

Determinants of healthy lifestyle among adolescent girls based on Pender's Health Promotion Model

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Abstract.

Introduction: Adolescence is the second most critical period of physical growth in the life cycle after the first year. The increased prevalence of unhealthy lifestyles among adolescent girls has become a public concern, as they should maintain their health status for the health of their future children.

Aims: This study aims to analyze the determinants of healthy lifestyle among adolescent girls based on Pender's Health Promotion Model.

Method: This was a descriptive-analytic study with cross-sectional approach. The population was adolescent girls (15-18 years old) at Senior High School, Gresik City, East Java. Samples were 210 respondents, taken by using simple random sampling technique. The independent variables were intrinsic motivation, perceived benefits, perceived barriers, self-efficacy, and peers support. The dependent variable was healthy lifestyle behavior. Data were collected by using questionnaire, then analyzed using chi-square (χ^2) ($\alpha < 0.05$).

Result: Result showed significant correlation between intrinsic motivation ($p=0.001$; $C=0.253$), perceived benefits ($p=0.001$; $C=0.246$), perceived barriers ($p=0.002$; $C=0.233$), self-efficacy ($p=0,000$; $C=0.436$), and peers support ($p=0,000$; $C=0.348$) with adolescent girls' healthy lifestyle.

Conclusion: Positive cognition on benefits, no barrier perceived, strong self-efficacy, and strong peer supports would increase adolescent girls' healthy life.

Keywords: *healthy lifestyle, adolescent girls, health promotion model.*

1. Introduction

Adolescence is a period of rapid growth and development of physical, psychological, and intellectual-. Adolescents experience periods of growth spurt, a rapid increase of physical and sexual growth that occurs during the middle adolescent. This rapid growth is characterized by a rapid increase in body weight, height, and body fat by 11%, while muscle mass has decreased by 14%. Optimal growth and development in adolescents can be achieved if adolescents adopt a healthy lifestyle. However, adolescents tend to do unhealthy behavior, such as inadequate sleep, unhealthy eating habits, and poor levels of physical activity [1,2].

Demographic data throughout the world shows that the percentage of adolescents aged 10-24 years is 25% of the total population, which are around 1,809.6 million people. In Southeast Asia, the number of adolescents is 162.8 million (27%). Indonesia is a country in Southeast Asia with the highest youth population, at 64.3 million people (26%). Simultaneously, adolescent girls' health problems aged 15-18 years in East Java varied from anemia (84.6%), obesity (30.5%), and malnutrition (36.3%) [3].

Maintaining a healthy lifestyle in adolescents who are the nation's future generation is a big challenge. A healthy lifestyle is an attempt to implement good habits to create a healthy life by avoiding bad habits that can interfere with health [4]. Analysis of the determinant factors affecting adolescent lifestyles is needed to arrange appropriate interventions in promoting healthy lifestyles in adolescents. Health Promotion Model (HPM) is one theory that explains the factors associated with health promotion behavior by identifying three determinant factors: individual characteristics and experiences, behavior-specific cognitions influence, and situational/interpersonal influences [5]. This study aimed to determine the determinants of healthy lifestyle behaviors among adolescent girls aged 15-18 based on the HPM theory.

2. Method

This study used descriptive design with a cross-sectional approach. The samples on this study were 210 female adolescents aged 15-18 as students in one of Senior High School in Gresik East Java Indonesia, taken by simple random sampling. The independent variables of this study were personal characteristics (intrinsic motivation), behavior specific cognitions (perceived benefits of action, perceived barriers to action, perceived self-efficacy), and interpersonal influences (peer support). The dependent variable was healthy lifestyle behavior among adolescent girls.

Demographic data were collected including grades, age at menarche, menstrual cycle, Body Mass Index (BMI), family's monthly income, and hobbies. All demographic data were collected using a checklist, except BMI, measured by dividing the weight (in kilograms) to the height (in meters squared). The intrinsic motivation measured by the questionnaire consists of 6 questions asking about the perception and responsibilities of adolescents in consuming foods and doing physical activities. Perceived benefits and perceived barriers questionnaires were asking about the barriers faced by adolescents in implementing healthy lifestyles. The parameters of perceived self-efficacy questionnaire were adolescent confidence in the self ability to control unhealthy lifestyles and proceed a healthy one. Peer support asking about the social norms, peer supports, and peer influence in doing healthy lifestyles. The healthy lifestyle behavior was measured by using the Health Promoting Lifestyle Profile II (HPLP II). All the instruments were tested for validity and reliability before distributed to the respondents. Data were analyzed statistically using chi-square with the level of significance $\alpha < 0.05$.

