# The Effect of Assistance for Pregnant Women on Attitudes and Behavior Changes in Stunting Prevention

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## ABSTRACT

*Background: East Kotawaringin and Pulang Pisau Regency have highest prevalence of stunting, respectively, in Central Kalimantan Province. One of the efforts made through the assistance to improve the knowledge and skills of pregnant women. The study was aimed at analyzing the effectiveness of assistance on behavior and attitudes among pregnant women in the Pulang Pisau Regency. It also aimed to analyze the behavior of pregnant women shifting upon stunting.*
*Method: It is a quasi-experimental study (n = 60), with pre-posttest group comparison. There are two groups, namely conventional (n = 30) and assisted through pocket book (n = 30). Socio-economic data was collected to draw the characteristics of the study subjects through questionnaire. A 2x2 chi-square and paired t-test was run in SPSS v. 18 for Windows.*
*Results: The characteristics of the study respondents did not show any significant differences in attitudes and behaviors of stunting prevention in the Pulang Pisau district. The average change in attitude score shows a significant difference in the assisted group with a pretest of 65.8 ± 7.8, increased during the post-test of 75.7 ± 2.7. It is also an increase in understanding (n = 21). We concluded that pocket-book treatment is more effective in improving the attitude of pregnant women towards preventing stunting.*

## INTRODUCTION

Stunting describes the chronic malnutrition problem caused by insufficient nutrient intake for a long time due to feeding that is not following nutritional needs. Stunting occurs starting the fetus is still in the womb and only seen when the child is two years old. Malnutrition at an early age increases the mortality rate of infants and children, causing sufferers to get sick easily and have an unable posture in adulthood. The cognitive ability of sufferers is also reduced, resulting in long-term economic losses for Indonesia.[1] Basic Health Research 2013 recorded the prevalence of stunting nationwide reached 30.8% and in Central Kalimantan Province the prevalence of stunting by 34%. This figure is still high with the target of RPJMN 2019 stunting toddlers by 28%. Based on the data, Central Kalimantan Province is ranked 5th prevalence of stunting in Indonesia. In Central Kalimantan Province, the prevalence rate of stunting is highest in East Kotawaringin Regency.[2] Also, East Kotawaringin Regency that contributes to the still high prevalence of stunting in Central Kalimantan is Kabuapaten Pulang Pisau. The report from Pulang Pisau District Office amounted to short baby coverage in 2018 of 30.9%.

Nutritional factors of the mother before and during pregnancy are indirect causes that contribute to the growth and development of the fetus. Pregnant women with malnutrition will cause the fetus to experience Intrauterine Growth Retardation (IUGR), so that the baby will be born with malnutrition, and experience growth and developmental disorders and easy to get degenerative diseases in adulthood later (fetal origin disease). Such behavior in the community can be a risk of stunting, as refer to various review and research results.[1] Some of the behaviors of the community that have not been optimal include the feeding intake of pregnant women influenced by her husband and parents/in-laws, initiation of early breastfeeding has not become the norm, anemia of pregnant women. Those who suffer from iron-deficient anemia during pregnancy will be at nine time greater risk of giving birth to low birth weight.[3] Children born with low birth weight will tend to have malnutrition status, one of which is the status of short nutrition or stunting.[4] Also, other nutritional problems related to stunting that are still a public health problem are pregnant women With Chronic Lack of Energy (17.3%), anemia in pregnant women (48.9%), babies born prematurely (29.5%), Low

Birth Weight (6.2%), toddlers with malnutrition status (17.7%) and anemia in toddlers.

Improving knowledge and skills for each target group according to its role in stunting prevention becomes important. With this increase in knowledge, it is expected that the target group can make behavior changes that support stunting prevention.[1] One of the targets for the prevention of stunting is pregnant women. One of the efforts made to improve the knowledge and skills of pregnant women through the assistance of pregnant women. The study also reported that this affected in increased exclusive breastfeeding.[5] Based on the background above researchers are interested to research the influence of mentoring pregnant women on changes in attitudes and behaviors of stunting prevention in Pulang Pisau District.

