

# The effectiveness of mental health nursing promotive and preventive model on protective factors, risk factors and adolescents' mental health

Ni Made Dian Sulistiowati,<sup>1</sup> Budi Anna Keliat,<sup>2</sup> Raden Irawati Ismail,<sup>3</sup> Besral,<sup>4</sup> I Ketut Dian Lanang Triana<sup>1</sup>

<sup>1</sup>*School of Nursing, Faculty of Medicine, Universitas Udayana, Denpasar, Bali, Indonesia;* <sup>2</sup>*Department of Mental Health Nursing, Faculty of Nursing, Universitas Indonesia, Depok, West Java, Indonesia;* <sup>3</sup>*Department of Psychiatric, Faculty of Medicine, Universitas Indonesia, Depok, West Java, Indonesia;* <sup>4</sup>*Department of Biostatistics, Faculty of Public Health, Universitas Indonesia, Depok, West Java, Indonesia*

Correspondence: Budi Anna Keliat, Department of Mental Health Nursing, Faculty of Nursing, Universitas Indonesia, Jalan Prof. Dr. Bahder Djohan, Kampus UI Depok, West Java, 16424 Depok, Indonesia.  
Tel.: +62.21.78849120; Fax: +62.21.7864124.  
E-mail: budianna\_keliat@yahoo.com

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## Abstract

Adolescents are at risk in experiencing mental health problems if the risk factors owned are more than the protective factors. This study aims to identify the effectiveness of Mental Health nursing promotive and preventive models on protective factors, risk factors and Adolescents' Mental Health. This research was with quasi-experiment, design employed randomization control group pre and post-test design conducted on 240 adolescents, which was divided into both groups equally. The study found that protective factors (self-esteem, family relationship, and prosocial ability) has increased after intervention model by 10.2%; 4.4%; 15.7%, respectively, risk factors (bullying behavior, anxiety, emotional problems, behavioral problems, and peer problems) has decreased after the intervention model by 9.8%; 26.1%; 25.9%; 17.5%; 22.4%, respectively. The model also increased the adolescents' mental health after intervention model by 14.9%. The mental health nursing promotive and preventive model is effective to increase the mental health of adolescents by 21.3%. Mental health nursing' promotive and preventive model could be used as basic needs to implement early detection regarding mental health of adolescents in the UKS scope and involving teachers' role, as well as parents in maintaining mental health.

## Introduction

Adolescents are vulnerable to experience mental health issues during their transitional development. Thus, happened due to various changes from the biological, psychological, social and spiritual aspects and prosecuting adolescents to adapt in order to optimize their mental health.<sup>1</sup> The mental health issues in adolescence potentially to appear among this stage could lead to serious mental illnesses in further development, including in adulthood stage.<sup>2</sup>

Previous study has been conducted and signifying that mental health issues in adolescents still can be identified, moreover become global concern due to the increasing prevalence widely as well as its long term negative effects on populations including adolescents.<sup>3</sup> That statement is in line with previous studies which stated that the adolescents who are experiencing mental health issues still can be found widely, including in Indonesia which found adolescents aged between 12 to 15 years experienced the prodromal symptoms.<sup>4,5</sup> In Bali province, as recorded in the National Health Survey in 2018 identified that among 4,3%

(177.410) adolescents aged between 15-24 years were at risk of experiencing emotionally unstable personality disorder.<sup>6</sup> The mental health issues in adolescents commonly happen but have not been well treated.<sup>7</sup> It may become more serious in the further day and involve a decreased academic performance, juvenile delinquency, criminalism, including future disruption.<sup>8</sup> The un-optimization of the treatment regarding this condition affected adolescents significantly leading to unbeneficial activities such as personal capacity alleviation, self-harm, even suicide attempt.<sup>9</sup>

The mental health issues in adolescence occurred and triggered by risk factors and protective factors.<sup>10</sup> Their behavior could be the protective factors or risk factors of adolescents' mental health, vice versa. The biological, social, and psychological changes among adolescents such as family relationship quality, life experiences, self-concepts, and conflict managements served as essential risk factors and initiated the construction of protective factors among the adolescents. These protective and risk factors possibly influence their mental wellbeing.<sup>11</sup>

Several programs had been designed by previous studies aimed to prevent serious mental health issues. This included the implementation of several useful intervention such as mobile apps,<sup>12,13</sup> as well as the implementation of youth mindfulness to help adolescents dealing with their early psychosis condition.<sup>14</sup> Those programs were significantly found to be effective to decrease the symptoms of mental health issues in adolescents.

