



Health Belief Model Influences Youth's Fruit and Vegetable Intake in Jakarta

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Abstract. The national survey in Indonesia showed that 95.5% population has fruit and vegetable consumption less than 5 portion a day. In an urban setting, a study conducted in Jakarta, Indonesia showed that there was 23.55% of youth has less preference on fruit and vegetable. This study aims to analyze the differences perspective of Health Belief Model in determining the consumption of fruit and vegetable consumption among youth in Jakarta, Indonesia. The number of 120 youth from a private university in South Jakarta was participated in this study. Fruit and vegetable consumption data was obtained by using SQ-FFQ. Perceptions of the Health Belief Model was obtained from an interview using a validated questionnaire. Independent sample t-test (CI 95%) was applied for statistical analysis using SPSS version 25. There was a significant difference between perceived susceptibility, perceived severity, perceived benefit, perceived barriers, cues to action, and self-efficacy in determining fruit and vegetable consumption among youth in Jakarta, Indonesia. This study could provide data as a basis to promote fruit and vegetable consumption among urban youth.

Keywords: youth, fruit, health belief model, urban, vegetable

1 Introduction

Nowadays, there is a shifting in the trend of morbidity from infectious to non-communicable diseases (NCDs). The increase of NCDs contributed to death from 61% to 73% of all death in the last decade [1]. Unhealthy lifestyle, such as low physical activity and low fruit and vegetable consumption is the main factors to cause NCDs [2]. The consumption pattern of people, especially in the urban area, tend to have low consumption in fruit and vegetable which is considerably low in micronutrients and fiber [3]. The national survey in Indonesia showed that 95.5% population has fruit and vegetable consumption less than 5 portion a day [4]. Moreover, a study conducted in Jakarta, Indonesia showed that there was 23.55% of youth has less preference on fruit and vegetable. The impact of this consumption preferences contributes to the development of free radical which further leads to the NCDs.

There are several concepts explains the determinant of food consumption pattern in general. Health belief model is one of the behaviour determinant theories which describes why people have certain health-related behaviour. It developed in 1950 based on the two main behavioural components, which are the motivation to prevent a disease and the certain belief of an act that might prevent a disease [5]. There are four aspects in this theory, which are perceived severity, perceived benefit, perceived susceptibility, and perceived barriers.

Perceived susceptibility is a perception that someone will develop a risk of a diseases, for instance, it explains the perception of someone to consume fruit and vegetable because of the

future risk to develop NCDs. Perceived severity is a perception to face a severe disease if we avoid to do certain health-related behaviour, for example, how severe the NCDs could be if we do not consume fruit and vegetable. Perceived benefit explain people perception on benefit of doing certain health-related behaviour [6]. It is interesting to see how this health belief model applied in urban youth setting, therefore this study aims to analyze the differences perspective of Health Belief Model in determining the consumption of fruit and vegetable consumption among youth in Jakarta, Indonesia.

2 Research Method

This is a cross-sectional study which conducted in a private university in Jakarta as a representative of urban youth setting. The number of 120 youth were participated in this study. The minimum sample was calculated based on the sample calculation for mean difference. Fruit and vegetable consumption data was obtained by using semi- quantitative food frequency questionnaire (SQ-FFQ). The perception of health belief model was obtained from an interview by using a validated questionnaire. Independent sample t-test was applied for the statistical analysis by using SPSS version 25 (CI= 95%). The numerical data is presented as mean±SD.

3 Result and Discussion

According to the sample characteristics, 85% of respondents are female, with the average of age was $20,31 \pm 0,858$. There was 82.5% of respondents consume less than 400 g of fruit and vegetable per day (Table 1).

Table 1. Distribution of characteristics and consumption of fruit and vegetable

Variable	n	%	Mean ± SD
Sex			
Male	18	15 %	
Female	102	85 %	
Age			20,31 ± 0,858
Consumption of fruit and vegetable			
Deficient	99	82,5 %	
Suffecient	21	17,5 %	
Total	120	100 %	

According from the analysis showed that the health belief model perspective which are perceived susceptibility, severity, benefits, barriers, cues to action and self-efficacy has a significantly difference in determining fruit and vegetable consumption ($P<0.05$). Table 2 also showed that the highest average score of health belief model perception is owned by respondents with sufficient fruit and vegetable consumption except perceived barriers, the highest average score is owned by respondents with deficient fruit and vegetable consumption. That means the

higher perceived susceptibility, severity, benefits, cues to action and self-efficacy, the higher people tend to do fruit and vegetable consumption behavior. The higher perceived barriers, the higher people tend to do not fruit and vegetable consumption behavior.

