Health Education Enhances The Understanding Of Pregnant Women Towards The Prevention Of Early Complementary Feeding

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Abstract

Objective: Starting to provide complementary foods at the right time is very beneficial for meeting nutritional needs and for baby's growth and development. The provision of complementary foods depends on the mother's knowledge and attitude. Health education is a way to increase understanding and readiness of mothers in efforts to prevent early introduction of complementary feeding to babies. The research objective was to analyze the effect of health education with leaflets on early complementary feeding attitudes in third trimester pregnant women.

Methods: The research design was a quasi-experimental study with two group pre-post test design, with a sample of 66 third trimester pregnant women who were taken by consecutive sampling.

Results: The results showed that there were significant differences in maternal attitudes before and after the provision of health education related to early complementary feeding attitudes (p value <0.001; α = 0.05).

Conclusions: This study recommends the implementation of health education about complementary foods for mothers during exclusive breastfeeding as a preventive strategy for early introduction of complementary feeding and to increase the readiness of mothers before the complementary feeding period.

Keywords: complementary feeding, baby, pregnant women, health education

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INTRODUCTION

Breastmilk is first food and the best nutrients for healthy growth and development of infants. Breastmilk have antibodies to protect infants from a variety of disease especially infectious diseases [1]. As babies reach the age of 6 months, babies need other foods to meet their energy and nutritional needs called complementary foods. Complementary foods is additional food or drink containing nutrients which is given to babies or children aged 6-24 months to fulfill their nutritional needs besides breast milk. Complementary foods should be introduced at the right time. If the introduction or provision of complementary foods is not in accordance with the time, it will interfere with the growth and development of the baby [2].

The number of infants aged 6-23 months who receive nutrients that meet the criteria for dietary diversity and age-appropriate feeding frequency is only under 25% in some countries. The timing of introduction of complementary foods and the practice of giving them is also problematic in all areas. About a third of babies aged 6-8 months have not eaten solid, semi-solid, or soft foods according to the rules. Early introduction of complementary foods
is also particularly problematic in America Latin, the Caribbean, East Asia and the Pacific, where nearly half of all babies between the ages of 4 and 5 months are already consuming solid foods [3,4,5]. These conditions are not in accordance with the WHO recommendation. WHO has recommended rules that babies start eating solid foods from the age of more than 6 months while continuing to breastfeed until the age of 2 years or more. Recommended practices include timely introduction of complementary foods at 6 months, the frequency of meals and the portion size, the diversity of food, appropriate food texture, food preparation, storage and cleanliness, and responsive feeding [6].

The national prevalence rate of malnutrition among children under five years old is currently 17.7%, this number still far from the 2015-2019 Indonesia National Medium-Term Development Plantarget of 17% [7]. There are 560 (0.93%) children under-five years old whose development is below the Red Line [8]. The results of Basic Health Research in 2018 show that the percentage of food consumption for various children aged 6-23 months is only at the level of 46.6%, which means that more than half of the population of children have not consumed foods that are diverse in terms of nutritional substances [9]. This condition is quite alarming because Indonesia is a tropical country that has a very varied type of food in the context of carbohydrates, proteins, vegetables and fruits.

Various studies have shown problems in complementary feeding period that the majority of mothers or caregiver do early introduction of complementary feeding practice. Research states that mothers or caregivers lack knowledge about complementary foods in terms of time, type, frequency, and texture. Lack knowledge causes the mother to be unprepared in giving complementary foods so that the practice is not correct, if it is carried out continuously for a long time, the child will receive sufficient nutrients for their growth and development. The main indicator is body weight. Children's body weight that is not ideal or less suitable compared to age indicates that the child is malnourished [10,11,12].

Another fact shows that more than half of breastfeeding mothers population who are still in the exclusive breastfeeding period provide early introduction of complementary feeding to their babies, thereby failing the exclusive breastfeeding program. The factor that was considered the most influential was the mother's lack of knowledge about complementary feeding (time to start giving, type of food, frequency of eating, and food texture). Other supporting factors is the mother’s attitude has not support the concept of it, the strong belief on cultural myths, and advice from family and friends for giving early introduction of foods [13,14,15, 16]. Thus, there are needs of strong support, especially for mothers to be able to prepare for the complementary feeding period.

Interventions that improve complementary feeding, including education on appropriate feeding practices, with or without supplemental food, are among the most effective to reduce stunting during the first 2 years of life [17,18,19]. Government programs established by The National Team For The Acceleration of Poverty Reduction already announced one of the specific nutrition interventions for breastfeeding mothers and children aged 7-23 months is promotion and education of appropriate complementary feeding [20].

