การวิเคราะห์องค์ประกอบเชิงยืนยันพฤติกรรมส่งเสริมสุขภาพสตรีตั้งครรภ์แรงงานข้ามชาติ

Confirmatory Factor Analysis of Health Promoting Behavior of Pregnant Women among Migrant Workers

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อวิเคราะห์องค์ประกอบเชิงยืนยันพฤติกรรมส่งเสริมสุขภาพของสตรีตั้งครรภ์แรงงานข้ามชาติ กลุ่มตัวอย่างคือสตรีตั้งครรภ์แรงงานข้ามชาติจำนวน 190 คน เครื่องมือที่ใช้ในการวิจัยประกอบด้วย แบบสอบถามข้อมูลส่วนบุคคล และแบบวัดพฤติกรรมส่งเสริมสุขภาพของสตรีตั้งครรภ์แรงงานข้ามชาติ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และการวิเคราะห์องค์ประกอบเชิงยืนยัน ผลการวิจัยพบว่า การวิเคราะห์องค์ประกอบเชิงยืนยัน chi-square = 8.158, df = 8, p-value = .418 กล่าวคือ ค่า χ^2 แตกต่างจากศูนย์อย่างมีนัยสำคัญทางสถิติ อีกทั้งค่าดัชนี RMSEA = .004 และ RMR = .010 ซึ่งมีค่าเข้าใกล้ 0 ค่าดัชนี GFI = .986, and AGFI = .963 ซึ่งเข้าใกล้ 1 และ χ^2 / df = 1.020 ซึ่งมีค่าน้อยกว่า 2 แสดงว่าโมเดลมีความสอดคล้องกับข้อมูลเชิงประจักษ์

คำสำคัญ : พฤติกรรมส่งเสริมสุขภาพ, สตรีตั้งครรภ์, แรงงานข้ามชาติ, การวิเคราะห์องค์ประกอบเชิงยืนยัน

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วันที่รับ (received) 24 พ.ย. 2563 วันที่แก้ไขเสร็จ (revised) 16 ม.ค. 2564 วันที่ตอบรับ (accepted) 18 ม.ค. 2564

Abstract

The research objective was to do Confirmatory Factor Analysis (CFA) of pregnant migraint. There were 190 samples. The research tools were demographic questionnaire and health promoting behavior in pregnant measures. Data were analyzed by descriptive statistics and Confirmation Factor Analysis. The research found that; their Confirmatory Factor Analysis showed chi-square = 8.158, df = 8, p-value = .418; the value of χ^2 was no statistically different from zero, RMSEA = .004 and RMR = .010, which was closer to 0, GFI = .986, and AGFI = .963, which closed to 1 and χ^2 / df = 1.020, which less than 2, it meant this model was consistent with the empirical data.

Keyword: Health Promoting Behavior / Pregnancy / Migraint worker / Confirmatory Factor Analysis

Introduction

The opening of the ASEAN community, more migrant workers have moved into Thailand. "Migrant Workers" are individuals in the phenomenon of migration, especially migrant workers in neighboring countries such as the Republic of the Union of Myanmar. Kingdom of Cambodia and Lao People's Democratic Republic. Currently, there is a Cabinet resolution stating the registration of migrant workers and requiring employers or entrepreneurs to officially register foreign workers in their workplaces. Statistics of the movement of migrant workers in February 2018 across the Kingdom amounted to 2,196,536 people. Bangkok is the province with the most migrant workers, with 387,876 people. In the perimeter, there are 762,510 people consisting of Samut Sakhon Province 226,849 people, Pathumthani 218,490 people, Nakhon Pathom 115,833 people, Nonthaburi 111,756 people and Samut Prakan 89,582 people[1]. In the movement of migrant workers, maternal and child health is a major problem of the country. Regarding the maternity health situation of migrant workers in 2015, it was found that 460 Cambodian migrant women gave birth in hospitals a year. The maternal mortality rate from gestation to postpartum was 4.66 per thousand live births which was a higher rate than the goal set by United Nation (Millennium development goals; MDGs), which was set no more than 0.18 people per thousand live births[2]. Complications from pregnancy to postpartum included: Preeclampsia 4.5%, anemia 21.44%, premature babies 8.45% and low birth weight of 14.45%.These were due to inappropriate behavior promoting health during pregnancy, nutrition deficiency, low family income, including the inconvenience in accessing the healthcare system, therefore delaying the antenatal care, affecting inappropriate health promoting behaviors during pregnancy.

