Sport and Nutrition Journal
Vol 6 No 2 - 2024 (79-82)
https://journal.unnes.ac.id/journals/spnj

Media Effectiveness of Sports Nutrition Quartet Card in Increasing Knowledge Football School Athletes

Maya Triana[1]*, Mardiana[1]
[1]Nutrition Study Program, Faculty of Medicine, Universitas Negeri Semarang, Indonesia
*Email: mayatriana30@students.unnes.ac.id

ABSTRACT

Background: Knowledge is one of the factors that can affect a person's behavior or diet. Therefore, efforts in communication, information, and education (KIE) regarding sports nutrition are needed to support athletes' eating behavior. This study aims to analyze the effectiveness of the Sports Nutrition Quartet Card media in increasing the knowledge of football school athletes. **Methods:** This type of research is the ADDIE model's research and development (R&D). The implementation of the developed product uses an Experimental Quasy research design with a Pretest-Posttest Control Group Design. The sample amounted to 44 people, with details of 22 people in the experimental group and 22 in the control group determined by simple random sampling. The data analysis technique uses the t-test followed by the N-Gain test. **Results:** The study results showed that the assessment of media and material experts was obtained with an average percentage of 79.5% or very feasible. From the field trial results, a percentage score of 81% was obtained or very practical. The t-test results showed a difference in the knowledge of athletes ($p<0.05$), followed by the N-gain score of 0.44 in the medium category. **Conclusion:** It can be concluded that the Sports Nutrition Quartet Card medium is quite effective in increasing the knowledge of football school athletes.

Keywords: ADDIE, sports nutrition, quartet card, athlete knowledge

INTRODUCTION

Knowledge is one of the factors that can affect a person's behavior or diet. (Milosavljević et al., 2015). A lack of nutritional knowledge will hurt athletes' food choices. (Noronha et al., 2020; Wijaya et al., 2021). Nutritional intake is needed to support the performance of athletes. Good nutritional knowledge is required to increase the nutritional intake of athletes. Therefore, efforts in communication, information, and education (KIE) to athletes regarding sports nutrition are needed to support athletes' eating behavior.

Education is any effort to influence others, whether individuals, groups, or society, to do what educators expect. (Aisah et al., 2021). Education can be conducted using engaging media and following the respondents' characteristics. Education through games is one of the effective ways to increase athletes' knowledge about the importance of sports nutrition. Several previous research sources revealed that nutrition education media, such as picture card games, and nutrition puzzles, can be influential in increasing nutritional knowledge (Septian, 2021).

Education should be done from an early age, starting with young athletes, considering that behavior formation is easier to do from an early age. Central Java is one of the provinces with a

good quality football school (SSB), and it is expected to produce outstanding professional football players. Safin Pati Sports School and SSB Terang Bangsa Semarang are football schools that have dormitory facilities. In the dormitory, there are rules that athletes must obey, such as gadgets being limited to certain hours only. This can cause boredom for athletes, so using game media is considered suitable for providing nutritional education to youth football athletes.

The quartet card media is the right game media to convey knowledge about sports nutrition to teenage athletes. The choice of quartet card media is based on the consideration that visual media in images is more accessible to athletes, and its use does not depend on electricity. In addition, quartet cards have another advantage, which is practical because they are easy to carry around and do not require supporting tools in their presentation. The quartet card is very suitable for the learning style of young athletes, which is to learn like playing. Thus, athletes can play it anywhere without requiring special time. It can be done during breaks or in free time (Prasidya, 2018; Sulastri et al., 2020). Due to its practical nature, quartet card games can be played as often as possible. The more often it is played, the more often athletes will be exposed to messages about sports nutrition that will affect their knowledge. (Sutriyanto et al., 2017). According to research conducted by Nurfila et al., (2022) Health education using quartet cards can increase knowledge about vegetables and fruits in elementary school students.

A preliminary study conducted on several athletes in March 2023 at Safin Pati Sports School found that out of 21 athletes, 57% had adequate nutritional knowledge, and 43% had insufficient dietary understanding. It can be concluded that the nutritional knowledge of youth football athletes at Safin Pati Sports School is still considered lacking. Lack of knowledge about sports nutrition in athletes can affect the choice of athletes' diets. Previous research results by Responding (2022), held at the Safin Pati Football Academy, stated that the fulfillment of nutrition in athletes was still not to the recommended needs. One way that can be done to overcome these problems is by educating people about nutrition using game media.