## METHOD

The study was located in Pulang Pisau District, specifically the working area of Jabiren and Bukit Rawi Community Health Centre, Puskesmas. It is a quasi-experimental, two group with pre and post-test design. Intervention on the first group is conventional counselling, and refer as a control group. On the other hand, a group with conventional, with an addition pocket-book, refer as experiment group. The sample was purposively determined. Concerning the sample size, considering the minimum criteria for hypothetical testing of two free samples, with the value, average and standard deviation as well as variance used was combined variance of 122.[6] Meanwhile, each treatment group (n: 82), conventional group (n: 73). Based on the formula, the sample size in this study was 27.66. Meanwhile, each treatment group (n: 82), conventional group (n: 73). Based on the formula, the sample size in this study was 27.66. If possible, a 10% increase will be made, bringing the total sample to 60 pregnant women. Thus, in Puskesmas Jabiren consist of 30 pregnant women, and Puskesmas Bukit Rawi also consists of 30 pregnant women. In constructing the descriptive statistic for attitude and behavior, we set up a measuring scale, as follows:
1) attitude (interval scale) as their response regarding positive and negative statements regarding stunting on pregnant women (during pregnancy); using using questionnaire (20 items), whereas items 1, 5, 6, 7, 10, 11, 12, 17 and 18 were negative (-) statements; and the other half 2, 3, 4, 8, 9, 13, 14, 15, 16, 19 and 20 are positive (+) statements regarding stunting during pregnancy. We are using Likert-Scale for rubric, as follows negative statement; Extremely Agree (EA) : 0, Agree (A): 1, Doubt (D): 2, Less agree (LA) : 3, and extremely disagree (EDis) : 4. While for the positive, the opposite scoring was applied, that is Positive statement Extremely Agree (EA) : 4, Agree (A): 3,

Doubt (D): 2, Less agree (LA) : 1, and extremely disagree (EDis) : 0. Finally, all scores were summed, and score total were classified as : good (>75), poor (<75);
2) behavior (nominal scale) refer to action taken by the mother before (during pregnancy) and after childbirth related to stunting prevention indicates by visits to the pregnancy examination, balanced nutritional consumption, the amount of consumption of iron tablets, initiation of early breastfeeding, exclusive breastfeeding; maximum value 5; is a combination of 5 indicators; good (score 2; ≥ 4 indicators); poor (score 1; < 4 indicators).

The research has acquired ethical clearance issued No. 099/VI/KE.PE/2020 by Politeknik Kesehatan Kemenkes Palangka Raya. The inclusion criteria were pregnant women 1) who are in trimester III in the area of Puskesmas Bukit Rawi and Puskesmas Jabiren; 2) who live sedentarily, not migrating and 3) those who can read, write and have no hearing loss. While the exclusion criteria as follow 1) do not having a complication, based on their medical record in the center; and 2) having no chronic diseases.

## RESULT AND DISCUSSION

In constructing the descriptive statistic for attitude and behavior, we set up a measuring scale, as follows:
1) Attitude (interval scale) as their response regarding positive and negative statements regarding stunting on pregnant women (during pregnancy); using using questionnaire (20 items), whereas items 1, 5, 6, 7, 10, 11, 12, 17 and 18 were negative (-) statements; and the other half 2, 3, 4, 8, 9, 13, 14, 15, 16, 19 and 20 are positive (+) statements regarding stunting during pregnancy. We are using Likert-Scale for rubric, as follows negative statement; Extremely Agree (EA) : 1, Agree (A): 2, Doubt (D): 3, Less agree (LA) : 4, and extremely disagree (EDis) : 5. While for the positive, the opposite scoring was applied, that is Positive statement Extremely Agree (EA) : 5, Agree (A): 4, Doubt (D): 3, Less agree (LA) : 2, and extremely disagree (EDis) : 1. Finally, all scores were summed, and score total were classified as : good (>75), poor (<75);
2) Behavior (nominal scale) refer to action taken by the mother before (during pregnancy) and after childbirth related to stunting prevention indicates by visits to the pregnancy examination, balanced nutritional consumption, the amount of consumption of iron tablets, initiation of early breastfeeding, exclusive breastfeeding; maximum value 5; is a combination of 5 indicators; good (score 2; ≥ 4 indicators); poor (score 1; < 4 indicators).

