Relationship among Maternal Depressive Symptoms, Gender Differences and Depressive Symptoms in Thai Adolescents

Nopporn Vongsirimas, Yajai Sitthimongkol, Linda S. Beeber, Nonglak Wiratchai, Sopin Sangon

Abstract: To examine the pattern of relationships among factors related to depressive symptoms in adolescents of mothers with depressive symptoms, the structural equation model of adolescent depressive symptoms was tested. The conceptual framework, for this study, drew on the Interpersonal Theory of Depression. Through use of stratified sampling, 460 Thai adolescents, and respective mother, were selected for participation. All adolescents completed the: Demographic Data Questionnaire; Center for Epidemiologic Studies Depression Scale; Rosenberg's Self-esteem Scale; Multidimensional Scale of Perceived Social Support; Maternal Supportive Behaviors Questionnaire; Negative Event Scale; and, Parental Bonding Instrument. Each mother completed the: Demographic Data Questionnaire; and, Center for Epidemiologic Studies Depression Scale. Data were analyzed using LISREL. A goodness of fit was obtained with the model. The adolescents' depressive symptoms accounted for over 60% of the variance.

A strong effect of maternal depressive symptoms on depressive symptoms among Thai adolescents, as well as on mediation by intervening variables, was found. The results also enhanced understanding of how to develop and target nursing interventions to prevent development of depressive symptoms, and optimize mental health, among Thai adolescents, when their mother suffers from depressive symptoms.

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Key words: adolescent depressive symptoms, social support, self-esteem

Introduction

The World Health Organization (WHO) has estimated that 121 million people suffer from depression, a major cause (60%) of suicide.[1] In addition, depression has been projected to comprise, by 2020, the largest disease burden, of all health conditions among women, and to rank second in the total yearly disability-adjusted life expectation.[1]

Depression and depressive symptoms, historically,

Correspondence to:* Nopporn Vongsirimas,** *RN, PhD. Candidate, Faculty of Nursing, Mahidol University, Bangkok, Thailand.* ***E-mail: *nsncr@mahidol.ac.th*

Yajai Sitthimongkol, *RN, PhD. Associate Professor, Faculty of Nursing, Mahidol University, Bangkok, Thailand.*

Linda S. Beeber, *RN, PhD, FAAN. Professor, School of Nursing University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.*

Nonglak Wiratchai, *PhD. Professor Emeritus, Chulalongkorn University, Bangkok, Thailand.*

Sopin Sangon, *PhD, Assistant Professor, Department of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.*

have been considered disorders that afflict middle-aged and older persons.[2] Depression refers to a diagnostic term that meets set criteria in the Diagnostic and Statistic Manual of Mental Disorder (DSM-IV),[3] while depressive symptoms are defined as "a spectrum of cognitive, affective, behavioral and somatic phenomena that accompany an unremitting sad mood (p. 154)."[4] Adolescents and young adults, however, have been noted to be increasingly depressed and to seek treatment.[2] Prior studies have found an increase in the onset of depressive symptoms among individuals 15 to 19 years of age.[2] In the United States of America (USA), the prevalence rate of adolescent major depressive disorder (MDD) is estimated to range from 15% to 20%,[5] while the prevalence rate of depressive symptoms is known to be close to 30%.[5] In Thailand, the incidence rate of MDD, among Thai adolescents, ranges from 5% to 8%,[6] while the prevalence rate of depressive symptoms ranges from 20% to 67%.[7-9]

Review of Literature

Depressive symptoms are known to be predictors of depression, with 25% of adolescents experiencing a MDD within one year of developing depressive symptoms.[10] A diagnosis of depression during adolescence has been shown to be a predictor of a recurrence of depression during adulthood.[10] In addition, the occurrence of a MDD during adolescence, when compared to that on childhood-onset MDD, has been found to indicate a poorer prognosis.[6]

Review of the literature reveals a number of factors, which increase adolescents' risks of developing depressive symptoms, have been investigated, including whether their mother has depressive symptoms.[10, 11] In particular, adolescent offspring of mothers with depressive symptoms have been found to be twice as likely to develop a major depression, or dysthymic disorder, compared to adolescents of mothers who never have been depressed.[12]

Not surprisingly, mothers with depressive symptoms have been recognized to experience difficulties carrying out parental responsibilities, lack maternal confidence and present with hostility,[11, 13] as well as have difficulty dealing with interpersonal relations with their adolescent child.[13] Mothers who suffer from depression, also may appear unavailable, or insensitive, to their adolescent[11] and be less able, compared to mothers who are not depressed, to provide appropriate guidance and rule enforcement.[12] Adolescents living in such an environment have expressed being resentful of their poorly functioning mother.[13]

Yet adolescents who receive sufficient maternal warmth and support, from their symptomatic mothers, appear less likely to develop depressive symptoms.[13, 14] This may be due to the fact that, when their mothers are impaired and unable to provide needed warmth and support, their fathers, grandparents, or concerned friends or relatives step in and provide for them. Thus, it appears the power of warm and supportive parenting is a critical factor in decreasing the likelihood of development of depressive symptoms among adolescents of mothers who are depressed.[13]

Self-esteem also appears to be a protective factor in decreasing the likelihood of adolescents developing depressive symptoms. Those with a high level, compared to those with a low level, of self-esteem have been found to suffer fewer depressive symptoms when facing similar stressful situations.[15] However, in order to optimize resistance to depressive symptoms, one's self-esteem has been shown to need mediation by social support.[15, 16]

Although a number of studies, in Thailand, have examined the relationship of life stress, social support, self-esteem and depressive symptoms among adolescents, none could be located which

have predicted any pattern of associations among the various factors.[8] Furthermore, no studies could be located, in English language or Thai language publications, which have investigating depressive symptoms among Thai adolescents, in relation to their mothers having depressive symptoms.

