ORIGINAL ARTICLE

Effectiveness of the Comprehensive Caring Model on Husband Knowledge of Caring Behavior during Wives' Pregnancy in Padang Pariaman Regency, Indonesia

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ABSTRACT

Introduction: The maternal mortality rate is still very high. A husband's caring behavior is a crucial factor in supporting pregnant wives. This study aimed to assess the impact of a comprehensive caring model on husbands' knowledge regarding caring behaviors during pregnancy in Padang Pariaman Regency, Indonesia. Material and Methods: This study employed a quantitative research design that utilized a pre-experiment approach with one group undergoing both pretest and posttest assessments. All 92 husbands of pregnant women in Padang Pariaman Regency, West Sumatera Province, Indonesia, were recruited using the cluster sampling technique from November to December 2024. Observations of husbands' knowledge were conducted before and after the comprehensive caring model intervention. Data analysis used the paired T-test at alpha = 5%. Results: The knowledge among husbands of pregnant women regarding caring behaviors prior to receiving a comprehensive caring model was 3.26 (classified as moderate level). Following the training on the comprehensive caring model, the knowledge among these husbands improved to 96.74 (good level). A paired t-test indicated that the training on the comprehensive care model significantly influenced the husbands' knowledge of caregiving behaviors during their wives' pregnancies in our study area (p=0.001). Conclusion: Implementing a comprehensive care model is effective in enhancing the knowledge of husbands regarding caregiving behaviors during their wives' pregnancies in this study.
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INTRODUCTION

Pregnancy refers to the period during which a woman carries a developing fetus in her womb. A pregnant woman is defined as someone who has conceived, marked by the beginning of pregnancy from the moment the egg and sperm cells unite until the delivery of the fetus or unborn baby. The typical duration of a pregnancy spans 280 days, equivalent to 40 weeks or approximately 9 months and 7 days, calculated from the first day of the woman's last menstrual period (1).

According to the World Health Organization's 2023 report, maternal mortality rates remain alarmingly high. Approximately 287,000 women lose their lives during or after pregnancy and childbirth. Shockingly, nearly 800 women die each day from preventable causes related to pregnancy and childbirth (2). Maternal deaths occur at a staggering rate of nearly one every two minutes (3). The West Sumatera Provincial Health Office reported in 2023 that the maternal morbidity rate in West Sumatera Province reached 30.5%, with the highest incidence occurring during pregnancy. Data from 2021 indicated that 193 pregnant women died, while the number of infant deaths was significantly higher, totaling 891 cases. This figure rose to 898 cases in 2022 and 455 cases during the January-July 2023 period.

The performance report from the West Sumatra Health Office in 2023 years indicated that Padang Pariaman Regency, Indonesia, has a higher prevalence of pregnant women compared to Pariaman City, Indonesia. This number has consistently risen year to year (4, 5). In 2023, Padang Pariaman Regency recorded approximately 5,079 pregnant women. Data up to May 2024, the number of pregnant women had reached 2,827 people. It is anticipated that this data will continue to increase until the end of 2024.

In 2023, West Sumatra Provincial Health has also made efforts to improve the health of pregnant women through periodic improvements to antenatal care services. Some efforts that have been made include providing iron tablets, organizing reproductive health education, trying to postpone the age of marriage, providing maternal health services, providing tetanus immunization services for women of childbearing age and pregnant women, providing postpartum maternal health services, and organizing pregnancy classes (6).

The results of the planned antenatal care services in West Sumatera have not met expectations, namely not reaching 100%. The achievement of antenatal care services for pregnant women in Padang Pariaman Regency, Indonesia, has not yet reached the target, which is around 94-96% (4, 5). Low antenatal care services received by pregnant women cause a decrease in examinations carried out by pregnant women. Data from the achievement of the Padang Pariaman Regency Health Office's strategic plan in 2023 showed that the number of visits by pregnant women in Padang Pariaman Regency ranges from 85% to 90% (4). This figure was still low from the number of visits by pregnant women expected by the West Sumatra provincial Health Office. Several research results also indicated that antenatal care visits by pregnant women are still low in Padang Pariaman Regency (7–9). 53.1% of pregnant women never completed their visits to verify their pregnancy (1). Other studies conducted showed that 55.7% of mothers did not undergo comprehensive antenatal care. The pregnant women should routinely undergo complete antenatal care, namely a minimum of four visits during pregnancy, including one visit in the first trimester (before 14 weeks), one visit in the second trimester (between 14 and 28 weeks), and two visits in the third trimester (between 28 and 36 weeks and after 36 weeks) (1).

