Predictive Model of Quality of Life among Thai Pregnant Teenagers

Napaphen Jantacumma, Arpaporn Powwattana, Sunee Lagampan, Natkamol Chansatitporn*

Abstract: Pregnancy among teenagers is a major public health problem worldwide. Traditionally, they have been considered a risk group, individuals having both physical health and psychological problems, with fewer social connections, low learning and educational achievement, and a poor quality of life. The goal of this cross-sectional study was to test a predictive model of quality of life among pregnant teens. This predictive model of quality of life included 449 Thai pregnant teenagers who received pre-natal care in four provincial hospitals and four community hospitals in northeast Thailand. Data were collected using the Social Support Measure, the Social Readjustment Rating Scale, the Abuse Assessment Screen, the Center for epidemiologic Studies Depression Scale, the Health Literacy Measure, and the Thai version of World Health Organization Quality of Life questionnaire. A structural equation model was used to analyze all factors' relationships in the model and how they affect to quality of life.

Results indicated that the modified Model of Quality of Life among Thai Pregnant Teenagers fitted the data well and could explain 68% of variance of quality of life. In addition, social support, depression, and health literacy had a direct effect on quality of life. Meanwhile, social support had an indirect effect on quality of life, mediated through depression and health literacy of the pregnant teenager. Thus, nursing interventions should aim to reduce depression and to improve social support and health literacy for a better quality of life for these teenagers.

Pacific Rim Int J Nurs Res 2018; 22(1) 30-42

Keywords: Depression, Domestic violence, Health literacy, Pregnancy, Quality of life, Social support, Stressful life events, Teenagers.

Introduction

Pregnancy among teenagers is a major public health problem worldwide. A global survey of teenage pregnancy found that the global average of teen pregnancy is 65 per 1000 women, while Asia averages 56 and Thailand 70 pregnancies.[1] In the US in 2015, babies born to women aged 15 to 19 totaled 22.3 per 1000 women[2], compared to 53.8 babies per 1,000 women in Thailand.[3] Pregnant teenagers are considered a high risk group, having both physical

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and psychological problems such as fewer social connections, low learning and educational achievement and greater economic problems, all affecting their prenatal healthcare and quality of life (QOL).

Quality of life (QOL) is conceptualized as individual perceptions of well-being in various life domains containing physical health, psychological status, social relationships and environmental conditions.[4] Empirical studies from differing cultural contexts have all reported that pregnancy is significantly associated with a deteriorating QOL.[5] Unplanned pregnancy can cause both physical and mental distress and can disturb women's QOL.[5] Several studies have found oral pain, back pain and severe nausea and vomiting during pregnancy causing adverse effects on QOL.[6] As is well known, teenager's physical, mental and emotional states have not completely developed. When their bodies changed due to pregnancy, they may confront a serious emotional flood of negative feelings, become self-centered and begin worrying about their physical changes.[5] All of these conditions may affect their health and pregnancy outcomes, resulting in poor QOL and threatening their health and well-being as well.[3] Prenatal depression among women is known to limit QOL, more through limits on physical functioning as compared to pregnant women without depression.[7]

The association between depression and poor QOL continues to be examined among all pregnant women, but few studies have explored QOL among teenagers during their pregnancies.[5] In several studies, an association was shown between depression and lower QOL with poor functioning during pregnancy.[8] Depression is indicated as the most common complication occurring during pregnancy.[9] It is broadly understood that depression has many negative effects during pregnancy in both adult and teenage populations. The incidence of pregnant women experiencing depressive symptoms was recently reported at 12.7%, and the prevalence of major depressive disorders was much higher, between 16% and 44% among pregnant teenagers.[3] In Thailand, the prevalence of depression among pregnant teenagers in the Bangkok Metropolitan Area was reportedly 47.01%.[10] Pregnant women facing depression are more likely to experience preterm labor,[8] and women with adverse health behaviors like alcohol consumption and smoking are at risk of low birth weight.[11] In addition, extreme depression may lead to suicidal thoughts and attempts.[12]

Several studies have indicated the variables associated with prenatal depression. One meta- analysis revealed that domestic violence (DV), stressful life events (SLE), and inadequate social support (SS) were significantly associated with depression as evidenced by multivariate analyses.[12] Some studies have found that pregnant teenagers are more likely to have abusive relationships. Teenagers may romanticize their affections and believe that control and possessiveness are true signs of love.[11] Pregnant teenagers are more likely to have fewer opportunities to escape domestic violence as compared to pregnant adults. The low self-esteem and depression among teenagers causes them to be vulnerable to dependency on a controlling male.[13] Some studies also point out that pregnant teenagers who experience domestic violence, are more likely to have mental health problems.[14]