Education is an important component of prenatal care, particularly for women who are pregnant for the first time. It is a well known fact that literacy among women in many developing countries is low, and there are sociocultural beliefs and practices with adverse effects on pregnancy and birth occurring even among educated women. In all societies, health beliefs are among those held most tenaciously and are an integral aspect of a culture. Individual health behaviors are embedded in cultural pattern exchanges and are usually transmitters from generation to generation [21]. These conditions include matters relating to complementary foods. Maternal concerns about the
adequacy of the infant's nutrition during the exclusive breastfeeding period and hereditary beliefs from previous generations often lead to the condition of early introduction of complementary feeding. This is certainly not correct and must be corrected. Based on this description, the researchers concluded that the mother or caregiver needs to have proper knowledge about complementary foods before the baby enters that period as a preparatory step and preventive strategy for early introduction of complementary feeding when the baby enters the exclusive breastfeeding period. Thus, the third trimester of pregnancy is considered appropriate as a period for providing health education regarding complementary foods.

METHODS

This research is a quantitative with a quasi experimental design two groups pre-post test design. The sample were 66 third trimester pregnant women in the working area of PuskesmasBojongsariPurbalingga District. The sample was divided into two groups, namely the intervention group and the control group with 33 pregnant women each group. The data collection time starts from July 2019 to September 2019.

The respondents were determined by inclusion and exclusion criteria. Inclusion criteria include third trimester pregnant women (30-40 weeks gestation), married women, pregnant women who are not undergoing medical therapy due to comorbidities and willingness to become respondents. While the exclusion criteria included pregnant women who gave birth during the study, pregnant women who did not follow the pretest or posttest, pregnant women who suffered from physical limitations (such as hearing and vision problems).

The data collection instruments were 2questionnaire:
1. Questionnaire about knowledge of complementary foods with 16 question items about complementary foods knowledge
2. Questionnaire on maternal attitudes related to the prevention of early introduction of complementary feeding with 10 statement items

The questionnaire had been tested for validity. The pre test was conducted 1 day before the implementation of health education to mothers. The intervention group received education for delivering material about complementary foods using leaflets for 30 minutes. The post test of knowledge was carried out 1 day after the intervention to maintain the respondent's understanding of the material. While the posttest attitude is measured at 4 weeks after health education so that there is an internalization of the value of the material topic in the respondent's attitude. The time span of the pretest and posttest measurements in the control group was the same as the intervention group. The control group was still given health education which was carried out after the post test measurement was completed.

The data in this study were first analyzed by univariate, age as numeric data and education level, profession, and gravidity as categorical data, then data tested for normality using the Shapiro-Wilk test. The data were normally distributed so that the pre-post test data of each group were analyzed using the dependent T-test to measure differences in maternal knowledge and attitudes before and after the provision of early introduction of complementary feeding health education. Data between the intervention and control groups were analyzed by using the independent T-test. This research has passed the ethical review of the Ethics Committee of Faculty of Medicine, JenderalSoediman University with the number Ref: 3438/KEPK/VII/2019.
RESULT

The results of this study consisted of the characteristics of respondents including age, education, occupation, and gravidity, knowledge and attitudes of mothers before and after the provision of health education of early introduction of complementary feeding. All the table shows in the end of manuscript. Table 1 shows the value of the average (mean) age of respondents was 27.67 in the intervention group and 27.76 years in the control group. Table 2 shows that in the intervention group the majority of maternal education is junior high school (36.4%), housewives (60.6%), and 1st gravidity (36.4%). The control group for the majority of maternal education was high school (39.4%), housewives (69.7%), and second gravidity (36.4%). Table 3 shows in the intervention group there were significant differences between the average scores of knowledge and mothers attitude before and after health education (p value <0.05).

DISCUSSION

The results of this study indicate that the knowledge of pregnant women about complementary foods is at a low level. This can happen because pregnant women have not focused on studying solid foods, especially when the baby is not yet born. Education during pregnancy or called antenatal care generally still focuses on providing information consisting of three equally important general areas namely screening for conditions likely to increase adverse outcomes, providing therapeutic interventions known to be beneficial, and educating pregnant women about planning for a safe birth, emergencies during pregnancy, and how to deal with them. Specific material was also provided including health behavior during pregnancy and about recognizing complications that may arise during pregnancy, information on postpartum care, newborn care, breastfeeding, signs of problems, and appropriate action to take [21]. Based on this concept, a pregnant woman has not yet focused on learning how to feed her baby after birth, especially the right time for the baby to get the first food.