The mental health program could be delivered by various settings. World Health Organization stated that mental health care should be delivered to adolescents in various health care settings, such as hospital or primary health care providers, community settings such as family, correctional institutions, school institutions which involving various approaches such as physical, mental or social activities.<sup>15</sup>

In Indonesia, new form of support in making efforts to improve adolescents' mental health is the establishment of social services in order to focusing on promotive and preventive service approaches in schools as shown by the School's Health Clinic (UKS) initiation. However, the implementation of UKS in Indonesia was found to be less effective in order to increase the adolescent's mental health as quoted from our preliminary studies that found the initiation of UKS is to care more about the physical development. Thus, affects the other approaches such as psychological aspects that are still in a lack of optimal conditions and need to be increased or optimized in order to help the adolescents to reach their mental health in a perfect condition. Therefore, the significance of this study was the investigation of the promotive and preventive efforts or intervention regarding mental health well-being among adolescents.

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## Materials and Methods

### Study participant and procedure

This quasi-experiment study was conducted with randomization control pre-post-test design. The sample were chosen by employed stratified cluster sampling and purposive sampling technique from the ages of 10-15. There are in total 240 eligible study participants were recruited from seventh and eighth grade across Denpasar City, Bali, Indonesia and then categorized into both intervention group and intervention group equally. Data was collected from August 2018 to November 2019.

### Study instruments

This study employed questionnaires: Mental Health

Continuum Short Form (MHCS-F), The Rosenberg Self Esteem, Index of Family Relations (IFR), Strength and difficulties questionnaire (SDQ), Bullying Questionnaire, Depression, Anxiety and Stress Scale (DASS). All of the questionnaires have been adopted in the Indonesian language version from a study conducted previously.<sup>16,17</sup>

### Mental Health Promotion and Prevention (MHPP) Model

This study intervention employed a MHPP model developed based on the results of qualitative interviews and theoretical synthesis that has been carried out previously by the researcher. This intervention model development refers to the theory of the Multi-System Resilience Model (MSRM).<sup>18</sup> The MSRM theory signified that adolescents were not only using themselves to overcome problems but were also influenced by how the external environment becomes a support for the adolescents' abilities. Therefore, the MHPP model developed by researchers, explains how adolescents can overcome their risk factors and increase the protective factors by support from the surrounding environment which consists of several sectors such as health services, nurses, parents, and teachers in schools.

In this model, there were 5 meeting sessions in order to educate the adolescents regarding several topics namely: i) the adolescents' mental health including the explanation regarding protective and risks factors in adolescents; ii) the adolescents' abilities to improve their self-concept; iii) improvements regarding their social ability; iv) being able to overcome anxiety occurred; v) being able to overcome bullying behaviors occurred. Those topics were carried out in adolescents in order to improve their ability regarding protective factors and reducing risk factors. Each meeting session was conducted using a computerized program by zoom meeting for 60-80 minutes in the intervention group. After the intervention, the research participants were asked to fill out the questionnaires to evaluate their conditions (Figure 1).

### Data analysis

The descriptive statistic and correlation between each variable employed in this study by using SPSS 26.0 software. The univariate analysis is employed to analyze the descriptive statistics of the research data and the differences between each group. Therefore, bivariate analysis employed to identify the risks and protective factors between both of the study groups by using independent t-test and correlational statistics methods were employed to investigate the correlation of the study variables. However, the multiple linear regression was used to identify the dominant predictors of the research variables.

