

Impact of Golden Nutrition Booklet (GNB) in knowledge and attitude changes of balanced nutrition implementation in women childbearing age

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ARTICLE INFO

Article history

Received, 9 Mei 2023

Revised, 20 Mei 2023

Accepted, 30 Mei 2023

Keywords

Nutrition;

Childbearing age;

Golden nutrition Booklet

Health education;

Media education;

ABSTRACT

Factors that lead stunting incidents are poor nutrition and inadequate psychosocial stimulation. Most parent especially in childbearing age may have lack of education about balanced nutrition that impact their feeding implementation to their children. This study investigated the impact of Golden Nutrition Booklet (GNB) in knowledge and attitudes changes of balanced nutrition implementation in women of childbearing age. Altogether 38 women in childbearing age were included in this quasi-experiment study, one group pre-test and post-test design. Before the intervention, respondents were given pre-test questionnaire to assess their knowledge and attitude about balance nutrition, then given the GNB to be read during the next 7 days. In the last day, the assessment was repeated after the health education by GNB given. The study showed that health education interventions regarding GNB directly influence the increasing knowledge and attitude outcomes of women of childbearing age $p < 0.05$. However, we can conclude that the GNB can be used as health education media for woman to implementing balanced nutrition, that could enhance child nutrition outcomes.

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1. Introduction

Stunting impacts the poor development and a major risk factor for morbidity and mortality among children. The primary causes of childhood stunting re continued exposure to recurrent infection as well as suboptimal nutritional intake, especially during their first 1000-days. This time includes woman in pregnant until 24 months age of young children (Reverri et al., 2022a). Suboptimal nutritional intake or Imbalance in food intake can be caused by parent's knowledge and behavior when they feed their children. Toddlers who experience malnutrition increase the risk of malnutrition to death (Pratiwi & Puspitasari, 2017). According to (Fadare et al., 2019), nutrition of children is independently and favorably correlated with mother's knowledge on health and feeding (World Health Organization (WHO), 2018). Mother with much education can greatly improve stunted children's score and reduce wasting children score.

The 2022 Indonesian Nutrition Status Survey (SSGI) shows the nutritional status of toddlers (stunting, wasting, underweight, overweight) with a survey sample of 334,848 toddlers spread across 33 provinces and 486 districts/cities. The stunting rate in 2022 shows a declining trend, namely from 24.4% in 2021 to 21.6% in 2022 so that to achieve the 14% target in 2024 there must be a 3.8% decrease each year. Meanwhile, wasting and underweight in 2022 have increased, namely for wasting from 7.1% to 7.7% and underweight from 17.0% to 17.1%. Then, overweight decreased by 0.3%, from 3.8% to 3.5. Surakarta City area for the prevalence of stunting under five in 2022 based on height for age, namely 16.2% (SSGI, 2022) where in 2021 Surakarta City for the prevalence of stunting under five is 20.4%, thus showing a downward trend (SSGI, 2021). The results of the 2022 SSGI resulted in the conclusion that eleven stunting-specific interventions were focused before birth and at the age of 6-23 months, then stunting prevention was felt to be far more effective than stunting treatment (SSGI, 2022).

One way to prevent malnutrition is to get used to consuming balanced nutrition in every household. The balanced nutrition campaign currently being promoted by the Ministry of Health of the Republic of Indonesia is the "Isi Piringku" balanced nutrition model. The "Isi Piringku" model describes the portion of one plate that is consumed for each meal. In one plate, half of it contains carbohydrates and protein while the other half consists of fruits and vegetables. This "Isi Piringku" model campaign also places an emphasis on limiting daily consumption of salt, fat and sugar. In addition to regulating the portion and type of food, "Isi Piringku" also emphasizes four main messages, namely a balanced nutritional diet, drinking enough water, doing physical activity for at least 30 minutes each day, and to find out the condition of the body it is recommended to measure the desired weight and height. Appropriate (Ministry of Health of the Republic of Indonesia, 2018). Education about this implementation of course can be informed to all woman in childbearing age to gain their knowledge and improve their behavior. As we know, health education is very important on knowledge and behavior (Thingujam et al., 2022)

