โมเดลเชิงสาเหตุของความผาสุกทางจิตวิญญาณของผู้เป็นโรคไตวายเรื้อรังระยะสุดท้ายที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม

A Causal Model of Spiritual Well-being in Persons with End Stage Renal Disease Receiving Hemodialysis

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บทคัดย่อ

การทดสอบโมเดลแบบภาคตัดขวางนี้ มีวัตถุประสงค์เพื่อทดสอบแบบจำลองเชิงสาเหตุความผาสุกทางจิตวิญญาณ ของผู้เป็นโรคไตวายเรื้อรังระยะสุดท้ายที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม กลุ่มตัวอย่างคือผู้เป็นโรคไตวายเรื้อรังระยะสุดท้ายที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียมในจังหวัดชลบุรี จำนวน 270 คน คัดเลือกโดยการสุ่มแบบหลายขั้นตอน เครื่องมือที่ใช้ในการวิจัยประกอบด้วยแบบสอบถามจำนวน 6 ชุด ได้แก่ ความผาสุกทางจิตวิญญาณ ประสบการอาการ ความสามารถในการปฏิบัติกิจวัตรประจำวัน การดูแลแบบประคับประคอง ความเชื่อและการปฏิบัติกิจกรรมทางศาสนา และการสนับสนุนทางสังคม ค่าสัมประสิทธ์ แอลฟของคอนบาค เท่ากับ 0.84, 0.90, 0.88, 0.81, 0.71, 0.88 ตามลำดับ และค่าความตรงเชิงเนื้อหา (CVI) ของแบบสอบถามประสบการอาการ และการดูแลแบบประคับประคอง เท่ากับ 0.88 และ 0.90 ตามลำดับ การวิเคราะห์ข้อมูลใช้สถิติพรรณนาและโมเดลสมการโครงสร้าง

ผลการศึกษาพบว่า โมเดลที่ศึกษามีสัดส่วนความแปรปรวนที่อธิบายโมเดลร้อยละ 50 – 60.9 โดยประสบการอาการ (β = -.109) การสนับสนุนทางสังคม (β = .299) ความสามารถในการปฏิบัติกิจวัตรประจำวัน (β = .186) การดูแลแบบประคับประคอง (β = 0.272) ความเชื่อและการปฏิบัติกิจกรรมทางศาสนา (β = .01) มีอิทธิพลทางตรงต่อความผาสุกทางจิตวิญญาณ ประสบการอาการเป็นตัวแปรส่งผ่านระหว่างความช่วยเหลือทางสังคมและความผาสุกทางจิตวิญญาณ แบบจำลองโมเดลเชิงสาเหตุความกลมกลืนกับข้อมูลเชิงประจักษ์ (χ^2 = 97.495, p = .301, df = 91, CMIN/ df = 1.132, GFI = .965, AGFI = .920, and RMSEA =. 016) ผลการศึกษานี้สามารถใช้เป็นแนวทางในการส่งเสริมความผาสุกทางจิตวิญญาณของผู้ที่เป็นโรคไตวายเรื้อรังระยะสุดท้ายได้ โดยพยาบาลต้องส่งเสริมการสนับสนุนทางสังคม การดูแลแบบประคับประคอง ส่งเสริมความเชื่อและการปฏิบัติกิจกรรมทางศาสนา และความสามารถในการปฏิบัติกิจวัตรประจำวัน รวมทั้งลดอาการไม่สุขสบายที่เกิดขึ้นกับผู้ป่วย

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Abstract

A model-testing, cross-sectional study was conducted to test a causal model of spiritual well-being in persons with ESRD. A multi-stage random sampling was used to recruit a sample of 270 persons with ESRD who received hemodialysis in Chon Buri Province. Research instruments included six scales of the Spiritual Well-Being, the Memorial Symptom Assessment, the Barthel's Activities of Daily Living Index, the Perception of Palliative Care, the Duke University Religion Index, and the Multidimensional Scale of Perceived Social Support. Data were analyzed by using descriptive statistics and Structural Equation Modeling.