Pregnant teenagers are experiencing one of the most stressful events of life, and it can increase risk of psychological problems. Many studies have assessed life stress as a contributing factor for prenatal depression;[15] some have reported that increasing levels of stress contribute to the level of depression.[14] Sometimes, pregnant teenagers' stress is caused by role confusion. Their problems include dropping out of school, feeling ashamed and afraid to deliver the baby, facing economic crisis and unemployment, dealing with negative attitudes and blame from family and community members, and feeling unhappy.[15] The negative attitudes and blame from family members causes teenagers high levels of stress and affects their psychosocial health, sometimes leading to depressive disorders.[16]

Findings show decreasing social support and increased feelings of loneliness were associated with depression. Depression among pregnant teenagers was associated with self-esteem, marital adjustment, social support, type of family and family income.[10] Related studies show that pregnant teenagers often feel ashamed because they have to change from being a student to a mother, or from being a daughter to the role of teenage mother.[15] They face troubles from inadequate social support from family members and partners, economic crisis and unemployment, abuse and negative attitudes toward them. Their limited social relationships can lead them toward negative behaviors like alcohol consumption, drug addiction and suicidal ideas. The pregnant teenager's experience of domestic violence, stressful life events, sexual abuse, emotional grief, income earning crisis, bad reactions from others for becoming a mother, lack of important information and less psychological support may directly decrease their QOL. The reason why QOL enhancement lessens symptoms of depression is unclear, but it hypothesizes that it might be due to improved health literacy. HL is an individual's capacity to obtain, process, and understand basic health information[17] needed to make appropriate health decisions. Such an outlook produces personal improvement, decreases stress, and reduces susceptibility to depression. In contrast, individuals with low HL shy away from challenges, are quick to discontinue difficult processes, and are prone to higher levels of depression[18] and lower levels of QOL.[19]

Low HL is seen in both depression and limited social support. Individuals who suffer from depression report poor HL, plus low social support, feelings of worthlessness, and external locus of control, and experience guilt or shame over their limitations. Indeed, depression and limited literacy often coexist. Individuals with limited literacy are nearly three times more likely to have depressive symptoms than those with adequate literacy skills.[20] Some reports have suggested that a low level of self-reported health status holds a positive association with a low level of health literacy. Information also points to the fact that depression is a strong predictor of health status. Not many studies have focused on the association between low health literacy and depression; so this association is not well understood.[19] Limited health literacy and depressive symptoms are known to be important factors in interrupting adult and child[19] access to home health care services[20] and health services. Persons with limited literacy are more likely to have depressive symptoms than those with adequate literacy.[18]

This study aims to examine the contributions of social support, stressful life events, domestic violence, depression and health literacy to QOL among pregnant teenagers. Exploring the effects of these predictors contributes to better clarifying the factors influencing depression and the health literacy level that may lead to a higher QOL among pregnant teenagers, guiding interventions for both nurse educators and practitioners.

Conceptual framework

Bronfenbrenner's (1979) ecological model was used to determine the causal relationship factors associated with pregnant teenagers' QOL.[21] This ecological model, related to human development, conceptualizes an ecological framework as managed by different systems, that is microsystems, mesosystems, exosystems and exo or macrosystems, where different levels are affected differently within each system level.[21, 22] The first and the most basic level is related to the roles, activity patterns and relationships of the individual, named as the microsystem or interactional level. This microsystem level involves activity patterns, roles and interpersonal relations faced in that environment, with primary psychological variables including depression and stressful life events for pregnant teenagers. The mesosystem involves interactions among settings with relevant variables including education, family, religious and peer group settings. Friends, partners and family members are the key persons and the core sources for

teenagers' social support. This study focused on certain factors adversely affecting pregnant teenagers such as domestic violence and social support.

