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## RESEARCH ARTICLE

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# Adolescent Self Regulation to Prevent Hypertension and Affecting Factors

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## ABSTRACT

**Introduction:** Unhealthy behavior in adolescents requires self-regulation to change it. The purpose of behavior change was to prevent hypertension. The purpose of the study was to determine adolescent self-regulation in preventing hypertension and the factors that influence it. **Methods:** This type of research is analytic observational, cross sectional design. The population of this research is the second grade junior high school students in Surabaya. The sample size is 210 people. Sampling with probability sampling type multistage sampling. The variables studied were self-regulation and external driving factors. Data analysis using SEM. **Results:** The regulation of self-care in adolescents in physical activities and sports is mostly sufficient, the regulation of eating is sufficient, stress management is mostly sufficient, efforts to avoid smoking are mostly sufficient and monitoring of ideal body weight is mostly lacking. Analysis using the t test showed that there was a significant influence between the driving factors for self-regulation with  $p = 0.022$ . **Discussion:** External driving factors are important for adolescents to regulate their behavior in preventing hypertension. Family can become a role model for adolescents. Cooperation with health workers to provide education in schools is needed to increase adolescent knowledge.

**Keywords:** self regulation; adolescent; prevent; hypertension

## INTRODUCTION

### Background

Indonesian teenagers must have a healthy body in order to become the next generation of quality. The current condition of many teenagers is experiencing health problems due to unhealthy behavior. The Basic Health Research of the Indonesian Ministry of Health in 2018 explained that the proportion of drinking alcohol in people aged > 10 years was 3.3%, there was an increase of 0.3%, the proportion of less fruit / vegetable consumption in people > 5 years old had increased from 93.5% to 95.5%. Including in East Java Province. <sup>(1)</sup> Data from SIRKESNAS (National Health Indicator Survey) in 2016 shows the smoking rate at <20 years of age in Indonesia is 11.1%. <sup>(2)</sup> This unhealthy behavior causes health problems including hypertension. <sup>(3)</sup> The results of other studies explain smoking causes hypertension. <sup>(4)</sup>

Prevention of hypertension in adolescents is influenced by how adolescents organize themselves. Adolescents will self-regulate for their own functions. <sup>(5)</sup> Self-regulation in adolescents will give rise to the ability to monitor their own behavior according to their goals. Adolescents who are able to regulate themselves optimally, then the goals that have been set can be achieved. On the other hand, adolescents who are unable to self-regulate will not achieve optimal goals. <sup>(6)</sup> Self-regulation of adolescents in the prevention of hypertension, for example by controlling their eating and drinking, exercise, smoking habits and stress management. <sup>(7)</sup> The novelty in this study will analyze the driving factors that are important for adolescents in regulating their self-regulation.

Self-regulation is influenced by factors of knowledge, motivation, and self-discipline. <sup>(5)</sup> Knowledge can be obtained by adolescents from other people, for example, experiences of illness from relatives or friends. Adolescents will be exposed to information about hypertension. Teenagers can also increase knowledge from the mass media. Advances in digital technology have made it possible for adolescents to get various information including the prevention of hypertension. Information from health workers was also obtained by teenagers. Health

workers will come to schools to provide health education on the prevention of health problems including hypertension. <sup>(2)</sup> The results of the study explained that there was an influence of mass media on adolescent adolescent lifestyles. <sup>(8)</sup> The use of mass media requires self-control so that it can be used to obtain information in behavior. Adolescent behavior in general will affect healthy behavior in adolescents. <sup>(9)</sup>

The experience of other people who have hypertension is predicted to affect self-regulation because adolescents will increase their insight by seeing and observing the conditions of other people suffering from hypertension. There have not been any research results related to the experiences of other people with regard to self-regulation in adolescents.

### Purpose

The purpose of this study was to analyze self-regulation in preventing hypertension and the driving factors.

## METHODS

The research design used a cross sectional design. The population of this research was the second grade junior high school students in Surabaya. The sample size used the rule of the thumb in SEM, with the maximum likelihood method, the number of samples was 210 adolescents. Sampling with probability sampling. The sampling technique used a type of multistage sampling. The sampling process had 2 (two) stages. The first stage, using simple random sampling to determine the sample by randomly selecting 1 (one) State Junior High School in each region of North, West, East, South and Central Surabaya, so that 5 (Five) of the 52 State Junior High Schools were determined. The second stage, determining the number of respondents randomly per SMP Negeri =  $210 : 5 = 42$  respondents.