2. Methods and materials

Study design

A quasi-experimental along with pre-post test one group only design was applied to this study. This work was approved by the research ethics committee Kusuma Husada University, Surakarta with reference number: No.926/UKH.L.02/EC/XII/2022. From 310 total population woman in childbearing age at RW 22 Ngoresan, Surakarta, Indonesia we used Slovin Formula with 15% confidence interval for study sample.

$$n : \frac{N}{1 + Ne^2}$$

n: number of samples, *N*: total population, *e*: error

$$n : \frac{310}{1 + 310 \cdot (0,15)^2}$$

$$n : \frac{310}{1 + 310 \cdot 0,0225}$$

$$n : \frac{310}{1 + 6,975}$$

$$n : \frac{310}{7,975}$$

$$n : 38,87 : 39$$

From that formula we got 39 respondents that must meet the restriction criteria. The inclusion criteria for this study were women in reproductive aged between 19-49 years old, voluntarily participated in the research, while infertile woman and they who can't be able to establish verbal communication were excluded. From 39 respondents we found 1 respondent who was infertile, so we concluded only 38 respondents in this study.

Intervention

Before intervention, all respondents were given pretest questionnaires to assess their knowledge and attitude about balance nutrition. After doing the pre-test, all respondents were given the given Golden Nutrition Booklet (GNB), we explained to them about the GNB that it was a health education book literally about balanced nutrition to maximized the children golden periods. It consist of 58 pages including the importance of nutrition, and how to make a balanced variativ menu for childrens. We instructed them to read the GNB for 7 days, at least 8 pages in a day to increase their knowledge and implemented it in their daily life. In the last day, the assessment was repeated after the intervention.

Knowledge and attitude measurement

The knowledge and attitude of respondent were measured with questionnaires that valid and reliable. The validity score was 0.05 and the reliability score (chorbachn alfa) was 0.72. The questionnaire contains 10 closed questions with right or wrong answers. Each question has a score of 10, so the total score is 100. Classification of the level of knowledge of the respondents, namely the level of knowledge is good if the value is ≥ 80 , the level of knowledge is sufficient if the value is 60-70, and the level of knowledge is poor if the value is ≤ 50 .

Meanwhile, the assessment of the attitude of the respondents was also measured using a questionnaire containing 10 closed questions with the answers strongly agree, agree, disagree, and strongly disagree. Each question has a value of 10, so the total value is 100. The classification of the attitude of the respondents is divided into two, namely favorable and unfavorable. Favorable if the respondent's value is above the average sample value. Meanwhile, unfavorable if the respondent's value is below the average sample value.

Statistical analyzes

Data were analyzed using SPSS version 24. Data were presented as frequency, percentage, mean, standard deviation (SD). Dependent sample t-test was used to compare the sample means from two related groups, to determine if there is a change from one measurement (group) to the other.

3. Results/Findings

Characteristic of women in

The characteristics of the respondents in this study were seen from their age, education level, occupation, and exposure to balanced nutrition information. The characteristics of the respondents in this study can be seen in [Table 1](#).

Table 1. Description of the Characteristics of Women of Reproductive Age

Characteristics	Frequency (n)	Percentage (%)
Ages		
<20 years	0	0
21 – 35 years	22	57,9
<35 years	16	42,1
Level of education		
Elementary school	0	0
Junior high school	2	5,3
High school	19	50
College	17	44,7
Jobs		
Trader	0	0
Farm workers	0	0
Civil servant	4	10,5
TNI/Polri	0	0
Retired	0	0
Self-employed	19	50
Housewife	15	39,5