In this study, QOL was conceptualized as pregnant teenagers' perceptions about many life domains of well-being including physical health, psychological status, social relationships and environmental conditions. QOL among pregnant teenagers is affected by depression which can affect pregnant teenagers' health through emotional manifestations such as feeling of distress and impotence in the face of life's demands. The higher depressive symptoms are associated with lower QOL. Pregnant teenagers who suffer from depression reported poor QOL and low HL, having low external locus of control, feelings of worthlessness and shame impairs functional HL and QOL.[7] Social support in this study was conceptualized as teenagers' perception that involve interactions with and caring for in early pregnancy through the transition to confident motherhood. These supportive resources are distinguished as emotional, appraisal, instrumental, and information support.[23] Having social support produces personal improvement, decreases stress, and reduces susceptibility to domestic violence.[12] In contrast, individuals with low social support are prone to have difficulty dealing with stressful life events, and are prone to higher levels of violence and depression. Social support might act as a buffering variable to life events.[17] Pregnant teenagers experience one of the most stressful life events that can induce risk of psychological problems.[15] Many studies have assessed life stress as a relative factor for prenatal depression.[12, 15] Pregnant teenagers who suffer from economic crisis, unemployment, dealing with negative attitudes and blame from their families and friends report more prenatal depressive symptoms than those with less stressful life events.[15] Indeed, stressful life events and domestic violence coexist. Pregnant teenagers are especially exposed to abusive relationships.[12, 14] They may romanticize their affections and believe that control and possessiveness are true signs of love.[11] Low self-esteem and depression causes them to be vulnerable to dependency on a controlling male.

In this study the hypothesized Model of Quality of Life among Thai Pregnant Teenagers (MQLTPT) postulated that stressful life events and domestic violence have direct effects on social support and indirectly cause depression and health literacy. Social support has a direct effect on QOL, and also an indirect effect on QOL through depression and health literacy. Meanwhile health literacy and depression have a direct effect on QOL. (Figure 1)

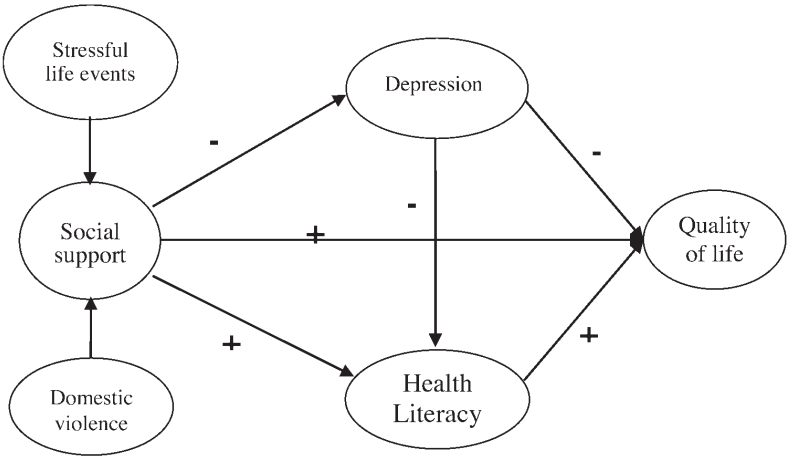

Figure 1 The hypothesized model of QOL among Thai Pregnant Teenagers

Methods

Design:

This study was cross-sectional design.

Sample and Setting:

Data were obtained from pregnant teenagers aged 10-19 years who attended antenatal clinics in the 4 hospitals in lower northeast Thailand. The area was selected as the study site because of its high prevalence of pregnant women less than 20 years of age.[3] The participants were referred by nurses using purposive sampling based on the inclusion criteria as follow: (1) pregnant women aged between 10-19 years; (2) would be pregnant without complication; (3) able to understand and communicate in Thai; and (4) willing to join this study.

The sample size in this study reflects that the structural equation model (SEM) required a minimum sample size of 200-300 cases to obtain stable parameter estimates and standard errors.[24] The sample size was based on the suggestion of Hair et al. that a ratio of 10 respondents per parameter estimates is considered most appropriate for the SEM. However, and additional 10% were added into the calculated sample size,[24] in case of attrition therefore a sample of 449 Thai pregnant teenagers was obtained in this study.

Ethical Considerations: This study was approved by the Research Ethics Committee of the Faculty of Public Health, Mahidol University (#MUPH 2014-216) and the hospital was used as the study site. Potential subjects were informed about the study's purpose, procedure, and participant rights, as well as how to contact the principal investigator (PI) if they desired more information. If they agreed to participate, they were asked to sign an informed assent form. In case of under 18 years, their parents signed a consent form indicating approval of participating in this study. Self-reported data were collected, via anonymous questionnaires in a private place. To avoid possible tension that might arise from completing the questionnaire, a debriefing session was also provided to the teenagers after completion of the questionnaires.