Therefore, this study sought to: 1) explore the relationships and factors associated with depressive symptoms among Thai adolescents of mothers with depressive symptoms; and, 2) test, in at-risk adolescents, the meditational roles of life stress, social support and self-esteem associated with maternal depressive symptoms and adolescent depressive symptoms.

Conceptual Framework

The conceptual framework, for this study, drew on the Interpersonal Theory of Depression.[16, 17] The assumptions underlying the theory, proposed by Sullivan,[18] are there are two basic human needs: biological and psychological. Both of these needs are met by having an "interpersonal relation" with a "significant other." Such interaction is dynamic and acknowledges both individuals' biological and psychological needs.

According to Sullivan, without having interpersonal relations with a significant other, one may not be able to satisfy his/her basic human needs.[18] In the Interpersonal Theory of Depression,[16, 17] "anxiety" refers to an insecure feeling, or emotional discomfort, that derives from the person not satisfying his/her basic needs. "Self-esteem" refers to a feeling that emerges from one having a positive self-evaluation, which is obtained from having an interpersonal relation with a significant other and perceiving a positive evaluation from his/her significant other. The "positive evaluation" one receives from a "significant other" constitutes "emotional support," which is an important support that can be gained by having an "interpersonal relation," or role relation, with one's "significant other."[19]

Thus, from this perspective, the interpersonal relation process, or interaction, between a mother and her children, might influence the children's anxiety and self-esteem. In other words, the mental health of the mother may have an impact on the mental health of her children.

Methods

This study used a cross-sectional, correlational research design. Causal effects were examined via investigation of adolescents' experiences of living, based on lifetime retrospective ratings, with their depressed mothers.

Setting and Participants: Fifteen high schools were randomly selected from 103 high schools in Bangkok, Thailand. A stratified sampling technique was used to obtain 460 adolescents who were 15 to 19 years of age, able to read and write in Thai and residing with their biological mother, who could read, write and score 16 or higher on the CES-D scale.

In this study, the term "adolescents" refers to late adolescence, which is classified from a psychosocial perspective as one 15-19 years of age and enrolled in a high school, including a Mathayom 4-6 (level of high school which includes grades 10 to 12). The study's sample size was based upon Hair and colleagues[20] suggestion that a ratio of 10 respondents per each estimated parameter be considered appropriate for calculation of a structural equation procedure. Therefore, the minimum sample size was set at 460, since the study included 46 estimated parameters.

The adolescent subjects ranged in age from 15 to 19 years, with an average age of 16.53 (SD = 1.00). Almost three-fourths (74%) of them had a daily allowance of 51-100 baht/day (mean = 86.63; SD = 31.55).

More than half (53.9%) of the mothers were in the age range of 41 to 50 years, with a mean

age of 43.55 (SD = 5.38). Almost one-third of them had a family income of 5,001to10,000 baht/ month (mean = 17,782.19; SD = 41,107.68). Most (79%) were married, but had an insufficient family income (55.2%). Almost half (44.8%) of the mothers only had a primary education.

Procedure and Ethical Considerations: Permission to conduct this study was obtained from the Human Rights Related to Human Experimentation and Ethics Committee, of the primary researcher's university, and the School Board Committee of each of the 15 schools, where data were collected from November 2007 to March 2008. Once approval to conduct the study was obtained, the primary researcher approached the teachers, who served as counselors, within each of the schools. These teachers were responsible for non-academic issues (i.e. social support) and able to provide practical suggestions and assistance prior to and during data gathering. In addition, the teachers facilitated the researcher's access to the students for the purpose of data gathering.

A total of 4, 261 adolescents were approached, in their respective classrooms, and told about the: study's purpose and procedure; issues of confidentiality and anonymity; and, their right to withdraw at any time without repercussions. Each was given a packet, to take home to their mother, which contained a letter (explaining the study, issues of confidentiality and anonymity, and the right to withdraw, at any time, without negative repercussions), along with a consent form to sign, and the Demographic Data Questionnaire for Mothers and the Center for Epidemiologic Studies Depression Scale (CES-D) to complete. The letter requested each mother to complete the enclosed instruments, sign the consent form, place all completed documents back into the packet envelope and return the packet, with the enclosed documents, to the primary investigator the next day, via their adolescent. A total of 1,758 completed packets were returned, for a 41.26% return rate.

Upon receipt of the mothers' signed consent forms and their completed CES-D, code numbers were placed on the CES-Ds. Each student then was administered, in a class room, the: Demographic Data Questionnaire for Adolescents; Center for Epidemiologic Studies Depression Scale (CES-D); Negative Event Scale (NES); Parental Bonding Instrument (PBI); Multidimensional Scale of Perceived Social Support (MSPSS); Maternal Supportive Behaviors Questionnaire (MSBQ) and Rosenberg Self-Esteem Scale (RSE).

Directions for completion of the questionnaires were provided, as well as responses to questions that arose during the administration process. Prior to administration of the questionnaires, the students were informed their respective mother had given written approval for them to participate. However, they were asked to sign an assent form if they desired to take part in the study, and reminded they had the right to withdraw, at any time, without negative repercussions. None withdrew from the study.

Code numbers were placed on each adolescent's completed questionnaires to facilitate matching with their respective mother's completed CES-D. Only questionnaires of those, whose mother obtained a CES-D score of 16 or greater, were placed into the analysis process. All code numbers were removed from the questionnaires immediately after completion of the CES-D screening process.

Four hundred ninety-four of the CES-D Scales indicated the responder had depressive symptoms (CES-D≥16). However, 32 respondents did not live in the same household as their biological adolescent and two made errors answering the questionnaires. Thus, 34 questionnaires were excluded, leaving a total of 460 viable questionnaires.

