

The Effect of Nutrition Counseling on Dietary Behavior During Pregnancy

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ABSTRACT

Nutrition counseling is a recommended approach to improve the nutritional status of pregnant women. One of the media is food models from Playdough. The purpose of this research is to find out whether nutritional recommendations using the playdough model affect the eating behavior of pregnant women. This type of research is a quasi-experiment with a pretest-posttest control group. The research sample was 126 pregnant women who came to the Lubuk Begalung health centre in Mey-July. The sampling technique is the entire sample. The research was analyzed using the dependent T-test previously conducted a normality test on the data. The results of statistical tests were also obtained under the effect of nutritional counseling using a model of playdough media on knowledge, attitudes, and dietary behavior during pregnancy before counseling because the p-value <0.05. Counseling using the food model media from playdough ingredients carried out continuously is more effective in increasing knowledge, and changing attitudes and dietary behavior during pregnancy compared to pregnant women who do not receive counseling at all. Because the food model that gives a real impression of the size of the food

to be consumed so that pregnant women get the nutrition they need.

Keywords: Attitudes, Dietary behavior during pregnancy, Knowledge, Nutrition Counseling, Pregnancy, Playdough

INTRODUCTION

Proper nutritional intake during pregnancy plays an important role in fetal development and maternal nutritional status. Nutritional deficiencies during pregnancy have long and short-term effects on maternal and fetal health (1). Anemia, protein energy deficiency, low birth weight babies, and nutritional deficiencies can also affect the type of delivery if pregnant women experience nutritional deficiencies (2,3). Anemia in pregnant women is a global health problem with a prevalence of 29.6% in 2018 (4). Meanwhile, 48.9% of the incidence of anemia in Indonesia 43.1% in West Sumatra Province, and 11.2% of pregnant women experience anemia in Padang City (5–7).

Lubuk Begalung Health Centre is one of the health centers with the highest incidence of anemia in Padang City, which is 67.65%. According to the Padang City Health Office, only 74.83% of pregnant women in the Lubuk Begalung Health Center area consumed at least 90 iron tablets during pregnancy⁸. The results

of in-depth interviews during the pilot study found that pregnant women suffered from anemia due to insufficient intake and not taking the iron tablets they took regularly. Eating habits during pregnancy are one of the factors that affect the nutrition of pregnant women (8,9).

Dietary practices during pregnancy are one of the factors that influence maternal nutrition. Several studies have evaluated the relationship between pregnant women's dietary practices and pregnancy outcomes, this relates to pregnancy weight and the risk of anemia where there is an association between preterm birth and low birth weight (LBW) (10).

Many factors influence the eating behavior of pregnant women, which leads to malnutrition. The results of research conducted by Dewi Susilawati in 2021 show a relationship between the eating habits of pregnant women and the age, parity, and education level of the mother¹². Government efforts to overcome it One of the nutritional problems during pregnancy is to provide education and nutritional counseling for pregnant women and take iron supplements during pregnancy. Nutrition counseling is a recommended method to improve the nutritional status of pregnant women. WHO recommends that pregnant women be supported to eat a healthy and balanced diet to prevent malnutrition¹¹. Food models can be used to provide nutrition education and counseling. Food models are props in the form of replicas or miniatures of some food ingredients and menus commonly consumed daily. Current food models are miniature models made of plastic or cement. Food models can also be made with plasticine. Plasticine is a material that is soft enough to be squeezed, but elastic enough to form shapes because it is made of clay. Plasticine is the best everyday material for making models or shapes Currently, the use of playdough as a research tool is widely practiced to determine the development of gross and fine motor skills in children under 5 years of age.

So far, the counseling conducted by health workers uses leaflets, and flip sheets, with an focus group discussion approach, there has been no use of food replicas, especially from playdough materials. Where with this food replica pregnant women can better understand how much nutritional needs, they meet for 1 portion of food.

MATERIALS & METHODS

This type of research is Quasi-experimental research with a control group pretest-posttest design, namely, there are two randomly selected sample groups where the experimental group and control group are given a pretest. This research was conducted at the Lubuk Begalung Health Center Work Area, Padang City. This research was conducted on September 10 - October 6, 2022. This research has passed the ethical test with number 947/UN.16.2/KEP-FK/2022.