According to the Indonesian (Health & Labour, 2015) of in (Qurniyawati, 2015) the age of the mother in the reproductive period is divided into 3 groups, namely age <20 years, age 21-35 years, and age >35 years. In general, the results showed that the majority of respondents were aged 21-35 years (57,9%). Meanwhile, 16 (42,1%) are aged <35 years. Based on Lestari and Edy Wirawan (2016) in Sari and Mutiara (2022), formal education levels are divided into 4, namely Elementary School (SD), Junior High School (SMP), High School (SMA), and College (PT). Based on table 1, the majority of the respondents' education level was high school graduation, namely 19 (50%) respondents. As many as 17 (44,7%) graduated from university and 2 (5,3%) graduated from junior high school. According to Notoatmodjo (2018) in Sari and Mutiara (2022), job categories are divided into 7, namely traders, laborers/farmers, civil servants, military/police, retirees, entrepreneurs, and housewives. The majority of respondents were self-employed, namely 19 (50%). As many as 15 (39,5%) were housewife and 4 (10,5%) was civil servant. An overview of the respondents' knowledge prior to health education is illustrated in Table 2.

Table 2. Knowledge of Women of Reproductive Age regarding Balanced Nutrition Before and After Being Given Health Education through Providing Booklets

Knowledge	Pretest (N 38)				Post test (N 38)				p value
	n	%	Mean	SD	n	%	Mean	SD	
Not enough	12	31.6			1	2.6			0.000*
Enough	22	57.9	0.79	0.622	16	42.1	1.53	0.557	
Good	4	10.5			21	55.3			

* indicated $p < 0.005$ and has significant different

Balanced nutrition knowledge data in this study included initial nutritional knowledge values, final nutritional knowledge values, and changes in nutritional knowledge values. The value of initial nutritional knowledge was taken at the beginning of the study before the respondents were given health education. The final nutrition knowledge value was obtained at the end of the study after the respondents were given health education. Meanwhile, the change in knowledge value is the final nutritional knowledge value minus the initial nutritional knowledge value. Based on table 2, the results showed that women of childbearing age who had less knowledge before being given health education were 12 (31,6%) people and after being given health education the number decreased to 1 (2,6%) people. Women of childbearing age who had sufficient knowledge before being given health education were 22 (57,9%) and after being given health education the number decreased to 16 (42,1%). Meanwhile, women of childbearing age who had good knowledge increased from 4 (10,5%) to 21 (55,3%) people (Ministry of Health, 2016). There is a significant difference in the mean value of knowledge between before ($M = 0.79$, $SD = 0.622$) and after the intervention ($M = 1.53$, $SD = 0.557$, $p = 0.000$). The results of this study indicate that health education interventions regarding balanced nutrition using booklet media directly influence the increase in the knowledge outcomes of women of childbearing age. Then, an overview of the respondents' attitudes before being given health education is illustrated in Table 3.

Table 3. Attitudes of Women of Reproductive Age towards Balanced Nutrition Before and After Being Given Health Education through Providing Booklets

Attitude	Pretest (N 38)				Post test (N 38)				p value
	n	%	Mean	SD	n	%	Mean	SD	
Unfavorable	20	52.6	0.47	0.506	11	28.9	0.71	0.460	0.011
Favorable	18	47.4			27	71.1			

* indicated $p < 0.005$ and has significant different

Data on the attitude of implementing balanced nutrition in this study included the attitude value of applying initial nutrition, the attitude value of implementing final nutrition, and changes in the attitude value of implementing nutrition. The attitude value of the initial application of nutrition was taken at the beginning of the study before the respondents were given health education. The attitude value of the final application of nutrition was obtained at the end of the study after the respondents were given health education. Meanwhile, the change in the value of the attitude towards implementing nutrition is the final value minus the initial value. Based on table 3, women of childbearing age who had negative attitude (unfavorable) decreased from 20 (52,6%) to 11 (28,9%). Meanwhile, women of childbearing age who had positive attitude (favorable) increased from 18 (47,4%) to 27 (71,1%). There is a significant difference in the mean value of attitude between before ($M = 0.47$, $SD = 0.506$)

and after the intervention ($M = 0.71$, $SD = 0.460$, $p = 0.011$). The results of this study indicate that health education interventions regarding balanced nutrition using booklets have a significant effect on changing attitudes towards implementing balanced nutrition in women of childbearing age.

