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The impact of video nutrition education on nutrition knowledge, food selection, and ultra-processed food consumption in adolescents

Pengaruh pendidikan gizi video terhadap pengetahuan gizi, pemilihan makanan, dan konsumsi ultra processed food pada remaja

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Abstract

The processed food and beverage industry in Indonesia is increasing rapidly, one of which is the ultra-processed food (UPF) industry. Adolescents had a high prevalence of UPF consumption habits (67.6 %). Adolescents generally prefer foods that are easy to obtain and have a good taste, such as ultra-processed foods and beverages. Consumption of snacks by adolescents with more than three servings per day at school can cause overweight. Good nutrition education needs to be provided in an effort to increase adolescent knowledge, and it is hoped that there will be changes in nutritional behavior in the selection and consumption of better food. The purpose of this study was to analyze the influence of nutritional education videos on nutritional knowledge, food selection, and the frequency of ultra-processed food consumption. The design in this study uses the Quasi-Experimental *research type,* using a design (*pretest-posttest control group design).* The research was conducted at Senior High School (SHS) A and SHS B in Depok City, West Java. The sample in this study comprised 174 adolescents from January to February 2024. Data on nutritional knowledge, food selection, and frequency of UPF consumption were collected before and after the intervention using nutritional knowledge questionnaires, food selection, and FFQ forms. Data analysis was performed using *Wilcoxon* and *different-in-different tests.* The results of the Wilcoxon test in the intervention group showed an effect of providing education before and after the intervention nutrition education video on nutrition knowledge on nutritional knowledge (p=0,000) and food selection (p=0,009). In conclusion, video media have an effect on changes in nutritional knowledge. Video media had no effect on food selection or the frequency of UPF consumption.

Keywords: Food selection, nutrition education, nutrition knowledge, ultra-processed food

Abstrak

Kehadiran industri makanan dan minuman olahan di Indonesia meningkat sangat pesat salah satunya adalah industrI Ultra Processed Food (UPF). Konsumsi jajanan pada remaja lebih dari tiga porsi perhari di sekolah dapat menyebabkan terjadinya overweight. Masa remaja adalah masa bebas untuk mengurus diri sendiri. Remaja umumnya lebih memilih makanan yang mudah diakses dan rasanya enak yang termasuk dalam *Ultra Processed Food*. Pendidikan gizi yang baik, perlu diberikan sebagai upaya menambah pengetahuan remaja dan diharapkan akan terjadi perubahan perilaku gizi yang semakin baik. Tujuan penelitian ini adalah menganalisis pengaruh video edukasi gizi terhadap pengetahuan gizi, pemilihan makanan, dan frekuensi konsumsi Makanan Ultra Olahan. Desain dalam penelitian ini menggunakan jenis penelitian *Quasy Experimental* dengan menggunakan design (*pretest-posttest control group design).* Lokasi penelitian adalah di SMA A dan SMA B Kota Depok, Jawa Barat. Sampel pada penelitian ini adalah 174 remaja pada bulan Januari-Februari 2024. Pengumpulan data pengetahuan gizi, pemilihan makanan, dan frekuensi konsumsi UPF dinilai sebelum dan sesudah

intervensi dengan menggunakan kuesioner pengetahuan gizi, pemilihan makanan dan form FFQ. Analisis data menggunakan uji *Wilcoxon*, and *Different in Different*. Hasil uji Wilcoxon pada kelompok intervensi menunjukkan ada pengaruh pemberian pendidikan sebelum dan sesudah mendapatkan intervensi pendidikan gizi video terhadap pengetahuan gizi (p=0,000), pemilihan makanan (p=0,009). Kesimpulan, media video berpengaruh pada perubahan pengetahuan gizi. Media video tidak terdapat pengaruh pada pemilihanan makanan dan frekuensi konsumsi UPF

Kata Kunci: Frekuensi Konsumsi, pemilihan makanan, pendidikan gizi, pengetahuan gizi, ultra processed food

Introduction

Changes in growth in the human life cycle are marked by physical, biological, cognitive, emotional, and psychosocial changes, called adolescence. During this period, there will be an increase in nutritional needs to support growth and development. In addition to experiencing rapid growth and development, adolescents also experience changes in traits and behaviors. Teenagers tend to want to try new things and are open to the various changes that occur around them (Kapur, 2015).