Instruments: Eight instruments were used to collect data from each adolescent and mother. They included the: Demographic Data Questionnaire for Mothers; Demographic Data Questionnaire for Adolescents; Center for Epidemiologic Studies

Depression scale (CES-D); Negative Event Scale (NES); Parental Bonding Instrument (PBI); Multidimensional Scale of Perceived Social Support (MSPSS); Maternal Supportive Behaviors Questionnaire (MSBQ); and, Rosenberg's Self-esteem Scale(RSE).

With the exception of the Demographic Data Questionnaires and the MSBQ, both of which were constructed, in Thai, by the primary investigator, the instruments were translated from English into Thai, by prior researchers,[9, 21] and then back-translated into English. The back-translated English version was compared with the original English version of each instrument for the purpose of assuring no change in meaning occurred in the content. Each instrument was reviewed by five experts (two psychiatrists, two psychologists and a nursing instructor) and pilot-tested to determine the instruments' internal reliability, clarity and comprehensiveness.

The pilot-test was accomplished through use of 31 Thai adolescents and their respective mother with depressive symptoms, whose characteristics were similar to the study sample and independent of the intended study sample. The procedure used to conduct the pilot study was identical to the intended study. The pilot study internal reliabilities, for adolescents, were: CES-D (0.87) NES (0.94), PBI (0.89), MSBQ (0.86), MSPSS (0.79) and RSE (0.88). The reliability of the CES-D, for mothers, was 0.74.

The Center for Epidemiologic Studies Depression Scale (CES-D)[22] is a self-administered 20 item questionnaire designed to measure depressive symptoms by ascertaining the level of depressive symptoms a subject has experienced over the previous week, including the current day. The scale consists of four major depressive symptoms: 7 items for depressed affect (items 3, 6, 9, 10, 14, 17, 18); 4 items for positive affect (items 4, 8, 12, 16); 7 items for somatic and retarded activity (items 1, 2, 5, 7, 11, 13, 20); and, 2 items for interpersonal relationships (items 15, 19). The possible responses, for each of the 20 items, ranges from 0 = rarely or none of the time to 3 = most or all of the time. The score from each of the 20 items is summed to produce an overall total score, which can range from 0 to 60. Higher scores indicate greater depressive symptom severity. A score between 0 and 15 suggests that "no depression" is present, while scores at or above 16 are indicative of clinically significant symptomatology. There is a linear relationship between increasing score values and the likelihood of a diagnosis of major depressive disorder.[22] In population screening, the cut-off score of 16 has shown high sensitivity ranging from 86% to 100%, and determined to be the best cut-off score in detecting depressive symptoms among a variety of populations across cultures.[23] In addition, a longitudinal study found that adolescents, with an initial CES-D score of 16, developed moderate/severe depressive symptoms at follow-up. This finding confirmed a high sensitivity of the CES-D scale at the score of 16.[24] A cut-off score of 16 for the CES-D has been used among researchers in the area of depressive symptoms in adolescences of depressed mothers.[25] The CES-D also has been shown to be a valid instrument across racial and culturally diverse groups.[23] It takes approximately 10 to 15 minutes to complete. The alpha reliability coefficient of the instrument, for this study, was 0.87 for adolescents and 0.74 for mothers.

The Negative Event Scale (NES)[26] is a self-administered questionnaire that measures perceived life stressors commonly experienced by adolescents. The 42 item scale consists of 10 subscales addressing problems with: 1) friends; 2) boy/girl friend; 3) money; 4) courses; 5) teacher; 6) parents or parents-in-law; 7) other students; 8) relatives; 9) health; and, 10) academic limitations and course interest. The respondent is asked, "Last month, how much hassle did you experience?" for each of the 42 negative life events. Each event is

scored using a 6-point Likert-like scale: 0 = did not occur; 1 = event occurred but there was no hassle; 2 = event occurred along with a little hassle; 3 = event occurred along with somewhat of a hassle; 4 = event occurred along with a lot of hassle; and, 5 = event occurred along with extreme hassle. A total score is obtained by summing across all 42 items, which can produce a range of scores from 0 to 210. It takes approximately 10 minutes to complete the scale. The NES has demonstrated excellent construct validity and reliability with Thai adolescents (r = 0.98).[9] The reliability of the instrument, for this study, was 0.94.

The Parental Bonding Instrument (PBI)[27] is a 25-item self-rating scale designed to measure perceived relationships and experiences, with parents, based upon the child's memory of his/her parents during the first 16 years of life. For this study only maternal bonding was measured. The PBI is composed of 2 subscales: evaluating care (12 items) and evaluating overprotection (13 items). Each item, which assesses the parent in question, is rated by the respondent on a four-point Likert-type scale (0 = very unlike to 3 = very like). The total score for each of the two dimensions (care and overprotection) is created by summing items that address the respective dimension. The possible range of scores for the care dimension is 0 to 36, while the range of scores for the overprotection dimension is 0 to 39. High scores on the care dimension represent the adolescent's perception of caring and affectionate parenting, while high scores on the overprotection dimension represents the adolescents' perception of overprotective parenting.[27] Low scores on the care dimension and high scores on the overprotection dimension are considered to be suggestive of a risk for depressive symptoms.[28] The PBI shows excellent construct and convergent validity, as well as reliability with a range from .91 to .99.[1] In addition, it has demonstrated stability over a 20-year period.[28]

Charoensuk[9] translated the PBI from English into Thai, but added 5 items, in order to increase the instruments' reliability in a Thai adolescent population. Two items were added to caring (#26 and #27), while three items were added to the overprotection dimension (#28, #29 and #30). Thus, the Thai version of the PBI consists of 14 items for parental care and 16 items for parental overprotection. Like the original English version of the PBI, items are scored on the same four-point Likert-like scale (0 = very unlikely to 3 = very likely), and total scores for each dimension are obtained by summing the score for items in each respective dimension. Scores for the care dimension can range from 0 to 42, while scores for the overprotection dimension can range from 0 to 48. Interpretation of the scores is the same as the original English version of the PBI. Alpha coefficients found, by Charoensuk,[9] for the Thai version of the PBI were .88 for caring and .78 for overprotection.

