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Developing a parental empowerment model to prevent health risk behaviors among adolescents in East Java, Indonesia

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ABSTRACT

Introduction: Parental empowerment in monitoring adolescents plays a crucial role in preventing health-risk behaviors. This research aimed to develop a model of parental empowerment against the prevention of health risk behavior (PE-HRB) in adolescents based on the theory of health promotion model.

Methods: The research design used was an explanative survey method. The research population was parents who have adolescent children in East Java and able to access online questionnaires. Consecutive sampling obtained a large sample of 704 respondents from July - September 2020. Questionnaires were distributed using the online Zoho platform and distributed to parents. The data analysis used a smart PLS (Partial Least Squares) statistical test with significance level T>1.96.

Results: Personal factors positively and significantly influenced cognition and affect (T=2.82;p=0.005). Cognition and affection variables influence on parental empowerment (T=5.19; p=<.001). Cognition and affection have no effect on preventive behavior (T=1.49; p=.135). Parental empowerment is an important point in shaping preventive behavior.

Conclusions: Empowerment is a factor that significantly affects the formation of parental behavior without going through commitment variables. Parental involvement in adolescents' academic and personal lives is an important aspect to prevent health-risk behavior in adolescents. Cognition and affection variables cannot directly form preventive behavior but must go through parental empowerment pathways to form preventive behavior. Parental empowerment has no effect on commitment, but commitment affects prevention behavior. Empowering parents is a topic that can be used as material in health education in primary health services.

Keywords: adolescents, family, health risk, parental empowerment, sexual risk behavior

Introduction

Adolescence is a critical period in child development (Newman et al., 2008). Data from WHO in 2018 stated that the world's adolescent population is estimated at 1.2 million or 1 in 6 in the world's population (WHO, 2018). Most adolescents are in good health, but some aspects of adolescents' health require preventive efforts such as traffic accidents, premarital sex, drug abuse, cigarette use, etc. Parental monitoring is an effort that can be made to prevent health-risk behavior in adolescents (Arria et al., 2008). Parental involvement in monitoring children's activities is an important factor; the higher the parental involvement, the lower the appearance of health risk behavior in adolescents (Pengpid & Peltzer, 2018). Empowerment of parents entails four aspects, including: knowledge,

participation, skills, and support from various parties to implement preventive behavior. One of the most widely used models of health behavior formation in improving health states is the health promotion model by Nola J. Pender (Karen & Nola, 2011; Pender et al., 1995; Susan et al., 1995). There have been many studies using the basis of behavioral theory to explain health promotion behavior (Azadi et al., 2021). However, the formation of behavior by combining parental empowerment and Nola J. Pender's health promotion behavior remains largely unexplained. Parental empowerment as the primary caregiver to the child is a major necessity because the family's function, according to Friedman, is to prevent health problems and take care of sick families (Paramita & Harmanto, 2014). Adolescents who have harmonious families will have a lower risk of performing risky behavior due to good interaction and communication between parents and children (Kurnia et al., 2019; Lenciauskiene & Zaborskis, 2008). Parents can open interactions through discussion and engage in youth activities and monitor teenagers' activities. This can prevent adolescents from intending to perform risky behavior such as consuming drugs, premarital sex, and alcohol consumption (Kaynak et al., 2013). Parents need enough preparations to carry out good interactions with adolescents including knowledge, self-efficacy, and commitment. Based on research on adolescents in Indonesia, it shows that parenting style is closely related to risky behavior in adolescents (Krisnana et al., 2019).

