International Journal of Nursing and Health Services (IJNHS)
http://ijnhs.net/index.php/ijnhs/home
Volume 3 Issue 1, February 2020, pp 114-121
e-ISSN: 2654-6310

The Effect of Health Coaching on Behavior Changed to Prevent Hypertension among Adolescents in High School of Wangiapu City, East Sumba

Ester Radandima [1*], Oedojo Soedirham [2], Retno Indarwati [3]

[1] Master student of Nursing Faculty of Nursing, UniversitasAirlangga Surabaya, Indonesia
[2] Department of Public Health, Faculty of Public Health, Airlangga University Surabaya, Indonesia [3] Department of Nursing, Faculty of Nursing, Airlangga University Surabaya, Indonesia

Article info

***Article history*:**
Received; 25 June 219
Revised: 24 July 2019
Accepted: 8 August 2019

Correspondence author:
Ester Radandima
E-mail:
esterndima29@gmail.com

DOI:
10.35654/ijnhs.v3i1.194

Abstract. Adolescents play an essential role as a determinant of the future of a nation. Therefore, health was the importance of adolescents. The phenomenon showed many adolescents were at risk of early hypertension. The study aimed to examine the effect of health coaching on behavior changes to prevent hypertension among adolescents in Senior High School in Waingapu City, East Sumba. A quasi-experimental study design, pre, and post-test, with an equivalent control group, was applied in this study. We select samples using a simple random sampling for 29 experimental groups and 29 samples in the control group. The results of the study will be analyzed using the Wilcoxon Signed Ranks Test with P <0.05. The results showed a positive effect of health coaching on behavior change based on the theory of Health Promotion Model, such us in perceived benefit of action (p=0.000), perceived barrier to action (p=0.004), perceived self-efficacy (p=0.003), activity-related effect (p=0.002), commitment (p=0.000) and behavior change in adolescents to prevent hypertension (p=0.096). Health coaching can be applied to changing adolescent behavior to avoid hypertension. Coaching and training needed to change not just knowledge occur, but also attitudes, actions, and commitments from adolescents.

Keywords: Health coaching, health promotion model, adolescent, behavior

INTRODUCTION

Hypertension among adolescents were crucial conditions in the worldwide. The current phenomenon in the last time showed that the prevalence of hypertension cases in Indonesia has increased, which not only attacks the elderly but also in adolescents (1).

Adolescents have early hypertension because of low awareness of maintaining a healthy lifestyle. Adolescents with hypertension have a significant risk of developing cardiovascular disease, diabetes mellitus, and stroke when they are adults (2).

The prevalence of hypertension in the world has reached as much as 25% of the total population, with 30% of the total population were adolescents (3). The results of the Indonesian Health Research in 2013 showed that 44.1% of adolescents in the age range of 15-24 years in Indonesia had hypertension. This case shows that the incidence of hypertension in adolescents in Indonesia is also quite high. East Nusa Tenggara, which is the top 10 provinces in the prevalence of hypertension in Indonesia, reaches a 30.9% case of hypertension and more than 25% in adolescents (4). East Sumba District, one of the Health Offices in East Nusa Tenggara, reported that over the past three years, the prevalence of hypertension in adolescents still increased, from 4.8% to 6.4%. The highest prevalence of adolescent hypertension in East Sumba is Waingapu City, which is as much as 63.1%. Initial preliminary study in Senior High School in Waingapu City shows 21 out of 40 students have hypertension in ranged from 140/90 mmHg and 150/90mmHg.

The increased prevalence of hypertension in Indonesia affected by changes in the environment increased acculturation, heredity, and lifestyle changes. Lifestyle changes in adolescents such as stress increased consumption of calories, fat, salt, alcohol, smoking, drugs, and obesity (5). Based on interviews with some adolescents, they said that almost all of them consumed coffee twice a day, morning and evening, and often consumed dried salted fish. Some adolescents drink alcohol and smoke 6 to 10 cigarettes every day from junior high school. The phenomenon above shows adolescents have a high-risk factor in hypertension if these risk factors are handled adequately, 40-50% of hypertension in adolescents can be prevented (6).

Adolescents should be able to be promoters in the prevention of hypertension, but the unhealthy lifestyle in adolescents can inhibit it (7). We need awareness and prevention of hypertension because it causes complications and even death. The behavior prevention hypertension in the adolescent that can be modified is not consumed alcohol, caffeine, smoking, excessive salt levels, exercise, and adequate rest. Prevention of behavior in adolescents can be balanced with health education from a teacher or health practitioner (8).