The results revealed that the modification of the hypothesized model fit the data well (χ^2 = 97.495, p = .301, df = 91, CMIN/ df = 1.132, GFI = .965, AGFI = .920, and RMSEA =. 016) accounted for 50 – 60.9 percent of variance in prediction of spiritual well-being in persons with ESRD. Symptom experience, social support, activities of daily living, receiving palliative care and religiosity had direct effects on spiritual well-being (β = -0.109, 0.299, 0.186, 0.272 and 0.01, respectively). Symptom experience mediated the link between social support and spiritual well-being. These findings indicate that this causal model is appropriated. It would suggest a direction for the nursing profession to enhance spiritual well-being of persons with ESRD receiving hemodialysis through providing social support, palliative care and religiosity, reducing symptom experience and improving activities daily living.

Keywords: Spiritual well-being, End stage renal disease, Hemodialysis

Introduction

Spiritual well-being is a condition in which persons achieve self-understanding and life comprehension with the enjoyment of purposeful and hopeful living.[1,2] It is vital for chronic illness persons who have to face a life-threatening situation of incurable diseases. It also enhances their positive attitude and emotion as well as enable them to live more meaningfully in the midst of suffering and to accept those ailments. [3,4]

The end stage renal disease (ESRD) is a chronic illness with approaching to end of life condition in which kidneys fail to excrete metabolic waste and causing permanent renal replacement therapy (hemodialysis).[5] Because of its incurable nature, needs of costly treatments and, importantly, tendency of higher number of persons on yearly basis.[6] Persons with ESRD receiving hemodialysis would suffer from chronic symptoms owing to the uremic state, electrolyte imbalance and hemodialysis related complications such as fatigue/tired, pruritus, sleep disturbance, anxiety, depression, social abandonment, loss of body image, work effectiveness, feeling burden to other and contributes to the patients' sense of discouragement and hopelessness.[7-8] Interestingly, literatures showed that persons with ESRD receiving hemodialysis used spiritual well-being as a resource to promote their mental health status, coping of severe and life threating disease, quality of life as well as hope and purposefulness in life.[9-10] Therefore, spiritual well-being in persons with ESRD needs to be concerned.

According to the theory of spiritual well-being in illness by O' Brien[1] and literature review, five major factors influencing spiritual well-being in chronic illness persons include symptom experience, activity daily living, receiving of palliative care, social support, and religiosity.[11] There are a few studies about factor influencing spiritual well-being in persons with ESRD receiving hemodialysis. The study about factors

influencing to spiritual well-being in ESRD is essential. Results of the study could be used to guide development of a nursing intervention to promote spiritual well-being in persons with ESRD receiving hemodialysis.

Research Question

How a causal relationship among symptom experience, activities of daily living, receiving palliative care, social support, and religiosity on spiritual well-being in persons with ESRD receiving hemodialysis?.

Research objective:

To test a causal model of spiritual well-being in persons with ESRD receiving hemodialysis.

The study's conceptual framework

This study's conceptual framework was based on the theory of spiritual well-being in illness by O'Brian1 and reviewed related literatures. The spiritual well-being is also influenced by religious practice, illness severity or symptom experience, activity of daily living as well as social support from families and friends. Moreover, receiving palliative care was found associated with the spiritual well-being. The following hypotheses were posed:

1. Symptom experience has a negative direct effect and an indirect effect through activities of daily living on spiritual well-being in persons with ESRD receiving hemodialysis.

2. Activities of daily living have a positive direct effect on spiritual well-being in persons with ESRD receiving hemodialysis.

3. Receiving palliative care has a positive direct effect and a negative indirect effect through symptom experience on spiritual well-being in persons with ESRD receiving hemodialysis.

4. Social support has a positive direct effect and indirect effects through activities of daily living and symptom experience on spiritual well-being in persons with ESRD receiving hemodialysis.

5. Religiosity has a positive direct effect and an indirect effect through social support on spiritual well-being in persons with ESRD receiving hemodialysis.

6. Symptom experience, activities of daily living, receiving palliative care, social support and religiosity influence spiritual well-being in persons with ESRD receiving hemodialysis.

