ORIGINAL PAPER

The Impact of Counseling on the Self-Esteem of Women in Thailand Who Have Experienced Intimate Partner Violence

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Abstract

Background: Intimate partner violence is a significant and serious public health problem. It adversely affects the health and self esteem of abused women.

Objective: To investigate and compare self-esteem, coping methods and general health in women who have experienced partner violence living in the Northeast region of Thailand.

Methodology: The study was carried out at two sites: a primary care unit, and a drug treatment center. Women who showed abuse indicators based on the abuse indicator screening questionnaire received counseling from a nurse who was trained on the assessment of and care for women who had experienced intimate partner violence. Evaluations of abused women's self-esteem, coping, and general health were carried out before and after counseling.

Results: Seventeen women reported having experienced partner violence and had displayed at one time or another indicator symptoms such as headaches, stomach pain, weakness, anxiety and depression. After receiving counseling, abused women showed better self-esteem (t = -4.80, p < 0.001) and improved health status according to the General Health Questionnaire (z = -3.09, p < 0.01). In addition, they felt the need to use less avoidance coping strategies (z = 9.19, p < 0.01) with a better approach to coping styles (z = -2.59, p < 0.01).

Conclusions: Nurses trained in counseling can help improve the health of abused women, raise their self-esteem and encourage them to use the proper coping strategies.

Key words: Coping, counseling, general health, intimate partner violence, self-esteem

Introduction

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Intimate partner violence (IPV) is a significant public health problem (Ellsberg, 2006). It has long term adverse short and health consequences for survivors. In Thailand, when women are traumatized by IPV, they can go directly to one-stop crisis centers which are typically located in large cities and central hospitals. Generally only those who consider the problem to be a crisis or those whose relatives recognize the problem as being severe and want the outcome to be legally binding come to these centers. Khon Kaen is one of the cities in Northeastern Thailand where there is a service for persons in crisis. Some abused women go to the centers but most simply choose to remain in a violent situation. Others go to a primary care unit to meet with a nurse and then complain about a physical health problem thus sidestepping the central issue. Many women who have experienced IPV may not seek help. There are many factors that may influence a woman's decision to not disclose abuse such as social stigma and a perception that IPV is a private issue. A recent study found that some women ashamed, they felt afraid uncomfortable when talking about IPV; others did not want to disclose it at all (Saito et al. 2009).

Concealment of violence leads to negative psychological responses. A study by Draucker Martsolf (2008)revealed higher incidences of post-traumatic stress disorder (PTSD) when occurrences of domestic violence are concealed or repressed. Abused women show different behavioral traits which is the effect of mental health problems (Sawangchareon et al. 2003; Varcarolis 2009), ranging from tension and anxiety to bad dreams and sleeplessness, as well as thoughts of suicide or self-abuse. Other behavioral problems include; memory disturbances and inability to concentrate; moodiness (e.g. angry, quick-tempered, distrustful, unfriendly, insensitive, aggressive fearful, or easily aggravated, stressed, repentant, depressed);

and physical problems, such as impaired sexual function or desire, weakness and exhaustion. A positive way to assist victims of IPV is for emergency health care personnel to build good relationships with violence victims. Health care professionals who are aware of IPV have acquired clinical skills to better help the victims. In addition, through training, primary caregivers can be empowered to prevent IPV by means of counseling programs that can be adjusted to respond to different needs (Dienemann et al. 2009; Hall & Becker 2002). Ross et al. (2010) reported the use of IPV workshop as a way of training nurses on hidden family violence problems. Nurses can help abused women to be stronger and take care of themselves and family members more efficiently. According to Ross et al. (2010), it is necessary to encourage nurses or health professionals to realize the risk of hidden domestic violence related to women's health. Moreover, better knowledge and attitude of nurses in this respect can help build better relationships with patients enabling effective screening and care for IPV victims (Hall & Becker 2002). Thurston et al. (2008) conducted a study on the use of family violence screening on emergency-case patients to enable nurses to recognize and become concerned with the problem and to develop a strong commitment to care giving.