Antenatal care, if not carried out properly, will result in various negative impacts. Some of the impacts include lack of information on how to care for pregnant women during pregnancy, failure to detect early warning signs of pregnancy-related dangers such as anemia, and missed opportunities to identify potential problems such as pelvic deformities, spinal abnormalities, or multiple pregnancies, as well as undiagnosed comorbid conditions such as preeclampsia, chronic diseases, and genetic disorders. Early detection and treatment of these factors are very important to ensure the well-being of mothers and babies during pregnancy and childbirth (1, 2).

The implementation of antenatal care is influenced by a person's health behavior factors. The health behavior arises because it is influenced by three factors, namely predisposing factors, enablers, and reinforcement. Predisposing factors include age, education, parity, income, knowledge, and attitude. Enabling factors include the location of health services and the availability of health workers. Reinforcing factors include husband's support, attitudes of health workers, and media exposure (10, 11). The husband's support factor can be shown through the husband's concern during the woman's pregnancy process. Because of that, the caring behavior of the husband is a factor that plays an important role in antenatal care for pregnant wives (12).

Caring is the ability to devote oneself to others, careful supervision, and feelings of empathy, love, or affection, as well as an attitude of respect for others. Caring starts from within the family, between neighbors, and in the surrounding community (8). In this case, the components of caring behavior that the husband should exhibit include participation, attention, support, and involvement in antenatal care, as a pregnant wife requires significant support both biologically and psychologically (11,13).

The behavior of husbands towards their wives during pregnancy can provide many benefits. The wife will respond positively, feel comfortable and safe, experience relief from reduced stress, build mutual trust through smooth communication, and foster mutual respect. The lack of caring behavior towards husbands will result in a lack of attention to the wife, including her pregnancy condition, which will also negatively impact the health status of both the mother and the fetus (11, 13, 14). Therefore, husbands need to have a caring attitude towards their wives during pregnancy to minimize the complaints experienced by the wife (1).

Several research results have indicated that the husband's contribution determines the success of a pregnant wife in going through the pregnancy phase safely. Research indicated that one of the causes of the less optimal health status of pregnant women is the lack of caring behavior from the husband during the wife's pregnancy (15). Other study also stated that the husband's participation is a form of responsibility in antenatal care for pregnant women (7). The success of pregnant women during pregnancy and childbirth depends on the role and support of the husband (16).

The phenomenon of lack of attention from husbands when their wives are pregnant is still common in society. A previous study stated that 40% of wives were not accompanied by their husbands when checking their pregnancy at the health center. Another study explained that husbands' participation in antenatal care for pregnant women in the community setting is still in the low category, namely 55.3% (17). Pregnant women greatly need their husbands' care, according to the results of numerous studies.

Both formal and non-formal education can improve husbands' caring behavior. One of the non-formal educations that can increase husbands' concern is

through comprehensive training. Previous research on the effect of comprehensive care training on caring behavior found significant results. There was a significant correlation between comprehensive caring training and the development of caring behavior skills. Caring-based training programs had an effect on caring behavior (15, 17–19). Based on the significant findings regarding the impact of comprehensive training on caring behavior in previous studies, this method is likely to also have a positive impact on husbands' caring behavior towards their wives during pregnancy.

The implementation of a caring, comprehensive training model for husbands is crucial, considering the important role of husbands in supporting their wives' mental and physical health during pregnancy. The caring comprehensive training model not only aims to improve knowledge and skill of husbands to support their wives, but also to foster more caring, empathetic, and proactive attitudes and behaviors in meeting their wives' needs during pregnancy (11,12,20). With this model, husbands are expected not only to be passive companions but also to be active partners involved in all aspects of pregnancy health, which will ultimately have a positive impact on the health of the mother and fetus.

