



The correlation between knowledge and behavior of reading composition label of packaged food on public 2 JHS and Giovani JHS students in Kupang

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Received 17 May 2022
Accepted 13 December 2022
Published 28 February 2023

Link to DOI:
[10.25220/WNJ.V06.i2.0002](https://doi.org/10.25220/WNJ.V06.i2.0002)

Citation: Making M S S, Ratu K, Lada C O. The correlation between knowledge and behavior of reading composition label of packaged food on public 2 JHS and Giovani JHS students in Kupang. World Nutrition Journal.2023 Feb 28, 6(2): 1-9.



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Abstract

Background: Labels of packaged foods are used as guidelines for buying packaged food products. School students are a group who are at high risk of getting illness through food and drink that they consume either at home, at school, or anywhere they can buy packaged food. This happens due to students at this age always get money from their parents to buy snacks at the school canteen or outside the school canteen. National data states that most of the snacks consumed by school students contain flavourings and some chemicals which are certainly not good for their health, such as flavoured foods (77.8%), sweets (68.1%), caffeinated (36.5%) and salty (24.5%). Poor knowledge in reading the composition on a food label and poor behaviour in choosing packaged food for school students can cause various health problems, such as food poisoning and obesity.

Objective : To determine the relationship between knowledge and behaviour of reading the packaged food label composition on Public 2 JHS and Giovanni JHS students in Kupang.

Methods: This is an observational analytical study with a cross sectional design conducted at two schools located in Kupang City, namely Public 2 JHS which is located at Tom Pello street No. 33 and Giovanni JHS which is located at Ahmad Yani street No. 50, Kupang City, East Nusa Tenggara Province, Indonesia. Both schools provide school canteens that sell some packaged foods to be purchased by students at both schools. 350 subjects were used in this study and divided into Group A consisting of 175 Public 2 JHS students and Group B consisting of 175 Giovanni JHS students, using a google form questionnaire. The respondents were chosen by cluster random sampling technique. This study was analyzed bivariately using the Spearman correlation test.

Results: The sample in this study amounted to 350 people consisting of 175 students at Public 2 JHS and 175 students at Giovanni JHS. The results of the study from 175 respondents at Public 2 JHS showed that in the knowledge variable, there were 172 (98.3%) respondents who had very good knowledge, and 3 (1.7%) respondents who had good knowledge. Meanwhile on the behavioural variable, there are 169 respondents (96.6%) who have very good behaviour and 6 respondents (3.4%) have good behaviour. The results of the research from 175 respondents of Giovanni JHS showed that in the knowledge variable, there were 172 (98.3%) respondents who had very good knowledge, and 3 (1.7%) respondents who had good knowledge. Meanwhile on the behavioural variable, there are 76 respondents (43.4%) who have very good behaviour and 99 respondents (56.6%) have good behaviour.

Conclusion: There is a significant correlation ($p = 0.004$) between knowledge and behaviour of reading the packaged food label composition on Public 2 JHS students and there is also a significant correlation ($p = 0.046$) between knowledge and behaviour of reading the packaged food label composition on Giovanni JHS students in Kupang.

Keywords: packaged food label composition, knowledge, behaviour

Introduction

Packaged food is referred to food whose container to protect the food product and acts as a label to provides information about the food product itself. Information label on packaged foods is given to buyers as a guideline for buying the products they want.¹ Studies have found that food literacy/nutrition literacy can have a critical role in shaping children's dietary behaviour and enabling them to have healthy food choices. In Iran, nutrition transition has taken place due to urbanization and rapid socio-economic changes and have resulted in a tendency toward a more westernized dietary pattern, especially among children and adolescents. This general shift in children's diet is characterized as low consumption of fruit and vegetables, fiber-rich foods and dairy products, as well as high consumption of fatty, sugary and convenience foods.² This culture of buying packaged food occurs in almost all social classes and ages, including school students in Indonesia.³ School students are a group who is at high risk of getting illness through food and drink that they consume either at home, at school, or anywhere they can buy packaged food.⁴ This happens due to students at this age always get money from their parents to buy snacks at the school canteen or outside the school canteen, without seeing and choosing what food to consume.⁵ Most of the snacks they consume contain flavourings, preservatives and some chemicals which are certainly not good for their health and have no good nutrition for their growth.⁴ National data states that the prevalence of risky foods that are consumed by the aged >10 years population is flavoured foods (77.8%), sweets (68.1%), caffeinated (36.5%) and salty (24.5%).⁶ Based on data from the National Food and Drug Agency (BPOM), as of May 10, 2019, it has been found from 796 distributor warehouse facilities in Indonesia, as many as 170,119 food product packaging containing hazardous chemicals, damaged, and expired.⁷