The population in this study were pregnant women who visited the Lubuk Begalung Health Center in Mey - July 2022, totaling 126 pregnant women. The sampling technique is using total sampling, namely 126 pregnant women which are divided into 2 groups. So the number of experimental group samples was 63 pregnant women and the control group was 63 pregnant women. The variables of this study are knowledge, attitude, and dietary behavior during pregnancy.

The data collection technique of this study is that the researcher consults in advance with a nutritionist regarding the food model used, in data collection the researcher is assisted by 2 enumerators where before conducting research the researcher makes similarities with the enumerator regarding the use of food models in providing counseling, both groups fill out questionnaires before and after the study, the difference is that the intervention group is given nutritional counseling with the help of food models from playdough materials, before filling out the questionnaire the researcher asks for the respondent's consent, the researcher

conducts an ethical test before conducting the study.



Figure 1. Playdough Food Models

Data processing by editing, coding, entry, tabulating, and cleaning. Data analysis using the dependent T-test previously conducted a normality test on the data. If the data is not normally distributed, the Wilcoxon test will be carried out with the SPSS application.

RESULT

Processing analysis using unpaired T test. Before conducting the unpaired T test, the

Kolmogorov-Smirnov normality test was carried out on the variables of knowledge, attitudes, and dietary behaviour during pregnancy both before and after counseling. the results were obtained. on the variables of knowledge, attitude, and dietary behaviour during pregnancy both in the data before counseling and after counseling obtained normally distributed data, which can be seen from the p-value of each variable > 0.05 .

Table 1. Effect of Nutrition Counseling Using Playdough Food Model on Dietary Behavior During Pregnancy

Variables	Mean	P Value
Knowledge before counseling	6,56	0,892
Knowledge after counseling	7,79	0,000
Attitude before counseling	7,82	0,282
Attitude after counseling	9,03	0,000
Dietary behavior during pregnancy before counseling	6,85	0,144
Dietary behavior during pregnancy after counseling	8,62	0,002

Based on table 1. It was found that there was an increase in the average knowledge, attitudes, and dietary behavior during pregnancy before counseling with after counseling using media from playdough material. The results of statistical tests were obtained under the absence of the effect of nutritional counseling using a model of playdough media on knowledge, attitudes, and

dietary behavior during pregnancy before counseling because the $p\text{-value} > 0.05$. The results of statistical tests were also obtained under the effect of nutritional counseling using a model of playdough media on knowledge, attitudes, and dietary behavior during pregnancy before counseling because the $p\text{-value} < 0.05$.

DISCUSSION

Education is directly related to a person's nutritional knowledge and diet, so that mothers with higher education have more nutritional knowledge which causes a better diet, on the contrary, mothers with low education have low nutritional knowledge so that their diet and diet quality are low.

The results of this study are the same as research conducted by Si Luh Putu Febriana Putri, et al in 2020 where education is directly related to nutritional knowledge and a person's diet, so that women with higher education have more nutritional knowledge which causes a better diet, on the contrary, women with low education have low nutritional knowledge so that their diet and eating quality are lower or less good (11).

According to the researcher, the results of this study are slightly different from the results of research conducted by Si Luh Putu Febriana Putri, et al in 2020, although both there is an influence on the level of knowledge about nutrition after being given counseling, but when viewed from the results of the frequency distribution in this study the level of knowledge categorised as high was 76.6% while in the research of Si Luh Putu Febriana Putri, et al in 2020 as much as 54.5%, this is because this researcher in addition to using a booklet that discusses the nutrition of pregnant women also uses an extension model made of playdough material so that pregnant women know exactly the size they consume and get nutrition that suits the needs of pregnant women (11).

In this study, pregnant women received counselling in the form of understanding nutrition, and nutritional needs of pregnant women per trimester, portions of food and drink for daily needs per trimester, and

examples of 1 meal menus using food models from playdough media. In addition, during the counselling process, discussions were held with pregnant women regarding the nutrition of pregnant women so that pregnant women decided to consume the recommended nutrients.