Based on previous research of Mahardini in 2016 showed that audiovisual media could influence behavioral hypertension prevention in adolescents (8). From the results of these studies, the researcher needs to add coaching and training in health education, so health education not only changes in knowledge but also attitudes, actions, and commitments from adolescents. It is necessary to innovate nursing interventions in health education, such as health coaching. Health coaching provides health education and promotion while motivating, make a behavior change through supportive relationships between participants and coaches (9).

A study conducted by Sitanggang et al. in 2017, revealed that health coaching is a method of health promotion model that can changes behavior in TB patients and hypertension patients to maintaining blood pressure. The results in that previous research can implement in adolescents. We use health coaching to give education about behavior change and get a good impact on adolescent behavior to prevent hypertension (5, 10).

Nursing interventions will be more effective if the application uses a nursing theory approach. One theory about health promotion behavior is the Health Promotion Model (HPM) of Nola J. Pender. Based on previous research by Hidayat'E in 2017 explained that the HPM theory could be used in analyzing the relationship between cognition and affection in tuberculosis patients, there were relationships between perceived benefits of action, perceived barriers to action, self-efficacy, and attitudes to preventing tuberculosis (11). Whereas based on research conducted by Has, et al. in 2018 showed that HPM theory has a relation with

commitment and behavior to mothers in fulfilling child nutrition (12). That previous research proved HPM theory had been widely used in showing the factors that influence behavior. Researcher's interest in implementing health coaching interventions to prevent hypertension in adolescents (13). The components of the HPM theory begin with the characteristics and experiences of individuals, and it can influence their actions. Characteristics and experiences of individuals will shape cognitive specific behaviors and attitudes in perceived benefits of action, perceived barriers to action, self-efficacy, activity, and commitment.

OBJECTIVE

The study aimed to examine the effect of health coaching on behavior changes to prevent hypertension among adolescents in Senior High School in Waingapu City, East Sumba.

METHOD

We conducted the study using a quasi-experimental with pre and post-test design. We enrolled 58 adolescents in Senior High School Waingapu City (29 adolescents as the control group and 29 adolescents as the intervention group). The sampling technique used simple random sampling, and the study was conducted from May 2019 to Juni 2019. Written informed consent was obtained from all participants, and the Ethics Committee approved the study protocol of the Faculty of Nursing, Airlangga University, with number 1432-KEPK. The independent variable in this study was health coaching, and for a dependent variable were perceived benefit of the action, the perceived barrier to action, perceived self-efficacy, activity-related effects, commitment and behavior of adolescents to prevent hypertension. For evaluated intervention, we used a modification questionnaire from the Health Promotion Model Pender in 2011. After collected information, we analyzed using the Wilcoxon Signed Ranks Test with P-value <0.05

RESULTS

Characteristics of respondents

Table 1. showed that the respondents were female both from the control and intervention groups (65.5% or 38 adolescents). The age range of adolescents was 16 years (74.1% or 43 adolescents). The average number of siblings in the family was a 1-3 person, which is 81% (47 adolescents). The condition of adolescent body mass index (BMI) based on body weight and height was in the normal range, only 27.6% (16 adolescents) had a thin BMI. The history of parental education is mostly at the senior high school level, equivalent to 44.8% (26 adolescents), average parents of adolescent was a farmer, 48.3% (28 teenagers) and average income which is balanced between less than 1 million IDR and more than 1 million IDR, which is 50% each (29 teenagers). The history of illness was hypertension (29.3%). The homogeneity test showed that age, sex, number of siblings, body mass index, parental education, parental income, parental work, and family history of illness were p-value > 0.05.

Table 1. Characteristics of respondents

Characteristics of Respondents		Control		Intervention		Total		Homogeneity Test *P-Value*
		N	%	N	%	N	%	
Gender	Male	7	13	44,8	24.1	20	34.5	p = 0.713
	Female	22	16	55,2	75.9	38	65.5	
Age	16 years	20	68.9	23	79.3	43	74.1	p = 0.630
	17 years	9	31.1	6	20.7	15	25.9	
Count of Cousin	1-3	23	79.3	24	82.8	47	81	P = 1.480
	Four or more	6	20.7	5	17.2	11	19	
Body Mass Index	Thin	6	20.6	10	34.5	16	27.6	P = 0.869
	Normal	23	79.4	19	65.5	42	72.4	
Educational History of parents	Bachelor	4	13.8	6	20.7	10	17.2	P = 0.516
	Senior High School	13	44.8	13	44.8	26	44.8	
	Junior High School	7	24.2	4	13.8	11	19	
	Elementary school	5	17.2	6	20.7	11	19	
	Do not school	0	0	0	0	0	0	
Job of parent	Civil servant	6	20.7	9	31.1	15	25.8	P = 0.385
	Fisherman	1	3.4	2	6.9	3	5.2	
	Farmer	13	44.8	15	51.7	28	48.3	
	Seller	2	6.9	0	0	2	3.5	
	Business	7	24.2	3	10.3	10	17.2	
Parent's income	> 1 million	14	48.3	15	51.7	29	50	P = 0.347
	≤ 1 million	15	51.7	14	48.3	29	50	
History of family illness	None	5	17.2	11	37.9	16	27.6	P = 0.491
	Hypertension	13	44.8	4	13.8	17	29.3	
	Other illness	11	38	14	48.3	25	43.1	