Instruments: The six instruments in this study were examined for content validity by six experts (two psychiatrists, two psychologists and two maternal and child health nurse instructors) using the content validity index (CVI) and examined for internal reliability based on the pilot study data.

Personal information: Demographic information developed by PI included 10 items; the teenagers' age, educational status, religious affiliation, marital status, gestational ages, life style, family income, and health insurance status.

The *Social Support Scale* (SSS) was adapted from House[23] to measure four dimensions of social support as: 1) emotional support; 2) instrumental support; 3) informational support; and 4) appraisal support. The social support used in this study consisted of 26 items (emotional support, 8 items, instrumental support, 8 items, informational support, 5 items, and appraisal support, 5 items). An example of an item is "Family members make you feel warm and safe." The items were arranged in 5-point rating scale ranging from 1(strongly disagree) to 5 (strongly agree). This tool had already been translated into Thai with the acceptable reliability (Cronbach's alpha coefficient = 0.91) and revised in order to serve a teenage pregnancy context.[25] A total score is obtained by summing the score of all items. Possible total scores ranged from 26 to 130 points, with higher scores indicating a higher level of perceived social support. In this study, the CVI was 0.99 and Cronbach's alpha coefficient was 0.83.

The *Social Readjustment Rating Scale* (SRRS) developed by Holmes and Rahe was used to assess stressful life events in this study.[26] Examples of these events are death of family members, and parental divorce or death. Each event has been assigned different weights in terms of their judged severity called "life change unit" (LCU). Pregnant women were asked to indicate whether they had personally experienced any of thirty stressful life events [26] within one year. The life change unit scores of all thirty events were summed to create a total severity score range between 26 to 1677 with higher LCU scores indicating higher risk of illness caused by stress. In this study, the CVI was 0.98 and Cronbach's alpha coefficient was 0.78.

The *Abuse Assessment Screen* (AAS) was used to determine the domestic violence among pregnant teenagers. The Abuse Assessment Screen[27] contains 6 questions which identify the current and past-year, or lifetime abuse. For example, a question is: "Since your pregnancy began, have you been hit, slapped, kicked, or otherwise physically hurt by someone?" Only one situation occurring implies experience domestic violence. For instance, the physical abuse as "a pregnant woman has been slapped, kicked or physically hurt by someone", and psychological abused as "used offensive language, or kept them from going to see family." The participants reply to all items by the dichotomous of yes and no answer, therefore the possible range of domestic violence score is 0 to 6. Higher scores indicate more severe domestic violence. In this study, the CVI was 0.97 and Cronbach's alpha coefficient was 0.94.

The Center for Epidemiologic Studies Depression Scale (CES-D scale) was adapted by Radloff [28] and used to measure maternal depression. It is a 20-item self-report instrument on which rate how often the symptoms of depression happened to themselves during the previous week. An example of an item is "I did not feel like eating; my appetite was poor." Participants are asked to indicate, on a 4-point scale from 0 (rarely or none of the time) to 3 (most or almost of the time).[29] The possible range of total depression scores is 0 to 60 with higher scores indicating greater depressive symptoms. This study used the CED-D Thai-version[30] and validity and reliability of this measure has been established. In this study, the CVI was 0.99 and Cronbach's alpha coefficient was 0.85.

The *Health Literacy Measure* was developed by the PI following the concept of Nutbeam.[31] The scale items were conducted to reflect the pregnant teenagers' health literacy, focusing on three dimensions including functional health literacy, interactive health literacy and critical health literacy. The items were examined and adapted through discussions with experts, clinician, and health care providers working in related fields, and with focus group discussions with pregnant teenagers. The tool consists of 22 questions under three dimensions as: functional HL (8 items); interactive HL (7 items); and critical HL (7 items). Examples of three items, one in each dimension (functional, interactive, and critical) are respectively: "I understand the practice of eating habits that the staff has advised."; "I am capable of choosing the information about taking care of oneself during pregnancy that one wants to know."; and "I will check the information every time when I am concerned about the accuracy." Each item response is scored from 1 (strongly disagree) to 4 (strongly agree), with the possible total scores ranging from 22-88; the higher scores implied higher health literacy in pregnant teenagers. In this study, the CVI was 0.88 and Cronbach's alpha coefficient was 0.94.