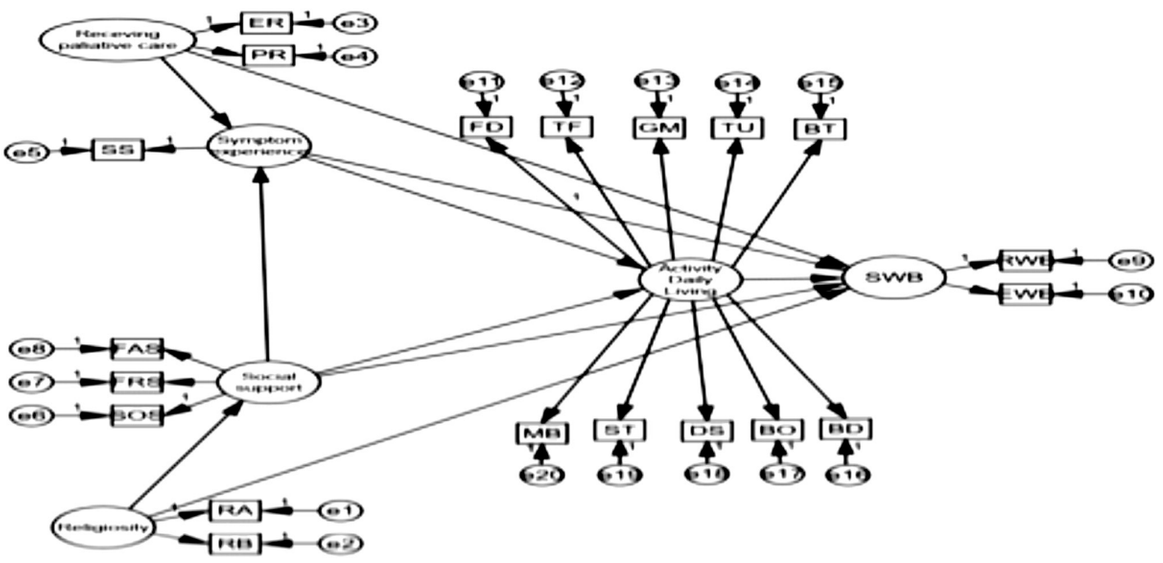

Figure 1 The hypothesized model of spiritual well-being in persons with end stage renal disease

Methods

Design: A model-testing, cross-sectional study.

Study population and sample: The target population was persons diagnosed as end stage renal disease receiving hemodialysis in Renal Replacement Therapy Units of public hospitals, and the municipality hemodialysis centers and private hospital in Chon Buri province, 950 persons. The sample size was based calculation for structural equation model testing by Hair et al.[12] The minimum ratio of sample size for each estimated parameter should be at least 5 respondents. Therefore, a sample of 270 with 54 estimated parameters was obtained in this study. A multi-stage random sampling technique was used in choosing 8 Renal Replacement Therapy Units for this study. The participants who met the inclusion criteria were recruited using a convenience sampling technique. Inclusion criteria for the sample recruitment were; age between 18-60 years, diagnosed as end stage renal disease stage by a physician, receiving hemodialysis at least 6 months, and no other serious co-morbidity disease, excepted for controllable hypertension and diabetes.

Ethical consideration: This study was approved by the Institutional Review Board (IRB) of the Faculty of Nursing (No. 4-12-2561) and Faculty of Medicine (No. 016/2562), Burapha University, Self-introduction, clarifying research objectives and rights to withdraw were explained to all eligible participants.

Data collection procedures: After receiving IRB approval from the ethical committee, the researcher contacted the head nurses of RRT Unit to explain the study objectives and ask for cooperation to collect data. Then, the researcher selected participants from their list name in medical records who met the study inclusion criteria. After the consent forms were obtained, the participants were invited to spend about 30 minutes before receiving hemodialysis to complete the questionnaires. The researcher was nearby to easily see and could provide them assistance.

Research instruments: Data were collected by using seven self-report questionnaires.

A demographic questionnaire was developed by the researcher. It collected the sample characteristics including age, sex, education level, marital status, financial status, and history of ESRD and care.

The Spiritual Well-Being Scale (SWBS) was originally developed by Ellison and Paloutzian[13] and translated into Thai by Noipiang[14]. This measure was used to assess spiritual well-being. It contained 20 items or 10 each for religious well-being (RWB) and existential well-being (EWB) subscales. Each item was scored on a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). Its total score ranges from 20 to 120. The higher scores represent the greater level of spiritual well-being. In this study, the Cronbach alpha coefficient was .84.