Nutrition counselling using playdough food models is an individual assistance to pregnant women about the nutritional needs of pregnant women using a 4 (four) dimensional model so that pregnant women know exactly how much or little food they will consume. Knowledge will affect one's lifestyle in determining one's behaviour in terms of consuming food that affects one's nutritional intake. Good nutritional knowledge will make a person better at calculating the amount and type of food consumed.

The results of statistical tests on the attitudes of pregnant women before counselling were that there was no effect of nutritional counselling using the playdough media model on the attitudes of mothers before counselling because the p value > 0.05 was 0.282. The results of this study are in line with Desi Simbolon et al. in 2019 which explains that changes in one's attitude are influenced by the knowledge they have. The more knowledge he gets, it will make someone change for the better.

The results of this study are in line with Desi Simbolon et al. 2019 that there is a difference in the attitude of pregnant women before counselling and after counselling in the group of pregnant women who are given treatment with a P -value of 0.001. This study also explains that counseling will change awareness and behavior, especially human attitudes towards a better and more prosperous life (12).

In this study, pregnant women received nutrition counselling using playdough food models, so that pregnant women knew exactly the size of the food to be consumed. When pregnant women feel that their dietary behaviour is wrong, they will choose to try better behaviour, so that their attitude towards dietary behaviour during pregnancy becomes better. Providing health education regardless of the method used can improve experience, this is because the information provided by health workers can affect the mother's attitude towards fulfilling nutritional needs during pregnancy (13–15).

The results of statistical tests on maternal dietary behaviour during pregnancy before counseling were that there was no effect of nutrition counseling using the playdough media model on maternal dietary behaviour during pregnancy before counseling because the p value > 0.05 , namely 0.114. The results of this study are the same as research conducted by Yeshalem Mulugeta Demilew in 2020, namely there is no effect on the dietary behaviour of pregnant women before counselling between the control group and the intervention group where the P value is 0.615 this is because pregnant women both have not received counselling on good dietary behaviour (16).

Changes in one's actions will be formed after changes in one's knowledge, and attitudes. Changes in individual behaviour are influenced by predisposing factors, supporting factors and driving factors. One of the driving factors is health workers. Health workers play a major role in changing a person's behaviour, especially pregnant women, where one of the roles of health workers towards pregnant women is to provide education to pregnant

women about dietary behaviour during pregnancy so that pregnant women's nutrition is fulfilled during pregnancy. Pregnant women who received nutrition counselling using nutrition models and theories experienced improved dietary habits. In line with this, there was also a significant increase in the level of knowledge and good dietary practices in pregnant women compared to pregnant women who did not receive counselling.

Research conducted by Rameeza Kaleem et al. in 2020 reported that nutritional counselling on individuals carried out on an ongoing basis can improve the nutritional status of pregnant women (10). Likewise, what happened in this study where pregnant women who received counselling 2 (two) times in a row with a distance of 2 weeks after the first counselling using a food counselling model from playdough material individually experienced significant changes in the eating behaviour of pregnant women compared to pregnant women who did not get counselling at all. It is known that the playdough food model depicts pregnant women in 4 dimensions where pregnant women can measure the food that will be consumed during pregnancy.

Ebbinghaus and Boreas' theory explains how a person's memory decreases over time. Therefore, in cases like this, peer counselling is needed by health workers so that the response of the counselling material provided can always be applied. According to the theory, nutrition counselling is part of nutrition education designed to help communities, groups, or individuals to be aware of and able to overcome their health and nutrition problems. In general, nutrition counselling is designed to assist clients in changing behaviours that are relevant to changes in

nutrition-related knowledge to improve the quality of nutrition and health of clients, including changes in attitudes and actions.

CONCLUSION

Counseling provided on an ongoing basis and using food model media from playdough materials is more effective in increasing knowledge, and changing attitudes and dietary behavior during pregnancy compared to pregnant women who do not get counseling at all. The media used helps researchers in providing counseling because the media used is in the form of 4 dimensions so that pregnant women better understand the size of the food to be consumed so that pregnant women get nutrients according to their needs.