The data collection instrument used a questionnaire with closed questions in the form of a Likert scale. The instrument used was valid and reliable with all reliability test results with  $> 0.60$ .

The research process began with licensing, asking the respondent for approval, followed by data collection. Before the instrument was used for data collection, it was first tested for validity and reliability. Data collection was done by interview using a questionnaire. After data collection, a recapitulation and analysis of the effects of the variables were carried out.

Descriptive analysis was used to explain each sub-variable frequency were experience illness from other people, friends or family, Strengthening from the environment, mass media and provider. The results of this analysis are presented in the form of a frequency distribution table. <sup>(10)</sup> Difference analysis was performed to prove the research hypothesis, using t-test.

This research has obtained an ethical certificate from the Health Research Ethics Committee of the Surabaya Ministry of Health Poltekkes No. EA/063/KEPK-Poltekkes\_Sby/V/2019.

## RESULTS

The results of the study on the general data of respondents obtained the following data:

Table 1. Distribution of characteristics of junior high school students in Surabaya City

Category	Frequency	Percentage
Gender		
• Male	74	35.2
• Female	136	64.8
Tribe		
• Java	191	91
• Outside Java	19	9
Hereditary history		
• There is descendant	59	28.1
• Nothing descendant	151	71.9
socioeconomic parents		
• <Regional minimum wage	171	81.4
• Regional minimum wage	15	7.1
• >Regional minimum wage	24	11.4

Table 1 explains that most of the students who became respondents were female (64%), Javanese (91%), there was no hereditary history of hypertension (71.9%), family income was below the Regional minimum wage (81.4%).

The results of research on the motivating factors and self-regulation variables of adolescents to carry out the prevention of hypertension are as follows:

Table 2. Distribution of encouraging factors in junior high school students in Surabaya City

Category	Frequency	Percentage
Experience illness from other people, friends or family		
• Less	116	55.2
• Good	94	44.8
Strengthening from the environment		
• Less	71	33.8
• Good	139	66.2
Mass media		
• Less	83	39.5
• Good	127	60.5
Provider		
• Less	31	14.8
• Good	179	85.2

Table 2 shows that the driving variable in the disease experience sub-variable from other people, friends or family was more than half (55.2%) less, almost half of the reinforcement from the environment (44.8%) was good, the mass media sub-variable was mostly good (66.2%) and most of the sub-variables for health workers were good (85.2%).

Table 3. Distribution of self-care regulations in junior high school students in Surabaya City

Category	Frequency	Percentage
Doing physical activity and exercise regularly		
• Less	1	0.5
• Enough	131	62.4
• Good	78	37.1
Diet		
• Less	13	6.2
• Enough	175	83.3
• Good	22	10.5
Stress management		
• Less	34	16.2
• Enough	159	75.7
• Good	17	8.1
• Efforts to avoid smoking		
• Less	14	6.7
• Enough	196	93.3
• Monitoring ideal body weight		
• Less	123	58.6
• Enough	87	41.4

Table 3 shows that the results of the research on the variable of self-regulation process in the sub-variables of carrying out physical activity and regular exercise are mostly (62.4%) sufficient, most of the (83.3%) eating arrangements are sufficient, the sub variable stress management most (75.7%) was sufficient, and the sub-variable did not smoke mostly (93.3%) sufficient, monitoring of ideal body weight was more than half (58.6%) less.

The results of statistical tests using the t-test was 0.022, so there was an influence of driving factors on adolescent self-regulation in implementing hypertension prevention.