Based on a survey conducted by the National Consumer Protection Agency (BPKN) in 2007 stated that only 6.7% of consumers in Indonesia who have knowledge in paying attention to labels

when buying a packaged food product.⁸ In 2015, a Community Food Safety Concern Study was conducted by the National Food and Drug Agency (BPOM), showed that only 25.3% of consumers had the behaviour to check the composition of packaged foods, while the other 37.1% often, 34.5% rarely and 3.1% even never checked the composition of packaged foods.⁹

Poor knowledge in reading the composition on a food label and poor behaviour in choosing packaged food for school students can cause various health problems, such as food poisoning and obesity. Based on data collected in 2019, from the Emergency Department (ER) of Hospitals and Health Centers in Kupang City, East Nusa Tenggara, informed that there were 98 incidents or cases of poisoning in Kupang. The poisoning cases mostly happened in aged 5 – 14 years population (29.59%) for about 29 patients.¹⁰ According to National Food and Drug Agency (BPOM) in 2017, stated that the type of food that caused extraordinary events (kejadian luar biasa/KLB) as a result of food poisoning was mostly snack food (24,53%) and the most places where outbreaks occur due to snack food poisoning are in educational institutions (28.30%).¹¹

The increase in the consumption of packaged foods is also associated with increasing incidence of obesity.¹² Basic Health Research Data (Riset Kesehatan Dasar) in 2018 stated that there was an increase in obesity with a prevalence of 31.0% in children aged <15 years, a prevalence of 21.8% in those aged >18 years and a prevalence of 13.6% of children who were overweight in East Nusa Tenggara Province. The problem of obesity and overweight in students have not become a priority problem yet, that needs be resolved in Kupang City.¹³

Inappropriate food intake can be at risk of causing various health problems such as food poisoning and obesity which eventually can caused degenerative diseases for those who consume it.¹⁴ Research conducted by Indah Nasution et al.¹⁵, on high school students at SMA Gajah Madah Medan in 2017 found that 62.2% of students had very good knowledge when they read packaged food labels. The students in this study had good knowledge because they had previously received

lessons about the content of ingredients in packaged foods and the nutritional value of packaged foods when they were in junior high school. This makes it easier for them to know about the composition of the ingredients and the nutritional value information contained on the labels of the packaged foods they consume.

Research conducted by Rezi Rafiki.¹⁶ in 2012 on students at SMA Negeri 68 Jakarta found that students who had good knowledge about reading nutrition labels and food labels and were obedient in reading labels on packaged foods were 68 respondents (57.6%) and only 29 respondents (41.4%) had poor knowledge and were not obedient in reading nutrition labels and food labels of a packaged food. The results of the analysis showed that there was significant relationship between the level of knowledge and behaviour in reading food labels from packaged foods.

Based on research conducted by Christopher Sinaga and Sinta Fransiske.¹⁷ in 2019 on students of SMK Farmasi Harapan Massa in Depok, it was found that although the overall proportion of respondents was more knowledgeable in reading labels on packaged foods, respondents still had poor behaviour in reading packaged food labels with a percentage by 81.0%. This resulted in no relationship between knowledge in reading packaged food labels with behavior in reading packaged food labels.

This study is an umbrella study with a study titled the correlation between knowledge and behavior in reading nutritional value information labels of food on Nusa Cendana University students. Therefore, the authors are interested in conducting a research with title: "The Correlation Between Knowledge and Behavior of Reading Packaged Food Label Composition on Students of Public 2 Junior High School and Giovanni Junior High School in Kupang".

Methods

This study is an observational analytic study using a cross-sectional research design. This study was conducted at two schools located in Kupang City. 350 subjects were used in this study and were divided into 2 groups, namely group A consisting

of 175 students from Public 2 Junior High School and group B consisting of 175 students from Giovanni Junior High School, which included grades VII, VIII and IX from each of these schools.