This makes adolescents vulnerable to various exposures to unhealthy diets and lifestyles, which can affect their nutritional quality and will have an impact on the emergence of various nutritional and health problems, such as undernutrition, overnutrition, and obesity, as well as the emergence of various non-communicable diseases (Hargreaves et al., 2022). Lack of dietary diversity in adolescents and minimal food consumption can fail to meet micro and macro intakes according to the Nutritional Adequacy Intake (Majid et al., 2016)

As time goes by and technology advances, many teenagers tend to ignore the implementation of a healthy lifestyle, resulting in over-nutrition. Factors that cause overnutrition include increased sedentary activity and consumption of ultra-processed foods (Putri et al., 2023).

UPF are defined as foods and beverages that are produced commercially by modifying food ingredients through chemical processes. The UPF production process is carried out by adding several ingredients such as sugar, salt, oil, fat, and other substances such as flavorings, sweeteners, dyes, emulsifiers, and preservatives to obtain a final product that has a delicious taste, is calorie-dense, and has a long shelf-life (Gibney et al., 2017). UPF products that are often consumed by teenagers include chips, candy, jam, biscuits, bread, cereals, nuggets, sausages, instant noodles, sweetened drinks, and carbonated soft drinks (Juul et al., 2022). Although UPF products have a good taste and attractive packaging, are easy to consume, and tend to be cheap, many researchers state that UPF products are classified as unhealthy foods because they have a high content of fat, sugar, and salt, as well as low protein, fiber, vitamin, and mineral contents (Fiolet et al., 2018).

If the consumption of large amounts of UPF occurs continuously and over a long period of time, it will have an impact on increasing the risk of obesity and various non-communicable diseases such as type 2 diabetes, cardiovascular, metabolic syndrome, and cancer (Elizabeth et al., 2020).

Based on the results of the 2023 Indonesian Health Survey (SKI), it is known that as many as 36,8% of the ≥ 15 years age group are centrally obese; this number has increased from 31,0% in 2018. In addition to obesity, the prevalence of diabetes mellitus in the 15-≥ year-old population based on a doctor's diagnosis has also increased, from 1,5% in 2018 to 1,6% in 2023. From the results of a survey conducted in 2023, it is known that the prevalence of obesity and non-communicable diseases in West Java Province is still relatively high compared to the prevalence nationally, namely as many as 38,0% and 1,7% of the age group ≥ 15 years old experience central obesity and diabetes mellitus and as many as 1,1% and 1,18% of the population of all age groups are diagnosed with cancer and coronary heart disease (Badan Penelitian dan Pengembangan Kesehatan, 2023).

Good nutrition education needs to be provided in an effort to increase adolescent knowledge, and it is hoped that there will be improvements in nutritional behavior. Parents and teachers also agree to provide nutrition education in schools because it is considered more effective most of the time adolescents are at school (Aydin et al., 2021; Al Rahmad & Shavira, 2024). The higher the level of knowledge, the more it influences a person's obedience to applicable regulations or standards. A scoping review study showed that video-based interventions were

considered very effective for increasing health knowledge because they were more interesting and easy to understand (Aisah et al., 2021).

One of the media that packages messages and information in audio and visual forms is called audiovisual, which is more in demand (Azhari & Fayasari, 2020). Research has shown that videos are more effective than traditional educational media because today's teenagers prefer to use technology (Abdullah et al., 2020). Recent advances in technology can facilitate the dissemination of accessible and engaging health education on a large scale, thereby increasing the potential impact of video-based nutrition education (Adam et al., 2019).

The purpose of this study was to analyze the influence of nutritional education videos on nutritional knowledge, food selection, and the frequency of consumption of ultra-processed foods. Therefore, one of the efforts that can be made to prevent an increase in the prevalence of obesity and non-communicable diseases in adolescents due to high consumption of UPF is to provide nutrition education. The influence of nutritional education in the form of videos can affect nutritional knowledge, food selection, and consumption.