**Tabel 1. The attitudes component, their pre-test and post-test score/value**

| Group | Test | Good | | Poor | |
|---|---|---|---|---|---|
| | | n | % | n | % |
| Control | Pretest | 4 | 13% | 26 | 87% |
| | Posttest | 30 | 100% | 0 | 0% |
| Experiment | Pretest | 5 | 17% | 25 | 83% |
| | Posttest | 21 | 70% | 9 | 30% |

**Table 2. The component of behavior recapitulation based-on pre and post-test**

| Behaviour indicator | Group | Yes | | No | |
|---|---|---|---|---|---|
| | | n | % | n | % |
| Fe Tablet intake | Control | 28 | 93,3 | 2 | 6,7 |
| | Experiment | 30 | 100 | 0 | 0 |
| balanced nutrition consumption | Control | 28 | 93,3 | 2 | 6,7 |
| | Experiment | 29 | 96,7 | 1 | 3,3 |
| visits to pregnancy examination | Control | 18 | 60 | 12 | 40 |
| | Experiment | 18 | 60 | 12 | 40 |
| Early breastfeeding initiation | Control | 29 | 96,7 | 1 | 3,3 |
| | Experiment | 30 | 100 | 0 | 0 |
| Exclusive breastfeeding | Control | 23 | 76,7 | 7 | 23,3 |
| | Experiment | 28 | 93,3 | 2 | 6,7 |

**Table 3. Socio-economic characteristics on the study groups in Pulang Pisau Regency.**

| Variable | Control group | Experiment group |
|---|---|---|
| Age | | |
| Risk | 8 (27%) | 7 (23%) |
| Non-Risk | 22 (73%) | 23 (77%) |
| Educations | | |
| Basic-Middle High | 27 (90%) | 22 (73%) |
| Higher Education | 3 (10%) | 8 (27%) |
| Occupation | | |
| Not Occupied | 28 (93%) | 28 (93%) |
| Employee | 2 (7%) | 2 (7%) |
| Parity | | |
| Primigravida | 10 (33) | 7 (23%) |
| Multigravida | 18 (60%) | 22 (73%) |
| Grandemultigravida | 2 (7%) | 1 (3%) |
| Income | | |
| < minimum district wages | 30 (100%) | 23 (77%) |
| > minimum district wages | 0 (0%) | 7 (23%) |

Table 1 and 2 describes attitudes and behavior components, based on their pre and post test score/values. As previously described that the attitudes are measured for their feedback upon the negative and positive statements. In the other hand, the behavior are composed from five indicators. Socio-economic characteristics such as age, educations, occupations, parity and incomes among two pregnant women groups, as described in Table 3.

**Table 4. Chi-squared test of respondents' characteristics as per treatment groups**

| Variable | $X^2$ | df | P-value |
|----------|-------|----|---------|
| Age | 0,089 | 1 | 0,766 |
| Education | 2,783 | 1 | 0,095 |
| Occupation | 0 | 1 | 1,000 |
| Parity | 1,263 | 1 | 0,532 |
| Income | 7,925 | 1 | 0,005 |

The analysis is continued to look for chi-squared values (2x2 tables) based on cross-tabulation. Chi-squared test results, presented in Table 4. Based on these results, it is obtained indications that income characteristics show significance at 95% ($\chi2 = 7,925$, df = 1, p-value = 0.005), while the characteristics of age, education, work and parity, do not show meaning, with a p-value > 0.05. Pregnant women's attitude towards the use of Pocket Book is measured by using questionnaires that have been tested for validity and reliability. Here is an overview of the attitude of pregnant women towards the use of Pocket Book before (Pre-test) and after (Post-Test) given interventions both in conventional groups and treatment groups with Pocket Book.

