

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions of the study including the purpose of the study, methodology, data analysis procedures, and findings. Implications for nursing practice and nursing research, and recommendation for further study are also presented. Finally, limitations of the study are displayed.

Summary of the Study

The purpose of this cross-sectional descriptive correlational study was to investigate factors predicting fatigue among Thai women receiving adjuvant chemotherapy for breast cancer. Based on the Piper's Integrated Fatigue Model (Piper et al., 1987) and literature review, the chemotherapy protocol, BMI, hemoglobin levels, pain, nausea and vomiting, sleep disturbance, family support, friend support, Buddhist practices, anxiety, depression, and fatigue were selected as the study variables.

A purposive sampling was employed to recruit the study sample, which initially consisted of 162 Thai women with breast cancer. However, three multivariate outliers were deleted, thus the final sample consisted of 159 women, with a mean age of 49.82 years. Most participants were married (65.4%) and had stage II breast cancer (64.8%).

Chemotherapy protocol, BMI, and hemoglobin levels were obtained from the patients' medical records. Pain, nausea and vomiting were measured by the

Modified Symptom Distress Scale. Sleep disturbance, family support, friend support, Buddhist practices, anxiety and depression, and fatigue were measured by the General Sleep Disturbance Scale, the Family APGAR Questionnaire, the Friend APGAR Questionnaire, the Hospital Anxiety and Depression Scale, and the Revised Piper Fatigue Scale, respectively. The reliability coefficients of the scales used were acceptable to good, ranging from .70 to .95.

Descriptive statistics were used to describe characteristics of the sample and to explain the distribution of data. The hypothesized model was tested using the EQS 6.1 program. The initial model did not fit the data, and was modified by the Wald Test for dropping non-significant paths and by the Lagrange Multiplier (LM) Test for adding paths until the goodness-of-fit indices were adequate.

During the modification process, eleven paths and three correlations were dropped (BMI-fatigue; sleep disturbance-Buddhist practices, friend support-fatigue; sleep disturbance-depression; pain-fatigue; nausea and vomit-depression; friend support-depression; Buddhist practices-depression; hemoglobin level-fatigue; family support-anxiety; chemotherapy protocol-fatigue; pain-sleep disturbance; pain-friend support; and pain-family support). The LM Test suggested that one path and one correlation be added. These included a path between friend support and Buddhist practices, and a correlation between family support and friend support. In the final model, multiple fit indices suggested that the modified model did fit the data well.

Findings and Conclusions

Chemotherapy protocol, BMI, and hemoglobin levels did not significantly affect fatigue. Pain had a direct negative effect on Buddhist practices, as well as a

direct positive effect on anxiety and depression. Additionally, it had both a significant indirect positive effect on anxiety through Buddhist practices, and on depression through anxiety, as well as a significant indirect positive effect on fatigue through Buddhist practices, anxiety and depression.

Nausea and vomiting had a significant direct negative effect on Buddhist practices, as well as a significant direct positive effect on anxiety and fatigue. In addition, nausea and vomiting had both significant indirect positive effects on anxiety through Buddhist practices; and on depression through anxiety, as well as a significant indirect positive effect on fatigue through Buddhist practices and anxiety.

Sleep disturbance had a significant positively direct effect on anxiety and fatigue. Moreover, it had both a significant positively indirect effect on depression and on fatigue through anxiety.

Family support had both a significant negative direct effect on depression and on fatigue, as well as a significant negative indirect effect on fatigue through depression. Friend support had a significant direct positive effect on Buddhist practices, while both had a significant direct and indirect negative effect on anxiety. Additionally, friend support had a significant negative indirect effect on depression through anxiety, and on fatigue through Buddhist practices and anxiety.

Buddhist practices had both significant negative direct effects on anxiety and on fatigue. In addition, Buddhist practices had both a significant negative indirect effect on depression and on fatigue through anxiety.

Anxiety had both significant positive direct effects on depression and on fatigue. In addition, it also had a significant indirect positive effect on fatigue through depression. Lastly, depression had a significant positive direct effect on fatigue.

Pain, nausea and vomiting, sleep disturbance, family support, friend support, Buddhist practices, anxiety, and depression accounted for 80.4% of total variance in fatigue.

In conclusion, among 11 predictors in the proposed model, three predictors including chemotherapy protocol, BMI, and Hb level did not significantly affect fatigue. Six predictors including nausea and vomiting, sleep disturbance, family support, Buddhist practices, anxiety, and depression had a direct, indirect, or both effects on fatigue. Only pain and friend support showed indirect effect on fatigue. Among these eight predictors, pain, nausea and vomiting, sleep disturbance, anxiety, and depression had positive total effect on fatigue, while family support, friend support, and Buddhist practices had negative total effects on fatigue. In addition, eight predictors in the final model explained 80.4% of total variance in fatigue. Anxiety ($\beta = .57, p < .001$) had the highest total effect, followed by Buddhist practices ($\beta = -.41, p < .001$), nausea and vomiting ($\gamma = .32, p < .001$), depression ($\beta = .27, p < .001$), sleep disturbance ($\gamma = .23, p < .001$), pain ($\gamma = .20, p < .01$), and friend support ($\gamma = -.18, p < .01$), while family support ($\gamma = -.14, p < .01$) had the least total effect on fatigue.