Based on the description above, the researcher wants to develop a game-based educational media, the Sports Nutrition Quartet Card. Therefore, the researcher analyzed the effectiveness of the Sports Nutrition Quartet Card media in increasing the knowledge of football school athletes.

METHOD

This type of research is development research (*Research and Development* / R&D). The development model used in this study is the ADDIE development model (*Analysis, Design, Development, Implementation, and Evaluation*) that Robert Maribe Branch. has developed. (Hidayat & Nizar, 2021).

Implementation of the developed product using research design *Quasy Experiment* with the *Pretest-Posttest Control Group Design*. The sample amounted to 44 people, with details of 22 people in the experimental group and 22 in the control group, with athletes from Safin Pati Sports School as

the experimental group and SSB Terang Bangsa Semarang athletes as the control group determined by simple random sampling.

Data analysis techniques using the Likert scale *for* feasibility and practicality tests, normality and homogeneity to test data samples, t-test to find out the difference in athlete knowledge, and t*he* N-Gain test to determine the effectiveness of the media.

1. Media Due Diligence

The data acquisition results from filling out an expert validation sheet to determine the feasibility of the developed media. After experts fill out the questionnaire, the score will be obtained. The scores received from the experts are converted into percentages in the following way:

$$Expediency\ (\%) = \frac{Total\ score}{maximum\ score}\ x\ 100$$

Based on the results of the assessment using the formula above, it can be known the level of feasibility of the Sports Nutrition Quartet Card media with the provisions according to Sugiyono (2019) These are as follows:

Table 1. Percentage of Eligibility Rate

Interval	Category
76% - 100 %	Highly Worthy
51% - 75%	Proper
26% - 50%	Less Worthy
0% - 25%	Very Unworthy

2. Media Practicality Test

The practicality of media is determined based on the results of assessments from media users when implemented. The average score obtained is then converted into a percentage in the following way:

$$Practicallity\ (\%) = \frac{Total\ score}{maximum\ score}\ x\ 100$$

Based on the results of the assessment using the formula above, it can be known the level of practicality of the Sports Nutrition Quartet Card media with the provisions according to Riduwan (2015) These are as follows:

Table 2. Percentage of Practicality Level

Interval	Category
81% - 100 %	Very Practical
61% - 80%	Practical
41% - 60%	Quite Practical
21% - 40%	Impractical
0% - 20%	Very impractical

3. Media Effectiveness Test

a. Normality Test

The normality test was carried out to determine whether the research data was normally distributed. Normal data is required for parametric statistical analysis (test *paired sample t-test* and *independent sample t-test*). The normality test used in this study is the *Shapiro-Wilk*. The data in this normality test was obtained from the pretest and post-test results, both in the experimental and control groups. The data is said to be normally distributed if the calculated significance value is greater than the significance value of α = 0.05. The results show a normal data distribution with a significant value of > 0.05.

b. Homogeneity Test

The homogeneity test aims to determine whether a variance (diversity) of data from two or more groups is homogeneous (identical) or heterogeneous (not the same). Homogeneous data is one of the requirements for the *independent sample t-test*. In this study, a homogeneity test was used to determine whether the variance of the data *posttest* Experimental and data groups *posttest* The control group is homogeneous. The results show a significance (Sig.) value based on the mean, 0.096 > 0.05. Hence, the variance of the data *post-test* Experimental and data groups *posttest.* The control group is equal or homogeneous.

c. Test T

After conducting the prerequisite tests, namely normality and homogeneity, then conduct a t-test. The analysis of this t-test will go through two tests: the paired sample t-test, a test of the average difference between two paired samples, namely, the pretest and posttest experimental group and the control group. Next, the independent sample t-test tests the mean difference between two unpaired samples, i.e., *posttest,* between the experimental and control groups. Test *independent sample t-test* to determine if there is a difference in effectiveness between the lecture method and the Quartet Card medium with the lecture method alone.

The following is the basis for decision-making based on testing criteria, namely:

If the value of Sig. (2-tailed) > 0.05, then Ha is rejected If the value of Sig. (2-tailed) < 0.05, then Ha is accepted

d. Uji N-Gain

The Gain Normality Test is used to determine the effectiveness of the treatment given. Formulas used to calculate *N-gain score* according to Meltzer are as follows:

$$N - Gain = \frac{Skor\ Posttest - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretest}$$

Description: The ideal score is the maximum value obtained

The category of value acquisition *N-gain score*, according to Hake (1999), is as follows.