Based on Figure 1, it was shown that in the sample group of pregnant women given not given Pocket Book, the average attitude score of pregnant women in the pretest was $67.9 \pm 5.9$. At the time of the posttest, there was a decrease in the average attitude score of $66 \pm 4.5$.

Different patterns occurred in the experiment group, there was an increase in the average attitude score towards Pocket Book, where at the time of pretest the average attitude score was $65.8 \pm 7.8$ and at the time of posttest increased to $75.7 \pm 2.7$.
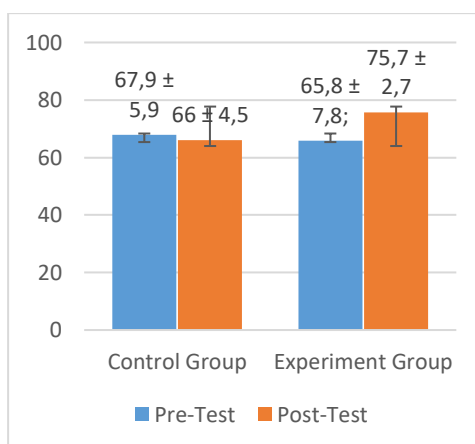


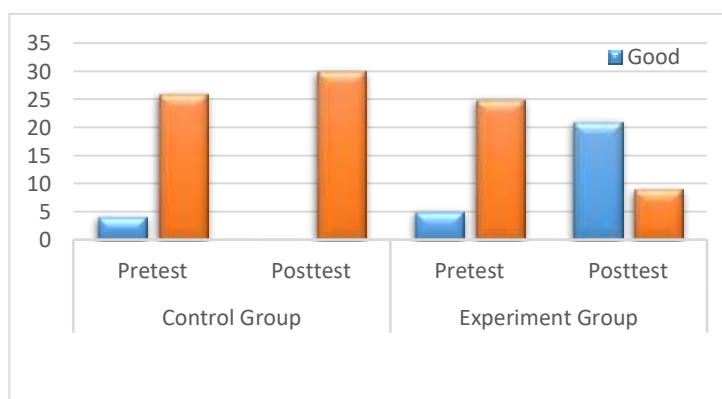**Figure 1. Pregnant women's attitudes towards control and experiment group**



**Figure 2. Pregnant women's attitude towards pocket book use as per pregnant women group**

**Table 5. Coefficient and p-value paired t-test**

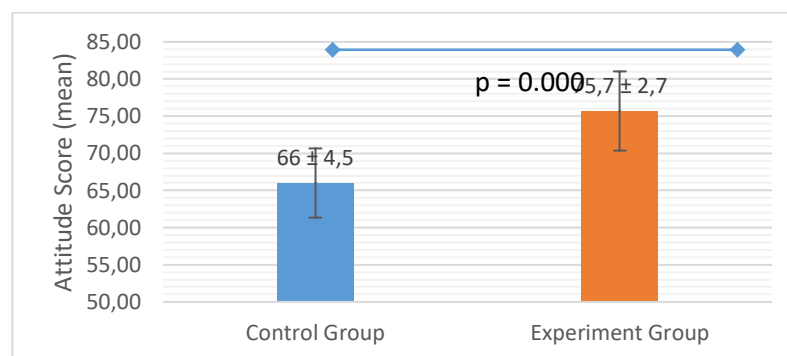| Group | Pre-test | | Post-test | | Maternal response | |
|---|---|---|---|---|---|---|
| | Coefficient | p-value | Coefficient | p-value | Poor (<4) | Good (≥4) |
| Control | 0,974 | 0,662 | 0,733 | 0,000 | 2 (66.7%) | 28 (49,1%) |
| Experiment | 0,967 | 0,469 | 0,854 | 0,001 | 1(33.3%) | 29 (50,9%) |



**Figure 3. The attitude score means of control vs experiment group**

**Table 6. Normality, chi-squared, and t-test scores against maternal behavior indicator scores for stunting prevention**

| Category | n | Normality | Sig. | $\chi^2$ | Sig | t-test | Sig. |
|---|---|---|---|---|---|---|---|
| Good (≥4) | 57 | 0.63 | 0.000 | 48.600 | 0.000 | -6.523 | 0.000 |
| Poor (<4) | 3 | 0.75 | 0.000 | | | | |

Table 5 has shown that the Pre-test in both groups does not show normality, but at the time of post-test, obtained p-value more than 0.05 (p>0.05). This proves that the normality of the data has been fulfilled. Furthermore, the post-test comparison process, conducted parametrically using paired t-tests.