In this study, prior to data analysis, the scoring method for the "caring component" was reverse, so that high numerical values of the caring dimension of the instrument conceptually fit with high numerical values of the overprotection dimension (a negative concept). As a result, high scores indicated low levels of caring and affectionate parenting, rather than high levels of caring and affectionate parenting. The scoring for the overprotection dimension of the scale remained the same and was not reversed. The scale can be completed in approximately 5 to 10 minutes. The alpha coefficient for the instrument, for this study, was 0.87.

The Maternal Supportive Behaviors Questionnaire (MSBQ) was a modification, by the primary researcher, of the Inventory Social Supportive Behaviors (ISSB)[29] instrument. The purpose of both the ISSB and the MSBQ is to measure the quantity of support adolescents received over the

past four weeks from a significant person, with whom they have had a personal relationship. For the MSBQ, the significant person is the mother. Permission to modify the MSBQ was obtained from Dr. Manual Berrera (personal communication, May 23, 2007), an author of the ISSB. Although the ISSB has been modified, translated into Thai and used on a Thai adolescent population,[22] based upon the evaluation, by the primary researcher's instrument evaluators, of the Thai version of the ISSB, it was determined best to modify the original ISSB and, thereby, create the MSBQ. The instrument evaluators indicated the contexts and conditions given in many items, of the Thai version of the ISSB, did not fit the Thai culture.

In the ISSB, received support is defined as assistance received in three forms: 1) being there (physically, emotionally and spiritually); 2) giving help; and, 3) giving information and advice.[29] Moreover, the framework of question asking was developed for use in adolescents who also were target subjects in this study. To create the MSBQ, via modification of the ISSB, seven items were deleted from the ISSB (i.e., items 1, 3, 13, 17, 22, 34, 38, and 40) and the content/conditions stated in the remaining items were changed to more accurately reflect the Thai culture. However, the conceptual framework for the ISSB's three support forms and their related questions were maintained in the MSBQ. Since the required responses for the ISSB questions were based upon the frequency of occurrence of support, which cannot be appropriately applied in the Thai culture, the MSBQ item responses were changed to an agree/disagree format.

The created, self-administered MSBQ, contains 33 items that were answered on a 4-point rating scale (1 = definitely disagree; 2 = somewhat disagree; 3 = somewhat agree; and, 4 = definitely agree). Higher scores indicate higher support received from mothers. It takes about 15- 20 minutes to complete the instrument. After content validation by the experts, the scale was considered acceptable for use with adolescents having a mother with depressive symptoms, with a scale-level CVI of 0.85. The alphas coefficient for the instrument, in this study, was .96.

The Multidimensional Scale of Perceived Social Support (MSPSS)[30] is a 12-item instrument designed to measure the perceived amount of social support one receives from three separate sources: family, friends and significant others. Each of the three sources of social support is assessed using four respective questions. Examples of two questions are: "There is a special person who is around when I am in need;" and, "My family really tries to help me." The instrument utilizes a 7-point Likert-like response format (1 = very strongly disagree to 7 = very strongly agree). A score for each of the three subscales is obtained by summing across the respective items. A total score is obtained by summing across all 12 items.[30] Scores for each subscale range from 4 to 28, with higher scores indicating a higher level of perceived social support received from the respective subscale (i.e., family, friends and significant other), whereas low scores suggest decreased levels of perceived social support. It takes approximately 3 minutes to complete. The MSPSS has been used extensively and has demonstrated sound psychometric properties.[31] It has been used in Thailand to measure perceived social support in adolescents, with a reliability of 0.89.[7] In this study, the reliability for the MSPSS was 0.89.

The Rosenberg Self-Esteem Scale (RSE)[32] is a 10-item, self-administered instrument developed for the purpose of measuring adolescent's global feelings of self-worth or self-acceptance. The scale consists of 2 dimensions: a feeling of self-worth and self-respect; and, a feeling of competence and ability. Feelings of self-worth and self-acceptance are measured using eight items, while competence and ability are assessed using two items. Examples

of one question from each of the two dimensions of the scale are: "I feel that I am a person of worth at least on an equal plane with others;" and, "I am able to do things as well as most other people." For each of the 10 items, a participant rates how much he/she has valued himself/herself in the last month on a scale of 1 = strongly disagree to 4 = strongly agree. The higher the score, the higher one's self-assessed self-esteem. It takes approximately 5 minutes to complete. Reliability of the scale has been found to range from .77 to .88.[32] The reliability of the RSE, for this study, was .78.

Results

Data analysis, using structural equation modeling (SEM), validated the causal model of adolescent depressive symptoms, while employing LISREL revealed a significant fit with chi-square = 251.462; df = 217; p-value = 0.054; RMSEA = .019, GFI = .964; AGFI = .927, as displayed in **Figure 1.** The correlation matrix of latent variables is shown in **Table 1.** The paths in the model consisted of factor loadings and effects between variables in the model (see **Table 2 & 3**). Every factor loading of indicators, measuring the seven latent variables, were significant at 0.01 (see **Table 3**).

Findings from structural equation modeling showed maternal depressive symptoms had a significant, positive, indirect effect on adolescent depressive symptoms (.095; $p < .01$), via perceived life stress, perceived maternal parenting, maternal support, support from others and self-esteem. Gender had a significant, positive, indirect effect on adolescent depressive symptoms (.086; $p < .05$), via perceived life stress, perceived maternal parenting, maternal support, support from others and self-esteem.