Monitoring their overall health condition is also an effective means of assisting victims of IPV. Rhodes et al. (2009) found that IPV can be associated with unhealthy behavior, adverse health effects and co-morbid health conditions. Another study showed that individuals with high self-esteem actually employ more adaptive coping measures. Self-esteem may moderate well-being directly as well as indirectly via individuals' coping styles and emotion-control strategies (Rector & Roger 1996). There are reports that domestically violent couples use less cognitive reasoning during emotional states. A study on abused women's health by Lawler (1998) using a general health questionnaire revealed that both the physical and mental health of abused women was worse than women who were not abused. The same study also found that deteriorating health could result from bias and ignorance. Furthermore, the group of studied women was hesitant in disclosing their feelings reporting that they were embarrassed and afraid, and they were self-accusing and wanting to be loyal to their husbands (Lawler 1998). Besides that, the emotional-focused coping method and sense of coherence were found to be related to aspects of the abuse experience. Women who have been abused become depressed and full of anxiety. Low self-esteem, feelings of inferiority and selfdefeating beliefs heighten the risk of revictimization; the abuse experience may also reduce their sense of mastery over their environment. Coping strategies and strengths may have a greater effect on women's emotional response to abuse than the objective characteristics of the abuse (Parker & Lee 2007).

Provision of appropriate knowledge to health officers and midwifery nurses could assist families in dealing with domestic violence. Nurses could use the knowledge obtained to deal with and solve issues in a safe manner (Varcarolis 2010). Moreover, they would be able to encourage the relatives of victims to help solve problems.

Research Objective

To investigate and compare; self-esteem, coping methods and general health in abused women living in the Northeast region of Thailand.

Materials and Methods

This was an evaluative study of registered nurses (RNs) who worked at different units and received two 1-day training sessions on the assessment of and care for women who had experienced IPV. The facilitators were researchers, experts in IPV (RNs) with at least

a master's degree in nursing. There were three registered nurses, who were trained on how to conduct IPV screening, interviews and counseling. The study was carried out at three sites: a primary care unit, a drug treatment center, and a postpartum ward.

The training program was developed by IPV experts and has been previously used to train registered nurses. Literary documents have been written in detail and include: 1) an introduction to IPV; 2) nursing care for domestic violence; 3) IPV screening and psychological testing for depression and coping strategies; 4) interview methods and counseling for IPV; 5) law and social networks in Thailand; and 6) models for IPV prevention. During practice, the nurse participants were supervised. After counseling nurses recorded the results in a report form using patients' hospital numbers only - not their names. The nurse specified what she did for her patient and included such items as; goals, counseling techniques, themes and additional details. Then this information was sent to the researchers.

The study was a purposive detection of suspected IPV victims carried out at two sites located in the Northeast of Thailand: a primary care unit, and a drug treatment center. There were two steps of screening suspected IPV victims. First, trained nurses interviewed women with the abuse indicator screening questionnaire, second, the violence questionnaire was used for the women who had answered positively to at least one item in the first step. After obtaining indicators, suspected IPV victims were then provided with counseling by trained nurses. In addition, evaluations of the abused women's selfesteem, coping, and general health were carried out pre and post counseling.

This research has been reviewed and approved by the Khon Kaen University ethics committee for human research (reference No. HE522004). Consent was obtained from all participants who were assured of confidentiality and anonymity. The participants were able to withdraw from the study at any time without any consequence.

