The Influence of Nutrition Education Using Lecture and Video Animation Methods on Balanced Nutrition Knowledge for Adolescent Anemia Prevention at SMA Al-Mubarok Serang City in 2023

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Abstract
Anemia in adolescents is still a significant nutritional problem. Adolescent girls have a higher risk of developing anemia compared to boys for two main reasons. Firstly, teenage girls experience a monthly menstrual cycle, and secondly, they often have poor eating habits, which can lead to deficiencies in essential nutrients such as iron. The aim of this research is to determine the influence of nutritional education using lecture and animated video methods on balanced nutritional knowledge for the prevention of anemia in adolescents at SMA Al-Mubarok Serang, in the year 2023. The research method employed is quasi-experimental with a One Group Pre-test Post-test design. The results of the Wilcoxon test indicate a significant difference in respondents' knowledge between the pre-test and post-test phases, demonstrating the impact of nutritional education through lecture and animated video methods on balanced nutritional knowledge for the prevention of adolescent anemia. In conclusion, 53 respondents exhibited an improvement in knowledge from the Pre-test to the Post-test, with an average increase of 27.00. There is a difference between knowledge before and after being educated through lecture and animated video methods, with a p-value of 0.000 (<0.05), indicating the influence of education through lecture and animated video methods on knowledge enhancement.

Keywords: Nutrition Education, Balanced Nutritional Knowledge, Anemia Prevention, Adolescents

Introduction
Adolescents are residents aged 10-19 years, the adolescent phase is usually called the vulnerable phase, has high health risks and dynamic development in a person’s life, where individual development occurs relatively rapidly, so that they require relatively large nutritional intake (1). Many teenagers ignore the large need for nutrients, giving rise to various kinds of nutritional problems, one of the nutritional problems often encountered in teenagers is anemia (2).
Anemia is a condition when the number of red blood cells or the concentration of oxygen carriers in the blood (Hb) is insufficient for the body's physiological needs. Women of childbearing age (>15 years) are said to be anemic if the Hb level is <12.0 g/dL (2).

Adolescent girls have a higher risk of developing anemia compared to adolescent boys because the first reason is that adolescent girls experience a menstrual cycle every month and the second reason is because they have wrong eating habits, which can cause the body to lack important nutrients such as iron (3). The incidence of anemia in young women can cause a decline in reproductive health, hamper motor, mental and intelligence development, decreased learning achievement and fitness levels as well as not achieving optimal height (4).

The high prevalence of anemia among teenagers, if not handled properly, will continue into adulthood and will contribute greatly. Young women are also prospective mothers who will give birth to the next generation and are the key to caring for children in the future. If it is not treated, it is feared that it will increase the risk of bleeding during childbirth which can cause maternal death. Women who suffer from anemia can give birth to babies with low birth weight, and women who suffer from anemia can worsen the baby's condition which can cause the child to suffer from stunting, which currently in Indonesia stunting is the main program focus, therefore young women need special attention (5).

Based on an initial survey of 10 female students at Al-Mubarok High School, there were 6 female students who were anemic. One effort to overcome the problem of anemia is through education. Education in this case is part of nutrition education as an effort to change knowledge or attitudes regarding food consumption. The teenage age group is a strategic target group because they are still in the learning process so they can easily absorb knowledge.

**Method**

The research used a quasi-experimental research design with a One group pre-test post-test design. This research was carried out with pre-test observations before it was carried out and nutritional education was carried out regarding preventing anemia in adolescent girls. The next stage, observation was carried out again through a post test to see changes in the results of knowledge of balanced nutrition for preventing anemia after being given nutritional education treatment through lectures and animated video media.

The population used in this research was all students/teenage girls at the Al-Mubarok Serang Islamic Boarding School, class X, totaling 70 people. Research subjects were taken using a total sampling technique where the sample taken was the same as the population, namely 70 students.

**Results**

1. **Univariate Analysis**

**Respondents' Knowledge in the Pre Test and Post Test**

<table>
<thead>
<tr>
<th>No.</th>
<th>Knowledge</th>
<th>Pre Test</th>
<th>Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>Not enough</td>
<td>24</td>
<td>34.3</td>
</tr>
</tbody>
</table>
Based on the table above, the results show that the level of knowledge of respondents at the time of the pre-test was 24 (34.3%) in the poor category, 35 (50%) in the sufficient category and 11 (15.7%) in the good category regarding balanced nutrition for preventing anemia. teenager.

After providing nutrition education using lecture methods and animated videos, there was an increase in respondents' knowledge about balanced nutrition to prevent adolescent anemia, where 2 respondents with insufficient knowledge (2.9%), 23 (32.9%) had sufficient knowledge and 23 (32.9%) had sufficient knowledge. good 45 (64.3%).

2. Bivariate Analysis

Data Normality Test

Table 2 Data Normality Test Results

<table>
<thead>
<tr>
<th></th>
<th>Kolmogorov-Smirnov*</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Pre Test</td>
<td>.264</td>
<td>.794</td>
</tr>
<tr>
<td>Knowledge Post Test</td>
<td>.403</td>
<td>.656</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Lilliefors Significance Correction

Based on the table above, the data normality test shows that the sig. namely 0.000 (pre test) and 0.000 (post test), this value is smaller than 0.05 (< 0.05) so it can be concluded that the research data is not normally distributed, so the assumption of normality is not met or it can be said that the data is not distributed normal.