Declaration by Authors

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REFERENCES

1. Aisyah RD, Suparni S, Fitriyani F. Effect of Counseling Packages on The Diet of Pregnant Women With Chronic Energy Deficiency. *STRADA Jurnal Ilmiah Kesehatan*. 2020;9(2):944–9.
2. Aguayo VM, Menon P. Stop stunting: Improving child feeding, women's nutrition and household sanitation in South Asia. *Matern Child Nutr*. 2016;12:3–11.
3. Asayehu TT, Lachat C, Henauw S De, Gebreyesus SH. Dietary behaviour, food and nutrient intake of women do not change during pregnancy in Southern Ethiopia. *Matern Child Nutr*. 2017;13(2):1–10.
4. WHO. *Maternal Health and Nutrition*. 2018.
5. Kementrian Kesehatan RI. *Indonesia Health Profile 2020 revision 2021*. 2021.
6. Rahmayanti R, Mariati U, Susilawati N. Differences in the Effectiveness of Fe Tablet Administration on Hemoglobin Levels of Anemic Pregnant Women. *Jurnal Kesehatan Mercusuar* [Internet]. 2019;2(2):29–36.

- Available from: <http://jurnal.mercubaktijaya.ac.id/index.php/mercusuar/article/download/44/26>
7. Dinas Kesehatan Provinsi Sumatera Barat. *Laporan Kinerja Dinas Kesehatan Provinsi Sumatera Barat Tahun 2017*. 2017.
 8. Wahyuningsih E, Q AU. Nutrition Counseling for Pregnant Women by Health Workers (Midwives, Nutrition Officers) on the Incidence of Anemia at Jogonalan I Health. *INVOLUSI Jurnal Ilmu Kebidanan* [Internet]. 2017;005. Available from: <http://jurnal.stikesmukla.ac.id/index.php/involusi/article/view/296>
 9. Marshall NE, Abrams B, Barbour LA, Catalano P, Christian P, Friedman JE, et al. The importance of nutrition in pregnancy and lactation: lifelong consequences. *Am J Obstet Gynecol* [Internet]. 2022;226(5):607–32. Available from: <https://doi.org/10.1016/j.ajog.2021.12.035>
 10. Kaleem R, Adnan M, Nasir M, Rahat T. Effects of antenatal nutrition counselling on dietary practices and nutritional status of pregnant women: A quasi-experimental hospital based study. *Pak J Med Sci*. 2020;36(4):632–6.
 11. Putri SLPF, Abdi LK, Sulendri NKS, Wirawan S. The Effect of Providing Nutrition Counseling on Increasing Knowledge and Consumption of Nutrients for Anemic Pregnant Women in the Pejeruk Health Center Working Area, Ampenan, Mataram City. *Jurnal Gizi Prima*. 2018;3:18–27.
 12. Simbolon D, Rahmadi A, Jumiyati J. The Effect of Nutrition Assistance on Changes in Nutrition Fulfillment Behavior of Pregnant Women with Chronic Energy Deficiency (KEK). *Jurnal Kesehatan*. 2019;10(2):269.
 13. Anitasari B, Tandiana A. The Influence of Health Education on Knowledge and Attitudes of Pregnant Women About Fulfilling Nutritional Needs During Pregnancy in the Work Area of the South Wara Health Center in Palopo City. *Journal Article*. 2018;01:99–106.
 14. Abd-El Mohsen SA, Mohamed AA. Effect of Nutritional Counseling on Nutritional Practices and Dietary Health Habits of Pregnant Women. *American Journal of Nursing Research* [Internet]. 2019;7(6):947–

51. Available from: controlled trial. BMC Pediatr. 2020;20(1):1–12.
<http://pubs.sciepub.com/ajnr/7/6/6>
15. Susilawati D, Nilakesuma NF. Relationship between Pregnant Women’s Attitudes and Dietary Behavior During Pregnancy. *Jurnal Ilmiah Kesehatan Ibu dan Anak*. 2022;02(02):69–71.
16. Demilew YM, Alene GD, Belachew T. Effects of guided counseling during pregnancy on birth weight of newborns in West Gojjam Zone, Ethiopia: A cluster-randomized
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