Research Tools

The tools used to detect IPV (no. 1 and 2) and the tools used to evaluate the effects of counseling (no 3-5) were as follows:

- 1) The abuse indicator screening questionnaire developed by the authors consisted of 15 items. Before beginning the interview the nurse-interviewer had to take into account the indicators revealing violence or abuse that had been directed against the female victim (Sawangchareon & Sadthapoomirin 2001). Common indicators include the following:
 - a) the explanation of the physical trauma did not match the evident injury;
 - b) information relating to violence and frequency of occurrence was underemphasized;
 - c) the interviewee waited a few days before deciding to receive treatment;
 - e) the reason given was being prone to accidents:
 - d) the interviewee had begun to come to the hospital more frequently for treatment of her injuries:
 - e) the husband or partner accompanying the interviewee displayed overprotective behavior, or did not allow the interviewee to be left alone with hospital staff;
 - f) there was a record of premature birth or prenatal death;
 - g) the interviewee had attempted suicide or taken an overdose of medicine:
 - h) the interviewee or her husband/partner had a record of alcohol or addictive drug use indicators was 10 to 15 detail history of abortion, violence in the family, alcohol use and psychosis. If at least one indicator was present the nurse would interview the

woman using the violence questionnaire.

- 2) The violence questionnaire consisted of 7 questions including questions relating to; physical violence, verbal threats, sexual violence and social control which often result in the feeling of no freedom and a lack of responsibility for family problems. If a client provided a 'yes' for at least one behavior the nurse would ask her to attend a counseling session.
- 3) The Thai version of the general health questionnaire was used as a self-administrative screening instrument to detect psychiatric disorders among Thai people. The reliability and validity of Cronbach's alpha coefficient is 0.95, and the range of sensitivity and specificity is within 84.4 to 89.7%. The questionnaire contained 12 items with a ½ cutting point from the score (0-0-1-1), meaning that if the individual scored more than 6 points they would be classified as having a mental health problem. Besides that, the questions were designed to evaluate the victims' feelings in four general areas: unhappiness, anxiety, social impairment, and hypochondria (Nilchaikovit et al. 1996). The original general health questionnaire (GHQ 12) had been used in previous studies in Iran and Australia and had been confirmed as having the capability of measuring two distinct factors, namely psychological distress and social dysfunction (Campbell et al. 2003; Montazeri et al. 2003).
- 4) Rosenberg's self-esteem scale was constructed by Rosenberg (1979) and was translated into Thai for use among Thai people obtaining the satisfied validity (Vorputipung 2003; Wongpakaran & Wongpakaran 2011). Rosenberg's scale consists of 10 items with a level of agreement from 1 to 4 for "yes" answers. The five negative items are converted to positive scores before combining them with the other scores in order to compare the results with the Thai self-esteem standards (where a self-esteem score of less than 20 is considered

to be low self-esteem). The reliability of Cronbach's alpha coefficient was 0.86.

5) The coping strategies evaluation form; as developed by Sawangchareon *et al.* (2003), consists of 26 items divided into two types of coping strategy: avoidance coping (10 items) and approach coping (16 items).

The implementation of items 3, 4, 5 was used before counseling and after counseling one week during follow up.

Data Analysis

Demographic data was analyzed using inferential statistics. The data was tested for a normal distribution using a one-sample Kolmogorov-Smirnov test. A paired *t*-test was used to compare the self-esteem of participants before and after counseling. The Wilcoxon Signed Ranks test with the Z-test was used to compare general health status and coping strategies before and after counseling.

Ethics

The research team acknowledged and understood the principles of professional nursing research to be applied during the screening and counseling of domestically abused women. The research team gave their consent to participate in this research work and any participant was free to refuse should she decide to do so. All of the information was to be kept confidential, and the results were to be presented only holistically. All members who consented to these principles signed their names in agreement.

Results

Screening for IPV

After three months of screening abused women which was implemented by nurses who had been trained in the proper evaluation techniques, 32 patients were found to demonstrate at least one indicator. Following on from this, the domestic violence evaluation form was then applied; then only 17 cases, evaluated by only one nurse, were rated as having experienced violence. This nurse had

previously been trained in fundamental mental health and psychiatric nursing, and thus was able to provide counseling for the 17 confirmed cases.

The following gives more detail on the findings from the patient screening form: Seventeen abused women participating in nurse counseling indicated that they had experienced at least 4 indicator items. Five had experienced 4–5 of the items, 9 had experienced 6–10 items, and 3 had experienced 11–13 items. The most common indicator found was depression (13 persons), followed by anxiety and history of alcoholic drinking by the respondents themselves or their family members (11 persons), and headaches without any reason (10 persons).