Perceived life stress had a significant, positive, total effect on adolescent depressive symptoms (.281; $p < .01$), which was both a significant, positive, direct effect (.161; $p < .01$) and an indirect effect (.120, $p < .01$), via maternal support, support from others and self-esteem. Perceived maternal parenting had a significant positive total effect on adolescent depressive symptoms (.471; $p < .01$), which was both a significant, positive, direct effect (.163, $p < .05$) and an indirect effect (.308, $p < .01$), via maternal support, support from others and self-esteem. Maternal support had a significant, negative, total effect on adolescent depressive symptoms (-.096; $p < .01$), which was decomposed into a negative, non-significant, direct effect and a significant, negative, indirect effect (-.032; $p < .01$), via self-esteem, indicating that maternal support had the mediating effect through self-esteem on adolescent depressive symptoms. Support from others had a significant, negative, total effect on adolescent depressive symptoms (-.187; $p < .01$), which was decomposed into a negative, non-significant, direct effect and a significant, negative, indirect effect (-.138, $p < .05$), via self-esteem, indicating that support from others had the mediating effect through self-esteem on adolescent depressive symptoms. Self-esteem not only had a significant, negative, direct effect on adolescent depressive symptoms (-.601; $p < .01$), but also had the greatest effect on adolescent depressive symptoms in the model. The LISREL model fit very well to the empirical data and explained 61.5% of variance of depressive symptoms in adolescents of mothers with depressive symptoms.

Table 1 Correlation matrix of the study variables (n=460)

	MoDe	Gen	PLS	Ppar	Msup	Osup	Selfest	AdoDe
MoDe	1.000							
Gen	0.006	1.000						
PLS	0.166**	0.109*	1.000					
Ppar	0.186**	0.089	0.317**	1.000				
Msup	-0.061	-0.067	-0.212**	-0.541**	1.000			
Osup	-0.068	0.042	-0.173**	-0.370**	0.548**	1.000		
Selfest	-0.090	-0.025	-0.298**	-0.321**	0.308**	0.360**	1.000	
AdoDe	0.194**	0.087	0.462**	0.410**	-0.341**	-0.397**	-0.506**	1.000

* p<.05; ** p<.01

MoDe = Maternal Depressive Symptoms
Gen = Gender
PLS = Perceived Life Stress
PPar = Perceived Maternal Parenting
Msup = Maternal Support
Osup = Support from Others
Selfest = Self-esteem
AdoDe = Adolescent Depressive Symptoms

Table 2 validation results of the causal model of adolescent depressive symptoms

Observed variables	b	SE	t	SC	R^2
Maternal Depressive Symptoms (MDS)					
mds 1	0.320	0.017	18.808	0.787	0.619
mds 2	0.387	0.021	18.375	0.776	0.602
mds 3	0.406	0.021	18.931	0.789	0.623
mds 4	0.492	0.026	18.735	0.786	0.617
Gender					
female	0.361	0.020	18.378	0.778	0.606
Perceived Life Stress (LS)					
ls1	0.747	-	-	0.780	0.608
ls2	0.900	0.066	13.679	0.772	0.597
ls3	0.907	0.066	13.838	0.777	0.603
ls4	0.934	0.067	14.012	0.778	0.605
ls5	0.760	0.055	13.891	0.781	0.610
ls6	0.796	0.064	12.508	0.694	0.620
ls7	0.643	0.044	14.586	0.778	0.605
ls8	0.688	0.049	14.003	0.782	0.612
ls9	0.738	0.053	13.998	0.776	0.602
ls10	0.842	0.057	14.785	0.779	0.607

Table 2 (continued)

Observed variables	b	SE	t	SC	R^2
Perceived Maternal Parenting					
par-nc	0.358	-	-	0.750	0.562
par-o	0.348	0.026	13.358	0.780	0.609
Maternal Support (MS)					
ms1	0.287	0.045	6.361	0.798	0.636
ms2	0.254	0.040	6.297	0.776	0.603
ms3	0.252	0.040	6.300	0.784	0.614
Support from Others (OS)					
os1	1.019	-	-	0.784	0.615
os2	0.957	0.060	15.963	0.790	0.625
os3	0.920	0.060	15.280	0.779	0.606
Self-esteem (SE)					
se1	0.312	-	-	0.784	0.615
se2	0.414	0.023	18.405	0.795	0.623
Adolescent Depressive Symptoms (ADS)					
ads1	0.260	-	-	0.600	0.360
ads2	0.335	0.024	14.205	0.655	0.429
ads3	0.308	0.032	9.595	0.623	0.388
ads4	0.378	0.036	10.626	0.699	0.488

χ^2 =251.462, df = 217, p-value = .0542, RMSEA = .019, GFI = 0.964, AGFI = 0.927

Note: b = Estimated Parameter; SD = Standard Error; t = t-value;
R^2 = Construct Reliability; SC = Completely Standardized Value of Factor Loading

mds1 = somatic and retard activity
mds2 = depressed affect
mds3 = positive affect
mds4 = interpersonal relationship
Fem = female
ls = problems with friends
ls2 = problems with boy/girl friends
ls3 = problems with money
ls4 = problems with courses
ls5 = problems with teacher
ls6 = problems with parents
ls7 = problems with other students
ls8 = problems with relative/s
ls9 = health problems
ls10 = academic limitations & course interest
par-nc = perceived not caring
par-o = perceived overprotection
ms1 = emotional and physical support
ms2 = giving help
ms3 = giving information and guidance
os1 = significant others
os2 = family
os3 = friends
se1 = feeling of self value and self respect
se2 = feeling of competence and ability
ads1 = somatic and retard activity
ads2 = depressed affect
ads3 = positive affect
ads4 = interpersonal relationship

Table 3 Standardized direct effect, indirect effect, total effect of latent variables in the model (n = 460)