## DISCUSSION

The results showed that the driving factors influence self-care regulation. Experiences of hypertension from other people and the existence of mass media that provide information about hypertension are driving factors for adolescents in preventing hypertension. Adolescents have a variety of information obtained from sharing experiences from various sources. An unpleasant experience in people with hypertension such as a stroke will lead adolescents to take preventive measures.<sup>(11)</sup> The social environment has a great influence on changes in values in adolescents. Information from friends has an impact on changes in values that are believed to be. The social environment acts as a vehicle for non-formal education in the context of creating adolescent attitudes.<sup>(12)</sup>

Family has a strong role to play in encouraging adolescents to prevent hypertension.<sup>(13)</sup> The function of the family in providing examples of healthy living behavior to prevent hypertension is needed by adolescents. Regarding family function, the results of study on 210 elderly found that there was a relationship between family function and the incidence of hypertension.<sup>(14)</sup> Further explanation was that the health care function had the strongest relationship with the incidence of hypertension at the Darul Iman Aceh Besar Community Health Center. Another research result of studied explains that the health care function is related to the achievement of developmental tasks.<sup>(15)</sup> The function of family health care is to provide physical needs and health care to family members who are sick. Health care carried out by families and efforts to prevent illness in each family member are the most relevant parts of the health care function.<sup>(16)</sup>

Family is the main component as a support in providing home care. Family as a motivator for adolescents to behave healthily. Family is a reinforcing environment for adolescents to be able to control their healthy lifestyle. Family behavior in implementing hypertension prevention can be a role model. Adolescents will be able to control and monitor their behavior because the surrounding environment has carried out healthy living behaviors.<sup>(17)</sup>

Self-care regulations affect adolescent reactions to prevent hypertension. The data from the analysis results from the self-care regulation sub-variables are as follows: carrying out physical activity and regular exercise is mostly (62.4%) sufficient, most of the (83.3%) eating arrangements are sufficient, the stress management sub-variable is partly. large (75.7%) is sufficient, and most sub-variables do not smoke (93.3%) sufficient, monitoring of ideal body weight is more than half (58.6%) less.

There are 14 domains that influence behavior change, namely knowledge, skills, social / professional roles, beliefs about abilities, optimism, beliefs about consequences, strengthening intentions, objectives, memory, attention and decision processes, environmental context and resources, social influences, emotions and behavior regulation.<sup>(18)</sup>

The results of the discussion with the Surabaya City Health and Education Office were that the physical activity of teenagers at home was lacking, games that required energy were no longer being played, teenagers played more games. Food vendors around the school with various interesting dyes, cannot be controlled by each school. The school canteen also has not fully provided guidance on the types of preservatives and dyes that are harmful to the human body. Monitoring ideal body weight has not become a UKS program, so students have not done it. Programs from the ministry of health regarding smoking are UBM (Efforts to Stop Smoking) and JIRONA (Soul, Cigarettes and Drugs) which have been socialized and applied to junior high school students in Surabaya through UKS. It is hoped that the UBM and JIRONA programs can control adolescents from smoking, drinking alcohol and prevent mental disorders.

Maintenance of adolescent behavior that has changed towards healthy living requires adolescents to internalize values and skills for change, and experience self-determination.<sup>(5)</sup> Adolescent experiences of autonomy, competence, and interrelationships in health-care settings, regulating health-related behaviors are more likely to be internalized, and behavior change will be better sustained.<sup>(19)</sup>

This condition is caused because junior high school students are more influenced by the surrounding environment. The phase of emotional development during adolescence, which is expressed as a period of emotional storms, is a period in which the emotions fluctuate, so that management in controlling stress is lacking. Adolescents find it difficult to reach emotional maturity because they are influenced by the socio-emotional conditions of their environment, especially their family environment and peer groups.<sup>(20)</sup>

Self-reinforcement depends not only on facts but also on cognitive abilities. Adolescents who have prepared themselves to change tend to regulate behavior with self-esteem, such as pride and self-satisfaction because they have made efforts to prevent hypertension.<sup>(21)</sup> Family environment and social environment play an important role in increasing adolescent's ability to manage stress and self-regulation. Family takes control in reinforcing self-change in adolescents.

## CONCLUSION

The experience of illness from other people, the presence of mass media, environmentalists and health workers are driving factors that influence adolescent self-regulation to prevent hypertension.

Providing health education for families as the main support for adolescents in preventing hypertension is needed so that knowledge about healthy living behaviors increases. The ability of adolescents in self-control in carrying out healthy behaviors needs to be supported by schools and health workers through the UKS program by adding the ideal body weight monitoring program, UBM (Efforts to Stop Smoking) and JIRONA (Soul, Cigarettes and Drugs). The program is a driving and strengthening factor for adolescent regulation for the prevention of hypertension. The results of self-regulation research in adolescents can be recommended for the implementation of nursing interventions in groups because it is effective in improving adolescent behavior in preventing hypertension.

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