In theory, Arikunto said that if the number of respondents <100, then all samples were taken. Meanwhile, if the respondent is >100, then the sampling is 10%-15% or 20%-25%. If the subject used is too large, the sample can be taken between 10%-15%, up to 20%-25% or more, depending on at least:¹⁸

- The ability of researchers seen from the time, energy and funds.
- The area of observation is narrow for each subject, because this involves a lot of data.
- The size of the risk borne by the researcher. For high-risk research, of course, if the sample is large, the results will be better.

Based on this opinion, the sampling in this study was 25% of the existing population, because the total population exceeded 100, namely 1,403 students, the sample results were obtained from $25\% \times 1,403 = 350.75$ so the sample used in this study was 350 students. The sampling technique in this study used cluster random sampling, namely randomization of groups, not individual subjects.

This study was conducted online through the zoom meeting and google form after received ethical clearance from Health Research Ethics Commission of Medical Faculty Nusa Cendana University. The number of the Ethical Clearance number was 70/UN15.16/KEPK/2021. Data collection started from August 20, 2021 until August 27, 2021 by filling out the informed consent form and both knowledge questionnaires and behavioural questionnaires about reading the composition of packaged food labels by 350 subjects who met the inclusion criteria. This study was analyzed univariately and then bivariately using Spearman correlation test.

Results

Table 1 showed that the most gender of respondents in group A and group B is female amounted to 198 (56.7%) respondents, compared to male amounted to 152 (43.3%) respondents. The

Table 1 Characteristics of respondents from Junior High School Students

Variable	n(%)		Total
	Group A	Group B	
Gender			
• Male	71 (20.2)	81(23.1)	152(43.3)
• Female	104 (29.8)	94(26.9)	198(56.7)
Age			
• 11 years old	6(1.7)	14(4.0)	20(5.7)
• 12 years old	68(19.4)	55(15.7)	123(35.1)
• 13 years old	61(17.4)	62(17.7)	123(35.1)
• 14 years old	34(9.7)	44(12.6)	78(22.3)
• 15 years old	6(1.7)	0 (0%)	6(1.7)
Nutritional Status			
• Severe Underweight	19(5.4)	9(2.6)	28(8.0)
• Underweight	22(6.2)	17(4.9)	39(11.1)
• Normal	106(30.2)	119(34.0)	225(64.2)
• Overweight	22(6.2)	25(7.1)	47(13.3)
• Obesity	6(1.7)	5(1.4)	11(3.1)

age with the highest number of respondents from both groups is at the age of 12 years and 13 years with a total of 123 (35.1%) respondents, while the age with the least number of respondents from both groups is 15 years with a total of 6 (5.8%) respondents. The youngest age is at the age of 11 years and the oldest age is at the age of 15 years. The most nutritional status is normal, amounted to 225 (64.2%) respondents, while the least nutritional status is obesity with a total of 11 (3.1%) respondents.

Based on table 2, the distribution of respondent’s characteristics based on counselling conducted at both schools is that a total of 193 (55,1%) respondents had previously received counselling about choosing a good snack food at each of these schools. Based on the behaviour of reading composition labels, as many as 242 (69.1%) respondents said they frequently read the composition label when buying packaged food. Based on the questionnaire question about get a stipend from parents, a total of 237 (67.8%) respondents said they frequently get a stipend to buy packaged food in the school canteen or outside the school canteen. Based on the questionnaire

question about stipend with the amount of Rp.25.000,-, 226 (64.7%) respondents said they never get stipend with the amount of Rp.25.000,- to buy packaged food. Based on the habit of consuming foods containing sweet flavors, as many as 217 (61.9%) respondents said they don’t have habit of consuming foods that contain excessive sweetness when buying packaged foods. Based on the habit of consuming foods containing salt and flavourings, as many as 231 (66.0%) respondents said they don’t have the habit of consuming foods that contain excess salt and flavourings when buying packaged foods.