Empowerment is a process of better control of the individual to give decisions and responsibilities for himself related to his health viewed as individual and in the community process (WHO, 2009). Parental empowerment can result in self-management skills, improved abilities, and responsibilities (Ni et al., 2016). Through empowerment, parental knowledge and self-efficacy can increase (WHO, 2009). Self-efficacy will determine parental commitment so that the behavior displayed can last for a long time (Abidin et al., 2016). Through high commitment, parents have a sense of being responsible for adolescent behavior, so that even if the parents are in depressed conditions, they keep going and do not hinder efforts to prevent health-risk behavior in adolescents (Pender, 2011). The Pender health promotion model theory explains that, to build health promotion behavior, it begins with commitment. Commitment is formed through cognition and affect, interpersonal factors and situational factors. According to the WHO (2008), four aspects are needed to form empowerment consisting of knowledge, participation, skills and environment. These two theories are combined because they have the same goals and components that are in line. This study aims to develop a model of parental empowerment against the prevention of health-risk behavior in adolescents based on the theory of health promotion model by Pender. HPM theory becomes the main framework in the conceptual development of research. Components of the HPM theory, consisting of previous experience factors, cognition and affect, social support, commitment and preventive behavior, are the variables measured in this research.

Materials and Methods

Study Design

The research design used a cross-sectional study using an explanative survey method. This type of research was used because the researchers aimed to find an explanation of a phenomenon or event that occurred so that it would produce an overview of the causal relationship between the independent and the dependent variables. This research aims to describe the behavioral phenomenon of preventing health risk behavior in adolescents based on the health promotion model theory, so it is very appropriate to use an explanatory research design.

Population

The population in this study was parents who have teenage children in the Surabaya area and East Java. Part of the results of this study has been published in other journals with the title "Factors Related to Parental Involvement in the Prevention of Health Risk Behaviors among Adolescents: A Cross-sectional Study in East Java Indonesia" (Krisnana et al., 2022).

Samples, sampling

Respondents were parents who met inclusion criteria, including; 1) parents who had adolescents aged 15-19 years, 2) parents whose children attend Senior High School or Vocational High School or Islamic Senior High School in East Java, 3) parents who could fill out online questionnaires via smartphone or personal computer, and 4) parents who were willing to participate in the research. This study used convenience sampling. The large sample obtained during the distribution of online questionnaires from July until September 2020 was 706 and 704 sample parents who met the inclusion criteria.

Variables

Independent variables in this study were personal factors (X1) consisting of education (X1.1), employment (X1.2), cognition and affection (X2) consisting of benefits

and barriers (X2.1) and self-efficacy (X2.2), empowerment (X3) consisting of knowledge (X3.1), participation (X3.2), and environment (X3.3). The dependent variables in this study were commitment (Y1) and health -risk behavior prevention in adolescents containing parental monitoring (Y2).

Instruments

Personal factor questionnaire

The personal factor questionnaire consisted of questions containing a checklist about the respondents' highest education and an occupation questionnaire which contained a checklist of the respondents' professions. The Cronbach's alpha for personal factors was 0.73.

Questionnaire about benefits and barriers

Instruments to measure benefits were developed based on the concept of Pender's theory in the health promotion model (HPM). The perceived benefits instrument was adopted from the Exercise Benefits Questionnaire (Lovell et al., 2010; Pender, Garcia et al., 1995). Instruments used to measure the benefits of prevention of risky behavior in adolescents consisted of four subscales, namely: i) physical appearance (question number 1), ii) psychological aspects (question no. 3), iii) social interaction (question number 5), and iv) preventive healthcare (question number 7). The questionnaire about obstacles consisted of four questions consisting of four subscales, namely: i) environmental conditions (question number 2), ii) spending time (question number 4), iii) draining energy (question number 6), iv) family disappointment (question number 8). The respondents' answers were on a 4-point Likert scale ranging from strongly agree to disagree. The higher the score, the higher the perceived benefits of preventing risky behavior. The Cronbach's alpha for the benefits and barriers questionnaires was 0.79.

Self-efficacy Questionnaire

The instrument for measuring self-efficacy was derived from the Self-Efficacy for Exercise (SEE) scale questionnaire (Estrada, 2016; Resnick & Jenkins, 2000). The change or modification of the original sentence is about exercise changed to prevent risky behavior. The questionnaire to measure self-efficacy levels consisted of nine questions about the parent's confidence in carrying out activities to prevent health risk behavior. The answer responses were in the range of 0-10 to describe situations ranging from 0 (not confident) to 10 (very confident). The higher the score, the higher the self-efficacy of the mother. The Cronbach's alpha for the self-efficacy questionnaire was 0.94.