Results of the Wilcoxon Test of Respondents' Knowledge about Balanced Nutrition for the Prevention of Adolescent Anemia

Table 3 Results of the Wilcoxon Test of Respondents' Knowledge about Balanced Nutrition for the Prevention of Adolescent Anemia

<table>
<thead>
<tr>
<th>Ranks</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Post Test - Knowledge Pre Test</td>
<td>53</td>
<td>27.00</td>
<td>1431.00</td>
</tr>
<tr>
<td>Ties</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Based on the results of the table above, it is known that the N value for Negative Ranks is 0, which means there is no decrease from the Pre Test to Post Test scores, while for the N Positive Ranks value it is known that there are 53 respondents/students who experienced an increase in knowledge from the Pre Test to Post Test scores. where the average increase is 27.00.

Table 4 Wilcoxon Test Results of Respondents' Knowledge about Balanced Nutrition for Preventing Adolescent Anemia

<table>
<thead>
<tr>
<th>Knowledge Post Test - Knowledge Pre Test</th>
<th>Z</th>
<th>Asymp. Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-7.100</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a. Wilcoxon Signed Ranks Test

Based on the table above, the Wilcoxon test shows that the Asymp. Sig. (2-tailed) of 0.000, this value is smaller than 0.05 (< 0.05), so it can be concluded that there is a significant difference in respondents' knowledge during the pre-test and post-test, where Hα is accepted and H0 is rejected, which means there is The influence of providing nutrition education using lecture methods and
animated videos on knowledge of balanced nutrition for preventing anemia in adolescents.

Discussion
1. An overview of young women's knowledge before and after being given education using lecture methods and animated videos at Al-Mubarok High School, Serang City

The results of the univariate analysis showed that before the nutrition education was carried out, the respondents' knowledge was in the insufficient category, 24 (34.3%) and 35 (50%) in the sufficient category. After the nutrition education was carried out, nutritional knowledge increased in the sufficient category by 23 (32.9%) and in the good category 45 (64.3%).

Before being given education using lecture methods and animated videos, respondents did not really know the importance of balanced nutrition for preventing anemia in adolescents, so after being given education, respondents knew more about balanced nutrition and what things should be avoided to prevent anemia.

This research is also in line with research conducted by (6), the average good knowledge score for young women about anemia increased from 7 to 17 after being given health education using video media. There are differences in the level of knowledge of adolescents before and after being given health education via video media. So it can be concluded that teenagers' knowledge can increase after being given health education via video.

2. Differences in Young Women's Knowledge Before and After being given Education using Lecture Methods and Animation Videos at Al-Mubarok High School, Serang City

This research is to identify changes in knowledge before and after being given balanced nutrition education to prevent adolescent anemia in young women at Al-Mubarok High School, Serang City which can be seen from its influence on the knowledge of young women. Based on the results of the Wilcoxon statistical test, it is known that there is an influence on teenagers' knowledge before and after being given education using the lecture method and animated videos, showing a p-value of 0.000 (p<0.05), which means Ho is rejected, so (p<0.05) shows There is an educational influence from providing lecture methods and animated videos with an average increase of 27.00.

This research is in line with research conducted by (7), there is a significant difference in nutritional knowledge about anemia before and after being given nutrition education using video media (p=0.000). Providing nutrition education can provide increased knowledge as explained in research (8), which shows that students' knowledge after providing nutrition education using video media, students have relatively good knowledge. This happens because students' knowledge increases after providing material using video media. The video media given to students helps students to more easily understand the material presented, students become more interested in paying attention to the material in the video.

During the socialization using lectures and animated videos, the students were very interested and focused when listening to what was shown and
discussed in the video. The use of video media can increase female students' understanding, especially about balanced nutrition to prevent anemia in adolescents. The use of video media in learning can provide a more complete, clear, varied, interesting and enjoyable learning experience.

Video media is included in electronic educational media which has advantages such as involving many of the five senses so that it is easier to understand, more interesting because of the sound and moving images, face to face, the presentation can be controlled, the range is relatively large and can be repeated.

Video media can be used for all topics and learning models. Videos can strengthen respondents' understanding of teaching material, feel the emotional elements and attitudes of effective learning and can provide respondents with the opportunity to observe and re-evaluate these activities.

The use of video media has a greater impact on health education, namely relying on hearing and seeing the target, it is interesting, the message conveyed is fast and easy to remember and can develop the mind and develop the imagination of young women.

Health education with videos for young women can clarify the material presented, because in the process of giving it respondents not only hear sounds but can see various kinds of content, for example food menus, etc. (9).

Summary

1. Respondents’ knowledge about balanced nutrition to prevent anemia in adolescents before being given nutrition education was almost half of them in the deficient category (34.3%) and after being given the education there were almost no respondents whose knowledge was deficient (2.9%).

2. There were 53 respondents who experienced an increase in knowledge from the Pre Test score to the Post Test where the average increase was 27.00.

3. There is a difference between knowledge before and after being given education using the lecture method and animated videos with a p-value of 0.000 (<0.05), which means that there is an influence from providing education using the lecture method and animated videos on increasing knowledge.

Suggestions

It is recommended for schools to provide nutrition education through video media to all young women in collaboration with the School Health Unit (UKS) at the school as a means of nutritional education for all young women.

References


The Influence of Nutrition Education Using Lecture and Video Animation Methods