Methods

This study is a research using the Quasi-Experimental type of research using a design (pretest-posttest control group design). This study consisted of two groups: the control group from Senior High School (SHS) A was the respondent who was only given a lecture on nutrition, whereas the intervention/ experimental group from Senior High School (SHS) B was the respondent who was given a lecture accompanied by a video. This study was conducted from January to February 2024.

The number of respondents in this study was determined using the Lameshow formula of 87 respondents. The total number of respondents at the two schools was 174. Purposive sampling was performed. A bias in purposive sampling is that important groups are not represented. These results cannot be generalized to the entire population. The inclusion criteria for the target or adolescents were children who had an age range of 16-18 years, did not bring provisions from home, did not have boarding houses, were not sick, and could operate a *smartphone;* the exclusion criteria were students who had a history of congenital diseases and a history of allergies to certain food ingredients such as lactose and gluten. This study aimed to develop nutrition education videos with materials related to the definition, types, and health impacts caused by UPF consumption.

Respondent identity data such as gender, age, and allowance was collected using respondent identity sheets. Nutrition knowledge data were obtained using a nutrition knowledge questionnaire that has been tested for reliability. Food selection data were obtained using the Food Choice Questionnaire (FCQ) and UPF consumption frequency data were obtained using the UPF FFQ form, which contains a list of names of packaged food and beverage brands obtained from observation results in canteens, minimarkets, and cafes around the school. The results of the validity and reliability tests showed that the FCQ questionnaire had a Cronbach's alpha value of 0,968, which was considered valid and reliable. The FFQ form for food selection was obtained from observations of the canteen and food stalls around the school.

Data were analyzed using univariate, bivariate, and multivariate analyses. Univariate analysis was used to describe the characteristics of the study participants, univariate analysis was used to describe the characteristics of the research subjects, and bivariate analysis was used to test the influence of nutritional knowledge variables, food selection, and frequency of UPF consumption using the Wilcoxon statistic test. Multivariate analysis of differences. Wilcoxon and different analyses were used to measure the impact of an intervention or policy by comparing changes in results before and after treatment between the treatment and control groups.

This study was approved by the Research Ethics Commission, Faculty of Medicine, Sebelas Maret University of Surakarta (letter number 192/UN27.06.11/KEP/EC/2023. This research was conducted from September to October 2023 in Depok City, West Java.

Result and Discussion

The study respondents were adolescents who attended Senior High School A and Senior High School B in Depok City. The total respondents in

this study were 174 adolescents divided into two groups: the Control Group and the Intervention Group. Each group comprised 87 adolescents. The Control Group received nutrition education through lectures, while the Intervention Group received nutrition education through lectures accompanied by videos. This study was conducted from January to February 2024 in the city of Depok, West Java.

Table 1. Characteristics of Respondents

Characteristics	Control (n=87)		Intervention (n=87)		p-value
	n	(%)	n	(%)	
Gender					
Man	39	(44,8)	32	(36,8)	0,280
Woman	48	(55,2)	55	(63,2)	
Age					
16 Years	49	(56,3)	41	(47,1)	0,225
17 Years	38	(43,7)	46	(52,9)	
Allowance					
< IDR. 10,000	11	(12,6)	4	(4,6)	0,070
IDR 10,000 - 20,000	46	(52,9)	35	(40,2)	
>IDR. 20,000	30	(34,5)	48	(55,2)	
Parenting Work					
Civil Servant/Soldier/Police	9	(10,3)	5	(5,7)	0,822
Pensioner	4	(4,6)	3	(3,4)	
Private Employees	44	(50,6)	45	(51,7)	
Self employed	18	(20,7)	21	(24,1)	
Miscellaneous	12	(13,8)	13	(14,9)	
Parental Income					
<IDR. 4,500,000	37	(42,5)	45	(51,7)	0,815
≥IDR. 4.500.000	50	(57,5)	42	(48,3)	

All study respondents were adolescents, most of whom were 16 years old. Most respondents were female. Respondents in this study spent most of their time in the school environment; therefore, they were given allowances to meet their needs while in school. The largest average pocket money was Rp. 10,000–20,000, which are used to buy food during school breaks. Most are Private Employees with an income of more than IDR 4,500,000 per month.