This model also aims to close the gap in husband support by making sure that husbands have the tools and information they need to best support their wives during pregnancy (14). By adopting a comprehensive care model, husbands will be better prepared to face various situations that may arise during pregnancy, thereby helping to reduce the risk of complications and increasing wives' compliance with antenatal care. This in turn will contribute to the achievement of better maternal health outcomes (11, 12, 21).

Based on the researcher's initial survey at the Public Health Centers in Padang Pariaman Regency, Indonesia, there were three subdistricts with the most pregnant women, namely Lubuk Alung, Batang Anai, and IV Koto Aur Malintang. Interviews on 20 July 2023 with pregnant women at Lubuk Alung subdistrict showed that out of 50 pregnant women, 40 had husbands who were less concerned about pregnancy check-ups, and 30 mothers said that their husbands seemed less motivated to participate in pregnancy check-ups. The results of this survey illustrate the lack of attention from husbands to their wives during pregnancy (4, 5). The purpose of this study was to determine the effectiveness of a comprehensive model on husbands' knowledge regarding caring behaviors during pregnancy in Padang Pariaman Regency, Indonesia.

MATERIALS AND METHODS

Research Design

This study is a quantitative study using a quasi-experimental design with one group pretest-posttest. In this design, the researcher provided a comprehensive caring model intervention once. Observations of husbands' knowledge were conducted before and after the comprehensive caring model intervention (10).

Research Setting

This research was conducted from November to December 2024. Data collection was taken in the three subdistricts in Padang Pariaman Regency, West Sumatera province, Indonesia; they are Batang Anai, Lubuk Alung, and Empat Koto Aur Malintang. These subdistricts were selected based on data on the largest number of pregnant women in Padang Pariaman Regency (4,5).

Population and Sample of Research

The population in this study consisted of all husbands of pregnant women in Padang Pariaman Regency in 2024, totaling 2,827 individuals. The sampling technique in this study used cluster sampling. Then the population was clustered to determine the number of samples; the selected sub-districts were Batang Anai, Lubuk Alung, and IV Koto Aur Malintang, with a total of 1,054 pregnant women. The next sample was selected using a random technique so that the number of samples representing each sub-district is selected using the Slovin formula, so that the number of samples taken randomly from the total population that has been clustered is 92 respondents. The inclusion criteria were husband of pregnant women, domiciled in Padang Pariaman Regency, and willing to be respondents (10).

Research Instruments

The instrument used in this study was a closed questionnaire. Knowledge about husband care was measured using a questionnaire containing 10 statement items. If the respondent answered correctly, it was given a score of one (1), and if the answer was wrong, it was given a score of zero (0). The respondent's answers were then grouped into three levels, namely good (score ranged 71-100), moderate (score ranged 51-70), and bad (score ranged 0-50). Based on the validity test using the Pearson correlation coefficient presented in the table, out of 10 question items related to the knowledge aspect, three questions are categorized as having low validity, four questions are classified as moderately valid, and three questions are deemed valid. The questionnaire for the knowledge variable is classified as reliable (Cronbach's alpha = 0.7).

Data Collection Methods

The data collection method in this study was divided into several stages, namely questionnaire, interview, and observation. Data from the questionnaire in this study was taken by asking respondents to fill it out twice, namely before and after being given comprehensive caregiver model training. Interviews were conducted with several pregnant women in the Batang Anai, Lubuk Alung, and Empat Koto Aur Malintang subdistricts. Direct observation conducted in the field during the

comprehensive caring model training allows researchers to find out the condition of the respondents.