The health-promoting behavior of Pender et, al.[3] consists of six areas: health responsibility, physical activity, nutrition, interpersonal relationships, stress management, and spiritual development. Therefore, pregnant women should practice appropriate health-promoting behaviors during the pregnancy period. In terms of health responsibility, it is concerned with the health of the pregnancy and accepts the responsibility of its own health, seeking information about pregnancy health care and inquiring of information from the health professional about pregnancy. Physical activity is the practice of physical activity in exercise for good health in the period of pregnancy. Nutrition is the practice of activities related to eating habits, eating habits, and food

choices that are appropriate for pregnancy. In the interpersonal relationship, it is the maintenance of the relationship between people in the family by spending time with close ones. In terms of stress management, it is to reduce stress during pregnancy along with encouraging a positive feeling and understanding of the person more. And spiritual development is the ability to effectively develop spirituality, including the ability to discover purpose in life, peace, and success.

From the study of Health promotion in Pregnant[4] study health-promoting behaviors of pregnant women at Sirindhorn Hospital. It was found that the health promoting behavior of pregnant women in each trimester was not different. In general, it was found that it was in the moderate to high level. It was found that physical activity and stress management were at a moderate level. Therefore, health promoting behaviors of pregnant women are necessary during pregnancy to prevent or reduce potential complications.

As mentioned above, as a result of the opening of the ASEAN Community, a large number of migrants have been moved into Thailand. Most of the incoming worker is of reproductive age, leading to a high pregnancy rate. In order to provide appropriate health care for pregnant women among migrant workers of different cultures, the researcher is therefore interested in analyzing the confirmatory constituents of health promoting behaviors of migrant pregnant women, that is consistent with Pender's Theory of 6 areas: health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development to be the basic information of healthcare professionals in promoting the health of pregnant women, migrant workers to help reduce pregnancy complications. This leads to a quality pregnancy of migrant pregnant women and for the better quality of life of pregnant women migrant workers.

Objective

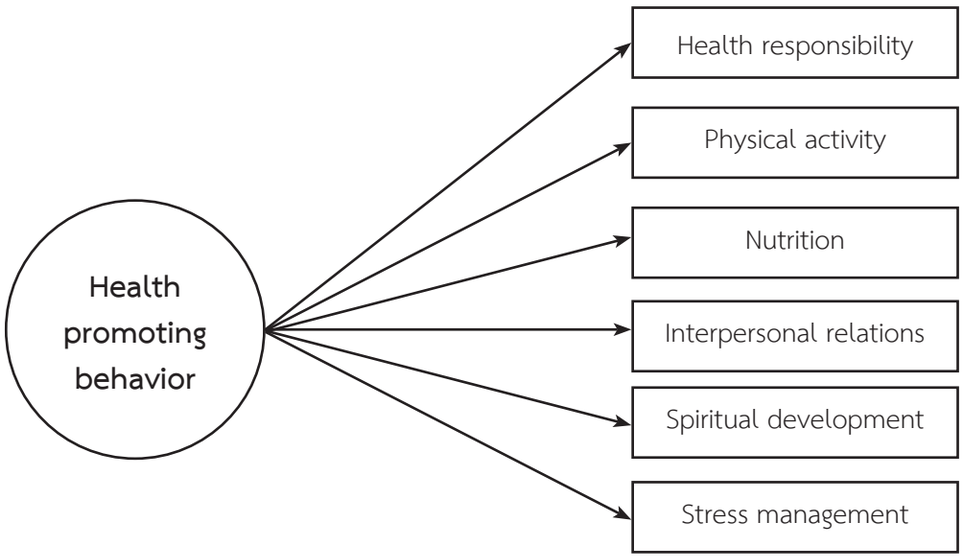
To analyze the confirmatory factors of health promoting behavior of pregnant women.

Research hypothesis

Health promoting behavior models of pregnant women were consistent with empirical data.