The *World Health Organization Quality of Life-BREF-THAI* (WHOQOL-BREF-THAI) was used to measure, over the past two weeks, the participants' perception of their health and QOL. This measure was translated in to Thai from the World Health Organization Quality of Life – BREF[5] (WHOQOL-BREF) by Ministry of Public Health. It consists of 26 items, 24 items reflected 4 dimensions: physical health (7 items); psychological health (6 items); social relationship (3 items); and environment (8 items). The other two items measure global health and QOL. An example of an item from the physical domain is "To what extent do you feel that physical pain prevents you from doing what you need to do?" All questions are measured on a 5-point rating scale ranging from 1 (not at all) to 5 (an extreme amount). A total score is obtained by summing the score of all items, and possible total scores ranged from 26 to 130 points, with higher scores indicating a better quality of life. The instrument's internal consistency reliability, in this study, was found to be 0.89.

Data Collection: The PI asked the director of the hospitals for permission to collect data. The consent form was prepared by the researcher for each participant, guaranteeing present and future confidentially of information received. The research assistants, who had experience in collecting data more than 1 year, were trained in how to work through the steps of collecting data. All questionnaires were administered to assess the pregnant teenagers. It took about 30-45 minutes to

complete all of questionnaires. However, the participants were able to spend as much time as they needed. The researcher was present in the room or private place to answer questions. After handing in the packet of questionnaires, teenagers received a pen and souvenir for appreciation. This research study tested the model of "Quality of Life among Thai Pregnant Teenagers" which consists of six variables; social support, stressful life events, domestic violence, depression, health literacy, and quality of life.

Data Analysis: The SEM was used for data analysis by applying the MPLUS program with the maximum likelihood estimation procedure. The sequence of model testing followed the recommendations of Muthen and Muthen.[32]

Results

Participants were 449 pregnant teenagers. The majority (96.88%) were between 15 to 19 years, and primigravidas (82.63%). About half (45.21%, 46.55%) were second and third trimesters respectively, and two-thirds (66.15%) had an unplanned pregnancy. However, over half of them (66.37%) were in secondary school. Most of the participants (88.64%) identified themselves being in a couple and had no individual incomes (81.29%) so they were unemployed (64.14%) and they were students (17.15%). Almost half of them (44.77%) had family incomes between 5001-10000 Baht ($ 148-295). Mostly (73.05%) mentioned that they had monthly income sufficiency; by 30.74% had enough without debt, 22.71% had enough without saving, and 19.60% had enough with saving.

The structural model in **Figure 1** shows the hypotheses formulated. The data were tested for missing data and univariate outliers and some were deleted, finally the sample was 449 cases. In reviewing the model presented in figure 1 there are 6 unobserved latent factors comprised of 14 observed variables as shown in **Figure 2.** These variables function as indicators of their respective underlying their own latent factors. The correlation matrixes of latent variables are shown in **Table 1.**

