
Determinants Of Fruit And Vegetable Consumption Based On The Health Belief Model In Students Of Dharma Karya Junior High School, South Tangerang City, Banten

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Abstract

Fruit and vegetable consumption among adolescents in Indonesia is still relatively low and has the potential to cause various health problems in the future. This study aims to describe the determinants of fruit and vegetable consumption based on the Health Belief Model (HBM) in junior high school students of Dharma Karya UT in South Tangerang City, Banten. The study used a descriptive method with a quantitative approach. The study sample consisted of 50 students selected using a total sampling technique. Data collection was conducted using a pre-test questionnaire that measured five HBM constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy. Data analysis was conducted descriptively using frequency distributions, percentages, and average values. The results showed that the majority of respondents had good fruit and vegetable consumption behavior at 56.0%. In the HBM construct, perceived benefits had the highest percentage at 82.0%, followed by self-efficacy at 75.2%, perceived severity at 70.3%, and perceived susceptibility at 66.8%. Meanwhile, perceived barriers had the lowest percentage at 52.0%, indicating that there are still obstacles in getting used to consuming fruits and vegetables among adolescents. The conclusion of this study shows that the determinants of fruit and vegetable consumption based on the Health Belief Model in Dharma Karya UT Middle School students are generally in the quite good category, but perceived barriers are still a factor that needs attention in efforts to increase fruit and vegetable consumption among adolescents.

Keywords: Health Belief Model, Fruit And Vegetable Consumption, Adolescents, Film Media, Perception

INTRODUCTION

Based on the 2023 Indonesian Health Survey (SKI), the proportion of adolescents aged 10–14 who did not consume enough vegetables and fruit reached 97.7%, while for adolescents aged 15–19, the figure was 97.5%. This figure indicates that the majority of adolescents in Indonesia are not meeting their daily fruit and vegetable consumption needs (Ministry of Health, 2023). Adolescence is a time of change associated with physical and psychological maturation, as well as development in various aspects, particularly cognitive, emotional, social, and moral aspects. Since entering school age, adolescents have a more scheduled and busy lifestyle, requiring them to provide adequate, healthy, and nutritious nutrition (Mariatul et al., 2021).

World Health Organization(WHO) generally recommends 400-600 grams of vegetable and fruit consumption for adolescents per day, consisting of 250 g of vegetables (equivalent to 2 1/2 portions or 2 1/2 cups of cooked and drained vegetables) and 150 g of fruit (equivalent to 3 medium-sized Ambon bananas or 1 1/2 medium-sized papayas or 3 medium-sized oranges), two-thirds of total vegetable and fruit consumption is one serving of vegetables. Vegetables and fruit are essential nutrients needed by the body to meet the needs of fiber, vitamins, minerals and several enzymes that are beneficial for digestive and cardiovascular functions and prevent the emergence of degenerative diseases (Salsabila & Kurniasari, 2024). Vegetables and fruit are food ingredients that are very beneficial for the body, especially to support the need for vitamins. Vitamins are a group of organic compounds included in the micronutrient group. Lack of vegetable and fruit consumption in school-age adolescents will pose a risk of health problems in the future. Various studies on fruit and vegetable consumption have shown that insufficient consumption can increase the risk of developing degenerative diseases such as obesity, diabetes, hypertension, and cancer. The significant benefits of

consuming fresh vegetables and fruit as a source of vitamins and minerals are well known (Mahful et al., 2022).

Health Belief Model is a theoretical model to assess an individual whether the person is able to make further behavioral changes based on beliefs, so that further behavioral changes can be carried out further. HBM has six main constructs to assess individuals: (a) perceived susceptibility, (b) perceived severity, (c) perceived barriers, (d) perceived benefits, (e) self-efficacy or one's belief in making behavioral changes, and (f) cues to action, or actions to be taken next to start making changes to healthy eating behavior (Kisda et al., 2024).

Efforts to increase fruit and vegetable consumption among adolescents can be achieved through health education using interactive media tailored to their age. One effective medium is audiovisual media, such as educational films, as they can convey health information in an engaging way through a combination of images, sound, and storyline, making it easier for adolescents to understand (Hendrik David Julianus Borolla, 2024).

Based on this, it is necessary to conduct research on adolescents' perceptions of fruit and vegetable consumption based on the Health Belief Model approach with film media. This study aims to This study aims to describe adolescents' perceptions of fruit and vegetable consumption based on the Health Belief Model components (perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy) in Dharma Karya UT Middle School students before being given health education through film media.

RESEARCH METHODS

This study uses a descriptive method to describe adolescents' perceptions of fruit and vegetable consumption based on the Health Belief Model through film media. The study was conducted in June 2026 at Dharma Karya Junior High School, UT, with 50 students selected using a total sampling technique.

Data collection was conducted using a pre-test questionnaire that measured five components of the Health Belief Model: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy. Data were analyzed descriptively using frequency distributions, mean values, and percentages.