Effect of health coaching on the perceived benefit of the action

Table 2 showed that there were influences of health coaching interventions based on the health promotion model to the perceived benefit of action in the intervention group (*p*-value 0,000). In the control group, the p-value was 0,000. It means that there were differences before and after observation.

Table 2. Effect of health coaching on the perceived benefit of the action

Variable	Group	Pretest Median ±SD	Min- Max	Posttest Median ±SD	Min-Max	*P-value*
The perceived benefit of an action	Intervention	26 ± 3.416	17-31	29 ± 2.753	24-35	0.000
	Control	26 ± 3.272	17-30	28 ± 2.198	24-33	0.001

Effect of health coaching on perceived barriers of action

Table 3. Showed that the p-value was 0,004 in the intervention group, which means that there was an influence of health coaching interventions based on the health promotion model to the perceived barrier to action. Whereas in the control group p-value was 0.194, it means the value of p> 0.05. There was no difference before and after observation in the control group.

Table 3. Effect of health coaching on the perceived barrier of action

Variable	Group	Pretest Median ±SD	Min- Max	Posttest Median ±SD	Min-Max	*P-value*
The perceived barrier of action	Intervention	19 ± 2.052	13-22	19 ± 2.166	16-24	0.004
	Control	19 ± 4.515	13-41	19 ± 6.106	10-48	0.194

Effect of health coaching on perceived self-efficacy

Table 4. Showed that the p-value was 0.003, which means there was an influence of the health promotion model based on health promotion on adolescent self-efficacy. Whereas in the control group p-value was 0.234, there was no difference before and after the observations made.

Table 4. Effect of health coaching on perceived self-efficacy

Variable	Group	Pretest Median ±SD	Min- Max	Posttest Median ±SD	Min-Max	*P-value*
Perceived self-efficacy	Intervention	19 ± 2.704	13-24	20 ± 1.832	18-24	0.003
	Control	18 ± 2.972	12-23	20 ± 4.708	1-24	0.234

Effect of health coaching on activity related effect

Table 5. showed that there was the influence of health coaching interventions based on the health promotion model to activity-related effect. While the control group showed that the p-value was 0.128. It was indicated that no significant difference in both before and after the observation.

Table 5. Effect of health coaching on activity related effect

Variable	Group	Pretest Median ±SD	Min- Max	Posttest Median ±SD	Min-Max	*P-value*
Activity related effect	Intervention	19 ± 2.072	16-26	19 ± 1.899	17-24	0.002
	Control	20 ± 1.614	16-24	20 ± 1.806	17-24	0.128

Effect of health coaching on commitment

Table 6. showed that the health coaching based health promotion model influenced the commitment to prevent hypertension in adolescents (p-value was 0,000). In the control group, the p-value was 0,001. It means that in the control group, there were also differences before and after observation.

Table 6. Effect of health coaching on commitment

Variable	Group	Pretest Median ±SD	Min- Max	Posttest Median ±SD	Min-Max	*P-value*
Commitment	Intervention	15 ± 1.866	13-20	17 ± 1.568	15-20	0.000
	Control	15 ± 2.228	9-18	17 ± 1.791	13-20	0.001

Effect of health coaching on knowledge, attitude, and action

Table 7. showed that behavioral variables have three components, such as knowledge, attitudes, and actions. In the intervention group after the data analysis test using the Wilcoxon test (α 0.05) obtained p-value was 0.001, it means health coaching interventions based on health promotion models influence on adolescent knowledge in preventing hypertension. In the second component, health coaching interventions based on health promotion models affected adolescent attitudes (p-value was 0.003). In the third component, it was found that there was no effect on health coaching based on health promotion models on adolescents' actions in preventing hypertension.