Data Collection Procedures

On the day agreed upon between the researcher and the respondents, the researcher gathered the respondents at the Multipurpose Hall in Padang Pariaman Regency and distributed questionnaires containing knowledge about caring for husbands of pregnant women to the respondents to be filled in. Respondents were given 30-45 minutes to fill in the questionnaire. The completed questionnaire is called a pretest. After one hour, the researcher then provided comprehensive care model training to the respondents. The training was given for three consecutive days until the respondents truly understood the training material provided by the researcher. After three days, the researcher gave the respondents questionnaires to fill out, which contained knowledge about caring for husbands of pregnant women. The completed questionnaire is called a posttest. The caring training provided included education on caring for a husband during his wife's pregnancy and roleplay. The education provided explained the basic concept of caring for a husband during his wife's pregnancy. The roleplay involved playing the role of a caring husband who is ready to respond to any situation that may arise during his wife's pregnancy.

Data Analysis

Data was analyzed univariately and bivariately. Univariate analysis aimed to determine the frequency distribution and percentage of knowledge about caring for husbands of pregnant women before and after being given a comprehensive caring model in Padang Pariaman Regency. Meanwhile, a paired t-test analysis was used to determine the differences in knowledge about caring for husbands of pregnant women after implementing the comprehensive caring model. The normality test using Kolmogorov-Smirnov showed that the data was normally distributed so that the further test used is the paired t-test at alpha = 5%.

Ethical Clearance

This study was approved by the Health Research Ethics Committee of the Faculty of Public Health at Universitas Andalas with the reference number 013/KEPK/FKM-UA/VIII/2025. Respondents complete the informed consent form before collecting data as a form of their agreement.

RESULTS

Table I shows the frequency distribution and percentage of knowledge levels among pregnant women's husbands regarding caring behavior during pregnancy, both before and after they received training in the comprehensive model. Based on Table I, it can be seen that the majority of respondents, namely 47 (51.09%) respondents, have a moderate knowledge level before being given training in the comprehensive model. After giving a comprehensive training on the caring model, the majority of respondents have good knowledge; there are 89 (96.74%) respondents.

Table I: Frequency distribution and percentage of husband knowledge level of caring behavior during wives' pregnancy (n=92)

Knowledge Level	Pretest		Posttest	
	Numbers (n)	Percentage (%)	Numbers (n)	Percentage (%)
Good	5	5.43	89	96.74
Moderate	47	51.09	3	3.26
Bad	40	43.48	0	0.00

The effectiveness of comprehensive caring model training on husband knowledge level of caring behavior The effectiveness of providing a comprehensive caring model on the husband's knowledge level of caring behavior during the wife's pregnancy can be seen in Table II. The results of the bivariate analysis using the paired t-test showed that p = 0.001. This showed that providing a comprehensive caring model is effective in increasing the husband's knowledge of caring behavior during his wife's pregnancy in our study area.

Table II: Effectiveness of the Comprehensive Caring Model on Husband Knowledge of Caring Behavior During Wives' Pregnancy (n=92)

Knowledge Score	Mean	SD	p-value
Pre Test	6.26	1.63	0.001*
Post Test	9.52	0.93	

*Significant at p<0.05

DISCUSSION

The study shows a big rise in husbands' knowledge before and after the intervention. The intervention involved a comprehensive training on comprehensive caring behaviors of husbands during their wives' pregnancy. Husbands' understanding of appropriate caring behaviors improved from a moderate to a good level following the training on the comprehensive caring model. The evidence demonstrates that the comprehensive caring model training effectively enhances husbands' knowledge about caring behaviors during their wives' pregnancies.

Various previous research results on nurses have also shown that comprehensive caring model training can increase knowledge about caring behavior. A study showed that the level of nurses' knowledge about caring behavior increased from a majority of moderate to good after being given comprehensive caring training (22). Another study also showed that nurses knowledge about caring behavior increased from predominantly moderate to good after implementing a comprehensive caring model training in a hospital (12).

A comprehensive care model for husbands has never been studied in previous studies, but several studies have already conducted research on husbands' concern

for their pregnant wives. Previous research shows that postpartum mothers who receive less support from their husbands often experience postpartum blues (23). Another study found that active husband involvement is strongly correlated with wives' awareness and increased knowledge of newborn danger signs (2). Further research shows that a husband's involvement during pregnancy can foster a sense of caring for children together (24).