Table 1. Problem Behaviors for Screening Women at Risk of IPV (17 Persons)

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Problem behaviors	N
found	
1. Seeing the doctor for prior	9
reasons	
2. Headache or stomachache	10
for no apparent reason	
3. Trauma	7
4. Weakness	9
5. Alcoholic drinking	11
history	
6. Miscarriage history	7
7. Anxiety	11
8. Irritability	8
9. Guilt	5
10. Feelings of	2
hopelessness	
11. Suicidal history	4
12. Depression	13
13. Absent-mindedness,	11
inattentiveness	
14. Family history of	11
alcoholic drinking	
15. Family history of	5
violence	

	Before		After			p	95% CI	
	$\frac{-}{x}$	SD	$\frac{-}{x}$	SD	t		Lower	Upper
Self-esteem	27.11	2.02	30.12	2.95	-4.80	.001	-4.32	-1.67
	negative mean rank		positive mean rank		Z			
GHQ-12	6.50		0.00		-3.09	.002		
Avoidance coping	7.00		0.00		-3.19	.001		
Approach coping	9.00		8.43		-2.59	.009		

Table 2. Comparison of Averages and Standard Deviations of Feeling of Self-Esteem, positive and negative rank of General Health, and Problem Confrontation Before and After Counseling

The most common and obvious causes leading to violence included a family's history of violence, suicidal history, guilt, and disappointment. These patients returned to receive health services with the same story and the same symptoms but no clear information was given regarding the cause of their problem (Table 1).

Most of the participants (15 persons) were married. Ten were aged 31 to 40 years.

Most (9 persons) were wage workers, or of middle income or no income (6 persons in each case). The education level of every participant was below undergraduate level.

Effects of counseling

After counseling, abused women showed significantly higher self-esteem, and self-evaluated their own health as being improved. Besides that, they also became better equipped to confront their problems by means of approach coping.

Overall, the findings of this study showed that after counseling, abused women had better self esteem (t = -4.80, p < 0.001), improved health

status according to the general health questionnaire (Z = -3.09, p < 0.01), and used more approach coping styles (z = -2.59, p < 0.01) and less avoidance coping styles(z = -3.19, p < 0.01) (Table 2).

The following details are the differences in item scores from each evaluation form:

Self-esteem

Among the 17 participants, the scores for self-esteem questions (Nos. 1–10) of the post-test were from 2 to 15 points higher than the pretest. For having things to be proud of - the greatest difference was 15 points. The greatest difference in scores for feeling useful and successful was 9; for the item regarding feeling good, the difference was 8; for the feeling of being valuable the difference was 7 and self-assessment (believing oneself to be of good character 2 points higher and the belief of being able to carry out things as efficiently as others 2 points lower).

General health

Scores on the GHQ-12 were higher. As a group, the scores were 1–7 points different

from the pretest. The greatest difference in scores was in enjoying normal activities (7 points), followed by: feeling stressed, ability to concentrate, and feeling reasonably happy (6 sleeplessness, points): and anxiety. unhappiness, depression, impaired decisionmaking ability, and loss of confidence (5 points). The least difference was in overcoming difficulties (only 1 point).

Coping strategies

Problem solutions included 26 items, divided into 10 items of emotion-focused coping and 16 items of meaning-focused coping. It was found that scores differed from 0 to 12 points between the two evaluations. The scores remained the same for items showing problemsolving by being separated, by not speaking to one other, or by consulting one's parents or relatives. The item that differed most greatly was consulting medical staff (12 points). The greatest difference concerned a second reduction of accusing those who caused violence and/or oneself (8 points); next were hanging out at night, gambling, and taking sleeping pills (which indicated that the situations had improved). It can be seen that the participants became more realistic in coping with their problems; their self-esteem also improved, especially as evidenced by seeking assistance from medical personnel.