Table 3. Categories N-Gain

N-Gain Value	Category
g ≥ 0.7	Tall
0.3 < g < 0.7	Keep
g ≤ 0.3	Low

RESULTS AND DISCUSSION

The products developed in this study will be carried out according to Robert Maribe Branch's procedures; the research model is the ADDIE model. According to Hidayat & Nizar (2021), There are five stages in creating a product using ADDIE, namely *analysis* (problem analysis and needs analysis), *design* (product design), *development* (product development), *implementation* (product implementation with trials), and *evaluation* (evaluating the product).

Analysis

The first stage in this research and development is the analysis stage, which is made by making observations at Safin Pati *Sports School* (SPSS) Indonesia. The analysis carried out includes problem analysis and needs analysis. The results of this analysis will be a reference in the development of educational media.

Problem analysis was carried out to identify the problems at Safin Pati *Sports School*. The results of observations made by researchers have found that there is an improper selection of food and avoiding certain foods needed by the body. This fulfills athletes' nutrition in Safin Pati, not the recommended needs. A lack of nutrition knowledge influences one of the athletes' food choices. The preliminary study found that athletes' nutritional knowledge at Safin Pati Sports School is still lacking. Athletes are not exposed to sports nutrition science, so they get more information from unreliable sources and experience from senior athletes or coaches.

Requirement analysis determines the educational media needed by athletes to increase athletes' knowledge about sports nutrition. Inside the dormitory, athletes must obey some rules, and Gadgets are limited to certain hours only. This can cause boredom and boredom for athletes. Thus, researchers developed game-based educational media that is felt to attract the interest and curiosity of athletes and eliminate athlete boredom when studying sports nutrition. One of the academic media that is based on games is the quartet card media.

Design

The second stage is when the researcher analyzes various aspects, namely the *design* (planning). The Sports Nutrition Quartet Card media content is designed according to the questionnaire indicators: macronutrients, micronutrients, hydration, and nutritional regulation during exercise periodization. (Vázquez-Espino et al., 2020). The sub-materials in the sports nutrition quartet card products include carbohydrates, proteins, fats, vitamins, minerals, hydration, and nutritional regulation during the preparation, match, and recovery stages. A set of Sports Nutrition Quartet Cards totals 48 cards, including 1 card how to play, seven information cards, and 40 quartet cards comprising 10 title categories (3 macronutrients, two micronutrients, five nutritional settings during exercise periodization).

Development

Product feasibility validation is completed after the Sports Nutrition Quartet Card media. Expert validators carry out this media validation and ask for comments and suggestions for media improvements. Expert validators consist of validators, media experts, and material experts.

Table 4. Media Expert Validation Results

No.	Assessed aspects	Scores obtained	Maximum Score	Score (%)	Category
1.	Physical	16	16	100%	Highly Worthy
2.	Design	22	24	92%	Highly Worthy
3.	Use	14	16	87,5%	Highly Worthy
Total		52	56	93%	Highly Worthy

Based on the results of validation by media experts in the table above, the number of scores obtained is 52 out of 14 statements. The physical aspect was declared feasible with a percentage result of 100%, the design aspect was declared feasible with a percentage result of 92%, and the use aspect was declared feasible with a percentage result of 87.5%. It can be concluded that the assessment from media experts has been stated to be possible, with a percentage result of 93%.

Table 5. Material Expert Validation Results

No.	Assessed aspects	Scores Obtained	Maximum Score	Shoes (%)	Category
1.	Presentation of Materials and Content	17	28	60,7%	Proper
2.	Linguistics	12	16	75,0%	Proper
Total		29	44	66,0%	Proper

Based on the results of validation by material experts in the table above, the number of scores obtained is 29 out of 11 statement items. In presenting the material and content, it was declared feasible with a percentage result of 60.7%, and in the linguistic element, it was declared feasible with a percentage result of 75%. It can be concluded that the assessment from the material experts was declared feasible with a percentage result of 66%.

Based on the assessment of media and material experts, an average percentage of 79.5% or "very feasible" was obtained with the conclusion that the overall evaluation of the media is that the Sports Nutrition Quartet Card media can be used with revision. In other words, after the researcher makes revisions according to the suggestions that media and material experts have given, the media can be used for the next stage of development.

This is similar to the research conducted by Retnanigsih, (2017) The quartet card media developed is suitable for building vocabulary in group B children. This is evidenced by the validation of media experts in the very feasible category (92%) and material experts in the feasible category (82.5%).