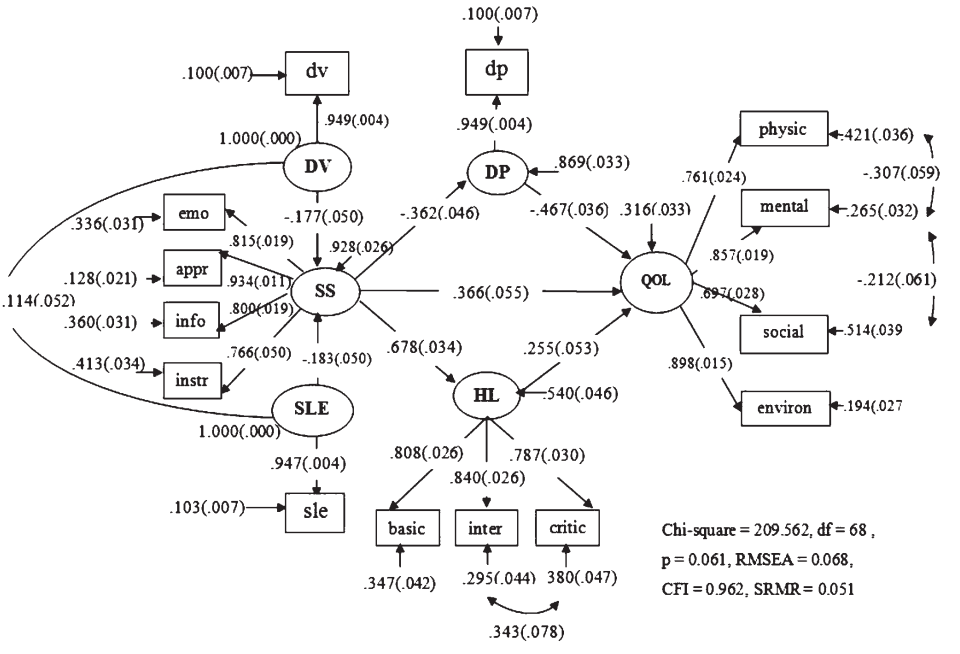

Figure 2 Best Fit Model of QOL among Thai Pregnant Teenagers (n=449)

Table 1 Correlation coefficient matrix of latent variables

Variables	SS	SLE	DV	DP	HL	QOL
Social Support (SS)	1.00					
Stressful Life Event (SLE)	-.171**	1.00				
Domestic Violence (DV)	-.186**	.137**	1.00			
Depression (DP)	-.344**	.276**	.248**	1.00		
Health Literacy (HL)	.578**	-.066	-.159**	-.187**	1.00	
Quality of Life (QOL)	.579**	-.268**	-.268**	-.588**	.480**	1.00

** p < 0.01

After the hypothesized model was tested, all the fit indices showed the model did not fit with the actual data. Therefore, modification of the model was performed based on both reasonability of statistical findings and theoretical knowledge until the model fitted the data well. For the best fit model after modification, the pathway from depression to health literacy which was not significant and having a negative direction, was deleted. This decision was based on the suggestion of the modification index to improve the indices for the goodness of fit and the results demonstrated that the exogenous variable can predict endogenous variable significantly. The best fit model fitted the data well with the Comparative Fit Index, according to criteria suggested by Hair (2010), for this model indicated good fit (CFI = .962), the Root Mean Square Error of Approximation (RMSEA=0.068), and the Standardized Root Mean Square Residual (SRMR = .0.051) fitted the data well, although the overall chi-square was significant, χ^2 (68) = 209.562 p = .061. The indicator factor loadings for the six latent variables, which all significant at the 0.01 level, are shown in **Table 2**

Table 2 The standardized direct effects (DE), indirect effects (IE), and total effects (TE) of the factors on quality of life among Thai pregnant teenagers (the best fit model, n=449)

Exoge - Nous	Endogenous											
	SS			DP			HL			QOL		
	DE	IE	TE	DE	IE	TE	DE	IE	TE	DE	IE	TE
DV	-.177*	-	-.177*	-	-	-	-	-	-	-	-.120*	-.120*
SLE	-.183*	-	-.183*	-	-	-	-	-	-	-	-.124*	-.124*
SS	-	-	-	-.362*	-	-.362*	.678*	-	.678*	.336*	.342*	.678*
DP	-	-	-	-	-	-	-	-	-	-.467*	-	-.467*
HL	-	-	-	-	-	-	-	-	-	.255*	-	.255*

* significance level of 0.01, (R^2)

Note SLE = Stressful Life Events, DP = Depression DV = Domestic Violence, HL= Health Literacy SS = Social Support QOL = Quality of Life

Discussion

The findings support a modified version of the MQLTPT which includes a direct effect from social support to quality of life and eliminating a direct effect from depression to health literacy, these effect more likely to be a stronger predict health literacy and quality of life. Results show that all five factors affected QOL and the most important factors were social support, depression, health literacy, stressful

life events and domestic violence, having effect sizes of 0.678, 0.467, 0.255, 0.124, and 0.120, respectively. In addition, an indirect effect from social support on QOL concerning depression and health literacy was observed. Depression and health literacy acted as the mediators between social support and quality of life.