The Memorial Symptom Assessment Scale (MSAS), which was originally developed by Portenoy and colleague[15] and was modified by the researcher. This measure was used to assess symptom experience. It consists of 26 items, which assesses the prevalence, frequency, severity and distress of 26 symptoms. The frequency of symptoms was assessed on a four-point Likert scale, ranging from 1 (rarely) to 4 (almost constantly). The highest score represents the most symptom experience of each dimension and vice versa. In this study, the Cronbach alpha coefficients were .92, .86, .89 and .90 for symptom prevalence, frequency, severity, and distress, respectively.

The Barthel Index of Activities of Daily Living was translated into Thai by Prasat Neurological Institute from its original one developed by Mahoney

and Barthel[16]. It was used to assess the sample's ability to perform personal activities of daily living. It comprises 10 items including feeding, bathing, grooming, dressing, bowels, bladder, toilet use, transfer, mobility, and stairs. The total score of the Barthel Activities of Daily Living Index is in the range of 0-20 points. The higher scores represent the greater level of ability to perform all activities of daily living on their own. The Cronbach alpha coefficients in this study was.88.

The Perception of Palliative Care Questionnaire was used to measure receiving of palliative care. This measure was originally developed by Milne, Aranda, Jefford, and Schofield[17] and was modified by the researcher. This measure is divided into two parts of emotional (8 items) and physical care receiving (3 items). Each item is scored on a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Its total score ranges from 11 to 77. The higher score presents the higher level of receiving palliative care. In this study, the Cronbach alpha coefficient was.71.

The Duke University Religion Index (DUREL) was used to measure religiosity. This measure was developed by Koenig and colleague.[18] It consists of 3 parts (5 questions) concerning the assessment of religious beliefs and practices of persons. Part 1 and part 2 composes of 1 item/part, the scored on a six-point Likert scale, ranging from 1 (never participate in activities / completely disagree) to 6 (participate in activities more than once per week). Part 3 comprises 3 items and used to assess the religious belief. A total score ranges from 5 - 27. Higher score indicates the persons with a high level of adherence to religious belief or supernatural things and those often engaging in religious activities. The Cronbach alpha coefficient of DUREL in this study was.81.

The Multidimensional Scale of Perceived Social Support (MSPSS), which is translated into Thai by Wongpakaran, Wongpakaran and Ruktrakul[19] from its original one developed by Zimet, Dahlem, Zimet and Farley.[20] It consists of 3 sources of social support (family, friends and significant others). The 12-item questionnaire with a 7-point Likert scale 1 (very strongly disagree) to 7 (very strongly agree) is used. A total score ranges from 12 - 84. The higher scores represent the high level of perceived social support. The psychometric analysis indicates that Cronbach's alpha coefficient of MSPSS in this study was.88.

Data analysis: The descriptive statistics was used to analyze the sample's demographic characteristics and the study's variables. Statistical assumptions of structural equation modeling (SEM), including outlier, normality, linearity, and multicolinearity, were tested. Then the hypothesized model was tested directly and indirectly. The maximum likelihood method was used to estimate the relationships among the variables.

Results

A total of 270 participants with 60.4% were male and 71.1% were married. Their age ranged from 22 to 60 years old with a mean of 46.36 years (SD = 9.6). About 39.6% of their caregivers were spouses. Most of them had received hemodialysis for three years or less (59.2%), and two or three times per week (52.1% received twice per week). Most of them had their monthly family income of 10,000-20,000 Baht (60.40%), and health payment with universal health-care coverage/social insurance (80.7%). Each variable was presented their description using descriptive statistics (Table 1)

Table 1 Mean, standard deviation and range on of the study variables

Variable	M	SD	range
Spiritual well -being	64.30	2.05	59-69
Symptoms experience	6.07	1.93	4-8
Activity of daily living	11.46	1.84	0-20
Religiosity	16.87	1.80	13-20
Receiving palliative care	63.24	2.23	59-69
Social support	62.82	3.63	55-71

The Analysis of Moment Structure (AMOS) program was used to test the hypothesized model. Validation of the hypothesized model fit can be assessed by a variety of fit indices. There were chi-square (X^2), CMIN/degrees of freedom (df), the goodness of fit index [GFI], the comparative fit index [CFI], the adjusted goodness of fit index [AGFI] and the root square error of approximation [RMSEA]. The results showed that the hypothesized model did not fit the empirical data. Subsequently, it was modified by modification indices until the criteria for model goodness of fit were met. Then, the final modified model had a validation index of adequacy of the model at an acceptable level as shown in Table 2.