4. Discussion

In this study, before doing intervention, we found that there are only four (4) woman in childbearing age who has a good knowledge about balance nutrition (10.5%), with mean score 0.79 overall. This pre-test knowledge assessments result can be used for a number of things, including identifying respondent who are having difficulties in their studies about nutrition, and bridging the knowledge gap between respondent's real knowledge base and the researcher expectation (Hailikari et al., 2018). The ability to recognize information about food and nutrients and their effects on one's health is referred to as nutritional knowledge. Having appropriate knowledge of balanced nutrition enable mothers to take steps towards implementation balance nutrition to their children to prevent malnutrition. However, research shows that still few of mother have comprehensive knowledge about balance nutrition (Vrkatić et al., 2022). It is indicated that they less in touch with media information about balance nutrition, and make them don't understand well about it. Providing adequate information to woman in childbearing age that willing to have children during their live will give a great impact for children's live. In this study, after giving Golden Nutrition Booklet (GNB) we found a significant increase in the mean score overall of respondent as 1.53, and there are 21 respondents who has good knowledge. This study proves that Golden Nutrition Booklet (GNB) impact in knowledge and attitudes changes of balanced nutrition implementation in women of childbearing age. Knowledge in human being can be increasing by health education. These results are in line with the research of (Schwartz et al., 2015) that the provision of booklet educational media significantly increases the value of knowledge and attitudes of prospective brides regarding prevention of pregnancy risks in Pemalang Regency. Another study by (Putri & Puspowati, 2019) showed the same results on increasing the value of attitudes and knowledge of pregnant women regarding exclusive breastfeeding. Additional health education will trigger human to think more critically about something to increase their awareness in doing something. In this case, woman who have great knowledge about balanced nutrition of course also have a great insight, awareness, and behavior on implementing balance nutrition to their children, so that they can improve their health status and reduce the incidence of malnutrition, including stunting (Goudet et al., 2019; Kumar & Lakhtakia, 2021; Torlesse, 2016). Giving a health education to human can be done by various methods, but it will be more acceptable to woman in childbearing age if they can learn it independently, continuously, and consistently at their home. In this study, we make a Golden Nutrition Booklet (GNB), because as we know, woman in child bearing age have a various business in their house, so that they can still learning everything from their house to increase their knowledge including about the balance nutrition for their children. (Mekonnen et al., 2021; Siswati et al., 2022) showed an increase in the knowledge of mothers under five in the treatment group about malnutrition after being given education using booklet media. Meanwhile, (Susanti, 2021) shows that there is a significant effect of providing booklet educational media on increasing pregnant women's knowledge about 1000 first day of life. Besides that, the booklet is presented in simple language containing messages that can increase mother's knowledge regarding the balanced nutrition for children, in addition. GNB will be accepted by woman by their senses and will feel that the material presented is more interesting presented with interesting pictures and in accordance with the topic of the explanation, hope that toddler mothers are able to understand and imagine about implementation of balanced nutrition that can see in their attitude. Attitude is response or reaction that is still closed from one's self about an object or stimulus certain. On the other hand, attitude is also one factors within a person that can encourage behavior that will occur. A person's attitude is defined as their propensity to react, that is, how they react to both things they enjoy and those they detest (Gosdin et al., 2018; Kang et al., 2018; Reverri et al., 2022b). A person's attitude is influenced by a variety of elements, including personal experience, the opinions of others, important individuals, culture, the media, institutions of higher learning, and emotional considerations. In this study the attitude of woman in child bearing related to nutrition knowledge are associated with the total scores of nutrition related knowledge.

5. Limitation of Study

This study has some potential limitations that need to be recognized. In fact, studies that are confined to a single center can be conducted in other regions with larger populations and sample to achieve more realistic results.

6. Conclusion

Based on the findings of the study and the discussion that followed, it can be said that GNB can be an alternative health promotion media for woman in childbearing that can not only can give impact on their knowledge but also can improve their attitudes toward balance nutrition for children. On this basis, future research should examine the ability of the GNB to prevent malnutrition in children indirectly.

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