Research conceptual framework

Pregnancy is a period of physical and psychological changes including maternal role modifications that can affect lifestyle, physical health, mental health, family and community. Health promoting behavior according to the concept of Pender et, al.[3] expresses the practice of activities in daily life to maintain health and enhance the well-being of individuals, families and communities, as well as to promote success in life and to be able to live happily. Health-promoting behaviors consists of health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development The researcher applied the concept of health promoting behavior according to the concept of Pender et, al.[3] to analyze the confirmatory factors of health promoting behavior of pregnant women among migrant workers, whether they are consistent with empirical data to be used as a guideline of the health promotion of pregnant women.



Picture 1 Research framework

Research method

Population and sample

Population is pregnant women among migrant workers who came for antenatal care in government hospitals in Bangkok.

The sample group is 190 pregnant women among migrant workers who were in the third trimester and attend antenatal care at government hospitals in Bangkok.

Inclusion criteria

Pregnant women among migrant workers aged between 20-35 years, in Thailand legally, residing in Thailand for 1 year or more, Normal pregnancy without complications, The gestational age was in the third trimester of the pregnancy and be able to listen, speak and communicate in Thai.

Exclusion criteria

There were complications during the program, such as miscarriage, premature labor, vaginal bleeding, less fetal flexion, etc.

Materials

Part 1: Personal Information Questionnaire: The researcher created from a review of relevant papers and research, including age, gestational age, religion, education, occupation, income and pregnancy planning in a form of checklist.

Part 2: Health Promotion Behavior Scale of Pregnant Women among Migrant Workers: The researcher created based on a review of documents and research related to health-promoting behaviors of pregnant women, revised the questionnaires of Relationship between personal factors Beliefs about pregnancy, perception of health promotion and health promoting behaviors of Thai Muslim pregnant women[5] and Pender et, al.[3] measurements by creating Health Promoting Lifestyle Profile II (HPLP II), which consisted of 6 aspects, total 40 items as follows: 1) Health responsibility (9 items) 2) Physical activity (6 items) 3) Nutrition (8 items) 4) Interpersonal relationship (7 items) 5) Stress management (6 items) and 6) Spiritual development (4 items) as 5-level

estimation scale. The scoring criteria were as follows:

5 indicates the most practical or realistic.

4 refers to very practical or realistic.

3 refers to moderate practical or realistic.

2 refers to less practical or realistic.

1 refers to least practical or realistic.

Criteria for interpretation of the results of the Health Promotion Behavior Measurement Model for Pregnant Women Migrants were as as follows the transformation when using the estimation scale tool.[6]

4.50-5.00 indicates the most practical or realistic.

3.50-4.49 refers to very practical or realistic.

2.50-3.49 refers to moderate practical or realistic.

1.50-2.49 refers to less practical or realistic.

1.00-1.49 refers to least practical or realistic.

Quality inspection of research tools

The Health Promotion Behavior Measurement test was consisted of the test for testing content validity and the Index of Item Congruence (IOC), showed between of .66-1.00. The reliability test by considering on the internal consistency of tools based on the cronbach's alpha coefficient was .87.

Procedures for data collection

1. Made a letter requesting permission to collect data from the sample at the Antenatal Department, clarify the purpose and procedure for conducting research, requesting cooperation in data collection.

2. Introduced self and explained the purpose of the research, the benefits of the research and the process of gathering information. Asked for cooperation in conducting research with sample groups and protecting the right of sample groups to participate in the research.

3. Conducted personal information inquiries and health-promoting behavior patterns of pregnant women on the day of the sample receiving antenatal services for 5 days (Monday - Friday).

Data analysis

The data were analyzed by using the following statistical methods:

1) Descriptive statistics were used to determine means and standard deviations for health promoting behavior of pregnant women among migrant workers with a software package.

2) Confirmatory factor analysis was performed to test the goodness of fit of the factors in the model. Weights were assigned to construct indicators and empirical data to determine the weights of the main variables used in constructing the indicators with a software package.