Implementation

This implementation stage includes providing and using Sports Nutrition Quartet Card media products. The instrument used is an athlete response questionnaire to assess the practicality of the media, and pre-test and post-test questions are used to evaluate the effectiveness of the media.

While developing the Sports Nutrition Quartet Card media, the researcher tested athletes to determine their response to the product created. The researcher conducted a field trial on 22 Safin Pati Sports School experimental group students.

Table 6. Athlete Response Results

No.	Assessed aspects	Scores obtained	Maximum Score	Shoes (%)	Category
1.	Ketertarikan	355	440	80,7%	Very Practical
2.	Material	213	264	80,7%	Very Practical
3.	Language	216	264	81,8%	Very Practical
Total		784	968	81,0%	Very Practical

Based on the table above, it can be seen from the field trial results that the score obtained is 784 from 11 statement items. The aspect of interest was declared very practical with a percentage result of 80.7%, the material aspect was declared very practical with a percentage result of 80.7%, and the language aspect was declared very practical with a percentage result of 81.8%. It can be concluded that athletes' response to the media of the Sports Nutrition Quartet Card was stated to be "very practical," with a percentage result of 81%. This research is in line with the study conducted by Saputri et al., (2022) The developed quartet card media of human body parts, "BATU," was declared very practical, obtaining a practicality value of 83.2%.

This study provided two treatments to two groups: Safin Pati *Sports School* as an experimental group (lecture method and sports nutrition quartet card media) and SSB Terang Bangsa Semarang as a control group (lecture method).

After it was known that the data of the research results were normally distributed and homogeneous, it continued to test the average difference using the t-test. In this study, the Paired T-test is used to find out if there is a difference in the average of two paired samples, and the Independent Sample T Test is used to find out if there was a difference in the mean of two unpaired samples. In this study, a confidence level of 95% was used with a fundamental level of 5%. The results of the data difference test in the study are shown in the following table.

Table 7. Differences in Athlete Knowledge Before and After Treatment

Group	Mean ± SD		∆ Shoes	*p-value*
	Pretest	*Posttest*		
Eksperimen	36,05±10,9892	63,35±15,2029	27,3	0,000 [a]
Control	33,60±10,2333	45,50±11,3737	11,9	0,000 [a]
p-value		0,000 [b]		

Notes: [a] paired sample t-test, [b] independent sample t-test

Based on table 4 shows that the average level of knowledge *pretest* given to the experimental group was 36.05 with a standard deviation of 10.9892, while the average level of knowledge *posttest* given to the treatment group was 63.35 with a standard deviation of 15.2029 and a difference of 27.3 with the results of the statistical test *p<0,001a*. Likewise, the average level of knowledge pretest given to the control group was 33.60 with a standard deviation of 10.2333, while the average level of knowledge posttest given to the control group was 45.50 with a standard deviation of 11.3737 and a difference of 11.9 with the results of the statistical test *p<0,001[a]*. From the data, it can be concluded that there is a significant increase in knowledge from both groups before and after the intervention because of the value of *p<0,05a*. The results of this study stated that the experimental and control groups showed an increase in knowledge scores and were statistically significant. However, this increase was higher in the experimental group than in the control group. In addition, the results of statistical tests between groups show that *p<0,001b,* which stated that there was a difference in the provision of sports nutrition education using the lecture method and the Sports Nutrition Quartet Card media compared to the lecture method alone between the experimental group and the control group.

The results of this study are in line with the results of several studies on the application of quartet card game-based media by Rahmah et al., (2019) The quartet card media about breakfast improved breakfast habits, energy and protein intake, and nutritional knowledge in the treatment group. Another research that is also in line with this study is the research conducted by Rofiqoh et al., (2023) Nutrition promotion using the Quartet Card can affect the nutritional knowledge of respondents.

After the difference between the experimental and control groups is known, the N-Gain test is carried out to see the effectiveness of the developed media.

Table 8. Hasil N-Gain Score

Group	*Mean N-gain score*	Information
Experiment	0,44	Keep
Control	0,17	Low

Results show that the average grade N-gain score for the experimental group (lectures and Sports Nutrition Quartet Card media) is 0.44, included in the medium category, which means that the Sports

Nutrition Quartet Card media is quite effective in increasing athletes' knowledge. As for the average *N-gain score, the control group (lecture) was 0.17, and it was* included in the low category, which means that the lecture method is less effective in improving the knowledge of athletes. So, from these results, it can be concluded that the use of Sports Nutrition Quartet Card media is more effective than the lecture method in increasing the knowledge of football school athletes.