To consider data collection and ethical practices, the study passed the ethical review of the health research ethics committee of the Faculty of Nursing, Universitas Airlangga, with certificate number 1451-KEPK.

3. Results and Discussion

The characteristics of respondents are summarized in Table 1. Most of the respondents were tenth graders (93.3%), has a normal BMI (63.3%), and as many as 54.8% come from a family with monthly income lower than regional minimum wage (IDR 3.867.874,40). Their age at menarche mostly around 11-13 years old (87.6%), in which the youngest were eight years old and the oldest were 15 years old. This result is in line with the previous research which mentioned that the peak of age at menarche in Indonesia was at 11-13 years old. The majority of respondents had a regular menstrual cycle (81.9%). Age at menarche and menstrual cycle is a crucial indicator of a girls' healthy transition from childhood into young adulthood, as it is an important determinant of girls' physical, nutritional, and reproductive health outcomes [6]. A healthy lifestyle is believed to positively impact on both; the age of menarche and menstrual cycle [7]. Slightly less than half of the respondents had physical exercise as a hobby (32.4%). Previous research reported that adolescent girls tend to decrease their interest in physical exercise for several reasons such as family influence, poor relationships with peers, fatigue, and time constraints due to studying or other tasks [8].

Table 1. Respondent's characteristics (n=210).

No	Characteristic	Categories	n	%
1.	Grades	Tenth	196	93.3
		Eleventh	14	6.7
2.	Age at menarche	>11 years old	7	3.4
		11-13 years old	184	87.6
		>13 years old	19	9
3.	Menstrual cycle	Polymenorrhea (<21 days)	28	13.3
		Normal (21-35 days)	172	81.9
		Oligomenorrhea (>35 days)	10	4.8
4.	Body Mass Index (BMI)	Underweight	29	13.8
		Normal	133	63.3
		Overweight	34	16.2
		Obesity	14	6.7
5.	Family's monthly income	< regional minimum wage	115	54.8
		≥ regional minimum wage	95	45.2
6.	Hobby	Reading	57	27.1
		Writing	13	6.2
		Singing	57	27.1
		Drawing	15	7.1
		Physical exercise	68	32.4

Table 2. Frequency of respondent's self-motivation, perceived benefits of action, perceived barriers to action, perceived self-efficacy, peer support, and healthy lifestyle behavior (n=210).

No	Variables	Categories	n	%
1.	Intrinsic motivation	Weak	98	46.7
		Strong	112	53.3
2.	Perceived benefit of action	Negative	101	48.1
		Positive	109	51.9
3.	Perceived barrier to action	Barrier perceived	110	52.4
		No barrier perceived	100	47.6
4.	Perceived self-efficacy	Weak	91	43.3
		Strong	119	56.7
5.	Peer support	Weak	65	31
		Moderate	37	17.6
		Strong	108	51.4
6.	Healthy lifestyle behavior	Moderate	66	31.4
		Good	121	57.6
		Excellent	23	11

Table 2 shows the frequency distributions of the variables studied. More than half of the respondents have a strong intrinsic motivation to perform a healthy lifestyle (53.3%). Almost all respondents agreed that they must perform exercise regularly to maintain their stamina. They were motivated to consume diverse food to keep them healthy. Motivation originates from one's self, defined as intrinsic motivation, encompassing a personal belief that a behavior is important¹³. Previous studies found that adolescents girls had a strong desire to exercise and eat well to achieve their goals, that is, attain or maintain health [9]. However, some of the respondents thought that consuming vegetables and fruits every day is not too important. It is possible because many respondents had low family's monthly income which can hinder their motivation to provide vegetables

and fruits for their meal. Similarly, another previous study stated that adolescent girls have low motivation to consume fruits and vegetables, especially in low and middle income countries in South Asia [10].

Half of the respondents (51.9%) have a positive perception about the benefit of a healthy lifestyle. Respondents mostly agree that a healthy diet has a positive impact, making them healthier, keeping them away from disease, and maintaining their ideal weight. Those findings are in line with a previous study conducted in Iran [11]. Knowledge about the benefit of healthy eating is already widespread among adolescent girls [12]. However, more than half of respondents who perceive that a healthy diet can fatten them up. Adolescent girls are taking care of their body appearance, so they are very careful with carbohydrate intakes [13]. Moreover, respondents also agreed that exercise could improve their health. Physical exercise provides health benefits for adolescents, both physically and psychologically [14]. There were some respondents who think that exercise makes them tired. Previous studies found that girls are less likely to do sport than boys because it is hard and tiring. Slightly more than half (52.4%) respondents perceived barriers in doing healthy lifestyle behavior. Most respondents report their preference to eat street food and fast food; and spend their leisure-time sleeping rather than exercising as the barriers. Furthermore, previous studies in India reveal adolescents prefer to consume street and fast food, even though they were aware of the consequences [15]. Knowing the benefit of exercise for health is not enough for adolescents. However, adolescents tend to prioritize their interest instead of exercising to spend their leisure time. ²². That is possible since most respondents did not choose exercise as their hobby.