Table 2 Characteristics of respondents based on questionnaire questions

Variable	n(%)		Total
	Group A	Group B	
Snack food counselling			
• Yes	102 (29.1)	91(26.0)	193(55.1)
• No	73(20.9)	84(24.0)	157(44.9)
Behaviour of reading composition label			
• Yes	146(41.7)	96(27.4)	242(69.1)
• No	29(8.2)	79(22.6)	108(30.8)
Get stipend from parents			
• Yes	122(34.9)	115(32.9)	237(67.8)
• No	53(15.1)	60(17.1)	113(32.2)
Stipend amounted to Rp.25.000,-			
• Yes	76(21.7)	48(13.7)	124(35.4)
• No	99(28.2)	127(36.2)	226(64.4)
Habit of consuming sweet flavors			
• Yes	43(12.2)	90(25.7)	133(37.9)
• No	132(37.7)	85(24.2)	217(61.9)
Habit of consuming salt and flavourings			
• Yes	25(7.1)	94(26.9)	119(34.0)
• No	150(42.9)	81(23.1)	231(66.0)

Table 3 Distribution of knowledge levels in reading packaged food label composition on group A and group B students

Knowledge	n (%)	
	Group A	Group B
Very good	172 (98.3)	172 (98.3)
Good	3 (1.7)	3 (1.7)
Total	175 (100)	175 (100)

Table 4 Distribution of behavior of reading packaged food label composition on Group A and Group B students

Behavior	n (%)	
	Group A	Group B
Very good	169 (96.6)	76 (43.4)
Good	6 (3.4)	99 (56.6)
Total	175 (100)	175 (100)

Univariate Analysis

Based on **Table 3**, the distribution of knowledge levels about reading the composition of packaged food labels on students of Group A and Group B shows that students generally have a very good level of knowledge with a total of 172 (98.3%) respondents.

Based on **Table 4**, distribution of the behavior of reading composition on packaged food labels on students of Group A shows that students generally have very good behavior of reading packaged food label composition, with a total of 169 (96.6%) respondents. Meanwhile, Group B students generally have good behavior in reading composition on packaged food labels, with a total of 99 (56.6%) respondents.

Bivariate analysis

Table 5 shows that from 175 respondents, there are 172 (98.3%) respondents who have very good knowledge, divided into 167 (95.4%) respondents

who have very good behavior and 5 (2.85%) respondents who have good behaviour; there are also 3 (1.7%) respondents who have good knowledge, divided into 2 (1.14%) respondents have very good behaviour and 1 (0.57%) respondent has good behaviour.

Table 6 shows that from 175 respondents of group B, there are 172 respondents who have very good knowledge, divided into 73 (41.7%) respondents who have very good behaviour and 99 (56.5%) respondents who have good behaviour; there are also 3 respondents who have good knowledge, and they are all 3 (1.7%) respondents have very good behaviour.

Discussion

Junior High School students are students aged 10-14 years who are categorized as teenagers. According to the World Health Organization (WHO), teenagers are those who have age range between 10 to 19 years and are both male and female who are in the transitional age between childhood and adulthood.¹⁹

Generally, junior high school teenagers frequently get allowance from their parents to buy snacks to fulfill their needs while attending school. Besides the frequency of getting allowance from parents, the amount of the given allowance can also determine the habit of purchasing snacks. Research conducted by Alamin et al.²⁰, regarding the amount of allowance and the consumption of snack foods at school for students in Semarang showed that the amount of allowance given by parents is related to the consumption of snacks at school. Based on table 2 that loads characteristics of respondents from group A and group B based on the questionnaire question whether they frequently get allowance with the amount of Rp.25.000,-, the results showed that most of the students from both schools are never got allowance from parents with amount of Rp.25.000,- to buy packaged food. The table data concludes that the amount of allowance is one of the factors that influence students' behaviour in choosing and buying snacks.

The data in Table 1 about the characteristics of the respondents from group A and group B students

Table 5 Analysis of the correlation between knowledge and behavior on group A students

Knowledge	Behavior						n(%)	p
	Very Good		Good		Deficient			
	N	%	N	%	N	%		
Very Good	167	95.4%	5	2.85%	0	0%	172 (98.3%)	0.004
Good	2	1.14%	1	0.57%	0	0%	3 (1.7%)	
Deficient	0	0%	0	0%	0	0%	0%	
Total	169	96.5%	6	3.42%	0	0%	175 (100%)	

Table 6 Analysis of the correlation between knowledge and behaviour on group B students