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## Results

In Tables 1 and 2, it was found that self-esteem, family relationships and prosocial abilities, bullying behavior, anxiety, emotional problems, behavioral problems, and peer problems have a significant correlation to adolescents' mental health. Self-esteem, family relationships and prosocial abilities have a positive coefficient correlation which means that the higher the self-esteem, family relationships and prosocial abilities, the better the adolescent's mental health, vice versa. However, bullying behavior, anxiety, emotional problems, behavioral problems and peer problems have a negative correlation which means that the higher the bullying behavior, anxiety, emotional problems, behavioral problems and peer problems, the worse the adolescent's mental health.

Table 3 is the result of a stepwise method carried out on the variables of self-esteem, family relationships, prosocial ability, bullying, anxiety, emotional problems, behavioral problems and peer problems and obtained that the prosocial ability, emotional problems and model MHPP variables is qualified to continue multivariate analysis ( $p$  value  $< 0.25$ ) as shown in Table 4.

Table 4 shows that the prosocial ability, emotional problems and the MHPP Model Intervention variables indicated  $p$  value of  $< 0.05$ . The multivariate coefficient value about 0.610 indicates that there is a strong influence on these three variables regarding adolescent mental health. Furthermore, the  $R^2$  value by 0.372 was obtained, which means that the variation in adolescent mental health variables after the mental health nursing promotive and preventive model Intervention (MHPP) can be explained by the prosocial ability and emotional problems variables after the intervention of the model together by 37.2%.

## Discussion

The risk factors, protective factors, and adolescents' mental health prior to the intervention in the control group was 49,57; 116,22; 42,66, respectively (Table 1). This value then increased after the intervention especially on the risk factors which consisted of bullying, depression, anxiety, stress, emotional problems, behavioral problems, and peer problems are proved to be statistically significant. Our findings revealed that the changes of risk factors in adolescents' mental health have decreased two times more

significantly in the intervention group compared to the groups who were in the control group. The decrease of risk factors happened as well to the anxiety aspects five times higher from the control group. Our study also found that emotional problems have decreased 24 times higher, as well as behavioral problems have decreased eight times higher and proved to be statistically significant compared to the control group. Thus, decrease can be indicated that this promotive and preventive model needs to be implemented in a School's Health Clinic program.

This study results have proved that the mental health nursing promotive and preventive model affects positively on the risk factors among adolescents by 14.9%. Moreover, the model is influenced by the decrease of risk factors that are well known to significantly contribute to adolescents' development as stated from the previous study that the high risk factors could contribute to emotional, psychological and social wellbeing among adolescents.<sup>19</sup>

Decreased risk factors could affect the adolescents' mental health and make their resilience regarding protective factors to be optimal. This condition also influences the increase of mental health wellbeing among adolescents as quoted from the previous literature that risk factors are defined by its negative contribution to the adolescents' mental health resilience.<sup>20</sup> The decrease of risk factors among adolescents can affect their decision making and triggering resilience to perform adaptive behavior in dealing with problems.<sup>21</sup>

Study revealed that risk factors are defined by the factors that trigger mental health wellbeing among adolescents.<sup>22</sup> It is stated that risk factors could affect the severity of mental health problems. Another study also stated that emotional problems, depres-