Several studies conducted in various regions of the world show the practice of early introduction of complementary feeding still exists. Mothers with children at age of complementary foods period find results mother knowledge of complementary feeding was low (14.9%) and this associated with older mothers’ age, being married, and higher levels of education. The prevalence of timely initiation of complementary feeding (47.9%), dietary diversity (16.0%) and minimum acceptable diet for children between 6 and 9 months (16%) were low. Overall, appropriate complementary feeding practice was low (47.0%) and associated with higher levels of mothers’ education and occupation[22]. These results are very worrying because this condition occurs when the child has entered the age of giving complementary foods and the mother as the primary food providers do not understand how the time and the proper way in giving solid foods to her child. The provision of early introduction of complementary foods does not only occur in developing countries, this condition also exists in developed countries where the average citizen has a high level of education. The research in Poland and Austria found that complementary foods were introduced before 4 months in 3.0% of infants (2.4% in Poland and 4.3% in Austria), between 4 and 6 months in 65.0% of infants (60.5% in Poland and 75.3% in Austria), and after 6 completed months in 32.1% of infants (37.1% in Poland and 20.4% in Austria) [23]. Another study on the territory of China also shows the same condition. The rates of early introduction (before 6 months) of complementary foods in four ethnic groups (Han, Uygur, Tibetan, and Zhuang) were 71.30%, 95.95%, 82.40%, and 72.30%, respectively [24].

Many phenomena of early introduction of complementary feeding that fail the exclusive breastfeeding programs are caused by many factors. The condition of the mother after giving birth to a baby that is more difficult than the time of her pregnancy makes the mother’s anxiety even higher, especially if the baby is hungry. This
worry is usually triggered by the inability to recognize the baby’s cry so that a crying baby is always interpreted as hunger. The perception that breastfeeding is not enough and various other myths encourage mothers to provide complementary foods at an earlier time. Various studies have stated that the factor that has the greatest influence is maternal knowledge. Mothers who have not been equipped with an understanding of complementary foods since their pregnancy, especially about time they started giving foods and the signs that babies have been given complementary foods will lead to an attitude of supporting early feeding. This attitude then manifested in the behavior of mothers who provide early introduction of complementary foods [13, 16, 22].

Interventions that provide education to mothers will significantly improve complementary feeding knowledge and practices and result in significant positive gains in linear growth and weight [25]. This opinion is supported by the research which evaluates the effectiveness of maternal educational messages regarding appropriate complementary feeding (CF) on the nutritional status of their infants after 30 weeks of educational interventions delivered by trained community health workers. The results showed infants in the intervention group had a higher mean weight, length, and mid-upper arm-circumference (MUAC) compared to the controls, proportionate reduction of stunting and underweight [26]. These results have proved that maternal education in complementary feeding has some role in infants’ growth and WHO linear growth parameters in children of developing countries. The other research strengthens the data from systematic review which states that health education can have an effect on improving the practice of providing complementary foods in various aspects. These aspects include appropriate age at introduction of complementary foods, hygiene practices in preparing the foods, and mother knowledge [27].

Several studies have shown the importance of timing in health education which will be aimed as a prevention program. Education activities on a prospective mother that started during the antenatal period and continued postpartum appeared to be more effective than methods which focused on education during pregnancy only. This review highlighted that educational activities which continued after birth were associated with better outcomes in terms of breastfeeding continuation at 6 months, appropriate health behaviors, improved knowledge of health care and school continuation [28]. Other research supported and used the same method with this research in the form of provision of knowledge about complementary feeding for pregnant women. This study found maternal knowledge and attitudes are important determinants for child health and infant feeding practices. Maternal attitudes about complementary feeding were associated with the timing of complementary feeding initiation. Improving maternal knowledge and attitudes through nutrition counseling and education can lead to improved infant and young child feeding (IYCF) practices, and consequently, improved child growth and development [29].

Health education is about time. If the aim is to direct preventive behavior, education should be provided before entering the period related to the topic of education. This concept is the same as education about complementary foods. If educators want mothers to take preventive measures to provide inappropriate complementary foods, especially regarding the time introduction of complementary foods to babies, then the timing of health education should be carried out before the child enters the complementary foods period, namely before the baby is 6 months old. If assumed, the appropriate period of health education is during the mother's pregnancy or exclusive breastfeeding period (baby 0-3 months years old). The 0-3 month period is based on the results of a study where the average mother gave initial solids at the age of the baby between 4-6 months. With this time span, it is hoped that it can prevent the practice of giving early complementary foods and increase the readiness of mothers before the infant complementary feeding period.