Respondents mostly had a strong perceived self-efficacy to do healthy lifestyle behavior (56.7%). Almost all respondents are confident that they could choose and eat healthy food. However, they were less confident that they could exercise at least 20 minutes, three times per week. It is possible, as respondents were adolescent girls, who are less likely to perform an exercise. However, study found that women have high self-efficacy and are more likely than men to perform healthy eating behavior [16]. Half of the respondents (51.4%) had strong peer support. Mostly reported that their peer reminds and support them to do healthy lifestyle behavior, such as healthy eating and physical exercise. A previous study concluded that peers have an essential role in adolescents' diet. Peer gave ideas on how to eat healthier food, offer low-fat snacks, encouraged to stay away from high-fat foods, and talked about eating more healthy foods [17,18]. Peer support also impacted adolescent girls' physical activity during the transition from childhood to adolescence [19].

Almost all respondents have a good level of healthy lifestyle behavior (57.6%). The health promoting lifestyle was measured using six components: healthy responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. The questionnaire item analysis found that three components with lowest score were healthy responsibility, physical activity, and nutrition. Similarly, previous studies also found that adolescent girls tend to have good management stress, always feel optimistic, remain positive about life, and have a good interpersonal relationship. The findings elucidate that adolescent girls mostly were physically inactive, had less participation in activities to help them maintain health, and tend to choose junk food with high calories, fat, cholesterol, and sugar [20].

Table 3. Correlation between variables and health-promoting lifestyle

	Health-promoting lifestyle						Analysis	
	Moderate		Good		Excellence		p	C
	n	%	n	%	n	%		
Intrinsic motivation								
Weak	42	20	51	24.3	5	2.4	0.001	0.253
Strong	24	11.4	70	33.3	18	8.6		
Perceived benefits of action								
Negative	44	21	49	23.3	8	3.8	0.001	0.246
Positive	22	10.4	72	34.3	15	7.2		

Perceived barrier to action								
Barrier perceived	43	20.4	47	22.4	10	4.8	0.002	0.233
No barrier perceived	23	11	74	35.2	13	6.2		
Perceived self-efficacy								
Weak	51	24.3	38	18.1	2	1	0.000	0.436
Strong	15	7.1	83	39.5	21	10		
Peer support								
Weak	30	14.3	35	16.6	0	0	0.000	0.348
Moderate	15	7.1	21	10	1	0.5		
Strong	21	10	65	31	22	10.5		

Table 3 showed that all independent variables significantly correlate with adolescent girls' healthy lifestyles ($p < \alpha \leq 0.05$). However, only perceived self-efficacy provides a medium level of correlation with adolescent girls' healthy lifestyle behavior ($r > 0.40$). Pender's Health Promotion Model (HPM) discusses several variables that can affect an individual's health-promoting lifestyle [21]. Perceived benefits, barriers, and self-efficacy are cognitive-perceptual elements. In contrast, peer support is one of the interpersonal influences. The result found that adolescent girls have positive behavior-specific cognition and interpersonal influences to support them in performing a healthy lifestyle. A healthy lifestyle is important because of its long-term benefits. Previous studies based on HPM stated that all domains of behavior-specific cognition and affect had a significant influence on healthy lifestyle behavior. These findings are accordance with a previous study conducted in Korea about factors influencing adolescents' health promotion behavior. This is evident that the perceived benefits of action, perceived barriers to action, perceived self-efficacy, interpersonal influences, and peer support direct adolescent girls to promote healthy lifestyle [22].

4. Conclusion

Adolescent girls' positive awareness on benefits, no barrier perceived, strong self-efficacy, and strong peer supports increase adolescent girls' healthy life. Nurses can do health promotion to improve adolescent girls' healthy lifestyle by concerning their motivation, enhancing their understanding about the benefit of a healthy lifestyle, and the way to encounter a barrier, raising their self-efficacy, and using peer support.

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