Knowledge questionnaire

Knowledge questionnaires were compiled by researchers. The knowledge questionnaire consisted of five questions with answer responses of right and wrong. The parameters for compiling a knowledge questionnaire consisted of; 1) definition of health-risk behavior in adolescents, 2) etiology, 3) prevention, 4) causes of risky behavior in family, 5) complications of health-risk behavior in adolescents. The correct answer was given a score of 1, while the wrong answer was 0, hence the maximum obtainable score was 5. Higher scores reflect better levels of parental knowledge about health risk behavior in adolescents. The Cronbach's alpha for the knowledge questionnaire was 1.00.

Participation questionnaire

The participation questionnaire was adopted from research in six African countries (Pengpid & Peltzer, 2018). This questionnaire consisted of four questions that showed parents' participation in knowing the teenagers' activities in the last 30 days. The four contents of the question were 1) checking children's homework, 2) checking their children's belongings surreptitiously, 3) understanding children's problems and worrying about them, and 4) knowing about children's activities at leisure. The answer responses consisted of five options, including, always with a score of 5, often with a score of 4, rarely with a score of 3, once with a score of 2, and never with a score of 1. Obtainable score ranged from 4 to 20, with higher scores reflecting better the parental participation. The Cronbach's alpha for the participation questionnaire was 0.70.

Environmental questionnaires

The environmental questionnaire was developed by researchers referring to nonphysical environments i.e., information came from health workers, families, and people nearby. The answer responses consisted of always with a score of 3, sometimes with a score of 2, and never with a score of 1. obtainable score ranged from 3 to 9. The higher the score, the greater the information obtained from the environment. The Cronbach's alpha for the environment questionnaire was 0.698.

Commitment questionnaire

The commitment questionnaire was adapted from the shortened Committed Action Questionnaire (CAQ-8) (McCracken et al., 2015). The questionnaire was adapted and modified according to the topic of

prevention of health-risk behavior in adolescents. The commitment questionnaire consisted of eight questions with responses ranging from never true (0) to always true (6). Higher scores reflect higher level of parental commitment in preventing health-risk behavior. The Cronbach's alpha for the commitment questionnaire was 0.84.

Parental monitoring questionnaires

A questionnaire on parental monitoring was adopted from a proprietary questionnaire (Li et al., 2000). The questionnaire consisted of 27 questions about parents' behavior in monitoring adolescents over the past four months. This questionnaire was compiled on seven factors, namely 1) indirect monitoring for seven questions, 2) live monitoring for three questions, 3) school monitoring for four questions, 4) health monitoring for four questions, 5) computer monitoring for four questions, 6) telephone monitoring for two questions, and 7) restrictions monitoring. Answer responses included; 0 times; 1-2 times; 3-4 times; 5 and up; do not know and refuse. The Cronbach's alpha for the parental monitoring questionnaire was 0.87.

Data collection

Concerning the COVID-19 pandemic situation, the respondents' data collection was done through the spread of online questionnaires using Zoho.form (Zhou et al., 2022). The dissemination of questionnaires used social media through various means including 1) sending questionnaire links to high school teachers in Surabaya and East Java to be distributed to parents; 2) sending links to colleagues or association of professional child nurses in East Java region through group messages; 3) publishing questionnaire links on the status features of researchers' social media. Before filling out the questionnaire, prospective respondents were informed about the details of the study such as study title and objectives, benefits, risks, and compensation, for the respondent's willingness to fill out the questionnaire. If agreed, then the respondents gave the signature directly through the online media form as proof of approval. Respondents who agreed then continued on to fill out the questionnaire until it was completed. To validate that the questionnaire filler was a parent, then the parent must fill in the school's name and the area or the location of the child's school. To avoid double filling by parents, a screening was carried out to check across respondent's name, school name, and phone number.