This study contributes to nursing knowledge development by testing the model for predicting fatigue that derived from the Piper's Integrated Fatigue Model (PIF). In addition, these will guide future studies to expand theory to a level of control or guide practice by conducting experimental research designs. Also, knowledge about factors predicting fatigue will serve as a guideline in nursing interventions to alleviate the fatigue of women with breast cancer during adjuvant chemotherapy.

Implications

Based on the findings of this study, implications for nursing practice, and nursing research, are proposed as follows:

Implications for Nursing Practice

This study indicates that Buddhist practices are very influential in fatigue perception. As such, it is important for nurses to respect and understand the religious beliefs and practices of Thai women with breast cancer. Further, Buddhist practices can help Thai women in coping with cancer and in alleviating fatigue. Therefore, nurses should be aware that when working with Buddhist women, religious beliefs and practices deserve particular attention throughout the process of assessment and intervention, by providing the environment allowing women to perform Buddhist practices as their needs.

Moreover, family support and friend support negatively contribute to fatigue. Friend support also contributes to Buddhist practices, particularly support from other patients. Nurses should facilitate and encourage patients to share their experiences with one another as well as with family members as a means to enhancing and finding effective coping strategies to manage factors that significantly influence fatigue by facilitating development of self-help groups or support groups that allow women to share their experiences.

Regarding the influence of psychological distress, especially the anxiety that was the most important predictor of fatigue, nurses should initiate a comprehensive assessment as well as an effective eliminating intervention focusing on psychological

symptoms. Psycho-education including group therapy and individual therapy should be implemented to reduce anxiety.

In addition, nurses need to be concerned with women experiencing severity of pain, nausea and vomiting, or sleep disturbance that lead to perceived severity of fatigue. Regarding the influence of these symptoms, nurses should initiate a comprehensive assessment as well as an effective eliminating intervention focusing on pain, nausea and vomiting, and sleep disturbance. Effective management should be applied to relieving severity of pain, nausea and vomiting, and sleep disturbance, contributing to reduce fatigue.

Implications for Nursing Research

The model for predicting fatigue makes a contribution to scientific knowledge, and it can also form the basis for further research to help nurses to investigate the kinds of questions that will lead to developing symptom management strategies to alleviate fatigue. This model is in its early testing phase with the Thai population, yet significant associations among the major concepts proposed in the model indicate that further testing is warranted.

Limitations of the Study

While this study has presented some important findings, several limitations should be noted.

Regarding the cross-sectional design, it limits the ability to make causal inferences among study variables. This non-experimental, cross-sectional research, however, was considered as a preliminary step for intervention study.

The study model is recursive, with unidirectional flow and no reciprocal causation between endogenous variables existing, thus its explanatory power is limited, as variables in social and behavioral sciences often interact with one another. Since this study was cross-sectional, a nonrecursive path model was not permitted (Munro, 1997).

Generalization of this study should be made cautiously due to the purposive sample, limit the sample to women receiving adjuvant breast cancer chemotherapy in two university medical center hospitals in Bangkok, the urban area.

Instrumentation issues, the Family APGAR, the Friend APGAR Questionnaire, and the Buddhist Practice Scale have some points to be noted. The Family APGAR and the Friend APGAR Questionnaire measured family support and friend support in general. These instruments did not cover illness-specific supports from health care providers. In addition, the Buddhist Practice Scale was newly developed. The items in this scale should have measured coping; however some items were found to measure capabilities to perform activities more than coping. Therefore, the construct validity of the Buddhist Practice Scale needs to be explored.

Recommendations for Further Studies

Taking into account the study findings and the limitations of this study, recommendations for further research include the following:

1. A longitudinal design is recommended as it has more power than a cross-sectional design. Time sequence provides more validity for the questions regarding changes, developmental processes, and causal explanations.

2. Experimental studies aimed to modify the severity of pain, nausea and vomiting, and to decrease anxiety and depression, as well as promoting sleep hygiene, enhancing family and friend support, and providing opportunity for Buddhist practices should be developed and tested to reduce fatigue.