The results of a comparison test of the post-test attitude score of pregnant women both in conventional and pocketbook treatment showed that the average attitude score of pregnant women towards conventional groups with counselling was 66 ± 4.5 and in the pocketbook group of 75.7 ± 2.7. Using a paired t-test obtained a p-value of 0.000 (p<0.05) which showed there was a significant difference in average attitude score between groups, where the average score of the experiment group was higher than the control group. Or in other words, from this test, it is proven that the treatment of books proved more effective in improving the attitude of pregnant women to stunting. The description of the behavior of pregnant women is based on the distribution of behavioral frequency to five (5) measured behavioral indicators, including the amount of Fe tablet consumption, balanced nutritional consumption and ANC examination. These three indicators include behavior during pregnancy. Meanwhile, Early Breastfeeding Initiation and exclusive breastfeeding procedures include behaviors related to post-baby birth.

There is a tendency towards maternal behavior during pregnancy and postpartum, leading to behaviors that reflect stunting prevention. Testing on aspects of behavior, using non-parametric chi-square tests, for each behavioral indicator. Table 6, presents chi-squared test values and paired t-tests.

As mentioned earlier, broadly speaking, the five indicators are the amount of Fe tablet consumption, balanced nutritional consumption and ANC examination. These three indicators include behavior during pregnancy. Meanwhile, Early Breastfeeding Initiation and exclusive breastfeeding procedures include behaviors related to post-baby birth. As with the test criteria in the behavior score, the accumulative values of each indicator are combined based on the test criteria in the operational definition. Data normality testing is performed using the Saphiro-Wilk test, using SPSS v. 18 for windows software. The test criteria are based on the p-value, if the p-value > 0.05, then it can be said that the normality of the data has been met and the next comparison process is done parametrically using a paired t-test. Table 5 states that the data shows a value of p<0.05, which indicates that the data follows the normal distribution. Based on chi-squared values, the accumulation of maternal knowledge scores on stunting prevention ($\chi 2 = 48,600$; sig = 0.000; n = 60) shows significance at 95%. Furthermore, to test the differences between the two interventions performed, a paired t-test was conducted. The results showed that there was a meaningful difference between conventional treatment and pocketbook (t = -6,523; sig = 0.000). In other words,

behavior changes in the treatment group with pocketbooks showed a tendency towards effective stunting prevention.

The characteristics of the research sample in general show similarities, both age, education, occupation, parity and income. However, from the aspect of the description of the mother's attitude towards exclusive breastfeeding before (pre-test) does not meet the rules of normality. On the contrary, only aspects of post-test attitudes meet the rules of normality. From aspect of the age of pregnant women point of view, both groups revealed that the majority are the age group that is not at risk (20-35 years). Statically, the chi-square test does not provide a noticeable degree of difference. However, based on this spread, it shows that, on average, the sample is selected in a condition that is ready to get pregnant, and has the ability of reproductive organs to minimize the stress of pregnancy and premature birth, thus allowing babies to be born with longer bodies when compared to pregnancy at risky ages (<20 years and >35 years).[7]

Respondents' characteristics on the educational aspect, showed the majority of samples in the primary-secondary education category. This condition is certainly an important indication in preparing for continuous counselling services. Although this study does not show significance, some reports have stated that low maternal education has a 2.22 times risk of childbirth stunting.[8] Besides, maternal education is a risk factor for stunting in children under five, this was shown in studies in Cambodia and Nepal.[7,9] Maternal education is important, but there are also various things to consider, as revealed in India, Kenya and South Africa studies.[10–14] In this aspect of the work, as with the previous two characters, it does not show any meaningful differences.[15] However, this should certainly be an important note in terms of continuous counselling services.