The results of this implementation follow the research conducted by (2020). Explaining the learning strategy while playing quartet cards is more effective than lectures in improving clean behavior and healthy living. Students will be more active in interacting, reading, and listening while holding the media; the atmosphere becomes fun and ultimately increases student motivation.

Based on the above presentation, it can be concluded that the Sports Nutrition Quartet Card Media is quite effective in increasing the knowledge of football athletes. The results of this study are in line with the research that has been carried out by Hantoro et al., (2022) The results showed that the developed quartet card media products improved vocational school students' understanding of careers. Another research that is in line with this study is the research conducted by Samsiyah et al., (2021) This shows that quartet cards effectively improve students' social studies class IV comprehension abilities.

The findings in this study illustrate that the lecture method using the Sports Nutrition Quartet Card media is more suitable than the lecture method alone in increasing athletes' knowledge. In addition, using the Sports Nutrition Quartet Card media in the educational process can create an exciting and fun atmosphere. Georgi Lazanov mentioned that a fun learning process will "build positive suggestions," or in other words, a fun learning situation will provide more optimal learning outcomes.

This is because the Sports Nutrition Quartet Card media has advantages such as being easy to carry (practical), being played anywhere, not requiring special time, being done during breaks or in the athletes' free time, and being used for large and small groups. (Prachida, 2018). In addition, quartet cards have another advantage: they do not require supporting tools in their presentation. Quartet card games can be played independently, so the messaging process doesn't have to rely on nutritionists, coaches, or teachers. Due to its self-contained nature, quartet card games can be played as often as possible. The more often it is played, the more often athletes will be exposed to sports nutrition messages that will affect their knowledge. (Sutriyanto et al., 2017).

Based on observations and analysis results, the Sports Nutrition Quartet Card media is quite effective in increasing the knowledge of football school athletes.

Evaluation

Evaluation is the last stage of the ADDIE development model because in this study, only until the athlete's assessment of the quartet card media is developed the evaluation referred to here is the evaluation of the implementation activities. Therefore, the results of the appraisal obtained by the researcher about the Sports Nutrition Quartet Card media are more effective than the lecture

method in increasing the knowledge of football school athletes. However, judging from the *N-gain score,* The experimental group is included in the medium category. Therefore, it is hoped that further development efforts related to the media used will increase the value of media effectiveness.

CONCLUSIONS

The study results showed that the assessment of media and material experts was obtained with an average percentage of 79.5% or very feasible. From the field trial results, a percentage score of 81% was obtained or very practical. The t-test results showed a difference in the knowledge of athletes (*p<0.05) than the results of the N-gain score* by 0.44 in the medium category. Therefore, it can be concluded that the Sports Nutrition Quartet Card media is quite effective in increasing the knowledge of football school athletes.

Suggestions for future research can be developed by adding other variables, such as attitude and behavior. In addition, it is also expected to consider the use of monitoring tools and the provision of longer intervention time so that all research variables can be adequately measured.

REFERENCES

Aisah, S., Ismail, S., & Margawati, A. (2021). Health Education with Animated Video Media: Scoping Review. *Indonesian Journal of Nurses*, *5*(1), 641–655. https://doi.org/10.32584/jpi.v5i1.926

Amaliana, R. (2022). The Relationship between Energy and Macronutrient Adequacy Levels and Fitness (Vo2 Max) of Football Athletes at SAFIN Pati Football Academy. *Nutrizione: Nutrition Research And Development Journal*, *2*(2), 31–40. https://doi.org/10.15294/nutrizione.v2i2.59698

Hantoro, R. W., Hartini, S. H., Agungbudiprabowo, A. A., & Siswanti, R. S. (2022). Quartet Card Game Media to Improve Career Understanding of Vocational School Students. *Advice: Journal of Guidance and Counseling*, *4*(1), 21. https://doi.org/10.32585/advice.v4i1.2539

Hidayat, F., & Nizar, M. (2021). ADDIE (Analysis, Design, Development, Implementation, and Evaluation) Model in Islamic Religious Education Learning. *Journal of Islamic Religious Education Innovation (JIPAI), 1*(1), 28–38. https://doi.org/10.15575/jipai.v1i1.11042

Khairunnisa, H., Setiawan, R., Karjatin, A., & Yulianti, F. (2020). *Development of Quartet Card Media as a PHBS Learning Media for Grade IV Elementary School Students in 2020*. Health Polytechnic of the Ministry of Health Bandung.