Table 1. Demographic characteristics of respondents n=704

Characteristic	n	%
Child's Gender		
Male	303	43
Female	401	57
Respondents		
Father	322	45.7
Mother	382	54.3
Type of Children's Education		
Vocational High School (SMK)	365	51.8
Senior High School (SMA)	247	35.1
Islamic Senior High School (MA)	92	13.1
Father's Level of Education		
Elementary School (SD)	71	10.1
Junior High School (SMP)	357	50.7
Senior High School (SMA)	151	21.4
College	125	17.8
Mother's Level of Education		
Elementary School (SD)	140	19.9
Junior High School (SMP)	176	25
Senior High School (SMA)	219	31.1
College	169	24
Type of Transportation		
Escorted by parents	213	30.3
Riding a motorcycle	421	59.8
Taking public transport	55	7.8
Other	15	2.1
Number of Children		
One	48	6.8
Two	305	43.3
Three	225	32
>3	126	17.9

Data analysis

The collected data were analyzed using a SmartPLS software for statistical test with T>1.96. SmartPLS allows testing a series of relationships between variables that are relatively complicated simultaneously. The path analysis model for all variables in the PLS consists of three sets of relationships, namely: 1) the inner model specializes in the relationship between latent variables (structural model), 2) the outer model specializes in the relationship between latent variables and indicators. Indicators were considered valid if they had an outer loading value above 0.5 and a T-Statistic value above 1.96. Hypothetical testing was done using t-test.

Ethical clearance

This research was conducted with respect for human rights and applied ethical principles to human subjects. The researcher provided an explanation of the objectives, benefits, risks, right to withdraw and rewards and compensation given to respondents via gform at the earliest position before filling out the questionnaire. If respondents agreed, they could click the agree button and continue with the questionnaire questions. For respondents who did not agree, there was no need to continue filling in the questions. This research has obtained ethics eligibility from the Health Research Ethics Commission

(KEPK), Faculty of Nursing, University of Airlangga with certificate number 2057-KEPK. All participants

Table 2. The parental empowerment variable (n=704)

Variables					
Knowledge	**True (%)**	**False (%)**			
Definition	94	6			
Etiology	67	33			
Prevention	94	6			
Family causes	33.1	66.9			
Complications	96.4	3.6			
Participation	**Always (%)**	**Often (%)**	**Rarely (%)**	**Once (%)**	**Never (%)**
Checking a child's homework	26.4	37.2	31.1	2.1	3.1
Checking a child's belongings	18.2	37.6	34.4	4.3	5.5
Understanding a teenager's problems and worried about it	41.3	42.0	12.8	2.4	1.4
Knowing the teenagers' activities in spare time	39.5	38.9	17.6	2.4	1.6
Resources of Health Information	**Always (%)**	**Sometimes (%)**	**Never (%)**		
Health workers	22.7	56.5	20.7		
Friends	28.3	58.1	13.6		
Relatives	43.8	47.7	8.5		

received explanations via the zoho.form and gave online signatures as proof of willingness to become respondents.

Results

The results showed that the students' gender attending high school is almost comparable among males (43%) and females (57%). Questionnaire respondents between fathers (45.7%) and mothers (54.3%) have an almost comparable amount. More than half of teenagers (51.8%) attend Vocational High Schools (SMK), and others attend Senior High School and Islamic Senior High School. Table 2 shows that parents possessed a good knowledge of definition, etiology, prevention, and complications. However, knowledge of family as the cause of health-risk behavior in adolescents is still relatively poor. This is proven with only 33.1% of parents answering correctly, and most of them answered incorrectly. Parental participation in monitoring children varies. The highest percentage of parents were constantly worried about the problems experienced by teenagers (41.3%), but there were still parents who never worried about problems experienced by teenagers (1.4%). The percentage of parents who have never checked a child's belongings in the last 30 days was 5.5%. The most information sources obtained by parents come from relatives (43.8%). Precisely the information coming from health workers has the least percentage compared to other sources of information (22.7%). There are even parents who claim that they have never been informed by health officials about the prevention of health-risk behavior in adolescents (20.7%). The PLS statistical test states that, if the value of T>1.96, then it is stated that there is an influence between dependent variables on independent variables. Besides, the influence is meaningful or significant if p≤0.05). The results of the hypothesis testing using PLS shows that personal factors (X1) consisting of father's education level and mother's education level influence the cognition and affection variables (X2) consisting of self-efficacy, benefits and obstacles (t=2,823; p=0.005). Cognition and affection variables affect parental empowerment (X3) consisting of knowledge, participation and environment (t=5,198; p=0.000).