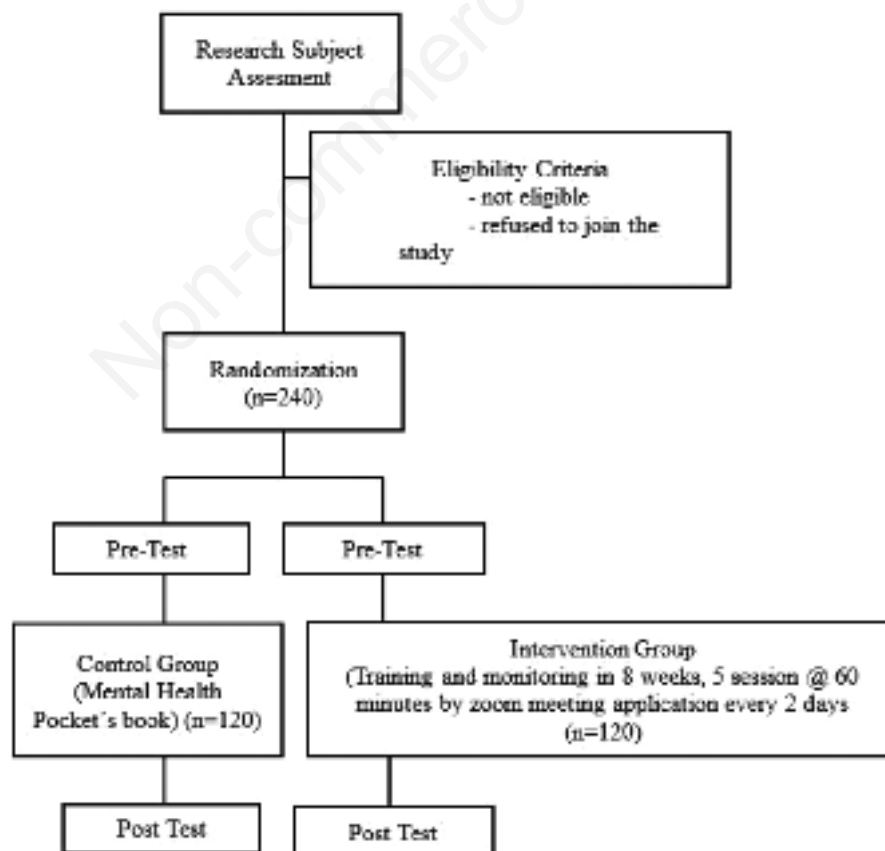


Figure 1. The Implementation of research intervention.

sion, anxiety, and stress happening in adolescents statistically proved to be the general predictors that influenced the adolescents' mental health.<sup>23</sup> In this study, risk factors can influence the decrease of the resiliency among adolescents to respond adaptively in dealing with the problems that occurred and it ended up affecting the mental health wellbeing.

Our findings also showed that the intervention model increased the protective factors owned by the adolescents. Self-esteem among adolescents in the intervention group has increased significantly to 81.5% and it is declared two times higher if we compared to the control group. We also found that the family relationships in the intervention groups increased 4.4% to be 85.2% or two times higher.

**Table 1. Overview of risk factors, protective factors and adolescent mental health before and after model interventions in both groups.**

Groups	Variables	Pre-Intervention Mean	Post-Intervention Mean	Sig.	
Control	Risk Factors	Bullying behavior	7.52	7.56	0.857*
		Anxiety	10.78	9.99	0.052*
		Emotional Problems	4.37	4.30	0.601*
		Behavioral Problems	3.40	3.25	0.241*
		Peer Problems	3.27	3.09	0.241*
	Protective factors	Self esteem	28.28	29.52	0.110*
		Family relationship	79.76	80.60	0.617*
		Prosocial ability	6.90	6.94	0.844*
Intervention	Risk Factors	Bullying behavior	8.72	4.39	0.000**
		Anxiety	12.55	7.05	0.000**
		Emotional Problems	4.93	2.34	0.000**
		Behavioral Problems	3.70	1.95	0.000**
		Peer Problems	3.61	1.37	0.000**
	Protective factors	Self esteem	28.53	32.61	0.000**
		Family relationship	80.74	85.20	0.000**
		Prosocial ability	7.24	8.81	0.000**
	Mental Health	40.55	51.00	0.000**	

\*p>0,05; \*\* p<0,05.