The use of health promotion media in the digital era, such as e-health and m-health, is increasing. However, the traditional health promotion media, such as posters and leaflets, are still used. Traditional health promotion media such as leaflets and posters are still useful in the current digital era, especially for adult respondents. The media
leaflet can play an important role in increasing knowledge, skills, and in changing the positive behavior in society [30]. This is expected to be able to encourage prevention as an intervention to improve health status. Media promotion using leaflets and posters means that they cover a large population. They serve as a great medium to spread the health message [31]. The analysis of the articles showed that they will be more effective when combined with other media. The other media in question could be education from the health workers, videos, demonstrations, Focus Group Discussions (FGD) and games [32]. Nurses should use leaflets as the preferred health promotion media, especially for adult patients.

Starting complementary foods at the right time is beneficial for meeting nutritional needs and for infant growth and development. The time span of complementary foods at 6-23 months is the basis or foundation in forming a good eating habit. If the foundation given by the mother or caregiver is right, then the child will have good eating habits and apply it to adulthood. The study by Qu (2018) recommends that more antenatal and postnatal health promotion should highlight the benefits of introducing solid foods and the current practice at or close to six months of age [24].

The provision of complementary foods to babies depends entirely on the mother or caregiver. The optimal knowledge and attitude of the mother or caregiver determines how a mother or caregiver prepares the complementary foods period so that she can prepare a good menu for consumption by the baby. The better the knowledge and attitude, the mother or caregiver is able to calculate the right time, type, frequency, and texture of food for consumption by the baby. Age 6 months - 2 years is a prone period for child growth, if children get the right food in quality and quantity then growth and development will be good.

CONCLUSION
There are significant differences in knowledge and attitude of pregnant women in preventing the provision of early introduction of complementary feeding in baby before and after the intervention of health education. This study recommends the provision of health education about complementary feeding for mothers during exclusive breastfeeding period as a step to prevent the provision of early introduction of complementary feeding and increase maternal readiness before the period of giving complementary feeding.

ACKNOWLEDGMENTS
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Table 1
Distribution of Respondents by Age
August Year 2019 (n = 66)

<table>
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<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>(Min-Max)</th>
<th>95% CI</th>
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<td>Age</td>
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<tr>
<td>Intervention</td>
<td>27.67</td>
<td>6.066</td>
<td>18-40</td>
<td>25.52-29.82</td>
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<tr>
<td>Control</td>
<td>27.76</td>
<td>6.805</td>
<td>18-42</td>
<td>25.34-30.17</td>
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Table 2

Distribution of Respondents by Education, Occupation, and Gravidity

August 2019 (n = 66)

<table>
<thead>
<tr>
<th>Variable</th>
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</thead>
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<td>Frequency (n)</td>
<td>Percentage (%)</td>
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<td>Senior High School</td>
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<td>27.3</td>
</tr>
<tr>
<td>D3</td>
<td>3</td>
<td>9.1</td>
</tr>
<tr>
<td>S1</td>
<td>4</td>
<td>12.1</td>
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<td>Profession</td>
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<td></td>
</tr>
<tr>
<td>Housewives</td>
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<td>60.6</td>
</tr>
<tr>
<td>Private</td>
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<td>24.2</td>
</tr>
<tr>
<td>Wiraswasta</td>
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<td>12.1</td>
</tr>
<tr>
<td>Teacher</td>
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<td>3.0</td>
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Table 3

Differences in knowledge and mothers' attitudes before and after the provision of health education (Paired t test)

September 2019 (n = 66)

<table>
<thead>
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<th>(Min-Max)</th>
<th>p value</th>
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<tr>
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<tr>
<td>Pre-test knowledge</td>
<td>12.21</td>
<td>1,9</td>
<td>7-16</td>
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<td>Post-test knowledge</td>
<td>13.21</td>
<td>1,933</td>
<td>9-16</td>
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<tr>
<td>Pre-test attitude</td>
<td>29.94</td>
<td>4,71</td>
<td>20-42</td>
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</table>


<table>
<thead>
<tr>
<th>Variabel</th>
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<td>4,964</td>
<td>22-48</td>
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<tr>
<td>Control Group</td>
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<tr>
<td>Pre-test knowledge</td>
<td>12,61</td>
<td>1,968</td>
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<td>1,711</td>
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<td>0,133</td>
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<td>Pre-test attitude</td>
<td>30,94</td>
<td>3,889</td>
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<td>Post-test attitude</td>
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<td>3,861</td>
<td>24-42</td>
<td>0,830</td>
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</tbody>
</table>

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