The p>0,05 value on the characteristics of the respondents, including gender, age, pocket money, parental occupation, and parental income, showed no difference in meaning. This can describe data with uniform or similar characteristics.

Table 2. Results of analysis of the influence of nutritional knowledge, food selection, and ultra processed food consumption

Variabel	Treatment	Before vs After (p value)
Nutritional Knowledge	Control	0,000
	Intervention	0,000
Food Selection	Control	0,132
	Intervention	0,009
UPF Consumption Fracture	Control	0,773
	Intervention	0,907

As shown in Table 2, the results obtained on the verifiable nutritional knowledge and food selection of the intervention group were declared significant with a p<0,000 value (p ≤ 0,05), indicating that there was a significant influence between nutritional knowledge before and after the intervention. The variable frequency of UPF consumption in the intervention group showed that there was no significant effect between the frequency of UPF consumption and the value of p=0,907.

Tabel 3. Distribution of nutritional knowledge, food selection, and frequency of ultra-processed food consumption

Variable		Group Control		Intervention Groups	
		Average	Min-max	Average	Min-max
Nutrition Awareness	Before	49,09	25/87,5	51,05	25- 75
	After	59,24	16,67/91,67	71,16	45,83– 95,83
Food Selection	Before	161,66	118/190	167,72	99/191
	After	164,86	132/190	172,17	142/191
UPF Consumption Frequency	Before	150,22	15-335	193,44	55- 595
	After	158,50	15-595	187,93	40-470

Table 4. Results of estimation and statistical test of DiD regression coefficient

Model	Variable Dependency	Independent Variables	b	t	p	95,0 % Confidence Interval	
1	Nutritional knowledge	Time	10,154	4,809	0,000*	6,001	14,307
		Treatment	1,963	0,930	0,353	-2,190	6,116
		Time* Treatment	9,961	3,336	0,001*	4,088	15,835
2	Food selection	Time	3,207	1,615	0,107	-0,699	7,112
		Treatment	6,069	3,056	0,002*	2,164	9,974
		Time* Treatment	1,241	0,442	0,659	-4,282	6,765
3	UPF consumption frequency	Time	-4,540	-0,375	0,708	-28,377	19,296
		Treatment	43,218	3,566	0,000*	19,382	67,055
		Time* Treatment	-0,977	-0,057	0,955	-34,687	32,733

Based on the parameter estimation in Table 4, the nutrition knowledge variables show that the relationship between time and treatment given to the treatment group with nutrition education media, lectures accompanied by videos impact or affect adolescent nutrition knowledge by 3,336 points. The coefficient statistically showed that the interaction of time and nutrition education media had a significant effect on adolescent nutrition knowledge (p=0,001). The food selection variable showed the relationship between time and treatment given to the treatment group, with nutrition education media lectures accompanied by videos impacting or influencing food selection in adolescents by 0,442 points. The coefficient showed that the interaction of time and nutrition education media did not have a significant effect on food selection in adolescents (p=0,659), and the variable frequency of UPF consumption had an effect of -0,057. The coefficient shows that the interaction of time and nutrition education media does not have a significant effect on the frequency of UPF consumption in adolescents (p=0,955).

A person's knowledge can influence their nutritional behavior. The results of the analysis of the nutrition knowledge variable using the Wilcoxon test were obtained in the intervention group that received nutrition education lectures and were declared significant with a value of p=0,000. This is in line with the research of Rahmayanti et al. (2024), they showed that there was an effect of nutrition education on the importance of breakfast on knowledge before and after the intervention group (animation video) in schoolchildren at UPTD SMPN 1 Pelaihari with a score of (p=0,000).

This shows that the use of nutrition education lectures and lectures accompanied by videos improves nutrition knowledge among high-school students. The provision of nutrition education if it uses the right methods and media for students, then students can easily accept and understand the material provided well, in line with the research conducted by (Nurfitriani and Kurniasari (2023), who obtained a statistical test using the Paired Sample T-Test to test the knowledge obtained that there was a difference between the pre-test and post-test in the group of animation video media (p=0,000) and poster media (p=0,000) to the level of knowledge of high school students/equivalent in Purwakarta City about balanced nutrition. There was an effect of the duration of implementation of nutrition education on students' nutritional knowledge (p=0,000) and the effect of treatment through lectures accompanied by nutrition education videos (p=0,353). Video media is more effectively used in nutrition education in adolescents because it uses two senses, namely hearing and vision, so that it will be easy to remember, and knowledge in a person is received through the senses (Nurfitriani & Kurniasari, 2023). Research from (Riyanto et al., 2017) on food safety also states that video media is one of the media that can increase students' knowledge.