**Table 2. Correlation of Risk Factors, Protective Factors to Mental Health among adolescents (n=240).**

Variable		Mental Health						Coefficient correlations (r)	p-value
		Flourishing		Moderate		Languishing			
		n	%	n	%	n	%		
Self esteem	High	80	35.1	139	61.0	9	3.9	0.744	0.012*
	Medium	1	8.3	7	58.3	4	33.4		
	Low	0	0	0	0	0	0		
Family relationship	Good	78	35.1	133	59.9	11	5.0	0.428	0.035*
	Bad	3	16.7	13	72.2	2	11.1		
Prosocial ability	Normal	80	38.8	116	56.3	10	4.9	0.733	0.000*
	Borderline	0	0	24	92.3	2	7.7		
	Abnormal	1	12.5	6	75.0	1	12.5		
Bullying behavior	High	73	33.8	105	59.9	10	5.3	-0.399	0.008*
	Low	8	15.4	41	78.8	3	5.8		
Anxiety	Normal	44	52.4	38	45.2	2	2.4	-0.239	0.011*
	Mild	7	28.0	17	60.0	1	4.0		
	Moderate	11	22.0	37	74.0	2	4.0		
	Severe	7	24.1	19	65.5	3	10.3		
	Very severe	12	23.1	35	67.3	5	9.6		
Emotional problems	Normal	63	40.6	89	57.4	3	1.9	-0.480	0.000*
	Borderline	6	17.6	26	76.5	2	5.9		
	Abnormal	12	23.5	31	60.8	8	15.7		
Behavioral problems	Normal	48	40.7	67	56.8	3	2.5	-0.442	0.019*
	Borderline	17	29.3	36	62.1	5	8.6		
	Abnormal	16	21.6	43	38.9	5	3.5		
Peer problems	Normal	47	36.7	76	59.4	5	3.9	-0.382	0.001*
	Borderline	30	35.3	50	58.8	5	5.9		
	Abnormal	4	14.8	20	74.1	3	11.1		

\*p<0,05.



Thus, following the increase of prosocial ability by 15.7% to be 88.1% or four times higher if it is compared to the control group. The increase regarding protective factors owned by adolescents surely being positive in the development of mental health among adolescents.

Adolescents with the optimum protective factors will have an optimum mental health as well-known from previous study.<sup>1</sup> The prosperous psychological state can display a positive affection related to their self-identity, therefore their self-achievement can be done optimally.<sup>24</sup> Moreover, the prosperous protective factors (ex: self-esteem) known to increase the mental health among adolescents significantly.<sup>16</sup>

The protective factors reflecting the positive environments to protect individuals, including adolescents who are at risk of experiencing mental health issues due to transitional stages.<sup>25</sup> Based on the resilience theory, the optimal self-esteem could increase the adolescents' resilience by their mechanism and effective coping strategy that led to prosperous mental health well-being among adolescents.

We investigated our model and found it correlated significantly based on each variable to the adolescent's mental health. After the model implementation, we found that risk factors influenced the mental health among adolescents. Risk factors owned by the adolescents influenced adolescents' mental health based on the different study. Bullying as the indicators of risk factors that could trigger severe mental problems, even affecting social functions.<sup>26</sup> A previous study stated that bullying experiences can influence their mental health such as anxiety, even depression that affect their psychological, social and emotional aspects among adolescents.<sup>19</sup> Studies reported that people who experienced bullying had stated more anxiety symptoms than others due to the response of fight or flight. Maladaptive coping mechanisms would lead to anxiety, depression, stress, and other issues that may trigger more serious emotional and psychological problems. If it remains unresolved, this situation would alter their mental personal development and escalate various psychological symptoms, such as constant hopelessness feeling.<sup>27</sup>

The protective factors in this study also significantly influenced

adolescent mental health. The previous study stated that the optimal protective factor of adolescents has a significant effect on adolescent mental health.<sup>1</sup> Adolescents with a high mental health status tend to show satisfaction and positive attitude toward their self-identity, establish effective communication and connection with the surrounding, perform their daily activity and errand adequately, and demonstrate sufficient adaptation strategies with their environment and stressors.<sup>28</sup> Further, a good level of psychological health would encourage an individual empowering themselves to achieve certain goals and deal with self-related issues, which in turn constructs effective coping strategies to manage the conflicts outside themselves.<sup>16</sup>

Previous study also signified that a higher self-esteem correlated with a higher mental health status. This finding was in line with a study conducted previously that discovered a significant correlation between the level of self-esteem and mental well-being.<sup>24</sup> Based on resilience theory, the optimal self-esteem among adolescents causes resilience due to adaptive coping strategies that have an impact on the existence of positive behaviors, including on the social aspects of adolescents. Several other protective factors also have a positive impact on adolescent mental health, namely family relationships,<sup>29</sup> to social supports.<sup>16</sup>

Based on the multi-system resilience (MSMR) theory, it is explained that adolescent mental health is influenced by two factors, namely risk factors and protective factors derived from the internal and external aspects among adolescents. Internal factors came from personal resources such as psychological aspects (the desire to know new things, previous life experiences) and social (interpersonal relationships of individuals with families and groups). The source of external factors came from factors that facilitate the adolescent in achieving their mental health. Self-development ability is part of the intern factor, while the source of family support and the teacher understanding the needs of the adolescent is considered as the part of the individual external part.