Causal Variables	Effected Variables					
	PLS			PPar		
	DE	IE	TE	DE	IE	TE
MoDe	0.116**	-	0.116**	0.132**	-	0.132**
	(0.029)		(0.029)	(-0.036)		(-0.036)
Gen	0.098*	-	0.098*	0.123*	-	0.123*
	(0.045)		(0.045)	(0.057)		(0.057)
Structural Equation Fit	R^2 =.021			R^2 =.030		
Causal Variables	Effected Variables					
	Msup			Osup		
	DE	IE	TE	DE	IE	TE
MoDe	-0.006	-0.107*	-0.113*	-	-0.074**	-0.074**
	(-)	(0.062)	(0.062)		(0.021)	(0.021)
Gen	-	-0.099*	-0.099*	-	-0.068*	-0.068*
		(-0.082)	(-0.082)		(0.031)	(0.031)
PLS	-0.013	-	-0.013	-0.025	-	-0.025
	(0.049)		(0.049)	(0.032)		(0.032)
PPar	-0.798**	-	-0.798**	-0.536**	-	-0.536**
	(0.311)		(0.311)	(0.071)		(0.071)
Structural Equation Fit	R^2 = .638			R^2 =.288		
Causal Variabales	Effected Variables					
	Selfest			AdoDe		
	DE	IE	TE	DE	IE	TE
MoDe	-	-0.074**	-0.074**	-	0.095**	0.095**
		(0.018)	(0.018)		(0.022)	(0.022)
Gen	-	-0.066*	-0.066*	-	0.086*	0.086*
		(0.025)	(0.025)		(0.031)	(0.031)
PLS	-0.190**	-0.006	-0.196**	0.161**	0.120**	0.281**
	(0.039)	(0.008)	(0.040)	(0.040)	(0.030)	(0.044)
PPar	-0.218**	-0.165**	-0.384**	0.163*	0.308**	0.471**
	(0.067)	(0.035)	(0.060)	(0.082)	(0.059)	(0.070)

Table 3 (continued)

Causal Variabales	Effected Variables					
	Selfest			AdoDe		
	DE	IE	TE	DE	IE	TE
Msup	0.053	-	0.053	-0.064	-0.032**	-0.096**
	(-)		(-)	(-)	(0.003)	(0.003)
Osup	0.229**	-	0.229**	-0.050	-0.138**	-0.187*
	(0.060)		(0.060)	(0.072)	(0.042)	(0.073)
Selfest	-	-	-	-0.601**	-	-0.601**
				(0.087)		(0.087)
Structural Equation Fit	R^2 = .228			R^2 = .615		

*p < .05; **p <.01

Note: The values in the table are Standardized Values. The values in the parenthesis are Standard Error.

DE=Direct Effect
IE=Indirect Effect
TE=Total Effect
MoDe = Maternal Depressive Symptoms
Gen = Gender
PLS = Perceived Life Stress
PPar= Perceived Maternal Parenting
Msup= Maternal Support
Osup= Support from Others
Selfest= Self-esteem

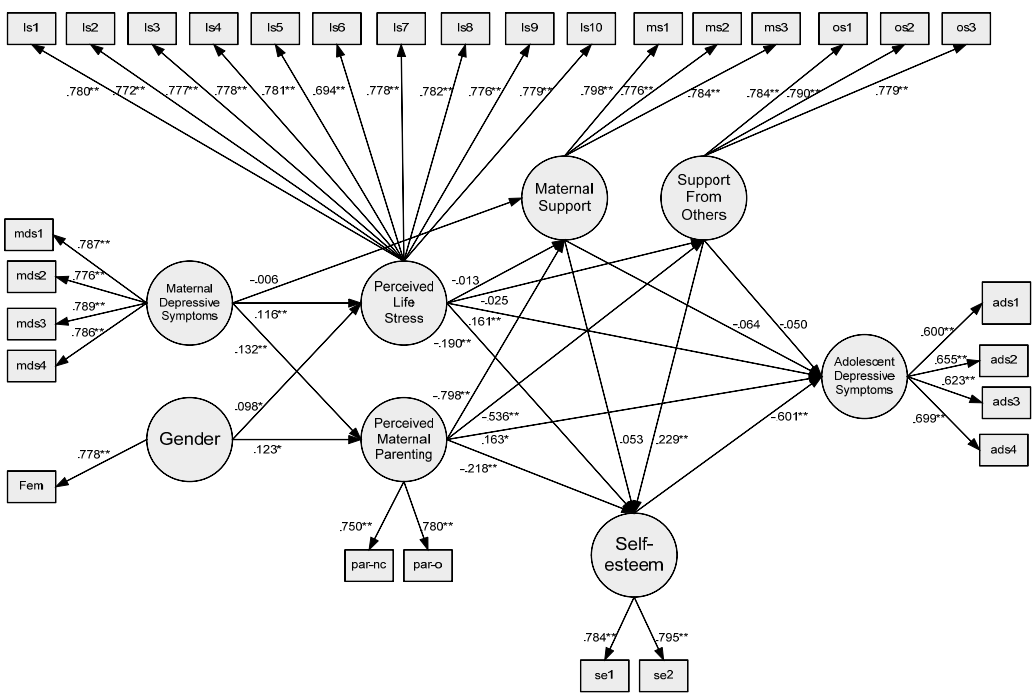

Figure 1 Validation results of the adolescent depressive symptoms model

Figure 1 (continued)

mds1 = somatic and retard activity
mds2 = depressed affect
mds3 = positive affect
mds4 = interpersonal relationship
Fem = female
ls1 = problems with friends
ls2 = problems with boy/girl friends
ls3 = problems with money
ls4 = problems with courses
ls5 = problems with teacher
ls6 = problems with parents
ls7 = problems with other students
ls8 = problems with relative/s
ls9 = health problems
ls10 = academic limitations & course interest
par-nc = perceived not caring
par-o = perceived overprotection
ms1 = emotional and physical support
ms2 = giving help
ms3 = giving information and guidance
os1 = significant others
os2 = family
os3 = friends
se1 = feeling of self value and self respect
se2 = feeling of competence and ability
ads1 = somatic and retard activity
ads2 = depressed affect
ads3 = positive affect
ads4 = interpersonal relationship