Discussion

From the preliminary abuse indicator screening results, 32 patients who were interviewed were suspected as being victims of violence. Nurses' screening of clients coming to the clinic with physical symptoms was aimed at detecting the causes, categorized by violence indicators. Once a victim was found. nurses could initiate the interview and counseling process. Hence, it is important to empower staff nurses to assume this role. The indicator tool can be used for counseling and can be adapted to women's different responses to interpersonal partner violence or domestic

violence (Dienemann *et al.* 2009; Hall & Becker 2000; Thurston *et.al.* 2008).

In this study 17 women reported having experienced domestic violence and presented symptoms such as headaches, indicator stomach pain, weakness, anxiety depression. According to the general health questionnaire, abused women had better self esteem and significantly improved health status after counseling. In addition, they used less avoidance and more approach coping styles as coping strategies. Moreover, low self-esteem could lead to reduced efforts to and master their environment. subsequent negative feedback and frustration may also lead to a reliance on palliative coping, which in turn lowers self-esteem and instrumental coping efforts. Low self-esteem is linked to avoidance coping strategies (Parker & Lee 2007). Emotion-oriented coping was found to be a significant predictor of health status and/or level of psychological distress. Nurse counseling can help a victim achieve higher self-esteem when she recognizes violence to be the cause of her illness. The victim can tackle her psychological distress and the nurse's feedback of her experience can motivate her to learn how to cope and/or find alternative methods for coping. Based on the results of this study, the most important effect of counseling on women victims of domestic violence is improved health, self-esteem, and use of appropriate coping methods. Selfesteem may moderate well-being directly and coping styles indirectly (Rector & Roger 1996). In the counseling process, the counselor helps women disclose their experiences with domestic violence: this disclosure can raise the confidence of abused women who have low self-esteem (Dunham & Senn 2000; El-Bassel et al. 2001; Levendosky et al. 2004).

Regarding the health of abused women, we found that counseling resulted in improved sleep, reduced stress, better concentration, and increased feelings of worthiness and confidence. Moreover, nurses trained in

counseling techniques can not only help improve the health of abused women, but can also raise their self-esteem and encourage them to use the proper coping strategies. Counseling was found to be especially valuable in terms of the effective coping style the victim used after counseling; such as, decreased blaming of others or themselves, the reduced use of alcohol and tobacco, as well as continued consultations with health personnel. We can reasonably expect that more effective coping strategies can help these women resolve their health problems and improve their relationships with their partners.

There were some limitations in this study that should be recognized. First, the small number of participants may limit the generalisability of the study results. Second, nurses who provide counseling ideally should be free from performing other jobs, because effective counseling requires a longer period of time. There should also be a supervisor or facilitator available, because during counseling nurses may face a difficult or unfamiliar situation and wish to seek another professional opinion. In addition evaluations were conducted immediately after counseling, therefore, changes could not be anticipated even though the participants showed improved abilities and experience in coping with their problems. Besides that, continued research should be done to follow up on abused women after 3 to 6 months and then a year in order to see discover whether or not levels of violence have decreased.