The results of our study revealed that the mental health nursing promotive and preventive interventions model carried out on adolescent's subject was found to be effective in improving adolescent

**Table 3. Preliminary modeling results of independent variables on adolescent mental health (n=240).**

Variables	Coefficient	T	P-value
Constanta	9.915	7.081	0.000*
Self Esteem	-0.874	-0.317	0.751
Family relationship	-0.018	-0.404	0.687
Prosocial abilities	0.738	2.382	0.018*
Bullying	-0.122	-0.604	0.546
Anxiety	-0.094	-0.781	0.436
Emotional Problems	0.511	0.185	0.023*
Behavioral Problems	0.082	0.068	0.946
Peer Problems	-0.076	-0.179	0.858
P2KJ Intervention Model	7.693	2.294	0.023*

\*p<0.05.

**Table 4. Final modeling results of multivariate analysis (n=240).**

Variables	Coefficient	T	P-value	R	R <sup>2</sup>
Constanta	9.986	7.303	0.000	0.610	0.372
Prosocial abilities	0.722	2.419	0.018		
Emotional Problems	-0.359	-2.871	0.004		
P2KJ Intervention Model	8.672	4.038	0.000		

mental health. Our findings found that the increase given after model intervention was 21.3% significantly, therefore this model is feasible to implement based on the model effectiveness value. The effectiveness of the model can be seen from the improvement of several aspects regarding adolescent mental health. In the form of emotional well-being aspects, there was an increase of 13.7% compared to those who did not receive the model intervention which can be interpreted to mean that there was 13 times higher than the control group. In our study, it was stated in the module that adolescents were taught to overcome the problem with appropriate methods such as deep breathing techniques, distraction techniques and five-finger focus exercises to deal with anxiety. In addition, the psychical well-being in the group given the model intervention increased by 13.9% compared to the control group which only increased by 1.3% after obtaining the effective communication interventions contained in our research model. Social welfare in adolescents after the intervention also improved. Adolescents who are able to contribute and provide beneficial requirements for themselves and their environment tend to have a prosperous social function.<sup>28</sup>

Our findings are parallelly with previous studies which also signified the mental health intervention among adolescents shows positive values and statistically significant.<sup>12,13</sup> Previous study signified that the mental health intervention model regarding psychological aspects among adolescents provided satisfactory results in terms of mental health.<sup>30</sup> Those satisfactory results were proven by the increases of help seeking behaviors and the mental health literacy as well as the decrease of mental health related stigma among adolescents.<sup>30</sup>

Adolescent population is vulnerable to physical, cognitive, and psychological changes. Additionally, the changes in the adolescent's population have been placing them in difficult situations to accurately perceive the main source of their mental health issues. Those changes make it necessary to optimize their mental health development, even at school. Our findings signified that the intervention model has proved to be statistically significant to the adolescents' mental health development. In this study we signified that the implementation of the research model increased the protective factors owned by the adolescents and the lowering of their risk factors can influence their mental health wellbeing. Therefore, our model of intervention is applicable based on its significance to the school's clinic program.

## Conclusions

We have found that the Mental Health Promotion and Prevention (MHPP) Model reduced mental health risk factors in the form of bullying, depression, anxiety, stress, emotional problems, behavior, hyper, and peer problems. Furthermore, the intervention model confirmed to increase the protective factors such as self-esteem, family and prosocial relationships and improving adolescent mental health consisting of psychological health, emotional health, and social health by 21.3% respectively. Promotive and Preventive Models of adolescents' mental health can be used as a reference in the promotive and preventive efforts regarding mental health care in order to achieve an optimal mental health among adolescents.

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