RESULTS AND DISCUSSION

Table 1 Distribution of Vegetable and Fruit Eating Behavior of Dharma Karya Students in 2026

No	Statement	Always		Often		Sometimes		Never	
		f	%	f	%	f	%	f	%
1	I eat vegetables every time I have a heavy meal (morning/afternoon/evening).	11	22	23	46	12	24	4	8
2	I eat fruit as a snack between meals.	10	20	13	26	19	38	8	16
3	I feel the portion of vegetables on my plate is enough.	9	18	21	42	10	20	10	20
4	I choose vegetables over fast food.	18	36	25	50	4	8	3	6
5	I bring vegetables/fruit from home to school.	14	28	15	30	18	36	3	6
	Category	f				%			
1	Good	28				56.0			
2	Not enough	22				44.0			

Table 2. Distribution of Vegetable and Fruit Eating Behavior based on Type and Frequency

Types of Food	Frequency									
	> 3x A day		1-2x A day		3-6x a week		1-2x a week		Seldom/ Never	
	f	%	f	%	f	%	f	%	f	%
Cooked vegetables	8	16	22	44	9	18	9	18	2	4
Raw vegetables (lalap)	5	10	6	12	6	12	12	24	21	42
Fresh fruit	13	26	15	30	9	18	12	24	1	2
Fruit juice	4	8	12	24	61	2	13	26	14	28

Table 3. Overview of Determinants of Eating Vegetables and Fruits According to the Health Belief Model

HBM Variables	Levels	frequency	%
Perception of vulnerability	Tall	19	38
	Currently	31	62
Perception of seriousness	Tall	22	44
	Currently	28	56
Perception of benefits	Tall	23	46
	Currently	27	54
Perception of barriers	Tall	28	56
	Currently	22	44
Self-Efficacy	Tall	17	34
	Currently	33	66
Action signal	Lots	25	50
	Currently	25	50

Respondent Characteristics

This study involved 50 students from Dharma Karya UT Middle School as respondents. Based on gender, the majority of respondents were male (29 people) (58.0%) and female (21 people) (42.0%). Based on age, the majority of respondents were 14 years old (46.0%), followed by 13 years old (36.0%), 15 years old (6.0%), and 12 years old (4.0%).

Table 4. Frequency Distribution of Respondent Characteristics

Characteristics	Frequency (n)	Percentage (%)
Gender		
Man	29	58.0
Woman	21	42.0
Age		
12 years old	2	4.0
13 years old	18	36.0
14 years	23	46.0
15 years	3	6.0
Total	50	100.0

Based on the characteristics of the respondents, the majority of students were male and aged 14. This age range falls within early adolescence, a period when individuals begin to experience physical, psychological, and social changes that influence the formation of health behaviors, including eating habits. At this age, adolescents begin to gain independence in choosing food, so the perception of the importance of consuming fruits and vegetables becomes an influential factor in daily consumption behavior. Therefore, this age group is an appropriate target for health education through engaging media that is appropriate to the characteristics of adolescent development.

Overview of Adolescent Perception Based on the Components of the Health Belief Model

Pre-test data obtained from 50 respondents illustrates the distribution of scores on each component of the Health Belief Model (HBM). Table 2 below presents a frequency distribution of adolescents' perceptions of fruit and vegetable consumption based on the HBM components.

Table 5. Overview of Students' Pre-Test Scores on the Five HBM Constructs (n=50)

HBM construct	Average Score	Theoretical Max Score	Percentage	Actual Score Range
Perception of Vulnerability (Perceived Susceptibility)	16.04	24	66.8%	9–24
Perception of Seriousness (Perceived Severity)	25.32	36	70.3%	17–36
Perceived Benefits (Perceived Benefits)	32.78	40	82.0%	25–40
Perception of Barriers (Perceived Barriers)	24.98	48	52.0%	14–36
Self-Efficacy (Self-Efficacy)	39.12	52	75.2%	30–52

In general, pre-test results indicated that adolescents' perceptions of fruit and vegetable consumption were moderate to high across most Health Belief Model constructs. The component with the highest percentage was perceived benefits, while the component with the lowest percentage was perceived barriers. These results indicate that most respondents are aware of the benefits of fruit and vegetable consumption but still face various obstacles in implementing this behavior in their daily lives.

Perceived Susceptibility

Based on Table 2, the perceived susceptibility component shows that the majority of respondents were in the medium category, namely 24 students (48.0%), followed by the high category with 14 students (28.0%), and the low category with 12 students (24.0%). The average perceived susceptibility score was 16.04 ± 3.40 out of a maximum score of 24.

These results indicate that nearly half of respondents had a moderate perception of susceptibility to disease risks due to insufficient fruit and vegetable consumption, although 24.0% still fell into the low category. A moderate perception of susceptibility indicates that students are beginning to recognize the possibility of experiencing health problems if their diet does not meet recommendations, but this awareness is not yet fully established. This aligns with research by Kisda et al. (2024) which stated that HBM-based interventions significantly increased individuals' perceived susceptibility to health risks due to unhealthy diets. The low perceived susceptibility in some adolescents may be due to a lack of knowledge about the long-term impacts of deficient fruit and vegetable consumption, which are generally not immediately felt in adolescence (Mariatul et al., 2021).