Discussion

The interpersonal theory of depression framework was used to predict relationships among the factors related to depressive symptoms in Thai adolescents of mothers with depressive symptoms. The findings identified the effect of maternal depressive symptoms on depressive symptoms in Thai adolescents. This relationship was mediated by intervening variables, including: perceived life stress; perceived maternal parenting; maternal support; support from others; and, self-esteem. The results are congruent with previous findings which have shown maternal depressive symptoms do not directly impact adolescents' depressive symptoms, but are influenced by mediating variables.[2]

The effect of maternal depressive symptoms on adolescents' depressive symptoms was shown to be mediated through: life stress (perceived life stress and perceived maternal parenting); social support (maternal support and support from others); and, self-esteem. In addition, social support (maternal support and support from others) was found to have a mediating effect on adolescents' depressive symptoms through self-esteem. These findings are congruent with prior research, which has revealed interpersonal relationships with significant others, in providing support and protecting self-esteem, are significant protective factors in the development of depressive symptoms.[15, 16] In addition, self-esteem has been shown to mediate the relationship of social support and depression, and social support has been found to be an important resistance factor, regarding depressive symptoms, but only in combination with self-esteem.[15,16] However, providing social support, without self-esteem enhancement, has not been found to be effective and might even place one at risk for diminished self-esteem.[16] Thus, the test model for Thai adolescents, in this study, supports previous findings which show cultural and racial differences are not strong enough to make a difference in the way self-esteem mediates depressive symptoms.[15]

The findings reveal depressive symptoms in their respective mother, not only led to increasing perceived life stress among adolescents, but also lead to increasing perceived impaired parenting behaviors (not caring and overprotective) from

them. In other words, Thai adolescents of depressed mothers were found to encounter stressful parenting, from their depressed mother, as well as experience stressful events in their own lives. These findings are congruent with prior studies, wherein life stress for adolescents of depressed mothers has been shown to consist of two domains: 1) stress from being parented by the depressed mothers; and, 2) stress from the stressful events in their own live.[11]

Moreover, this study found that gender had a mediating effect through perceived life stress and perceived maternal parenting on the adolescents' depressive symptoms, indicating the girls were more sensitive to this effect than the boys. Perceived life stress and perceived maternal parenting were found to be associated with depressive symptoms in the boys and the girls, but was slightly stronger in the girls than in the boys. This finding is congruent with recent research which has documented Thai culture plays an important role on parental rearing practices and a child's gender.[33] In addition, Thai parents are known to exercise more control over their daughters than their sons.[33] Differences in child rearing practices has been shown to have a significant impact on the perceived life stress and mental health of Thai children.[34] These findings also are congruent with prior findings which have revealed adolescent girls experience higher levels of interpersonal stress than do adolescent boys.[35] The higher levels of interpersonal stress, in turn, helps explain the higher rates of depressive symptoms in adolescent girls, in that exposure to episodic interpersonal stressors is an important factor regarding the development of depressive symptoms in adolescents.[35, 36]

The findings also suggest that perceived life stress has both a significant, positive, direct and indirect effect on adolescents' depressive symptoms. Those who had high levels of perceived life stress, directly and indirectly, also had an increase in their depressive symptoms. This finding is congruent with previous research, which has indicated that adolescents who are exposed to high levels of stress, particularly interpersonal stressors, are more likely to develop depressive symptoms than adolescents who are exposed to high levels of stress, but not in an interpersonal context.[35]

In addition, impaired parenting (not caring and over protection) from one's mother could, directly and indirectly, increase an adolescent's depressive symptoms. Adolescents, in this study, who received impaired parenting (not caring and over protection) from their respective mother, were less likely to receive support from their mother and others. The lack of perceived support may have decreased the adolescents' self-esteem and precipitated their depressive symptoms. However, impaired parenting from their respective mother also was found to directly decrease the adolescents' self-esteem and increase their depressive symptoms. The findings, of this study, are congruent with prior findings, which imply perceived lack of maternal care is associated with a diagnosis of depression among adolescents,[37] and support previous findings which suggest deficits in parental support can predict future increases in depressive symptoms, and the onset of major depression, among adolescents.[37]

These findings also suggest that the combination of having a depressed mother and a high level of life stress (perceived life stress and perceived maternal parenting) may lead an adolescent to perceive less social support, and, thus, a decreased self-esteem. In other words, adolescents of depressed mothers, who have high levels of life stress, may not perceive support from either their respective mother, or others, and be unable to develop their own self-esteem. On the other hand, if such adolescents perceive receive social support, their self-esteem may not be affected when experiencing stress. These findings are supported by the interpersonal theory of depression that purposes adolescents need support provided by their significant other, so that they can gain self-esteem. This theoretical foundation also is supported by prior

research which reveals the emotional support a Thai student receives from a significant other, specifically a parent, is the significant factor in the prediction of the development of the adolescent's self-esteem.[38] These findings also are congruent with previous findings which show peer and parental support has an effect on adolescents' self-esteem, but do so independently. In addition, peer support has been found to have more effect when maternal support is low, but minimal effect when maternal support is high.[39]

The applicability of the interpersonal theory of depression to Thai maternal-adolescent depressed populations (a theory in which self-esteem mediates the intimate relationship quality with a significant person having depressive symptoms) appears to be validated by the findings of this study. Having a poor, interpersonal, relationship with a mother could cause chronic anxiety and be conceptualized as a stressor.

This study also extends the understanding of social support in the context of adolescents of mothers with depressive symptoms. Prior research regarding social support has not distinguished maternal support from the support of others. In this study, besides others' social support, maternal support was explicitly identified. The results revealed that maternal support and support from others were key factors influencing adolescents' self-esteem. Thus, either support from one's respective mother, who has depressive symptoms, or from others, could attenuate the impact of maternal depressive symptoms on an adolescent's self-esteem.