Poor eating habits are a cause of increased health risks among teenagers. Everyone has different food choices, particularly during

adolescence. Several factors can influence a person's food choices, namely health, price, comfort, and taste (Ratih et al., 2022). Based on Wilcoxon's test in the intervention group, namely, the provision of nutrition education through lectures accompanied by videos, the results were obtained (p = 0.009), which means that there is an influence of nutrition education through lectures accompanied by videos on food selection. This is in line with research that states that educational strategies related to food and nutrition can increase healthy food choices in adolescents in San Paulo (Baldasso et al., 2016). This is in line with Anggiruling et al. (2019), who showed that nutritional education influences the selection of snacks, which plays an important role in the selection of healthy food. The FCQ results show that price is the biggest factor in teenagers' food choices. Price factors influence food choices among teenagers on campus (Ratih et al., 2022).

Frequency of ultra-processed food consumption is an assessment of the frequency of food consumption used to measure the state of food consumption to determine the status of food consumption in individuals. In this study, the results of the Wilcoxon test (Table 2) showed that there was no effect of nutrition edon with (p > 0,05). This is because teenagers are given a lot of pocket money, and parents do not provide provisions for teenagers when they go to school, so teenagers buy food and drinks provided at school, with most of them including UPF products.

The amount of pocket money can influence daily food consumption patterns among adolescents (Rahman et al., 2021). The amount of pocket money given by parents for snacks can increase children's purchasing power for food, including snacks, such that the amount of pocket money can also increase the opportunity to consume more snacks. This is because it creates attitudes and perceptions of children to be free in choosing the snacks they like (Arisdanni & Buanasita, 2018). The large selection of UPF products, rather than *real food* sold in school canteens or around the school, causes teenagers to continue to choose UPF products, so that the frequency of UPF consumption does not decrease significantly. School cafeterias significantly influence adolescent food consumption. The food provided by the cafeteria is the primary source of food for adolescents. School canteens require education in order to ensure that they provide healthy food. Education can increase awareness among school canteen managers about healthy canteen performance (Prasetyaningrum & Kadaryati, 2021).

According to Nurcahyani 2020), nutrition counseling interventions using video media have no effect on changes in energy, carbohydrate, and protein intake in adolescent girls (p > 0.05). Nutrition education using the audio-visual method is not very effective in changing the consumption habits of snacks in students at school; this is also influenced by other factors, such as pocket money and peers (Rahman et al., 2020). Nutrition education carried out for 6 months did not affect food consumption. Higher income factors affect unhealthy food consumption (Samdal et al., 2022).

Conclusion

Based on the data from the research that has been conducted, there is an influence of nutrition education through lectures accompanied by videos on nutritional knowledge and food selection, and there is no effect on the frequency of UPF consumption.

This nutrition education can help teenagers to be more able to choose healthy foods and drinks for their future health. Providing this video nutrition education can improve teenagers' understanding of and behavior in choosing healthier foods and drinks. Education for schools is also very important so that it can be conveyed to the canteen to reduce the sales of UPF products and increase the sales of original food and drinks.

This research was only conducted in one sub-district in Depok City, namely the Pancoran Mas Sub-district, so it cannot describe the frequency of UPF consumption among adolescents in Depok City.

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References

Abdullah, A. *et al.* (2020) 'Health Education; The Comparison Between With Leaflet and

Video Using Local Language In Improving Teenager's Knowledge of Adverse Health Effect of Smoking', *Faletehan Health Journal*, 7(1), pp. 48–51. doi: 10.33746/fhj.v7i1.50.

Adam, M. *et al.* (2019) 'Human-centered design of video-based health education: An iterative, collaborative, community-based approach', *Journal of Medical Internet Research*, 21(1), pp. 1–18. doi: 10.2196/12128.