Table 2 Statistics of model fit index between the hypothesized model and the modified model (N = 270)

Model fit criterion	Acceptable score	Hypothesized model	Modified model
χ^2/df	97.495/91		
CMIN	p>.05	1291.253 p < .001 (df = 168)	97.495 p = 0.301 (df = 91)
CMIN/df	<2	7.686	1.132
GFI	0.90-1.00	0.648	0.965
AGFI	0.90-1.00	0.560	0.920
RMSEA	<0.05	0.158	0.016

Note CMIN = minimum Chi-square, GFI = goodness of fit index,
AGFI = adjust goodness of fit index, RMSEA = root square error of approximation

From the final modified model (Figure 2), receiving palliative care, symptom experience, and social support had significantly direct effects on spiritual well-being (β = 0.272, β = - 0.109, and β = 0.299, respectively). Receiving palliative care and social support also had indirect effects on spiritual well-being through symptom experience. Thus, symptom experience was a mediator between receiving palliative care and spiritual well-being, and between social support and spiritual well-being. Moreover, Activity daily living and religiosity had significantly direct effects on spiritual well-being (β = 0.186 and β = 0.01). In these relationships, receiving palliative care, social support, symptom experience, activities of daily living, and religiosity accounted for 60.9% of variance in prediction of spiritual well-being (Figure 2 and Table 3).

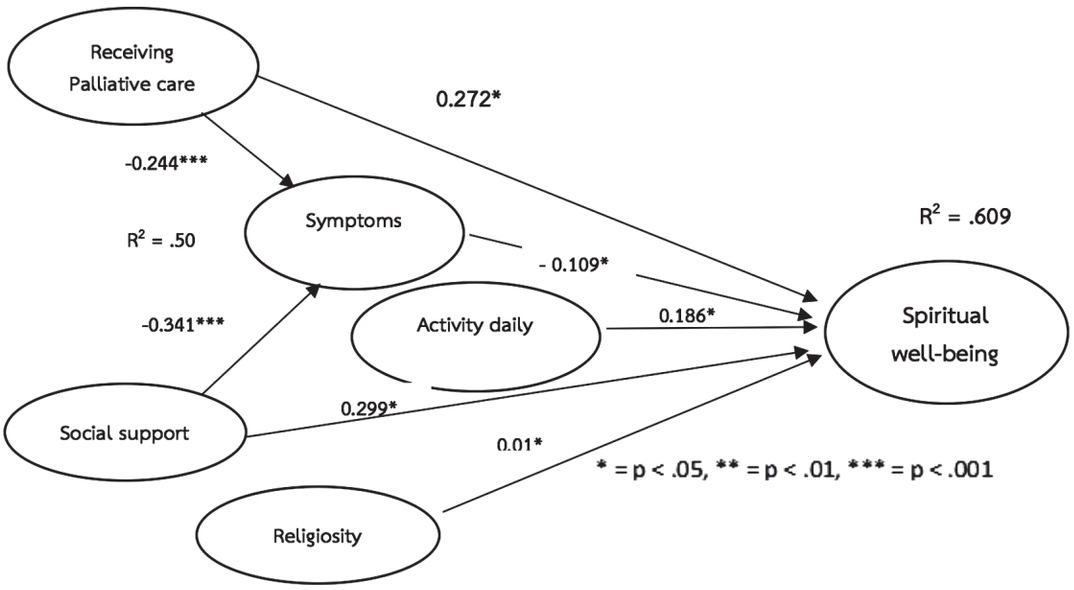

Figure 2. The modified model of spiritual well-being in persons with end stage renal disease receiving hemodialysis