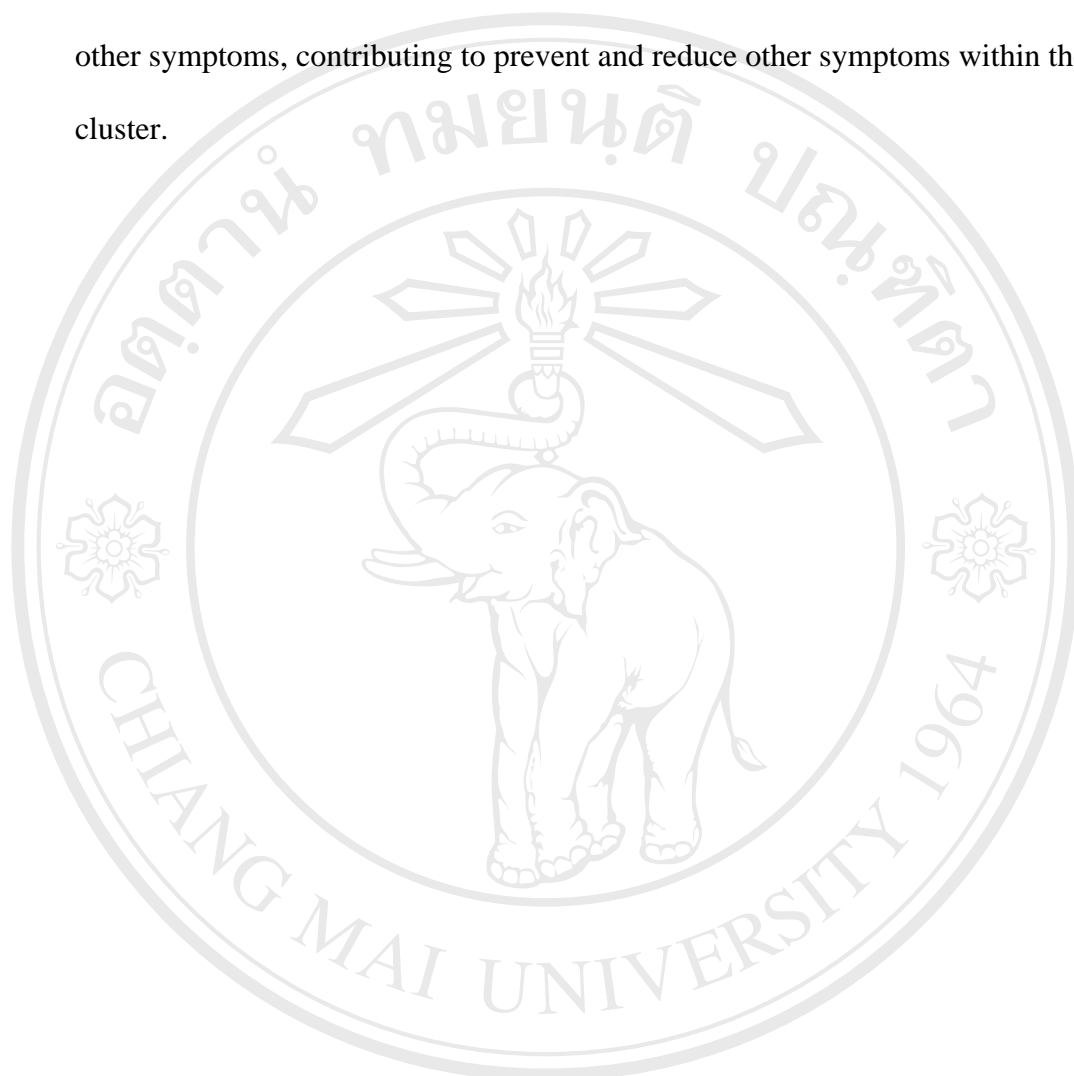
3. The sample in this study is more likely to reflect Thai women with breast cancer receiving treatment in university medical center hospitals in Bangkok, urban area. Therefore, future studies should include samples from different settings such as rural areas, and compare them simultaneously using the multiple structural equation modeling approach. This method may explain how different or similar factors can contribute to fatigue in various samples, and to generalize the findings among Thai women with breast cancer.

4. Triangulation techniques that use both qualitative and quantitative data to draw conclusions are needed to provide more comprehensive information about physical symptoms, psychological symptoms, family support, friend support, and Buddhist practices in relation to fatigue.

5. Concerning the instrument used in this study, the Buddhist Practice Scale was in the beginning developmental. Although its reliability showed acceptable values, further testing of its construct validity to increase the accuracy of measurement that measures coping is needed.

6. Regarding the limitations of using the Family APGAR and Friend APGAR Questionnaire in this study, further research should consider using social support instruments that include all sources of support from professional providers, family, and friends, as well as illness-specific supports.

7. A study of symptom clusters should be identified to help nurses identify which symptoms have strong effects on individuals and have additional effects on other symptoms, contributing to prevent and reduce other symptoms within the cluster.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright © by Chiang Mai University
All rights reserved