Aisah, S., Ismail, S., Margawati, A. 2021. Edukasi Kesehatan dengan Media Video Animasi: Scoping Review. Edukasi Kesehatan Dengan Media Video Animasi: Scoping Review. Jurnal Perawat Indonesia, 5(1), 641–655. https://doi.org/10.32584/jpi.v5i1.926

Al Rahmad, A. H., & Shavira, N. (2024). Media Motion Graphic Empat Pilar Gizi Seimbang Meningkatkan Pengetahuan Dan Sikap Ibu Balita. *JURNAL RISET GIZI*, *12*(2), 183–189. https://doi.org/10.31983/jrg.v12i2.12087

Anggiruling, D. O., Ekayanti, I., & Khomsan, A. (2019). Factors Analysis of Snack Choice, Nutrition Contribution and Nutritional Status of Primary School Children. *Media Kesehatan Masyarakat Indonesia*, *15*(1), 81–90.https://doi.org/10.30597/mkmi.v15i1.5914

Arisdanni, H., & Buanasita, A. (2018). Hubungan Peran Teman, Peran Orang Tua,Besaran Uang Saku dan Persepsi Terhadap Jajanan Dengan Kejadian Gizi Lebih Pada Anak Sekolah (Studi di SD Negeri Ploso 1/172 Kecamatan Tambaksari Surabaya Tahun 2017). *Amerta Nutrition*, *2*(2), 189. https://doi.org/10.20473/amnt.v2i2.2018.189-196

Aydin, G., Margerison, C., Worsley, A., & Booth, A. (2021). Parents' and teachers' views of the promotion of healthy eating in Australian primary schools. *BMC Public Health*, *21*(1), 1–12. https://doi.org/10.1186/s12889-021-11813-6

Azhari, M. A., & Fayasari, A. (2020). Pengaruh edukasi gizi dengan media ceramah dan video animasi terhadap pengetahuan sikap dan perilaku sarapan serta konsumsi sayur buah. *AcTion: Aceh Nutrition Journal*, *5*(1), 55.https://doi.org/10.30867/action.v5i1.203

Baldasso, J. G., Galante, A. P., & De Piano Ganen, A. (2016). Impact of actions of food and nutrition education program in a population of adolescents. *Revista de Nutricao*, *29*(1), 65–75. https://doi.org/10.1590/1678-98652016000100007

Elizabeth, L., Machado, P., Zinöcker, M., Baker, P., & Lawrence, M. (2020). Ultra-processed foods and health outcomes: A narrative review. *Nutrients*, *12*(7), 1–36. https://doi.org/10.3390/nu12071955

Fiolet T, Srour B, Sellem L, Kesse-Guyot E, Alles B, Mejean C, Deschasaux M, *et al*. 2018. Consumption of Ultra-Processed Foods and Cancer Risk: Results from NutriNet-Santé Prospective Cohort. *BMJ (Online)* 360.

Gibney, M. J., Forde, C. G., Mullally, D., & Gibney, E. R. (2017). Ultra-processed foods in human health: A critical appraisal. *American Journal of Clinical Nutrition*, *106*(3), 717–724. https://doi.org/10.3945/ajcn.117.160440

Hargreaves D, Mates E, Menon P, Alderman H, Devakumar D, Fawzi W, Greenfield G, Hammoudeh W, He S, Lahiri A, Liu Z, Nguyen PH, Sethi V, Wang H, Neufeld LM, P. G. (2022). Strategies and interventions for healthy adolescent growth, nutrition, and development. Lancet. 2022 Jan 8;399(10320):198-210. PMID: 34856192. *Doi: 10.1016/S0140-6736(21)01593-2. Epub 2021 Nov 29.*

Juul, F., Parekh, N., Martinez-Steele, E., Monteiro, C. A., & Chang, V. W. (2022). Ultra-processed food consumption among US adults from 2001 to 2018. *The American Journal of Clinical Nutrition*, *115*(1), 211–221. https://doi.org/10.1093/ajcn/nqab305

Kapur, S. (2015). Adolescence: The stage of Transition. *Horizons of Holistic Education*, *2*(September), 233–250.