Whereas in the control group, there were also differences in knowledge and attitude before and after observation (p-value was 0.002 and 0.004). But, for adolescents' actions, there were no differences in actions before and after observation (p-value was 0.267)

Table 7. Effect of health coaching on knowledge, attitude, and action

Variable	Group	Pretest Median ±SD	Min- Max	Posttest Median ±SD	Min-Max	*P-value*
Knowledge	Intervention	21 ± 1.595	17-23	21 ± 0.976	19-23	0.001
	Kontrol	20 ± 1.302	16-22	21 ± 1.263	18-24	0.002
Attitude	Intervensi	30 ± 3.450	26-38	32 ± 3.377	27-40	0.003
	Kontrol	31 ± 2.890	24-36	32 ± 2.994	26-38	0.004
Action	Intervensi	15 ± 2.553	10-22	15 ± 2.366	10-20	0.096
	Kontrol	16 ± 2.912	11-27	17 ± 3.013	12-23	0.267

DISCUSSION

We found that the effect of health coaching on the perceived benefit of action can lead to positive perceptions in adolescents on preventing hypertension. This attitude could arise because adolescents have benefited from the actions taken. Some of the benefits that can be expressed by adolescents are getting knowledge about hypertension. After obtained knowledge, adolescents could be applied to other people to prevent hypertension with lifestyle modification.

Some adolescents still have obstacles in preventing hypertension, but in the intervention group who received training and education from coaches, the barriers to avoiding hypertension were low (14). In the process of behavior change, the perceived barrier to action had some obstacles, such as impropriety, difficulty in obtaining facilities or knowledge, less time due to too many other activities, high costs, and lack of availability of health facilities in the environment.

Self-efficacy in adolescents obtained and changed through experiences that have been done before. Self-efficacy could be through a social environment, strengthening, and support from each peer group. Self-efficacy was a person's belief in solving a problem, which could be through experience, beliefs, and abilities.

Adolescent showed their commitment to preventing hypertension assessed from the ability to show or changes positive attitudes. For example, adolescents could live healthier, increase knowledge, consume healthy nutrition, increase exercise, and avoid smoking or alcohol.

Health coaching based on health promotion, the model, influenced behavior on the prevention of hypertension in adolescents. From this study, we knew that behavior could be seen from three aspects, such as knowledge, attitudes, and actions. Behavior could not appear directly. We needed to observation behavior several times because behavior could not be seen from one aspect and only in a short time.

Knowledge is the result of human sensation and will arise along with the intensity of attention and perception given (15). Knowledge is a response to stimuli from outside the individual, both stimuli from the social or family environment. Health coaching gave adolescents knowledge about hypertension and how to prevent it, which was given through audiovisual media and leaflets. On the results of the study showed that knowledge increased sharply in the intervention group after the post-test was done, this showed that the understanding of adolescents also increased, we concluded health coaching effectiveness in expanding knowledge.

HPM explains that cognitive specific behaviors and attitudes that directly motivate behavior and can determine the next plan of activities to achieve benefits (13). Attitudes to prevent hypertension in adolescents will occur along with the increase of knowledge. A high attitude in making prevention will produce a positive activity and lead to the belief to start making changes in daily habits.

Constructive and affirmative action was the result of an attitude that has been formed. Based on the results of research from Yunitasari in 2016, which states that actions could be created because of the existence of a social interaction experienced by individuals. Social interaction was not just social contact and relationships between individuals, but it produces mutual relations for two individuals.

Whereas from the research conducted by Beate West in 2014 show that after communication and interaction during the health coaching phase, it showed decisive action to improve health. Based on the results of the study, both the control and intervention group still did not show a significant increase in action, because indeed the action cannot be measured quickly and directly, but requires a long and gradual time. In the intervention group, hypertension prevention measures increased even though only slightly. This shows that health coaching methods have good effectiveness in shaping adolescent actions. If the technique was applied longer and gradually, then the work produced will also increase (16). Another study conducted among diabetes patients showed that health based coaching was significantly improve behaviors and metabolic markers such as blood glucose level and blood pressure (17). Another study applied relaxation progressive muscle program with based coaching approach also was positive effect on decreasing the blood pressure level among hypertension patients (18).

CONCLUSION

Providing education with the health coaching method is very important to increase adolescent knowledge in preventing hypertension. Knowledge of hypertension will bring up attitudes and actions in carrying out prevention of hypertension. The results of the study showed that knowledge increased sharply in the intervention group after the post-test was done. This indicates that the understanding of adolescents also increased. Health education that can be applied in changing adolescent behavior should be able to influence the increase in the vulnerability prevention behavioral score of hypertension. Coaching and training are needed so that not only changes in knowledge occur but also attitudes, actions, and commitments from adolescents. This study has a limitation about time to give intervention with health coaching too short. Because of that, the behavior of adolescents is not yet appeared. So, for the next researcher, you can add more times to give health coaching intervention