Perceived Severity

The perceived severity component showed a relatively even distribution among the three categories. Sixteen students (32.0%) were in the low category, 19 students (38.0%) in the medium category, and 15 students (30.0%) in the high category, with an average score of 25.32 ± 4.57 out of a maximum score of 36.

The nearly even distribution of this component indicates that adolescents' understanding of the severity of diseases caused by insufficient fruit and vegetable consumption varies. Some students understand that insufficient fruit and vegetable consumption can lead to serious diseases such as obesity, hypertension, diabetes, and cancer (Mahful et al., 2022), while others lack sufficient understanding. These results align with the findings of Kisda et al. (2024) that HBM-based interventions need to emphasize the perceived severity aspect more concretely by providing concrete examples of the impact of fruit and vegetable deficiency on adolescent health to significantly improve perceived severity.

Perceived Benefits

The perceived benefits component showed more positive results than the other components. Most respondents fell into the medium (56.0%) and high (34.0%) categories, with only 5 students (10.0%) in the low category. The average score for this component was 32.78 ± 3.84 out of a maximum score of 40, the highest average score proportionally among all HBM components.

The high perception of benefits among adolescents indicates that, in general, students at Dharma Karya UT Middle School understand the health benefits of consuming fruits and vegetables. This understanding is likely formed through health education at school as well as information obtained from the media and social environment. Salsabila & Kurniasari (2024) emphasized that fruits and vegetables are essential sources of vitamins, minerals, and fiber to support bodily functions and prevent degenerative diseases.

High perceived benefits are an important asset in HBM-based educational programs, because belief in the benefits of healthy behavior is one of the main drivers in decision-making to change eating behavior (Kisda et al., 2024).

Although perceived benefits have shown positive results, understanding these benefits alone may not necessarily lead to positive changes in consumption behavior if barriers persist in daily practice. According to the Health Belief Model, behavioral change is more likely to occur when individuals not only understand the benefits of an action but also believe it can be implemented and are supported by an adequate environment. Therefore, health education needs to be accompanied by efforts to increase motivation and reduce perceived barriers to consuming fruits and vegetables among adolescents.

Perceived Barriers

The perceived barriers component shows a percentage of 52.0%, which is the lowest percentage compared to other Health Belief Model constructs, with an average value of 24.98 out of a maximum score of 48.

These results indicate that respondents still perceive various barriers to regularly consuming fruits and vegetables. These barriers can include a lack of fruit and vegetable consumption habits, a dislike of taste, limited availability of fruits and vegetables at home and at school, and a tendency to

choose fast food or snacks. This condition indicates that although most respondents are aware of the benefits of consuming fruits and vegetables, various perceived barriers can still affect their consumption behavior in daily life. In accordance with the Health Belief Model concept, perceived barriers are one factor that can reduce a person's likelihood of engaging in healthy behaviors. Therefore, support is needed from family, school, and the surrounding environment in providing access to fruits and vegetables while also developing healthier eating habits so that the barriers felt by adolescents can be minimized.

Self-Efficacy

The self-efficacy component showed a percentage of 75.2% with an average value of 39.12 out of a maximum score of 52. These results indicate that most respondents have quite good confidence in their ability to consume fruits and vegetables according to recommendations.

High self-efficacy indicates that most adolescents feel capable of adopting fruit and vegetable consumption habits if given adequate opportunity and support. In the Health Belief Model, self-efficacy is a key factor influencing a person's success in making health behavior changes. Individuals with high confidence in their abilities tend to be more motivated to initiate and maintain healthy lifestyles. However, some respondents still lack optimal confidence, necessitating ongoing health education. The use of film as an educational medium is expected to increase understanding and strengthen adolescents' confidence in making fruit and vegetable consumption a habit in their daily lives.

CONCLUSIONS

Based on the research results, it can be concluded that adolescents' perceptions of fruit and vegetable consumption based on the Health Belief Model components in Dharma Karya UT Middle School students are generally in the fairly good category. The perceived benefits component has the highest percentage of 82.0%, indicating that most respondents have understood the benefits of consuming fruits and vegetables for health. The self-efficacy, perceived severity, and perceived susceptibility components also showed quite good results, which illustrates the respondents' belief in the importance of consuming fruits and vegetables and awareness of the risks and health impacts of insufficient consumption. Meanwhile, the perceived barriers component has the lowest percentage of 52.0%, indicating that respondents still feel various obstacles in getting used to consuming fruits and vegetables. Therefore, perceived barriers are an aspect that needs attention in efforts to improve fruit and vegetable consumption behavior in adolescents.

Based on the research findings, schools are expected to continue educating students about the importance of fruit and vegetable consumption through engaging and accessible health promotion activities. Furthermore, parents are also expected to make it a habit to provide fruits and vegetables at home to help students more easily incorporate healthy eating habits into their daily lives. Future researchers are advised to develop research designs that measure changes in perception and behavior regarding fruit and vegetable consumption after education is provided, thereby providing a more in-depth understanding of the impact of the intervention.

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