Knowledge	Behavior						n(%)	P
	Very good		Good		Deficient			
	N	%	N	%	N	%		
Very good	73	41.7%	99	56.5%	0	0%	172 (98.3%)	0.046
Good	3	1.7%	0	0%	0	0%	3 (1.7%)	
Deficient	0	0%	0	0%	0	0%	0%	
Total	76	43.4%	99	56.5%	0	0%	175 (100%)	

based on nutritional status showed that the students in this study generally have normal nutritional status with a total of 225 (64.2%) respondents, but also 28 (8.0%) respondents with severe underweight and 11 (3.1%) respondents with obesity. Based on nutritional status monitoring pocket book in 2017, the percentage of nutritional status of students and teenagers aged 5-12 years in NTT based on Body Mass Index (BMI)/Age are malnutrition with percentage of 7.8% and underweight with the percentage of 12.1%, while the national average percentage is 3.4% for malnutrition nutritional status and 7.5% for underweight. Based on data collected from Riskesdas 2018, for children aged 5-12 years, 6.8% children suffer from deficient nutritional status (underweight) and 2.4% of children suffer from poor nutritional status (malnutrition). The same data also stated that NTT has the most prevalence of children with

deficient nutritional status for about 13,9% and the most prevalence of children with poor nutritional status for about 4,6%.²¹

According to Guthrie, undernutrition and poor nutrition in students are caused by negative imbalance between energy intake and nutritional needs.²² According to WHO in 2011, overnutrition is a predisposing factor for chronic diseases such as heart disease and diabetes.²³

Based on the results of the bivariate test, shows that there is a correlation between knowledge and behavior of reading the packaged food label composition on students of group A and group B. This is in accordance with the research conducted by Vania Candra et al.²⁴, which showed that there was a significant relationship between the respondents level of knowledge about reading packaged food labels and the practice of choosing packaged food, where respondents with very good knowledge

will practice good packaged food selection. This is also supported by research conducted by Maha Hoteit et al.²⁵, where there is a positive relationship between knowledge and buyer behaviour in Lebanon in reading packaged food labels when buying packaged food.

Knowledge of food composition labels in students is very influential on their behaviour, especially in choosing packaged foods that they will consume. Knowledge in students can be obtained both internally and externally. Knowledge that comes from their own self or based on life experience is knowledge that comes from internal knowledge, while the knowledge that comes from other people or mass media about the food they consume is knowledge that comes from external knowledge.²⁶ From the statement above, it found that the knowledge of the students of group A and group B is very good and in line with their behaviour in reading the label composition on packaged food they consume. This happens because from Table 2 about characteristics of respondents from group A and group B based on questionnaire question about counseling that have been held at each school, resulting that most students in both schools said that they had previously received counseling at school about selection of good snacks.

Very good level of knowledge can be obtained from higher education and from the information they get. Therefore, the level of knowledge is an important domain in the formation of behavior.²⁷ From the statement above, the behavior of the students of Group A and Group B is in the very good category and the good category, this is in line with their behavior in reading the composition on the packaged food labels they consume.

The limitation in this study is that the researchers did not conduct research on other schools and only chose 2 schools as research locations due to the pandemic situation. The distribution of questionnaires was carried out online through the zoom meeting application and google form by respondents due to the COVID-19 pandemic so that there were obstacles when conducting research such as explanations of

research contents were not carried out directly so that it was possible to convey information to respondents to be ineffective and the research schedule was difficult to arrange because some respondents have teaching and learning activities in schools.

For further study, the researchers can do research about the factors that influence consumers' behaviour of reading the packaged food labels composition and conduct similar research on different populations or on different levels of education.

Conclusion

The level of knowledge about reading the packaged food composition label showed that the students from Public 2 Junior High School and Giovanni Junior High School in Kupang generally have a very good level of knowledge on that with the same total of 172 respondents and good level of knowledge with a total of 3 respondents.

The level of behaviour about reading the composition of packaged food labels in students of Public 2 JHS Kupang shows that 169 respondents have very good behaviour and 6 respondents have good behaviour.

The level of behaviour about reading the composition of packaged food labels in students of Giovanni JHS Kupang shows that as many as 76 respondents have very good behaviour and 99 respondents have good behaviour.

There is a significant correlation ($p < 0.05$) between knowledge and behaviour of reading the packaged food composition label on students of Public 2 Junior High School ($p = 0.004$) and Giovanni Junior High School ($p = 0.046$). with deficient nutritional status for about 13,9% and the most prevalence of children with poor nutritional status for about 4,6%.

Conflict of Interest

Authors declared no conflict of interest regarding this article.

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