Kementerian Kesehatan Republik Indonesia, "Survei Kesehatan Indonesia Tahun 2023". Jakarta: Kementerian Kesehatan Republik Indonesia, 2023.

Majid, H. A., Ramli, L., Ying, S. P., Su, T. T., & Jalaludin, M. Y. (2016). Dietary intake among adolescents in a middle-income country: An outcome from the Malaysian health and adolescents longitudinal research team study (the myhearts study). *PLoS ONE*, *11*(5), 1–14. https://doi.org/10.1371/journal.pone.0155447

Nurcahyani, I. D. (2020). Intervensi Penyuluhan Gizi Seimbang dengan Media Video terhadap Perubahan Asupan Zat Gizi Remaja Putri B *Ojs.Yapenas21Maros.Ac.Id*, *2*(3),159–165. https://doi.org/10.36590/jika.v2i3.113http:ojs.yapenas21maros.ac.id/index.php/jika

Nurfitriani, J., & Kurniasari, R. (2023). Edukasi Gizi Menggunakan Media Video Animasi dan Poster terhadap Peningkatan Pengetahuan Gizi Seimbang pada Remaja. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, *6*(3), 503–506. https://doi.org/10.56338/mppki.v6i3.2929

Prasetyaningrum, Y. I., & Kadaryati, S. (2021). Edukasi Penyelenggaraan Kantin Sehat pada Pengelola Sekolah di Wilayah Kecamatan Depok, Kabupaten Sleman, Yogyakarta. *E-Dimas: Jurnal Pengabdian Kepada Masyarakat*, *12*(1), 118–124. https://doi.org/10.26877/edimas.v12i1.5627

Putri, H. R., Setyaningsih, A., & Nurzihan, N. C. (2023). Hubungan Aktivitas Sedentari Dan Konsumsi Ultra-Processed Foods Dengan Status Gizi Mahasiswa Universitas Kusuma Husada Surakarta. *Jurnal Gizi Dan Pangan Soedirman*,*7*(1),49.https://doi.org/10.20884/1.jgipas.2023.7.1.8557

Rahman, N., Dewi, N., & Armawaty, F. (2020). Faktor-Faktor Yang Berhubungan Dengan Perilaku Makan Pada Remaja Sma Negeri 1 Palu. *Preventif : Jurnal Kesehatan Masyarakat*, *7*(1), 10. Retrieved fromhttps://jurnal.fkm.untad.ac.id/index.php/preventif/article/view/82

Rahman, J., Fatmawati, I., Syah, M. N. H., & Sufyan, D. L. (2021). Hubungan peer group support, uang saku dan pola konsumsi pangan dengan status gizi lebih pada remaja. *AcTion: Aceh Nutrition Journal*, *6*(1), 65. https://doi.org/10.30867/action.v6i1.391

Rahmayanti , R., Gizi dan Dietetika, T., Gizi, J., Kemenkes Banjarmasin, P., & Gizi Poltekkes Kemenkes Banjarmasin, J. (2024). Pengaruh Edukasi Gizi Menggunakan Media Video Animasi Terhadap Pengetahuan dan Sikap Tentang Pentingnya Sarapan Pagi. *Jurnal Riset Pangan Dan Gizi (JR-Panzi*, *6*(1), 2024.

Ratih, D., Ruhana, A., Astuti, N., & Bahar, A. (2022). Alasan pemilihan makanan dan kebiasaan mengkonsumsi makanan sehat pada mahasiswa UNESA Ketintang. *Jurnal Tata Boga*, *11*(1), 22–32.

Riyanto, A., Murwani, R., Sulistiyani, & Zen Rahfiludin, M. (2017). Food safety education using book covers and videos to improve street food safety knowledge, attitude, and practice of elementary school students. *Current Research in Nutrition and Food Science*, *5*(2), 116–125. https://doi.org/10.12944/CRNFSJ.5.2.08

Samdal, G. B., Furset, O. J., Nysæther, M. B., Abildsnes, E., Mildestvedt, T., & Meland, E. (2022). Healthy and unhealthy eating after a behaviour change intervention in primary care. *Primary Health Care Research and Development*, *23*. https://doi.org/10.1017/S1463423622000147