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References

- Campbell, A., Walker, J. & Farrell, G. (2003). Confirmatory factor analysis of the GHQ-12: can I see that again? Australian and New Zealand Journal of Psychiatry, 37: 475-483.
- Dienemann, J., Neese, J. & Lowry, S. (2009). Psychometric properties of the Domestic Violence Survivor Assessment. Archives of Psychiatric Nursing, 23 (2): 111-118.
- Draucker, C. B. & Martsolf, D. S. (2008). Storying childhood sexual abuse. Qualitative Health Research, 18(8): 1034-1039.
- Dunham, K. & Senn, C. Y. (2000). Minimizing negative experiences: women's disclosure of partner abuse. Journal of Interpersonal Violence, 15: 251-261.
- El-Bassel, N., Gilbert, L., Rajah, V., Foleno, A. & Frye, V. (2001). Social support among women in methadone treatment who experience partner violence: isolation and male controlling behavior. Violence Against Women, 7: 245-274.
- Freund, K. M., Bak, S. M. & Blackhall, L. (1996). Identifying domestic violence in primacy care practice. Journal of General Internal Medicine, 11: 44-46.
- Hall, M. & Becker, V. (2002). The front line of domestic violence: training model for rural EMS personnel. Journal of Psychosocial Nursing and Mental Health Services, 40(9): 40-50.
- Lawler, V. (1998). Domestic violence a case for routine screening. Melbourne: Monograph series.
- Levendosky, A. A., Bogat, G. A., Theran, S. A., Trotter, J. S., Von Eye, A. & Davidson, W. S. (2004). The social networks of women experiencing domestic violence. American Journal of Community Psychology, 34: 95-107.
- MacMillan, H. L., Wathen, N., Jamieson, E. et al. (2009). Screening for intimate partner violence in health care settings. JAMA, 302: 493-501.
- McFarlane, J., Parker, B. & Soeken, K. (1996). Abuse during pregnancy: association with maternal health and infant birth weight. Nursing Research, 45: 32-37.
- Montazeri, A., Harirchi, A. M., Shariati, M., Garmaroudi, G., Ebadi, M. & Fateh, A.(2003). The 12-item General Health Questionnaire (GHQ-12): translation and validation study of the Iranian version. Health Quality of Life Outcomes, 13: 1-66.
- Nilchaikovit, T., Sukying, C. & Silpakit, C. (1996). Reliability and validity of the Thai version of the General Health Questionnaire. Journal of the Psychiatric Association of Thailand, 41, 2-17.
- Parker, G. & Lee, C. (2007). Relationships among abuse characteristics, coping strategies, and abused women's psychological health. Journal of Interpersonal Violence, 22: 1184-1198.
- Rector, N. A. & Roger, D. (1996). Cognitive style and well being: a prospective examination. Personality and Individual Differences, 21(5): 663-674.
- Ross, R., Draucker, C, B., Martsolf, D., Adamle, K., Chiang-Hanisko, L. & Lawandowski, W. (2010). The bridge: providing nursing care for survivors of sexual violence. Journal of the American Academy of Nurse Practitioners, 22: 361-368.
- Rhodes, K. V., Houry, D., Cerulli, C., Straus, H., Kaslow, N. J. & McNutt, L. A.(2009). Intimate partner violence and

- comorbid mental health condition among urban male patients. Annals family Medicine, 7: 47-55.
- Saito, A. S., Cooke, M., Creedy, D. K. & Chaboyer, W. (2009). Thai women's experience of intimate partner violence during the perinatal period: a case study analysis. Nursing Health Science, 11: 382-387.
- Sawangchareon, K. & Sadthapoomirin, R. (2001). Helping interview for family crisis intervention: cases of husband violence against wives. [in Thai] Journal of NursesAssociation of Thailand North-eastern Division, 19: 19-27.
- Sawangchareon, K., Wattananukulkeirt, S., Chanthapreeda, N., Tanwattanakul, J. & Itrat, P. (2003). Husbands' violence against wives in Northeast Thailand.[in Thai] Journal of Nurses' Association of Thailand, North-Eastern Division, 21: 37-48.
- Scott-Tilley, D., Tilton, A. & Sandel, M. (2010). Biologic correlates to the development of post-traumatic stress

- disorder in female victims of intimate partner violence: implications for practice. Perspectives in Psychiatric Care, 46(1): 26-36.
- Thurston, W. E., Tutty, L. M., Eisener, A. C., Lolonde, L., Belenky, C. & Osborne, B. (2008). Implementation of universal screening for domestic violence in an urgent care community health center. Health Promotion Practice, 10(4): 517-526.
- Varcarolis, E. M. (2010). Foundations of psychiatric mental health nursing. St. Louis: Saunders/Elsevier.
- Vorputipung, P. (2003). Promoting self esteem. [in Thai] Journal of Humanity, 5: 49-55.
- Wongpakaran, T. & Wongpakaran, N. (2011). Confirmatory factor analysis of Rosenberg Self-Esteem scale: a study of Thai student sample [in Thai]. Journal of the PsychiatricAssociation of Thailand, 56: 59-70.