Table 2. Health Belief Model Perspective mean score based on the fruit and vegetable consumption

Aspect	<400 gram/day (Mean ± SD)	≥ 400 gram/day (Mean ± SD)	P-value
Perceived susceptibility	3,12 ± 0,48	3,46 ± 0,39	0,001
Perceived Severity	3,08 ± 0,35	3,39 ± 0,42	0,001
Perceived Benefit	3,11 ± 0,38	3,46 ± 0,42	0,002
Perceived Barriers	2,11 ± 0,39	1,84 ± 0,45	0,011
Cues to Action	3,22 ± 0,42	3,52 ± 0,40	0,004
Self-Efficacy	3,04 ± 0,41	3,33 ± 0,45	0,020

The study about perceived susceptibility is in line with the previous study that explained about perceived susceptibility to covid-19 has a significantly correlated with hand hygiene behavior in preventing the transmission of covid-19 [7]. It is explained that perceived susceptibility is directly proportional with health-related behavior, which means people can do health-related behavior if people have the vulnerability feelings to an illness that can motivate them to do health-related behavior. However, in this study we also knew there's a respondent who has lower perceived susceptibility that has deficient fruit and vegetable consumption. According from the previous study, the reason was perceived susceptibility is a subjective perception that have another factors which can give an influence to do health-related behavior such as age, ethnics and knowledge [8].

The study about perceived severity is in line with the previous study that explained about there is significantly correlated between perceived severity with hypertension management [9]. It is explained that if people know and feel about the seriousness consequences of disease (leaving the illness or disease untreated) that can motivate them to do health-related behavior. However, in this study we also knew there's a respondent who has lower perceived susceptibility that has deficient fruit and vegetable consumption. According from the previous study, the possible reason is people need to have personal experience to get affect by disease that can lead them to do health-related behavior. Culture, mass media and important people also can affect people response from the stimulus [8].

The study about perceived benefits is in line with the previous study that explained about there is significantly correlated between perceived benefits with hypertension management [9]. It is explained that if the health related behavior give an effectiveness to reduce the threat of illness or disease, people tend to do that health-related behavior. However, in this study we also knew there's a respondent who has lower perceived benefits that has deficient fruit and vegetable consumption. The possibel reason is people might not get the benefit from consuming fruit and vegetable especially on benefits as a long-term prevention of non-communicable disease (NCDs). So, people need to consume regularly to get the benefit from fruit and vegetable consumption behavior [10].

The study about perceived barriers is in line with the previous study that explained about there is significantly correlated between perceived barriers with respondent intake of vitamin E. It is explained that the possible reason people not accept the recommendation to do health-related behavior because there's a perception of barriers [11]. The barriers referred as a predictor

or an influence in adoption of prevention behavior that people do [12]. However, in this study we also knew there's a respondent who has lower perceived barriers that has sufficient fruit and vegetable consumption. According from the previous studies, the health-related behavior depends on the effectiveness of the health action. Because the high obstacle that people might feel to do health-related behavior would still make them accept and adopt health-related behavior if people can feel the effectiveness of the action [12].

The study about cues to action is in line with the previous study that explained about cues to action has a significantly correlated with mother's behavior to bring their child to posyandu [13]. It is explained that the motivation needed to trigger the decision making process to do health related behavior both from internal motivation and external motivation. However, in this study we also knew there's a respondent who has lower cues to action that has deficient fruit and vegetable consumption. The possible reason is people might not have internal motivation to do health-related behavior. This study in line with the previous study that explained about even when people in bad condition, but if there's no internal motivation to trigger the decision making process to do health action, the health related behavior might not happen [12].

The study about self efficacy is in line with the previous study that explained about self efficacy has a significantly correlated with compliance in hypertension and covid-19 medication [14][15]. It is explained that people confidence in ability to do the health-related behavior can give an influence to perform the behavior. However, in this study we also knew there's a respondent who has lower self efficacy that has deficient fruit and vegetable consumption. The possible reason is people who have deficient fruit and vegetable consumption also have lower perceived susceptibility, severity, cues to action and have higher perceived barriers. This is in line with the previous study that explained about the self efficacy depends on another perception. Which means, the more high people have subjective perception of the risk, the severity, the benefit and the cues to action and more low people have subjective perception of the obstacle in health action so the more high people self efficacy [8].

4 Conclusion

According to the present study, the most of respondents are female and consume less than 400 g of fruit and vegetable per day. There is a significantly difference between the health belief model perspective which are perceived susceptibility, severity, benefits, barriers, cues to action and self efficacy in determining fruit and vegetable consumption. the highest average score of health belief model perception is owned by respondents with sufficient fruit and vegetable consumption except perceived barriers, the highest average score is owned by respondents with deficient fruit and vegetable consumption.

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