Table 3. The final model of hypothesis testing results of the development of parental empowerment model for health risk behavior (PE-HRB) prevention among adolescents in East Java Indonesia

Variable	Path coefficients	Mean	SD	t	p
Effect of Personal Factors (X1) on Cognition and Affection (X2)	0.108	0.111	0.038	2.823	0.005
Effect of Cognition and Affection (X2) on Parental Empowerment (X3)	0.250	0.253	0.048	5.198	0.000
Effect of Cognition and Affection (X2) on Parental Prevention Behavior (Y2)	-0.063	-0.064	0.042	1.495	0.135
Effect of Commitment (Y1) on Parental Prevention of Behavior (Y2)	-0.229	-0.232	0.038	6.009	0.000
Effect of Parental Empowerment (X3) on Commitment (Y1)	-0.085	-0.087	0.046	1.849	0.065
Effect of Parental Empowerment (X3) on Parental Prevention Behavior (Y2)	0.169	0.171	0.046	3.636	0.000

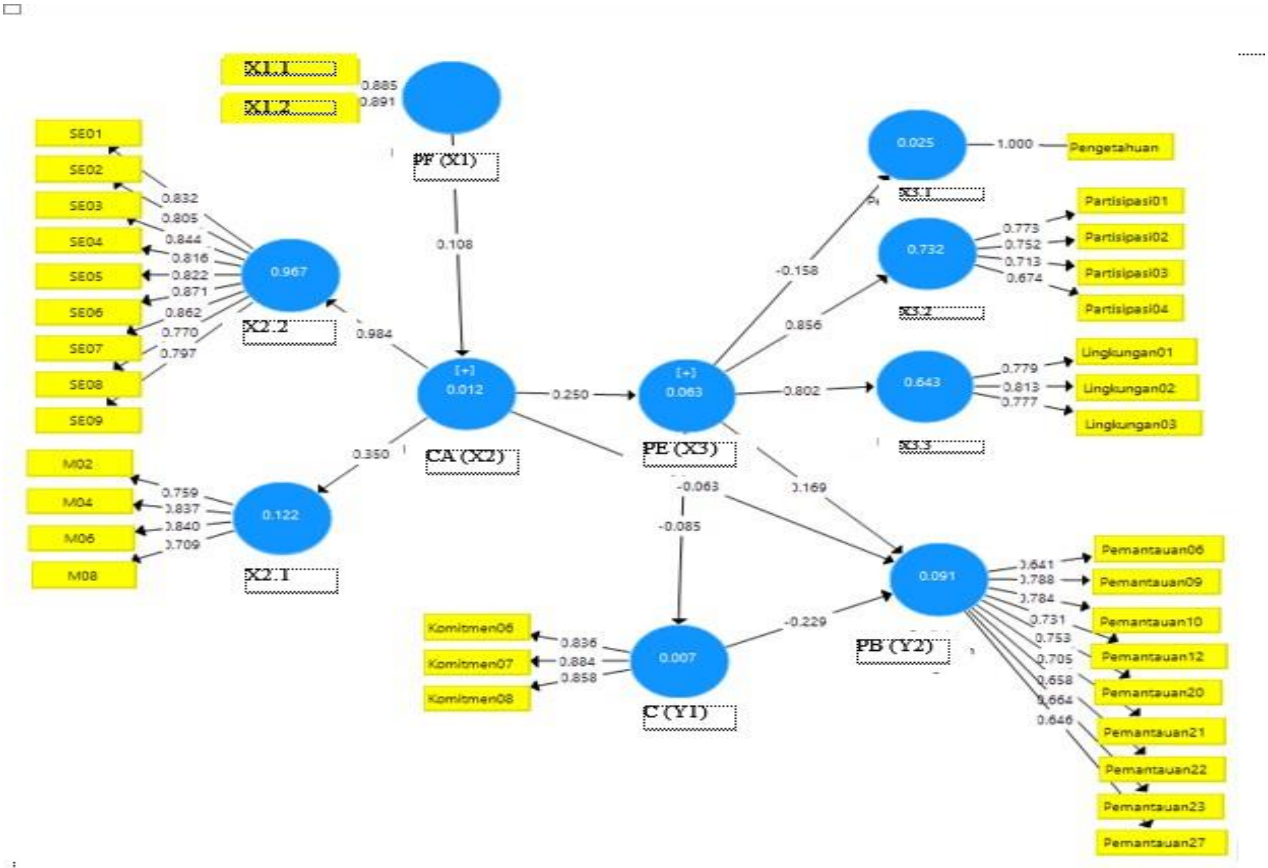

Figure 1. The Development of Parental Empowerment Model for Health Risk Behavior PE-HRB) Prevention among Adolescents in East Java, Indonesia

Note :

X1	: Personal Factors (PF)	X3	: Parental Empowerment (PE)
X1.1	: Father's Level of Education	X3.1	: Knowledge
X1.2	: Mother's Level of Education	X3.2	: Participation
X2	: Cognition and Affection (CA)	X3.3	: Environments
X2.1	: Benefits and Barriers	Y1	: Commitment (C)
X2.2	: Self-Efficacy	Y2	: Preventive Behavior (PB)

Cognition and affection had no effect on preventive behavior (Y2) (t=1,495; p=0.135). Parent empowerment (X3) affects preventive behavior (Y2). These results suggest that cognition and affection variables cannot directly form preventive behavior but must go through parental empowerment pathways to form preventive behavior. Parental empowerment had no effect on commitment (Y1), but commitment affects prevention behavior. These results suggest that to form preventive behavior this can be through parental empowerment pathways, which influence directly without a commitment pathway (Table 3 and Figure 1). Figure 2 shows the results of a model formed to create preventive behavior in parents. Personal factors affect the cognition and affection, then the cognition and affection will affect the parental empowerment. Then, the parental empowerment affects the preventive behavior that parents have to prevent health-risk

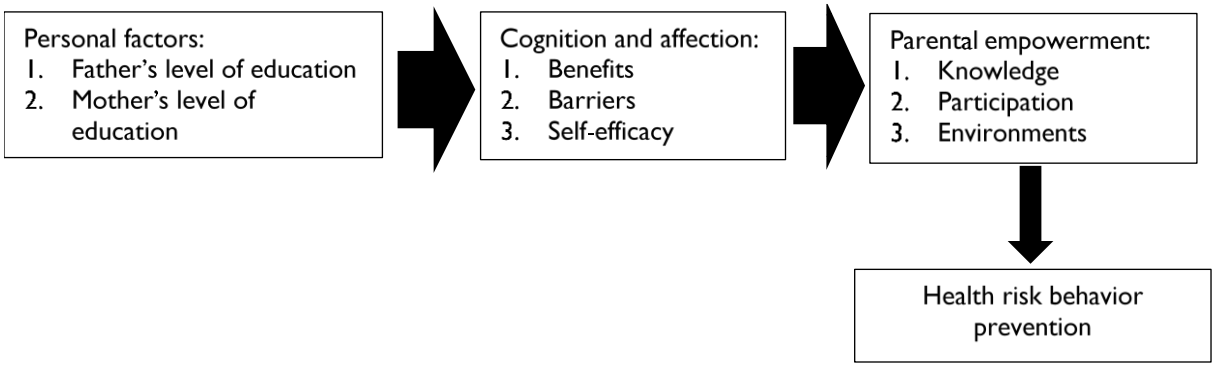

Figure 2. Results of findings on the development of the Parental Empowerment Model for Health Risk Behavior (PE-HRB) Prevention among Adolescent in East Java Indonesia.

behavior in adolescents. Although commitment variables have an effect on preventive behavior, commitment variables are not included in the model because they do not have a path connected between the independent variables and dependent variables.

Discussions

Parental supervision is vital to preventing health-risk behavior in adolescents. The higher the parental monitoring in adolescents, the lower the level of health-risk behavior adolescents engaged in (Li et al., 2000). Parental monitoring and the closeness of relationships between adolescents and parents in whole families play an important role in preventing health-risk behavior such as pre-marital sex (Lenciauskiene & Zaborskis, 2008). Parental monitoring to adolescents consists of seven sub-scales, namely, indirect monitoring, direct monitoring, school monitoring, health monitoring, computer monitoring, phone monitoring, and restrictive monitoring (Cottrell et al., 2007). The results of this study showed that parental monitoring is an important aspect for preventing risky behavior in adolescents. The question item that has the highest percentage is communication among parents. Communication among parents has an essential role because fellow parents can provide support, i.e., emotional support, informational support, appraisal support, and instrumental support (Nelson et al., 2018).

Parental empowerment is indispensable for shaping parental behavior in the prevention of health-risk behavior in adolescents. Parental empowerment includes knowledge, participation, and the environment (WHO, 2009). The results of this study show that parental empowerment has a positive influence on the preventive formation of parents' behavior. This means that the higher the element of empowerment that parents have, the higher the behavior of parents in preventing health-risk behavior in adolescents. The health promotion model theory stated by Pender states that behavior is influenced by commitment factors (Pender, 1996). However, this study found that behavior is not formed through commitment but can be formed through parental empowerment. An interesting finding in this study was that health promotion behavior can be formed not only through commitment but also through parental empowerment. Through empowerment, namely with good knowledge, high participation, and a supportive environment, it can form good prevention behavior in parents.

Knowledge is an important element of empowerment. The lowest percentage of parental knowledge of health-risk behavior in adolescents is on the aspect of behavioral causes that come from less harmonious families. Results reveal that parents are not yet fully aware that family harmony is important to prevent health-risk behavior in adolescents. Some of the research results show that family harmony plays an important role in adolescents' behavior, including politeness (Ermawati, 2016), aggressive behavior (Arintina & Fauziah, 2015), drug and alcohol abuse (Zhou et al., 2006) and can even cause stress and depression. Self-efficacy is also important thing for parents to prevent health risk behavior on adolescents. Parents need to have a self-efficacy to prevent risky health-behavior of adolescents; self-efficacy possessed by parents can maintain preventive behavior for a long time. With a high level of self-efficacy owned by parents, boredom does not prevent them from taking preventive action (Krisnana et al., 2022).

Parental empowerment with regard to participation or involvement in adolescents' lives shows that parents who regularly check their teenage children's belongings are very few compared to other participation components. Parental involvement in both academic and the adolescent's personal life is important to prevent health-risk behavior in adolescents (Hill et al., 2004; Raboteg-Šarić et al., 2001). The source of information obtained by parents about the prevention of health-risk behavior in adolescents comes from three sources, namely health workers, friends, and relatives. Information from relatives about the prevention of health-risk behavior in adolescents was more frequent. This means that health information is provided not only by doctors, nurses, and other health workers, but also by other people such as social workers. They can become meaningful informants for healthy behavior. This is due to technological advances, such as social media that people can use widely (NeJhaddadgar et al., 2022; Prasanti, 2017). The results of this research can be applied to activities to change parental behavior through the process of increasing parental empowerment. The empowerment process begins with increasing knowledge, and is realized in the form of health education. The limitation of this study is that the sample is only based on people who had the questionnaire link. The study did not take samples based on representatives of each region in East Java with equal number.

Conclusion

Empowerment efforts can strengthen the formation of behavior in parents without commitment. Parental

empowerment is an essential aspect of shaping preventive behavior in parents about health-risk behavior in adolescents. It needs family harmony and parental involvement in adolescent life, both academically and personally. Sources of information about health-risk behavior in adolescents come from health workers and friends or relatives. This condition can be caused by the widespread source of health information that people can access people through digital media. The model of empowering parents in preventing health risk behavior in adolescents is formed through increased knowledge, participation and a supportive environment. Empowering parents can increase the prevention of health risk behavior in adolescents not only in the non-academic sphere, but also in the adolescent academic sphere.

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Conflict of interest

Authors declare there is no potential conflict of interest.

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