Milosavljević, D., Mandić, M. L., & Banjari, I. (2015). Nutritional knowledge and dietary habits survey in high school population. *Collegium Antropologicum*, *39*(1), 101–107.

Noronha, D. C., Santos, M. I. A. F., Santos, A. A., Corrente, L. G. A., Fernandes, R. K. N., Barreto, A. C. A., Santos, R. G. J., Santos, R. S., Gomes, L. P. S., & Nascimento, M. V. S. (2020). Nutrition Knowledge is Correlated with a Better Dietary Intake in Adolescent Soccer Players: A Cross-Sectional Study. *Journal of Nutrition and Metabolism*, *2020*. https://doi.org/10.1155/2020/3519781

Nurfila, D. I., Septriana, & Yuliati, E. (2022). The Effect of Quartet Card Game on Knowledge of Vegetables and Fruits in Elementary School Students. *SEHATMAS: Scientific Journal of Public Health*, *1*(3), 287–293. https://doi.org/10.55123/sehatmas.v1i3.619

Prasidya, A. M. (2018). The Effect of Quartet Card Game on Geometry Learning Outcomes in Class V. *Journal of Elementary School Teacher Education*, *10*, 904–915.

Rahmah, F., Noviardhi, A., Prihatin, S., Hunandar, C., & Rahmawati, A. Y. (2019). *The Effect of Nutrition Education with Quartet Card Media on Breakfast Habits, Energy and Protein Intake, and Nutrition Knowledge About Breakfast at SDN Pedurungan Kidul 01 and 02 Semarang City*. pp. 48–56.

Retnanigsih, I. (2017). Development of Quartet Card Media to Develop Vocabulary in Kindergarten Group B Children. *Journal of Early Childhood Education*, 300–307.

Riduwan. (2015). *Measurement Scale of Research Variables*. Alphabeta.

Rofiqoh, A. N. A., Toaha, A., & C, N. A. (2023). *The Effect of Promoting Increasing Vegetable and Fruit Consumption through Quartet Card Media on Improving Knowledge and Consumption of Vegetables and Fruits in School-Age Children at SDN 004 Samarinda Ulu*. *2*, 2290–2302.

Samsiyah, S., Hermansyah, H., & Kuswidyanarko, A. (2021). The effectiveness of quartet cards on students' comprehension ability in social studies subjects class iv. *Journal of Holistika*, *5*(2), 119. https://doi.org/10.24853/holistika.5.2.119-126

Saputri, Y., Syaflin, S. L., & Junaidi, I. A. (2022). Development of Quartet Card Media for Human Body Parts " STONE " Science Content Class V Elementary School. *BADA'A: Scientific Journal of Basic Education*, *4*(2), 315–324. https://doi.org/10.37216/badaa.v4i2.648

Septian, R. D. (2021). *Literature Review: The Effect of Nutrition Education Using Game Media on Knowledge of Balanced Nutrition in School Children*.

Sugiyono. (2019). *Qualitative and R&D Quantitative Research Methods*. Alphabeta.

Sulastri, H. M., Saleh, Y. T., & Sunanih, S. (2020). The Influence of Quartet Card Media on Students' Reading Ability in Indonesian Lessons. *Journal of Educational Research and Development*, *4*(3), 486. https://doi.org/10.23887/jppp.v4i3.26874

Sutriyanto, K., Raksanagara, A. S., & Wijaya, M. (2017). The Effect of Kasugi Card Game on Increasing Knowledge of Clean and Healthy Living Behaviors in Students. *Journal of Health Systems*, *1*(4). https://doi.org/10.24198/jsk.v1i4.12828

Vázquez-Espino, K., Fernández-Tena, C., Lizarraga-Dallo, M. A., & Farran-Codina, A. (2020). Development and validation of a short sports nutrition knowledge questionnaire for athletes. *Nutrients*, *12*(11), 1–14. https://doi.org/10.3390/nu12113561

Wijaya, O. G. M., Meiliana, M., & Lestari, Y. N. (2021). The Importance of Nutritional Knowledge for Optimal Dietary Intake in Football Athletes. *NUTRIZIONE (Nutrition Research and Development Journal), 01*, 22–33.