Study Limitations and Recommendations for Future Research

All studies have limitation and this study is no exception. Firstly, the sample was limited to high school adolescents in Bangkok. Therefore, the findings are not generalizable to the entire Thai adolescent population, or to adolescents whose respective mother does not have depressive symptoms. Secondly, the sample consisted entirely of adolescence. It is possible that the relationship between maternal depressive symptoms and the course of depressive symptoms, in adolescents, might differ between individuals with pre-pubertal versus post-pubertal depressive symptoms onset.[40]

Based on the causal model, developed in this study, a potential future direction for research could be to test the causal model in other samples, i.e. Thai vocational and college students. Given the susceptibility of girls to impaired mothering, a study regarding the development, implementation and evaluation of mental health programs focusing on adolescent females might be in order.

Implications for Nursing Practice

The results reveal that having a mother with depressive symptoms is a sign of risk for depressive symptoms in an adolescent. Nurses, both in hospital and community settings, need to detect early depressive symptoms in adolescents, and provide appropriate preventive interventions. Mothers diagnosed with depression should be immediately assessed for their ability to take care of their children, and their interpersonal relationships with family members, which might create stress. Children of depressed women need regular monitoring for risk of developing problematic behaviors and depressive symptoms. They need to be provided with age appropriate information regarding stress management options. In the community, specifically in the schools, effective screening for at-risk adolescents is needed.

Psychiatric-mental health nurses need to assist teachers in developing the ability to assess and identify adolescents of mothers with depressive symptoms, and those at risk for impaired educational, social, and emotional functioning. School-based interventions, designed to improve maternal parenting and enhance social support, as well as protect self-

esteem in adolescents of mothers with depressive symptoms, need to be initiated. Such interventions would strengthen the family-school relationship, whereby schools could become more involved in the well-being of their students, and parents could gain social support and greater involvement within the multiple contexts and needs of their children.

Currently all high schools, in Bangkok, are run by the Ministry of Education and have instituted the 'student caring system'. Teachers are in the best place to identify and screen students who may be at risk. However, questionnaires, currently being used, are not designed to screen for depressive symptoms, or to screen adolescents for the signs of risk for depressive symptoms. Thus, effective screening instruments and interventions for adolescents with symptomatic parents are needed in Thailand.

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ความสัมพันธ์ระหว่างภาวะซึมเศร้าในมารดา เพศ และ ภาวะซึมเศร้าในวัยรุ่นไทย

นพพร ว่องสิริมาศ, ยาใจ สิทธิมงคล, Linda S. Beeber, นงลักษณ์ วิรัชชัย, โสภิณ แสงอ่อน

บทคัดย่อ: งานวิจัยนี้มีวัตถุประสงค์เพื่อทดสอบรูปแบบความสัมพันธ์ของกลุ่มตัวแปรที่มีความสัมพันธ์กับภาวะซึมเศร้าในวัยรุ่นที่มีมารดาซึมเศร้า โดยทำการทดสอบโมเดลสมการโครงสร้างของภาวะซึมเศร้าในวัยรุ่น กรอบทฤษฎีที่ใช้ในงานวิจัยนี้คือ Interpersonal Theory of Depression กลุ่มตัวอย่างได้มาโดยการสุ่มได้วัยรุ่นจำนวน 460 คนและมารดาของวัยรุ่นแต่ละคน เครื่องมือที่ใช้ในการวิจัยที่วัยรุ่นเป็นผู้ตอบ ได้แก่ แบบสอบถามข้อมูลส่วนบุคคล ภาวะซึมเศร้า การเห็นคุณค่าในตนเอง การสนับสนุนทางสังคมจากบุคคลอื่น การสนับสนุนทางสังคมจากมารดา เหตุการณ์ที่สร้างความยุ่งยากใจ และการเลี้ยงดูของมารดา ส่วนเครื่องมือวิจัยที่มารดาเป็นผู้ตอบ ได้แก่ แบบสอบถามข้อมูลส่วนบุคคลและภาวะซึมเศร้า ผลการศึกษาพบว่า โมเดลสมการโครงสร้างมีความสอดคล้องกับข้อมูลเชิงประจักษ์และสามารถอธิบายความแปรปรวนของภาวะซึมเศร้าในวัยรุ่นไทยที่มีมารดาซึมเศร้าได้มากกว่า 60 %

ผลการวิจัยนี้แสดงให้เห็นถึงอิทธิพลของภาวะซึมเศร้าในมารดาและบทบาทของตัวแปรส่งผ่านที่มีอิทธิพลต่อการเกิดภาวะซึมเศร้าในวัยรุ่น ผลการศึกษาครั้งนี้ทำให้เกิดความเข้าใจในการพัฒนาโปรแกรมการป้องกันการเกิดภาวะซึมเศร้าในวัยรุ่นที่มีมารดาซึมเศร้าและการส่งเสริมภาวะสุขภาพจิตในเด็กไทยที่มีมารดามีภาวะซึมเศร้า

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***ติดต่อที่: นพพร ว่องสิริมาศ**, RN, Ph.D. Candidate คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย **E-mail:** nsncr@mahidol.ac.th*
***ยาใจ สิทธิมงคล**, RN, PhD. รองศาสตราจารย์ ภาควิชาสุขภาพจิตและการพยาบาลจิตเวชศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย*
***Linda S. Beeber**, RN, PhD, FAAN. Professor, School of Nursing University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.*
***นงลักษณ์ วิรัชชัย**, PhD. ศาสตราจารย์เกียรติคุณ ภาควิชาวิจัยการศึกษาและจิตวิทยา จุฬาลงกรณ์มหาวิทยาลัย กรุงเทพฯ ประเทศไทย*
***โสภิณ แสงอ่อน**, RN, PhD. ผู้ช่วยศาสตราจารย์ ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย*