

College Students' Perception of Cardiovascular Disease in Yogyakarta

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ABSTRACT

Background: Cardiovascular disease has been found in young people because of the unhealthy lifestyle that is lived by many younger people. Packed activities, social life, and students' assiduity affect their lifestyle. Each student lives a different lifestyle depending on their motivation, therefore it's necessary to do research in order to investigate students' lifestyles, consist of smoking behavior, eating behavior, and physical activity, using the Protection Motivation Theory, which consists of perceived vulnerability and severity of cardiovascular disease, response efficacy, and self-efficacy of healthy behavior. This research aimed to ascertain students' healthy lifestyle as protection against cardiovascular disease. **Methods:** The research was done using the qualitative method with a phenomenology approach. The data were gathered by doing comprehensive interviews with 14 informants in a purposive way with maximum variation sampling, at four universities in Yogyakarta Province. The research was conducted from May to July 2015. **Results:** The results indicated that students have yet lived healthily due to some common habits such as smoking, unhealthy diet, lack of exercise, and other discoveries such as coffee and alcohol consumption. The attempt of protection against cardiovascular disease wasn't habitually done yet by students because of their young age and their customary thought that cardiovascular disease mostly happens to elderly people. Students haven't been aware yet that they are not resistant to cardiovascular disease. One of the reasons was how insufficient the student's awareness was when it comes to cardiovascular disease. Their perception of the disease severity was adequate due to the fact that they have seen directly the consequences that were caused by cardiovascular disease. The students' response efficacy and self-efficacy in doing a healthy lifestyle were also considered low because the access to make a healthy lifestyle was still less. **Conclusion:** The student's awareness of the cardiovascular disease was still low. Among the four parts of Protection Motivation Theory, the part on severity perception was quite decent due to the fact that they had seen directly the consequences that were caused by cardiovascular disease. Each university needs to provide health care services in order to promote a healthy lifestyle, particularly among students.

Keywords: lifestyle, university student, prevention of Cardiovascular-Disease

INTRODUCTION

Globally, cardiovascular disease (CVD) sits at the top list of death causes. This disease is often found in the elderly, though nowadays, there's a tendency that the disease is also infecting people under 40 years of age. This is caused by an unhealthy lifestyle that is lived by many younger people (Shayo, 2019). Four risk factors of main behavior include smoking, unhealthy diet, lack of physical activity, and alcohol consumption (Ng et al.,

2020). During the period someone goes through the transition from school age to higher education, the environment, responsibility, and behavior would change. Negative health behavior could contribute to the development of physiological risk factors for cardiac problems (Luo & He, 2021).

College students' healthy lifestyle in habit of physical activity was still low, figuring that in 23 countries, college students' spare time to do physical

activities was still below the recommended standard. Younger people also rely on delicious food and snack with low nutrition which is another contribution to their low nutrient consumption (Hess et al., 2016). The data from Basic Health Research (Riskesdas) 2018 showed that one in eight people in Indonesia consumed instant noodles more than one time a day (Kemenkes RI, 2018). Another data also showed that 23.7% of Indonesian people between 15-24 years of age did not consume vegetables and fruits. Another problem was that smoking has been a habit for college students, both male and female. According to Basic Health Research, from 2013 to 2018, the number of smokers 15-24 years of age tended to increase from year to year (Kemenkes RI, 2018).

Rogers stated that behavior regarding health is engendered by an individual's intention. The intention of a certain behavior is a consequence of an individual's threat appraisal and coping appraisal (Priyoto, 2014). These two ways of appraisal develop protection motivation. Threats against health become stimuli to consider protection motivation, followed by the decision to take action or intention to act. The Protection Motivation Theory (PMT) is one of the theories that have been utilized to explore the factors that influence individual behavior motivation (Sadeghi et al., 2019). According to the theoretical framework, in terms of developing a protective motivation against cardiovascular disease, an individual must first go through a threat and coping appraisal process, which would be a mediating appraisal process that results in a decision or intention to initiate, continue or inhibit the adaptive response (Floyd et al., 2000). Different responses will arise from changes in threat and coping evaluations. Moreover, contextual effects (exposure to information about protective measures taken by family, friends, other people, or even the mass media) and personality factors impact

each individual's response (education level, age, gender).

Yogyakarta is known as a student city in Indonesia because it has 137 universities and a total number of students that account for more than 20% of the productive population. Yogyakarta is characterized by the dynamism of students and students who arrive from various Indonesian cities. Students in Yogyakarta are a major human resource who, in order to build a good society, has to be able to maintain their health, especially in the prevention of cardiovascular disease. Therefore, more research is needed to explore the phenomena that occur in students in Yogyakarta Province regarding a healthy lifestyle as self-protection against cardiovascular disease using the Protection Motivation Theory.

METHODS

This research used a qualitative design with a phenomenology approach to investigate phenomena that occurred regarding the lifestyle that is lived by college students who live independently and to explore the perception of cardiovascular disease and a healthy lifestyle. 14 in-depth interviews were completed with the college students in different regions. From May to July 2015, this study was carried out. Informants in this research were gathered in a purposive way, which means the students are the ones who live by themselves, not with any of their families. Informants in this research consisted of:

Table 1. The Distribution of Informants in This Study

Initials	Age (y.o)	Gender	Faculty of
TR	19	M	Sport
DN	23	M	Science
CR	22	F	
JT	21	M	Medicine
PH	22	M	
YM	22	F	
HV	19	F	Engineering
SE	19	M	
AN	20	M	
TN	22	F	
DS	21	M	Social and
BS	21	M	

MR	22	F	Political
ME	20	F	Sciences

The purposive recruitment strategy was intended to maximize the variation of participant characteristics.

Interviews explored each subject's healthy behaviors including smoking behavior, eating behavior, and physical activity during the period of becoming a student who lives far from home. The interview also explored cardiovascular disease knowledge, cardiovascular disease risk perception, cardiovascular disease severity perception, and associated response efficacy and self-efficacy. The main questions in the interview guide were:

“Could you talk about your smoke behaviour, eating behaviour, and physical activity during being a student here and why?”

“What do you know about cardiovascular disease?”

“How much confidence you will be exposed to cardiovascular disease?”

“What do you think about the severity of cardiovascular disease?”

“How confidence do you have that doing a healthy lifestyle will prevent cardiovascular disease?” *“What do you think are the benefits to consistently doing healthy behaviour?”*

“What makes you do a healthy lifestyle?”

“What hinders you from consistently doing healthy behaviour?”

“How much confidence do you have to consistently do healthy behaviour?”

All interviews were conducted in a private place and tape-recorded after informed consent was received. Interview time ranged from 45 to 120 minutes. Each informant received health education about cardiovascular disease and the cardiovascular disease risk matrix as compensation.

Descriptive statistics were used to describe the basic features of the data. All interviews were transcribed into Word

files and then imported into the software for coding qualitative data. The analytical process included six steps: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This study has received ethical clearance from the Medical and Health Research Ethics Committee (MHREC) Faculty of Medicine, Public Health and Nursing, Gadjah Mada University number KE/FK/515/EC/2015.

RESULTS AND DISCUSSION

The following were the characteristics of respondents who fulfilled the requirements.

Table 2. Characteristics of Informants (N=14)

Characteristics	Nn	%
Age (in years)		
19	2	14.3
20	3	21.4
21	3	21.4
22	4	28.6
23	2	14.3
Gender		
Male	8	57.1
Female	6	42.9
Smoking status		
Current	6	42.9
Never	7	50.0
Former	1	7.1
Family history of cardiovascular disease		
Yes	7	50.0
No	7	50.0
Total	14	100

Based on the table above, it can be seen that the youngest informant of this study was 19 years old and the oldest was 23 years old. It means they come from different semester levels, ranging from the first semester to the final semester. Almost half were smokers, only one being a former smoker. Most of those who smoke were men. It also found that half of the informants have a family history of cardiovascular disease.

Lifestyles

The result of this study found that seven students smoke because of various reasons including curiosity, the capability of purchasing cigarettes, social

environment, to get to be accepted as a friend, lifestyle, habit, stress, and distraction from problems. Inclined with other research that also stated that college students smoke because of curiosity factor, relatively large stipend, also as a way to distract from stress situations was one common reason to smoke (Zobena & Skrastina, 2020). The smoking environment influenced college students to try smoking as well. Social conditions and family could also highly impact somebody's decision to smoke (Johnson et al., 2019).

The majority of smoking students preferred cigarettes with menthol filters because, in addition to its sweet taste, this kind of cigarette is also believed to be lighter compared to the other kinds. On average, students smoke about 1-30 pieces of cigarettes per day. Other research also stated that students who smoke less than 1 pack of cigarettes per day were accounted as light smokers, smoking more than 1 pack of cigarettes falls into the heavy smokers' category (Ng et al., 2020). In this case, the students were considered smoking addicts even though they did not feel the addiction.

"... sebenarnya nggak ketergantungan juga sih jadi kalau pas pengen ngerokok ya ngerokok kalau misalnya gak pengen bisa 1 minggu, 2 minggu gak ngerokok (TN, F, 22 y.o.)."

(Actually, I don't think that I'm addicted as I smoke only when I feel like I want to smoke. But when I don't feel like I want to smoke, I can go through 1 to 2 weeks without smoking at all).

For those who didn't smoke, the absence of smoking's benefits according to them was the ultimate reason why they chose not to smoke, other than the fact that it could negatively affect their health as well as be financially burdensome. In addition to that, the smell and smoke from the cigarettes were considered disturbing to them. Research among Danish adolescents reported that other than health and financial reasons, non-

smoking students also mentioned the main reason why they didn't smoke was that it smelled bad and disgusting (Kjeld et al., 2021).

"Bau gitu kan, kamar gitu atau apa tas gitu. . . Gak enak gitu. Dan bau rokok itu lengket mba, sifatnya sangat lengket. Susah itu kalau dihilangin. He-eh. Mau ditutupin pake parfum itu juga gak ketutup biasanya". (JT, M, 21 y.o.).

(It's smelly, all over the room, bags, and so on. It's not good. And the smell is persistent, it won't go. Not easy to get rid of. Yeah. Even if it's covered by fragrance, the smell's usually still there).

The eating habit of college students naturally changes. From initially eating regularly 3 times a day, now most of them eat only 2 times a day. This was because many students skip breakfast due to their assiduity on campus made them didn't have time to have any meal in the morning and it also has become a habit not to have breakfast.

"He-eh dari dulu gak ada kebiasaan sarapan, gak ada keinginan sarapan, jadi gak terbiasa gitu - malah kalau aku sarapan akunya sakit. . . mual, mual jadinya gak nyaman. Badan tu gak nyaman". (CR, F, 22 y.o.).

(From early on I've never had breakfast regularly, I never wanted it, so it became a habit - on the contrary, if I had breakfast, I wouldn't feel well. I'd feel like want to puke, it's uncomfortable)

Another factor was the fact that nobody provided food for them anymore. The provision of food plays a major role when a student lives independently without any more help from their family. Almost all of the students buy their food, not cook them by themselves. One of the most significant life changes for college students was the shift from living at home to living alone/with roommates throughout their postsecondary education, and many eating decisions

were heavily intertwined with this transition (Sogari et al., 2018).

The study found out how college students' eating behavior was, including skipping an important meal (especially breakfast), low consumption of fruits and vegetables, and a tendency to consume junk food. Inclined with preceding research about the appraisal of body weight status, eating habits and faith, physical activities, and knowledge about nutrition among college students, they all found the same behaviors which were develop inconsistent and unhealthy habits such as skipping breakfast, eating quickly, and sleeping within one hour of dinner (Alrashed et al., 2019). The kinds of food that were preferred by the students were the ones that can be easily found including fast food, other than that, instant noodles were also consumed more often than fruits and vegetables. Fried foods can be easily found at regular tenants in Yogyakarta, especially warung Burjo or Angkringan (in Central Java, Yogyakarta, and East Java, Angkringan is a wheelbarrow used to sell various foods and beverages on the side of the road and also warung Burjo is an acronym for green bean porridge stall, but there sells a variety of food like instant noodles, etc), that were located mostly around students' residences.

"Ya pertama karena banyak yang menyediakan, banyak yang jual jeroan, terus juga kan masih mahasiswa bisanya beli itu mba. Biaya pas-pasan". (TR, M, 19 y.o.).

(Well, first of all, it's everywhere, many of them sell 'jeroan' (a type of food made out of animal entrails), those are the foods that are affordable to us college students. We have a limited stipend).

The students admitted that the foods in those tenants were priced low and affordable. As students who lived away from parents with no paying jobs, they should be able to manage their finance prudently. Another significant barrier to following a healthy diet was the

reported lack of healthy foods at the university canteen. Higher food quality and variety, as well as lower costs, were found to result in healthier eating habits at university canteens, according to intervention studies (Hilger et al., 2017).

Although some of the reported eating habits were unhealthy, the majority of students, especially medical students, had a good understanding of the food pyramid and balanced nutrition. University students made bad eating choices due to stress, a hard assignment, and a lack of time (Tok et al., 2018).

In physical activities, half of the informants admitted that they didn't exercise regularly. Lack of time and access restrained them from doing exercise. Other research stated that the reasons why college students did not exercise due to they were not motivated, there was no support, they were too busy, and has difficult access (Permana et al., 2020). According to one study, students who lived in boarding houses/rented/dormitories were 1.447 times less likely than those who lived with their families to participate in physical activities (Farradika et al., 2019).

"Jarang olahraga iya, kecuali yang mau diet banget ya iya pasti olahraga banget, tapi palingan, kebanyakan kita gitu kok. Iya kan biasa cewek gitu mba, aduuuh udah gendut nih, baru olahraga." (YM, F, 22 y.o.)

(I rarely exercise unless I'm on a diet, then I will absolutely exercise a lot, but at the very least, that's how so many women are... Women who already feel they have gained weight and are overweight will be exercised).

Students agreed that they will only participate in sports for special reasons. According to the previous section informant, the informant said that the informant would participate in sports and during a weight-loss diet. Furthermore, if the informant felt their weight has increased, the informant would exercise regularly. Another research with the college student in UEA indicated that

dissatisfaction with body image was related to fewer attempts to diet or exercise. Intervention programs should aim to increase physical activity while also improving body satisfaction, particularly among female college students (Radwan et al., 2019). However, another finding in this study for those who regularly exercise considered it a must-do activity as well as a hobby.

“Kalau olahraga mungkin karena aku lebih hobi ke badminton, sebenarnya aku bukan tipikal yang suka olahraga, tapi karena aku suka badminton ya jadi itu yang aku lakuin.” (BS, M, 21 y.o.) (When it comes to sports, it's probably because I prefer badminton; I'm not the type who likes sports but I enjoy playing badminton, so that's what I do).

Those who regularly exercise considered it a must-do activity as well as a hobby. According to 2018 data from Basic Health Research, lack-of-moving behaviour in demographic groups 15-19 years old and 20-24 years old were high compared to other demographic groups, meaning this behavior was commonly found in college students because the older someone is, the less their lack-of-moving behavior becomes (Kemenkes RI, 2018). CVD in young adults was mostly caused by sedentary behavior and obesity (O'Toole et al., 2019).

This study also discovered the “hang out” habit that's usually done by college students. During their hang out it was possible that they interact with each other while smoking, drinking coffee, and/or alcohol. For one of the students, coffee is a must and cannot be skipped. This student admitted that this student was more addicted to coffee rather than smoking. Epidemiologically, drinking boiled coffee could increase the risk of CVD (Lire Wachamo, 2017).

Besides drinking coffee, students also drink alcohol. College students mostly drink alcohol for the sake of solidarity with friends or relatives on certain occasions. Other than the

environment, the ease of getting alcohol was also another reason; they said that Yogyakarta is a relatively free city.

“Mendapatkan barang itu sangat mudah. . . Itu saya belinya bisa beli online. . . Ataupun kita pengen spend money lebih kita ke bar, karena di bar-bar menyediakan. Meskipun kadang orang tidak tau. Tapi kalau kita pesan itu ada”. (JT, M, 21 y.o.).

(They're easy to get. I buy them online. Or if I wanted to spend more money, I'd go to bars, because bars have them (alcohol drink). Even though sometimes, people are not aware of it. But if we'd order them, they'd provide them).

Students have certain lines where they restrain themselves from doing negative behaviour such as smoking and drinking alcohol. In this case, students thought that negative behaviour was not something that needs to be avoided because by living healthy, negative effects from such behaviour would be automatically dodged. Other research found that individuals who engaged in physical activity believed that physical activity and the adaptive stress response had such a direct correlation, improving strength and fitness, for example, was not only a result of physical activity (exercise) but also had a beneficial impact on future physical activity participation. The fact that this positive stress adaption led to beneficial health outcomes, such as lower blood pressure, a lower risk of dying from any cancer, and better blood sugar control (Cairney et al., 2019).

According to the discussion of student lifestyles above, most students continued to be involved in negative behavior. This was also confirmed by a variety of previous studies, which identified a large number of students who did not live a healthy lifestyle. This will have an impact on future life, especially for adolescents and students, who will be at risk of developing degenerative diseases. The presence of Cardiovascular Risk Factors (CVRF) among students is

concerning, considering the risk of future health issues (Zarrazquin Arizaga et al., 2018). Other findings highlighted the significance of early screening to identify students at risk for cardiovascular disease, especially because the majority of college students were unaware of their risk and believe they were healthy (Yahia et al., 2017). Their findings also mentioned that metabolic risk factors in students may go unnoticed if they were not identified early, worsening over time

and eventually contributing to disease progression.

Generally, college students' behaviors tended to shift when they lived independently and away from their parents. Each component was elaborated in Figure 1.

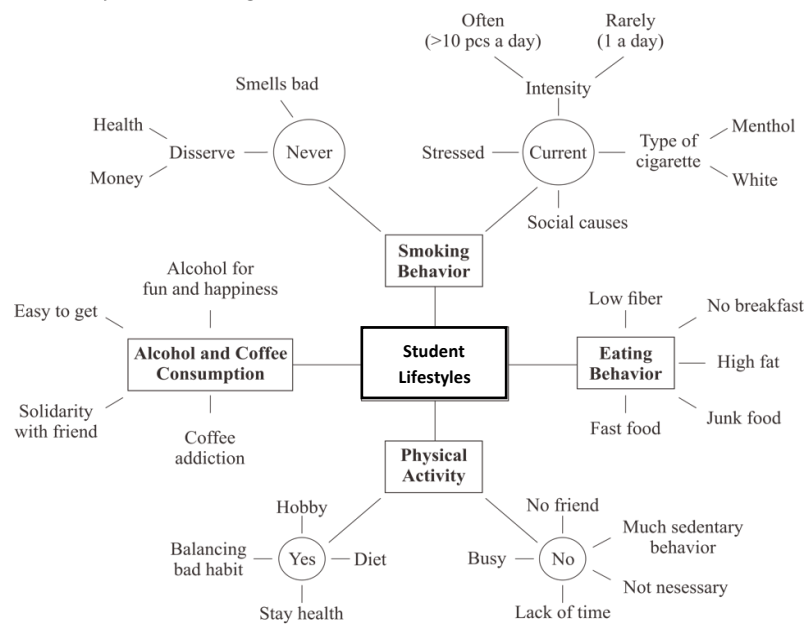


Figure 1. Lifestyle of College Student

Cardiovascular Disease Knowledge and Perceive Vulnerability

Regarding protection attempts against cardiovascular disease, students' grasp of the disease was also studied. For students studying the health-related discipline, cardiovascular disease was very familiar to them, while it was not the case for students from other disciplines. Almost all of the students agreed that unhealthy behaviour was the reason for cardiovascular disease, but age was also another factor in the disease. Cardiovascular disease happened to a lot of elderly people which led them into believing that the disease won't affect young people.

"Ya kan aku masih muda (informan merentangkan kedua tangannya).

(informan tertawa) yaaa iya mba kan aku masih sehat nih, olahraga iya, makan juga gak". (PH, M, 22 y.o.).

(Because I'm still young (the informant gestured by spreading his hands) (informant laughed) yeah look, I'm still healthy, I do exercise, and don't eat that much).

As we know, nowadays there had been a shift of disease to younger people because of unhealthy changes in lifestyle to them. Individuals in the group of younger age had such low awareness compared to those in the group of older age. Young adults with multiple cardiovascular risk factors were unaware if they had it (Bucholz et al., 2018). Other discoveries also concluded that young people didn't have enough understanding

about risk and consider themselves didn't have the risk of cardiovascular disease (O'Toole et al., 2019). Students tended to feel more susceptible to diseases that the effect can be directly felt such as gastritis.

Perceived Severity

Compared to susceptibility perception, the students' severity perception of cardiovascular disease was far more appropriate. This was because they have family/relatives who suffer from cardiovascular disease which caused them to see directly the danger of the disease. Even further, they have seen sudden death that happened to people with cardiovascular disease.

"Apa sejahat itukah jantung itu? Sampai gak ada tanda-tandanya, dan respon. . . Gak, maksudnya tanda-tandanya, yaitu gak ada tanda-tandanya apa, buktinya aku ngeliat belum lama ini, om ku gitu kan (DN, M, 23 y.o.).

(Is the heart that evil? It doesn't show any sign as well as response. No, I mean the indication, there's nothing, like what I saw a while ago to my uncle).

The number of death from cardiovascular disease among college students was relatively high, thus severity perception of cardiovascular disease in college students tended to be higher compared to susceptibility perception. Having a family history of CVD was a strong predictor of the next disease if it was not controlled at the right time, and a healthy lifestyle should be built among young people regardless of the risk of parental inheritance. However, studies on students have revealed that students generally adopt the behaviours and habits of their parents who contribute to CVD (Güneş et al., 2019).

College students who didn't have any relatives with cardiovascular disease tended to not worry about the disease because of their young age. Threat from the disease that has never been felt and

seeing that cardiovascular disease happened mostly to elderly people, thus made college students not feel threatened. Young people believed that they were not at risk to get cardiovascular disease, which happens to the older population. According to previous research, it stated that university students' awareness of cardiovascular disease was still very low (Güneş et al., 2019).

"Loh kan aku takutnya nanti mba, kalau udah tua hehehe. Itu jujur sih gak takut soalnya gak tau ya kenapa ya?" (YM, F, 22 y.o.).

(I will be worried later when I am old hahaha (She's laughing). Honestly, I'm not worried now, not sure why?).

Due to the students can see directly the impact of cardiovascular disease, students' severity perception of cardiovascular disease was quite good for students who have family/relatives impacted by cardiovascular disease. Understanding cardiovascular disease has an impact on students' severity perceptions because students who didn't come from a family with a history of a cardiovascular disease believed that the disease will only affect the elderly. In Protection Motivation Theory, susceptibility and severity perceptions are the factors measured on the threat. High perception would increase the adoption of adaptive behavior which is a healthy lifestyle. If someone sees a relevant and serious threat that they consider scary enough, it would motivate them to avoid the threat. Consequently, people are often involved in protection action to lessen the threat. If someone didn't see the threat, they wouldn't respond to the risk message (Lewis et al., 2007).

Response efficacy

Another appraisal of the attempt to protect against cardiovascular disease is coping appraisal including response efficacy and self-efficacy. It was found that the response efficacy of the students did not give a quite positive response on the benefit of a healthy lifestyle because of experience in seeing other people and gave a negative experience to the students.

“...tapi menurutku gak efektif, juga gitu loh. Adikku hidupnya gak ngerokok juga baru mau masuk kuliah dianya, ngerokok juga enggak, makan di rumah terus orang kuliah di Semarang kan, makan di rumah terus tidur juga gak begadang, infeksi liver (TN, F, 23 y.o.).

(But I think it won't be effective. My brother, who doesn't smoke, eats regularly at home in Semarang (The city in Indonesia), has enough sleep, and still gets a liver infection).

In addition, that-other-students were not sure because cardiovascular disease is caused by genetic factors. Cardiovascular disease was not inherited directly from the parents, but the parents' unhealthy behaviour tended to be followed by the children. In previous studies was found that children with a history of CVD in their families were susceptible to developing CVD in the future (Vohra et al., 2017). Research In Turkey on university students found that they had healthier eating habits due to cultural issues and local issues (Güneş et al., 2019).

However, not all of the students believed in the same thing because one of the causes of cardiovascular disease was behaviour. The students also believed the benefit of a healthy lifestyle which lessens the risk factor of cardiovascular disease such as obesity will improve the metabolism of the body, decrease the fat, and another benefit is not easily getting sick.

Self-efficacy

Healthy lifestyle self-efficacy was also considered low. Some of the students were not sure if they were capable of living healthy. This was proved by the student's statement that the student would change their lifestyle if already affected by a disease.

“...soalnya sering pusing, pusing gitu kan. Tapi, kalau misalnya aku tu kalau ini tu gak sehat kan, nah kalau misalkan udah ada indikator kayak

gitu misalnya, efeknya baru sehat gitu mba, setelah itu ya balik lagi.” (Male, 20 y.o.).

(I get headaches a lot. But, if I feel unhealthy, when there's an indicator of such, then I would change to be healthy, but after that, I would usually go back to the way I used to).

Most of the students will live healthy for a certain purpose and goal like wanting to lose weight. Students did a healthy lifestyle for the psychological benefit and body image. The impacts were also significant for older adolescents, according to one study. This was in accordance with findings from a study of 9 to 18-year-olds, which found that body dissatisfaction increased with age. Furthermore, a previous study revealed that the period between youth and adulthood was associated with the greatest risk of weight increase, suggesting that weight judgments may become increasingly significant as people get older (Meyer et al., 2021). Students' awareness of the degenerative disease was still low which caused students to do a healthy lifestyle only for a short period of time.

College students also had low confidence in changing their behaviour to be better when they were still college students. This was because there's an obstacle or in Protection Motivation Theory it was called response including activity, environment/friends, access, economy, and the presence of advertisers. Response cost will increase maladaptive behavior from an individual. Even so, some students already had a willingness to change once they graduated. One thing that affects self-efficacy the most was the students' low awareness regarding healthy lifestyle behavior because of the presence of the wrong assumption about healthy lifestyle. The lack of education could decrease self-efficacy because the individual would not be able to receive information well enough (Lewis et al., 2007).

Based on the discussion that has been described above, it showed that students' knowledge affected to threat appraisal of cardiovascular disease, as well as coping appraisal of healthy life against cardiovascular disease. In the Protection Motivation Theory, threat appraisal and coping appraisal will increase an adaptive response. In this study, the knowledge of students who were low regarding cardiovascular disease and a healthy lifestyle affected both

those appraisals. There was an overview of the innovation of cognitive mediating processes in the Protection Motivation Theory obtained from this study as follows.

Thus, to raise awareness of the cardiovascular disease and improve the health behaviour of students needed health education through health promotion efforts for adolescents, especially college students.

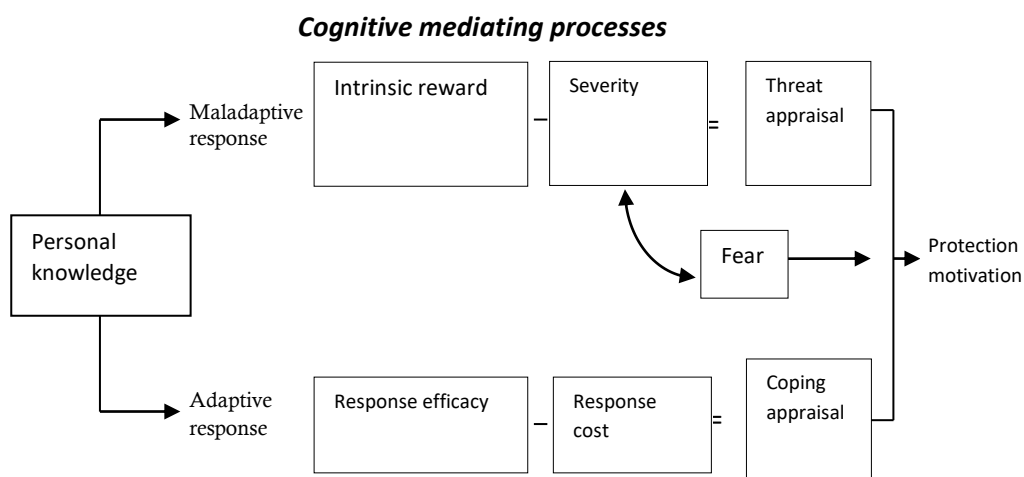


Figure 2. The Innovation of Cognitive Mediating Processes in the Protection Motivation Theory

CONCLUSION

According to Protection Motivation Theory, perceive severity part was quite good compared to susceptibility perception on cardiovascular disease. This was because the students had their own experiences in seeing their family/relatives or other people affected by cardiovascular disease and most of the students were not worried about the disease because of their young age and felt like they were still young and not at risk of getting cardiovascular disease. The students' belief in a healthy lifestyle was still low. Response efficacy was low because they still haven't felt the long-term impact of the healthy lifestyle benefit, while self-efficacy was still low also because there were still obstacles.

Universities are supposed to provide students with access to health information using electronic media

through the university's official website, such as recommendations to engage in physical activity. The university is also expected to improve its supply of healthy canteen facilities by providing students with healthy and affordable meals that include a variety of local vegetables and fruits as food ingredients, as well as by creating canteens that promote health. Limiting smoking access on campus such as making all universities a smoke-free area for all students, both in health majors and non-health majors could also be carried out. Another recommendation is that further research into the effects of healthy and unhealthy living behaviours during an individual's youth is needed.

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