Results provide insight into influences on quality of life in pregnant teenagers. Domestic violence and stressful life events in this group are likely to predict depressive symptoms, consistent with the study which found an association between violence and depression during pregnancy.[28] However, high social support in this group was more likely to predict high health literacy and predict low depressive symptoms as seen in the Model. Consistent with the findings of Kasak and colleagues, social support had a negative relationship with depression.[10] Pregnant teenagers with high levels of health literacy were more likely to have a good quality of life. This finding was consistent with a previous study that found that limited health literacy impacted outcome.[33] A study by Ownby[34] developed a health literacy measure and found a relationship between health literacy and participants' quality of life. Limited depressive symptoms were also more likely to predict high quality of life in this group. Similarly, Pires indicated increasingly severe depression symptoms predicted a lower QOL during pregnancy among teenagers.[17]

One possible explanation for the best fit model was the homogeneity among participants who had high levels of social support. As mentioned previously, most of the participants had already decided to continue their pregnancies. The fit model found that support from both family members and partners reduced depression among these pregnant teenagers. Family support is the most important element in Thai teenagers' lives. As part of their growing experience, teenagers frequently expect many things from their parents. Inadequate support from their parents increases their chance of having depression. Beside family support, peer and/or boyfriend support also is a very important factor for teenagers. This support can be considered an alternative method of obtaining social support when adolescents receive inadequate attention from their parents.[35] Social support has a significant effect on depression and allows for feeling self-esteem and self-efficacy, thereby resisting negative emotions such as depression. Social support can also provide problem solving strategies for the individual, reduce the importance of the problem and alleviate the harmful effects of a stressful experience.[16] These positive effects can reduce the intensity of the stress, thereby lowering the degree of and reducing depression. Similar results were found through improving social support by strengthening the relationships with teenagers' partners and mothers, contributing to a decrease of depression in pregnant teenagers and helping to overcome teenage depression as well.[20] In summary, social support for pregnant teenagers played an important role on outcomes as it increased the level of QOL. Overall, social support reduced negative emotions such as depressive symptoms among pregnant teenagers. The supports from mother and partner have direct effect by acting as the buffering to reduce those risk factors.[17]

The signs and symptoms of depression among teenagers can vary in severity, and changes in teen's emotions and behavior affects emotional changes including feelings of sadness and hopelessness, loss of interest or pleasure, low self-esteem, trouble thinking and concentrating, in making decisions and remembering things. These changes affect the learning process through tiredness and loss of energy, social isolation, neglected appearance and slow thinking, speaking and/or body movements. Thus, a high level of depression affects the learning process and individual perceptions, creating obstacles to improving health literacy skills. The best fit model found that mild depression in this group did not influence health literacy, which in turn influenced the QOL. A few studies have examined the relationship

between depression and health literacy. However, Smith found that depressed parents had lower health literacy than their non-depressed counterparts.[36] In this study, most participants were not depressed so depression did not impair their health literacy.

Interestingly, a high level of social support influences depression in a negative way and health literacy in a positive way, which in turn influences the QOL of pregnant teenagers. This finding is consistent with a study showing depressive symptoms common among pregnant teenagers and improvements in depressive symptoms associated with higher levels of social support.[37] Another study indicated that QOL among pregnant teenagers with depression may be improved by the important factor of increased social support.[17] However, another study found that the association between pregnant teenagers' QOL and depression during pregnancy was not related to social support.[20]

A recent study showed an association between health literacy and QOL, where patients with lower health literacy reported clinically significant poorer QOL including mental and physical health than patients with higher health literacy.[38] Moreover, another study showed inadequate health literacy was a contributing factor to poor QOL in physical functioning among patients with ischemic heart disease.[39] Pregnant teenagers with low health literacy tend to face difficulties communicating, which may block them from receiving significant information, clearly expressing their concerns, asking questions, requesting emotional support, presenting needs to providers and seeking additional services such as support for mental health. Nevertheless, during the last decade, not many studies have explored the impact of the association of health literacy and employment in predicting QOL. Results above show social support directly predicted health literacy and influenced QOL, both directly and indirectly among pregnant teenagers. This relationship clearly indicates that social support from family members, partners and/or friends helps pregnant teenagers to access information and meet essential needs in daily living activities, care and expenses. Notably, in the Asian context, social support can help pregnant teenagers to achieve a more functional and interactive health literacy, but not with critical health literacy skills.

Another possible explanation for lack of depression was that most study participants had already received antenatal care, and already participated in the educational process. The majority had moderate to high health literacy levels. In sum, the high level of social support in this group influenced health literacy, which in turn influenced their QOL. In this study, social support negatively influenced depression, which in turn influenced QOL.