Ethical consideration

The researcher presented the research proposal to the Ethics Committee, the project code: W.31/2019 Protecting the rights of the sample group by explaining to the sample subjects about the objectives, the process of collecting the data in the research, the benefits of the research. The rights of the sample to accept or reject the participation of this research had no effect on the treatments or services received, with the sample making the decision on their own participation. This research procedure and method did not cause any harm to the sample, the sample can leave the research at any time without affecting the treatment. During the research, if the sample group has health problems as a result of the trial, the research is willing to provide immediate care and assistance by referring to the obstetrician. All information obtained from this study is confidential. It will be presented as a whole and used for academic purposes only. When the sample group is willing to join the research, the researcher

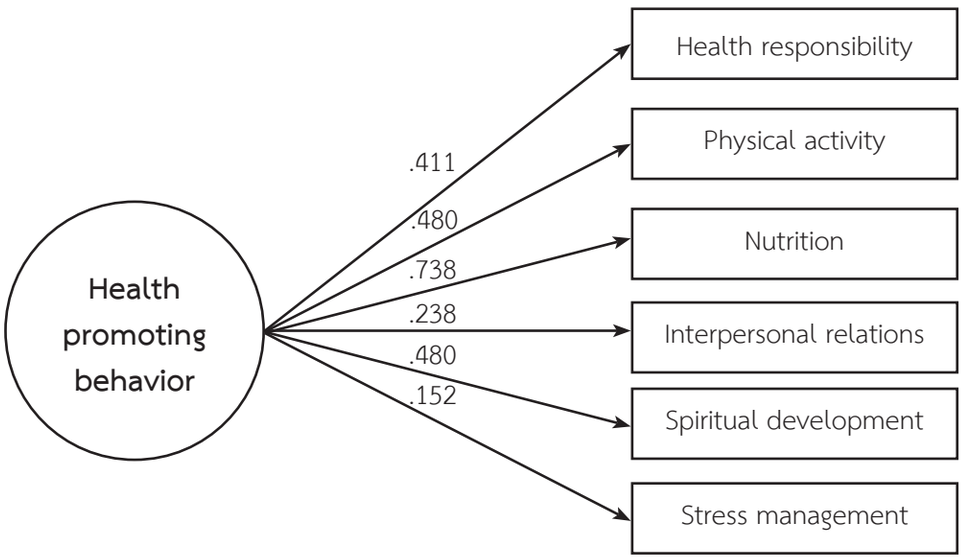
will have the sample signed the consent document to join the research and collected the data with the sample.

Result

Personal data of the 190 samples showed that the most of 52.10% of the sample age was between 20-25 years, followed by 31.05%. Age 26-30 years old. Majority were Buddhism of 77%. In terms of education level, The most of 41.57% was high school students, followed by 30% of middle school and 28.42% from primary education. Monthly income of 26.31% was about 10,001-15,000 baht, followed by 23.15% was about 15,001-20,000 baht. The most of 53.68% were unplanned pregnancies and 46.31% were planned pregnancies.

Results of confirmatory factor analysis of health promoting behavior of pregnant women among migrant workers.

Confirmatory factor analysis was used to test whether the data fit the measurement of how well the data fit the model of factors and their indicators, namely to test whether the measures of a construct were consistent with the researchers' understanding of the nature of that construct or factor. Confirmatory factor analysis was used to calculate fit indices to test the adequacy of the model, or the fit between the actual data and the hypothesized model tests, including chi-square goodness of fit, root mean square error of approximation (RMSEA) and comparative fit index (CFI). Additional indices were the goodness of fit index (GFI) and the adjusted goodness of fit index (AGFI).



Picture 2 Confirmatory factor analysis of health promoting behavior of pregnant women among migrant workers

Confirmatory factor analysis found the health promoting behavior of pregnant women among migrant workers model to be consistent with the evidence-based data and that the research model fit the empirical data well (Table 1).

Table 1: Goodness of fit indices for checking consistency with empirical data by confirmatory factor analysis.

Goodness of Fit Indices	Acceptable Fit	Confirmatory Factor Analysis	Interpreted Results
Chi-square statistics (p-value)	>.05	8.158 (.418)	Fit
χ^2 / df (CMIN/DF)	≤5	1.123	Fit
Root Mean Square Residual: RMR	≤.05	.010	Fit
Goodness-of-Fit: GFI	0.00 - 1.00	.986	Fit
Adjusted Goodness-of-Fit: AGFI	>.90	.963	Fit
Root Mean Square Error of Approximate (RMSEA)	<.08	.004	Fit

The results of the factor score and the analysis of the factor scores found the component with the highest overall factor loading to be the health promoting behavior of pregnant women among migrant workers, followed by indicators (Table 2).

Table 2: result of Confirmatory factor analysis of health promoting behavior of pregnant women among migrant workers.