Acknowledgment

We would thank the nursing faculty of Airlangga University and Menur Mental Hospital who facilitated this research

REFERENCES

(1) Spearman R. Faktor Risiko Hipertensi Pada Remaja Enny Probosari Bagian Gizi, Fakultas Kedokteran, Universitas Diponegoro ABSTRAK. 2017; 18–27.
(2) Gopinath, B, Baur LA, Hardy LL, Kifley A, Rose KA, Wong TY, Mitchell P. Relationship between a range of sedentary behaviors and blood pressure during early adolescence. *Journal of Human Hypertension*. 2012; 26(6): 350–356.
(3) Bassareo PP, Mercuro G. Pediatric hypertension: An update on a burning problem. World Journal of Cardiology, 2014; 6(5): 253.

(4) Kementrian Kesehatan Republik Indonesia. *Riset Kesehatan Dasar*. Jakarta. 2018.
(5) Effendy FF, Lestari P, Bakar A. Pengaruh Health Coaching dengan pendekatan Health Belief Model Terhadap Perilaku Compliace dan Kestabalin Tekanan Darah Penderita Hipertensi. Surabaya: Fakultas Keperawatan Unair. 2017.
(6) Mahanta TG. *et al.* Determinants of hypertension amongst school-going adolescents aged 13-15 yrs in Assam, Clinical Epidemiology, and Global Health. 2017. INDIACLEN. doi: 10.1016/j.cegh.2017.08.005.
(7) Nisa' K. Pengaruh Health Coaching Berbasis Health Promotion Model Terhadap Self-Efficacy, Komitmen, dan Tindakan pada Wanita Usia Subur (WUS) dalam Melaksanakan Pencegahan Kanker Serviks dan Inspeksi Visual Asetat (IVA). Surabaya. 2018.
(8) Webster EK, Logan SW, Gray WN, Robinson LE. A cross-sectional study on the relationship between the risk of hypertension and obesity status among pre-adolescent girls from rural areas of the Southeastern region of the United States. Preventive Medicine Reports. Elsevier, 2018; 12(May):135–139. doi: 10.1016/j.pmedr.2018.09.006.
(9) Huffman MH. Advancing the Practice of Health Coaching', Workplace Health and Safety. 2016; 64(9): 400–403. doi: 10.1177/2165079916645351.
(10) Sitanggang Y, Amin M, Sukartini T. Health Coaching Berbasis Health Promotion Model Terhadap Peningkatan Efikasi Diri dan Perilaku Pencegahan Penularan Pada Pasien TB Paru. Jurnal Penelitian Kesehatan Suara Forikes, 2017; 8(4):172–179.
(11) Hidayat'e NZ. Hubungan Persepsi dengan Perilaku Kesehatan Masyarakat Terhadap Penderita Tuberculosis Berbasis Health Promotion Model di Wilayah Kerja Puskesmas Pegirian Surabaya. Surabaya. 2017.
(12) Has EM, Prahasiwi DF, Wahyuni SD, Nursalam, & Efendi F. Mothers' Behaviour Regarding School-Aged Children's Nutrition: In Indonesia. Indian Journal of Public Health Research & Development, 2018: 318-322.
(13) Alligood MR, Tomey AM. Pakar Teori Keperawatan dan Karya Mereka. Edisi Indo. Elsevier, Singapura. 2017.
(14) Khodaveisi M, Omidi A, Farokhi Sh, Soltaniah AR. Dietary behavior status and its predictors based on the Pender`s Health Promotion Model constructs among overweight women referred to Fatemieh hospital clinics in Hamedan. Journal of Nursing Education. 2016; 5(2): 31–39.
(15) Notoatmodjo S. Promosi Kesehatan dan Perilaku Kesehatan. Rineka Cipta, Jakarta.
(16) Bennett H, Laird K, Margolius D, Ngo V, Thom DH, Bodenheimer T. Monitoring, and home-titration in controlling hypertension among low-income patients : protocol for a randomized controlled trial. 2009; 6: 1–6. doi: 10.1186/1471-2458-9-456
(17) Pamungkas RA, Chamroonsawasdi K. Self-management based coaching program to improve diabetes mellitus self-management practice and metabolic markers among uncontrolled type 2 diabetes mellitus in Indonesia: A quasiexperimental study. Diabetes & Metabolic Syndrome: Clinical Research & Reviews 14 (2020) 53-61
(18) Pamungkas RA, Kirana W, Florensa. Relaxation progressive muscle program on exercise behavior and clinical outcomes among hypertension patients. International Journal of Public Health Science (IJPHS). 2016; 5 (4): 400-405