Limitations and Recommendations for Future Research

The limitation of this study is that social desirability may play a role in the potential for misinformation from poor memory recall. Based on study findings, a few recommendations are offered for further research. Although the hypothesized model proposed relationships leading from depression to health literacy, this study found depression was not able to predict health literacy. In other words, less depression may induce health literacy levels related to promoting QOL among pregnant teenagers. Future research needs to clarify this relationship. In addition, further studies should separate preteens, early teens and late teens to see the different results of these groups using multilevel SEM.

Conclusions and Implications for Nursing Practice

Nurses and midwives should be aware that depression, social support and health literacy have a powerful influence on the QOL among pregnant

teenagers. Therefore, depression screening should be implemented for all pregnant teenagers for early identification and treatment. Information related to health literacy might help nurses and midwives develop more appropriate approaches to promote health literacy for pregnant teenagers. For instance, parenting classes could encourage and empower pregnant teenagers to obtain higher levels of critical health literacy.

Acknowledgments

The authors are grateful to the participants in this study. We would also like to thank the experts who gave of their time and provided insights to study findings. This study was partially supported by the China Medical Board.

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แบบจำลองการทำนายคุณภาพชีวิตของแม่วัยรุ่นไทย

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บทคัดย่อ: การตั้งครรภ์วัยรุ่นเป็นปัญหาที่สำคัญด้านสาธารณสุขทั่วโลก โดยทั่วไปกลุ่มวัยรุ่นตั้งครรภ์เป็นกลุ่มที่เสี่ยงต่อการปัญหาสุขภาพทั้งด้านร่างกายและจิตใจ การแยกตัวออกจากสังคม มีปัญหาด้านการเรียนรู้และการศึกษาและมีคุณภาพชีวิตต่ำ วัตถุประสงค์ของการศึกษานี้เพื่อทดสอบรูปแบบการทำนายคุณภาพชีวิตในแม่วัยรุ่น ประกอบด้วยแรงสนับสนุนทางสังคม เหตุการณ์ความเครียดในชีวิต ความรุนแรงในครอบครัว ภาวะซึมเศร้า และ ความเชี่ยวชาญด้านสุขภาพ โดยทดสอบรูปแบบการทำนายคุณภาพชีวิตในหญิงตั้งครรภ์วัยรุ่นจำนวน 449 คนที่ได้รับการดูแลระหว่างการตั้งครรภ์ที่คลินิกฝากครรภ์ของโรงพยาบาลประจำจังหวัดจำนวน 4 โรงพยาบาล และโรงพยาบาลชุมชนจำนวน 4 โรงพยาบาลในภาคตะวันออกเฉียงเหนือของประเทศไทย วิเคราะห์ข้อมูลโดยใช้สถิติ SEM

ผลการศึกษา พบว่าโมเดลสมมติฐานการวิจัยมีความสอดคล้องกับข้อมูลเชิงประจักษ์และสามารถอธิบายความแปรปรวนของคุณภาพชีวิตในหญิงวัยรุ่นตั้งครรภ์ ได้ร้อยละ 68 โดยพบว่าแรงสนับสนุนทางสังคม ภาวะซึมเศร้า และ ความเข้าใจด้านสุขภาพ มีอิทธิพลทางตรงกับคุณภาพชีวิตของแม่วัยรุ่น ส่วนแรงสนับสนุนทางสังคมมีอิทธิพลทางอ้อมกับคุณภาพชีวิตของแม่วัยรุ่น โดยส่งผ่านภาวะซึมเศร้า และ ความเชี่ยวชาญด้านสุขภาพ ซึ่งผลจากการศึกษานี้สามารถนำไปสู่โปรแกรมที่เกี่ยวข้องกับภาวะซึมเศร้าและความเชี่ยวชาญด้านสุขภาพซึ่งเป็นปัจจัยที่สำคัญ และสามารถนำไปพัฒนาการปฏิบัติการพยาบาลเพื่อลดความเสี่ยงและส่งเสริมปัจจัยที่สำคัญต่อการพัฒนาคุณภาพชีวิตของวัยรุ่นระหว่างตั้งครรภ์

Pacific Rim Int J Nurs Res 2018; 22(1) 30-42

คำสำคัญ: ภาวะซึมเศร้า ความรุนแรงในครอบครัว ความเชี่ยวชาญด้านสุขภาพ วัยรุ่นตั้งครรภ์ คุณภาพชีวิต แรงสนับสนุนทางสังคม เหตุการณ์ความเครียดในชีวิต

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