Caring can generally be defined as the ability to dedicate oneself to others, vigilant supervision, and a feeling of empathy for others and a feeling of love or affection (25). According to Watson, this study applied the caring components of knowing, presence, doing, enabling, and maintaining trust. In the knowing aspect, the husband tries to understand, care for, and interact well with his wife during pregnancy. In the presence aspect, the husband is always present when his wife needs it, both in providing assistance and managing his wife's feelings of anxiety or fear. In the doing aspect, the husband is ready to take all actions that need to be attempted when his wife experiences problems during pregnancy. In the enabling aspect, the husband is able to facilitate his wife in going through the transition period by focusing on situations and information that can calm his wife. Furthermore, in the aspect of maintaining trust, the husband tries to maintain and give his wife's trust in going through pregnancy well and safely (26).

Watson's caring model, when applied in training husbands who accompany pregnant women, significantly impacts the development of comprehensive support patterns. The five aspects of caring—knowing, being present, doing, empowering, and maintaining trust—are not only conceptual but can also be analyzed in terms of their effectiveness in changing husbands' behavior. Knowledge about caring behavior during pregnancy encompasses various actions, including providing comfort, attention, affection, care, health care, encouragement, empathy, interest, love, trust, protection, presence, support, touch, and a readiness to help and be by one's wife's side throughout the pregnancy process. Such behavior will encourage changes in the physical, psychological, spiritual, and social aspects of pregnant women for the better. (26).

During pregnancy, a woman may experience problems such as bleeding, preeclampsia, severe abdominal or pelvic pain, severe headaches, vision problems, swelling of the face and hands, and severe abdominal pain. In addition, psychological disorders such as drastic mood swings from happiness to anxiety, which can change quickly, anxiety and stress, and antenatal depression also often occur during pregnancy (22). Another community study of pregnant women in Ethiopia found that only 27% knew the signs/symptoms of preeclampsia and its dangers, while more than 55% of them did not know its risk factors. Poor awareness of symptoms and complications can delay seeking care for severe hypertension, headache, visual changes, and other warning signs, increasing the risk of eclampsia and maternal/fetal death (17). Therefore, it is very important for husbands to have good knowledge about pregnancy to maintain the health and safety of both the mother and fetus.

Lack of a husband's knowledge in accompanying the wives through their pregnancy certainly has an impact on the lack of caring behavior of the husband. A good husband's knowledge can be reflected in his good caring behavior. One proof of low caring behavior of the husband is that there are still many husbands of pregnant women who think that pregnancy check-ups are not very important for pregnant women. Many husbands who did not support the antenatal care check-ups of their pregnant wives had low knowledge. Husband's support is one form of husband's concern during the wife's pregnancy process (7).

The results of the paired t-test showed that providing comprehensive caring model training was effective in increasing husbands' knowledge about caring behavior for pregnant wives. A previous study found that a comprehensive caring training has been proven effective among nurses in a hospital setting (11). Comprehensive training for husbands of pregnant women to improve their knowledge of caring behaviors of pregnant wives has never been conducted, resulting in no comparable research. To date, the literature only describes the relationship and influence of husbands' care for their pregnant wives, namely its positive impact on smooth deliveries. However, in reality, many husbands still do not care about their pregnant wives' well-being.

Based on the study result, the comprehensive caring training is effective in improving mothers' knowledge of caring for their wives' pregnancy care, as evidenced by the large number of respondents' responses approaching the highest target score. The higher the husband's knowledge about caring when his wife is pregnant, the more the husband will reflect better caring behavior towards his pregnant wife so that unwanted pregnancy problems can be overcome properly. A husband who has a good level of cognition about caring certainly has a sufficient theoretical basis for himself in practicing caring behavior towards his pregnant wife.

CONCLUSION

After receiving comprehensive caring model training, pregnant women's husbands increased their knowledge about caring behavior for their wives during pregnancy from moderate to good. Providing a comprehensive caring model is effective in increasing the husband's knowledge of caring behavior during the wife's pregnancy in our study area.

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