This study also measured the frequency of Fe tablet intake, visits to health workers and balanced nutrition consumption by pregnant women, both conventional and treatment. In normality testing, the three parameters showed a meaningful result of $p < 0.05$ (p-value = 0.000). The data showed that the majority of respondents, consuming Fe tablets. They are also checking pregnancy with health workers and the adequacy of balanced nutritional consumption. Concerning age, where the age of pregnant women is dominated by an age that is not at risk, it can be stated that this condition can reduce the risk of stunting in infants and toddlers. There is a link between iron intake and stunting events in Teluk Pandan, Pesawaran.[16]

In terms of parity, the results showed that there was no meaningful parity, either primigravida, multigravida and grandemultigravida. However, when associated with attitudes and behavior changes, especially after (post-test) interventions are made, it shows a meaningful difference (p-value = 0.000; n = 30). This should be thought to be related to the knowledge of pregnant women during pregnancy and post-partum. Some studies have reported that mothers' awareness of balanced nutrition is a risk factor for stunting.[17,18]

Furthermore, the Pocket Book on stunting, based on the results of this study, has a good level of effectiveness in terms of information fulfilment for pregnant women. Access to information, on the other hand, today, is a lifestyle, is individual and has an impact on changes in attitudes and behaviors. Nowadays, the need for information, tends to fulfil each individual, unique and unequal.[19] Furthermore, that attitude is personal, and certainly leads to a change in attitude. The increase from five pregnant women during the period before the intervention, to 21 pregnant women after the intervention, indicates that fundamentally, the need for information and access to it can change the way the mother views an issue, in this case stunting prevention. By the naked eye, information today is widely available, however, the change in attitude does not necessarily occur only with internal encouragement from the mother. Family, especially the role of the husband becomes one of the keys in terms of successful internalization of information towards a change in attitudes and behaviors. Some reports, referring to exclusive breastfeeding, with encouragement from the husband, can be used as a reference how the role of the husband during the pregnancy and post-partum process, especially in terms of nutritional fulfilment of newborns through the initiation of early breastfeeding. Giving the father a challenge, as well as responsibility on everything related to the importance of exclusive breastfeeding, have also been studied.[20–22]

This study shows that there are changes in maternal behavior during the process of pregnancy and postpartum, of course, within the period of the study. As already presented in the previous section, that the indicator of change tested, shows a tendency to change maternal behavior (p-value: 0.000), except for an ANC visit (p-value; 0.121). It should be expected, that during the study period, the frequency of visits to health care centers and /or visits of health workers to the mother's home (home visit) provides a good space of knowledge and flow of information. This is similar to the findings of which stated that the home-visit method gives babies a better chance of obtaining breast milk compared to conventional, who do not get a visit, in Madiun (East Java) and Lombok (NTB).[5] The mentoring function of health workers seems to be further improved, especially in rural areas, in Aceh Besar, Hawaii and elsewhere. [23–26]

A significant change in attitude seems to provide a stimulus for behavior change, based on the indicators tested. However, the continuous mentoring function can be fostered so that self-desire can arise from mothers, and will gradually help mothers around them in terms of stunting prevention.[27] In other words, these changes, need to be measured periodically, not only within the range of the study period but also into the behavior of health workers and patients outside the object of the study.

## CONCLUSION

The results show that the characteristics of the study respondents did not show any significant differences in attitudes and behaviors of stunting prevention in the Pulang Pisau district. The average change in attitude score shows a significant difference in the group given counselling with a pretest of 65.8 ± 7.8, increased during the post-test of 75.7 ± 2.7. In the sample group of pregnant women who were given Pocket Book treatment, there was an increase in understanding (n: 21). Thus, we concluded that pocket-book treatment is more effective in improving the attitude of pregnant women towards preventing stunting.

## CONFLICT OF INTEREST

The authors declare that there is no competing interest.

## ACKNOWLEDGEMENT

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