalization (e.g. transnational corporations and transnational economics) had been an influence on stress. But transnational practices, which were associated with mass media, had not had a direct effect on stress. This is inconsistent with the findings of the previous study (Chiengkul, 2008) that described globalization (e.g. transnational corporation, transnational practices and transnational economics) as being able to increase stress through changes among Thai farmers in the workplace.

According to the Political Economics perspective based on occupational health, production in a capitalist system is for the maximisation of profits (Navarro *et al.*, 2004). In the case of the farm workers in this study, that is reflected in the use of expensive technology to speed up production. This and other changes in the factors of production have created stress. The results of this research and previous studies have clearly indicated that the increasing power and reach of the transnational corporations to maximise profits have given rise to stress (Hawkes *et al.*, 2010).

In this study (Fig.1), a direct link was not found between Thai state regulation and Thai state social protection and stress. This also applied to higher profits from the Thai labour market, which derives from work between the capitalist class and contract farmers. These results indicate that farm workers did not get

an advantage from their cultivation and Thai state regulation, and that state social protection has not sincerely helped them by following a political economy based on the occupational health perspective. The state supported both the capitalist class and the farm workers. However, the state is a part of the capitalist class in Thailand. Thus, it seems to have helped the capitalist class more than the farm workers. From the research questionnaire it was found that the exploitation, pressure and dehumanisation from the capitalist class, state and mode of production with contract farmers are in part linked indirectly to stress, according to the previous studies (Chiengkul, 2008; Nirathron & Chamkajang, 2010; Sally, 2007).

Several limitations apply to this study, which are as follows: (i) It associates psychological and physical stress with the stress measurement employed in the SSST of the Department of Mental Health, Ministry of Public Health, Thailand. The level of reported stress was remarkably high in this sample (Department of Mental Health in the Ministry of Public Health, 2008), and the stress measurement instrument did not include variables related to society under globalization. The suggestion to overcome this limitation should be to adapt the contents and specifically to customise the stress measure to capture better stressors associated with globalization. (ii) It is not possible to assess exactly how representative this sample of Thai farm workers is of a larger population of Thai farm workers, and whether it would be appropriate to

generalise among all farm workers in the same province, the Central Region, or even Thailand as a whole. The suggestion for overcoming this limitation should be to add to the number represented in the sample frame of the population, and perhaps employ the expertise of demographers to develop a stratified, random sample with demographic characteristics matching the region. (iii) Some questions were asked with a level of complexity that was likely too difficult for the Thai farm workers to understand, especially the questions related to globalization. The Thai farm workers have a relatively low level of education, and some of the questions used very formal language. In addition, the Thai farm workers did not have the opportunity to ask for clarification or receive feedback when completing the questionnaire.

The main strength of this study included a strong comprehensive conceptualisation that focused on a causal model linking globalization to stress among Thai farm workers. It dealt with globalization at a macro level and stress at a micro level. The major recommendation is for the Thai government to further the prevention of stress among Thai farm workers by developing a new social protection policy in order to have social health equality. To follow up after this study, the authors suggest further investigation as: (i) a study should be conducted to compare the differences between different farmer groups to find out whether there are similar or different levels of stress and other indicators of poor

mental health among other occupations in Thailand, as well as other Southeast Asian countries under the same globalization, state, market and job environments. (ii) A cohort study should be done to compare the accuracy of the results that is confirmed by a qualitative study. (iii) Further research will require the development of alternative strategies for validating measures of stress among farmers and farm workers under globalization. (iv) Stress due to other factors (e.g. individual factors, family factors, societal factors such as drug use, etc.) should be obtained to better explain and to find out the relative importance of risk factors, stress in workplace under globalization and daily life in other populations.

CONCLUSION

The study showed that globalization (i.e. transnational corporations and transnational economics) had a direct effect on stress, according to the M plus programme. The other variables revealed a weak association with stress, through the theoretical factors of exploitation, economic pressure and dehumanisation by indirect relationship. Besides, this causal model under globalization is an appropriate model to show the stress among Thai farm workers because the final path model focused on goodness of fit index among Thai farm workers, and it indicated a very close fit. The authors recommend that these issues should be studied further in subsequent studies to confirm the validity of this relationship.

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