Latent variable	Observe variable	Weight of factor			
		b_{sc}	SE	t	R^2
health promoting behavior	Health Responsibility	.411*	<-->	<-->	.169
	Physical Activity	.480*	.416	2.795	.231
	Nutrition	.738*	.240	2.023	.057
	Interpersonal relations	.238*	.281	2.473	.105
	Stress management	.152*	.377	1.262	.023
	Spiritual development	.487*	.463	2.904	.237

Chi-square = 8.158 df = 8, p = .418, χ^2 / df = 1.020, RMSEA = .010, RMR = .004, GFI = .986, AGFI = .963

**Note: *** p <.05, bsc means standard component weight value, <--> indicates cruel force, SE and t are not reported.

Health promoting behavior according to the concept of Pender et, al.[3] consisted of 6 aspects including health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development. The weight value of the observed variables was positive and was statistically significantly different from zero at the .05 level, where the observed variable of the latent variable with the highest element weight was the interpersonal relationship with a standard component weight of .922, followed by health responsibility with a standard component weight of .739, nutrition with a standard component weight of .738, spiritual development with a standard component weight of .605, stress management with a standard component weight of .370, observed variable of the latent variable with the lowest element weight was physical activity with a standard component weight of .326. In addition, the Internal Consistency Reliability (R^2) which described the variance of the observed variables of the health promoting behavior of migrant women had the value of .106 to .849 .

Discussion

This research analyzed the confirmation factors of health promoting behaviors of migrant pregnant women. Results according to the research objectives can be discussed as follows:

The confirmatory factors of health promoting behaviors of migrant pregnant women according to the concept of Pender et, al.[3] consisted of 6 aspects including health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development. The results from consistency examination of health-promoting behavior models of migrant pregnant women found Chi-square = 8.158, df = 8 and p-value = .418. χ^2 was different from zero without statistical significance Also, the RMSEA index = .004 and RMR = .010, which approached 0, GFI = .986 and AGFI = .963, which approached 1 and χ^2 /df = 1.020 which was lower than 2, showing that the model is consistent with the empirical data. The weight value of the observed variables was positive and was statistically significantly different from zero at the .05 level, where the observed variable of the latent variable with the highest element weight was the interpersonal relationship with a standard component weight of .922, followed by health responsibility with a standard component weight of .739, nutrition with a standard component weight of .738, spiritual development with a standard component weight of .605, stress management with a standard component weight of .370, observed variable of the latent variable with the lowest element weight was physical activity with a standard component weight of .326. In addition, the Internal Consistency Reliability (R^2) which described the variance of the observed variables of the health promoting behavior of migrant women had the value of .106 to .849 This was in line with the study of Health promotion in Pregnant[4] studying health promoting behaviors of pregnant women and confirmation factors analysis of health promoting behaviors of pregnant women based on the concept of Pender et, al.[3] consisting of 6 aspects including health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development. The results of the study found that the health promoting behavior model of pregnant women was consistent with the empirical data and consistent with the study of Validation of the psychometric properties of the health-promoting lifestyle profile in a sample of Taiwanese women[7] on behavior promoting women's health in Taiwan. It was found that health promoting behaviors consisted of 6 sub-components including health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development. The

research results of the consistency examination of the health-promoting behavior model were consistent with the empirical data. Therefore, from the study of health promoting behaviors of migrant women, which consisted of 6 components as follows: health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development, so it should be used in the promotion of migrant pregnant women in each trimester of pregnancy for a quality pregnancy.

Suggestions for applying the research results

1. Health-promoting behaviors should be introduced in each of the sub-components, namely, health responsibility, physical activity, nutrition, interpersonal relationships, stress management and spiritual development to be applied in the management of both the theoretical and practical maternity nursing and midwifery courses to provide students with guidelines for promoting the health of pregnant women in each quarter of pregnancy.

2. The results of health promoting behavior research should be used in the sub components with a moderate average score of Physical activity and stress management to be used as guidelines for promoting the health of pregnant women in each trimester of pregnancy to enable pregnant women to perform appropriate physical activities and have guidelines for managing stress appropriately.

Suggestions for further research

1. The research results should be developed into a health-promoting behavior model of pregnant women in each trimester of pregnancy.

2. Health promoting behaviors of other groups of pregnant women should be studied, such as adolescent pregnant women, pregnant women older than 35 years, or those with complications, etc.

3. Health promoting behaviors of pregnant women should be studied from the first, second and third trimester of pregnancy.

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