Table 3 Direct, indirect, and total effects of the modified model (n = 270)

Causal Variable	Symptom experience			Spiritual well- being		
	DE	IE	TE	DE	IE	TE
Receiving palliative care	-0.244***	0.562***	-0.683***	0.272**	0.043**	0.315**
Social support	-0.341***	-	-0.341***	0.299*	0.014*	0.314*
Symptom experience	-	-	-	-0.109*	0.041	-0.068*
Activity of daily living	-	-	-	0.186*	-	0.186*
Religiosity	-	-	-	0.01*	-	0.01*
	R^2 = .50	R^2 = .609				

* = p < .05, ** = p < .01, *** = p < .001

Note DE = Direct effect, IE = Indirect effect, TE = Total effect

Discussion

The final modified model fit well with the empirical data. All five predictors of receiving palliative care, symptom experience, social support, activity of daily living and religiosity had direct effects on spiritual well-being. Receiving palliative care and social support also had indirect effect on spiritual well-being. These findings supported the theory of spiritual well-being in illness in that O' Brien[1] stated that activities of daily living, social support and religiosity were the factors positively influencing spiritual well-being in persons with chronic illness.

Persons with ESRD receiving hemodialysis who had received more palliative care, and together with less symptom experience would have better spiritual well-being. This finding was congruent with a study by Rabow and Knish[21] who found that terminal chronic persons had greater spiritual well-being score after receiving palliative care. Similarly, receiving palliative care was negatively correlated with symptoms experience in advance cancer patients.[22] Likewise, several studies found a negative correlation between receiving palliative care and symptoms experience in patients with chronic illness.[8,23]

For symptom experience, it had negative direct and indirect effects on spiritual well-being. Indicating that spiritual well-being is influenced by religious practice, illness severity or symptom experience, activity of daily living as well as social support from families and friends. This agreed with theory of spiritual well-being in illness[1]. When the persons with ESRD receiving hemodialysis perceived symptoms, they would define themselves by evaluating and making decisions concerning the cause, treatability and effects of symptoms on their lives. The outcomes of symptom severity were symptom status, functional status, emotional status and spiritual well-being. This finding conformed to several studies suggesting that symptom experience was negatively associated with spiritual well-being[22-23]

In this study, social support had a positive direct effect on spiritual well-being in persons with ESRD. Explaining ESRD patients receiving hemodialysis more likely had high spiritual well-being when they perceived more social support from their families, friends, and others. This study was consistent with theory of spiritual well-being in illness[1] stating that social support was a factor enhancing spiritual well-being in patients with chronic illness. Such finding was in conformance with several previous studies which also indicated positive relationship between social support and spiritual well-being.[23,25]

There was a significant positive direct effect between religiosity and spiritual well-being. It was argued that ESRD patients with high religiosity tended to have higher spiritual well-being. Because those chronic illness persons who reported a higher degree of religious practice and faith were much more positively satisfied with lives and had greater hope for the future, because religiosity creates a sense of peace in life and coping in illness.[7] Similarly, according to the theory of spiritual well-being in illness, the religious practice and personal faith were the factors influencing spiritual well-being by increasing a more positive life satisfaction and greater hope for future[1]. Therefore, this research result confirmed the outcomes of previous studies.[9, 23]

Activities of daily living had a significant positive direct effect on spiritual well-being in ESRD patients. Meaning that patients with more ability to perform the activities daily living would have better spiritual well-being. Because they would define themselves by evaluating and making decisions concerning the cause, treatability and effects of symptoms on their lives. Moreover, they increased a positively perceived health status[1,25]. It implied that patients with more ability to perform activities of

daily living would have better spiritual well-being. The finding confirmed results of previous studies[23, 25]

Recommendations for research utilization

Nurses and health care personnel who are responsible to deliver care for ESRD patients should plan or develop an intervention to enhance their spiritual well-being by focusing on promoting social support, palliative care and religiosity, reducing symptom experience and improving activities daily living.

Recommendations for future research

A future research should replicate the present study by recruiting a larger sample size and conducting it at a nationwide level. A longitudinal study would also recommend for further study to examine several influential factors on spiritual well-being in persons with ESRD receiving hemodialysis to gain better understanding.

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