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# Effectiveness of Risk Reduction (RR) and Risk Avoidance (RA) Approach to Reduce Risk Behavior in the Senior High School Student in Denpasar City and Palangka Raya City

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## ABSTRACT

Adolescent as the age group that is vulnerable to health problems associated with risky behavior. This study aimed to compare the effectiveness of the Risk Avoidance (RA) and Risk Reduction (RR) approach with reproductive health standard program to reduce students risk behavior in three high schools in Bali and Palangkaraya. Study design was quasi experimental study with pretest posttest control group design. Respondents who enrolled in the study were students at the level 10 to 12 in Denpasar and Palangka Raya, using RA and RR approach. A total of 132 respondents in Denpasar who are willing to be involved and subsequently drawn to 105 respondents, or as many as 35 students per school. There was a significant relationship between the provision of intervention RR, RA and controls with gender, the level / grade, the age of the respondents; and an increasing attitude that supports abstinence and self-efficacy in the treatment group RR, RA and controls on pretest and posttest ( $p < .05$ ). We need to do an intensive coordination with the school and the policy maker for the continuity of the promotion and prevention program for adolescent.

**Keywords:** *adolescent, risk avoidance, risk reduction, reproductive health program*

## INTRODUCTION

The negative effects of unsafe sexual behavior can increase the risk of adolescents experiencing pregnancy and contracting sexually transmitted infections / STIs<sup>1-4</sup>. Globally it was estimated that as many as 47% of high school students had sexual intercourse, about 40% did not use condoms during the last sexual intercourse, and 15% had four or more sexual partners<sup>2,5,6</sup>.

Intervention in the form of a comprehensive Risk Reduction (RR) behavior promotion can prevent or reduce the risk of pregnancy, Human Immunodeficiency Virus (HIV), and other STIs. The RR intervention program effectively decreases sexual activity and enhances the protection of sexual behavior in adolescents, whereas

the effectiveness of the abstinence program remains inconclusive because the outcome or effect is still highly varied<sup>7</sup>.

This study will evaluate the effectiveness of the standard program in school-based (Center for Information and Communication of Reproductive Health of Youth and National Narcotics Agency in the form of the AIDS and Drugs Student Group) compared with Risk Avoidance (RA) and Risk Reduction (RR) interventions. RA materials include: abstinence or abstinence until marriage, while RR materials include abstinence efforts plus comprehensive sexual education<sup>1,6-8</sup>. According to the research by Lucin in Palangkaraya found that barriers of utilization to the Center for Information and Communication of Reproductive Health of Youth among adolescent were embarrassment, lack of time, less communicative officer, and unstandardized room for counseling<sup>9</sup>. The problem formulation is: whether RR and RA programs can reduce adolescent risk behavior compared to the standard program in Denpasar City and

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The aim of this study is to compare the effectiveness of RR and RA programs with standard programs of Center for Information and Communication of Reproductive Health of Youth and National Narcotics Agency in the form of the AIDS and Drugs Student Group between pretest and posttest to decrease risky behavior of adolescents in Bali and Palangka Raya. This research is expected to provide theoretical and practical benefits, especially for the youth themselves, for educators and those responsible for designing sexual and reproductive health programs for school-based adolescents.

The design of this study is quasi-experimental, ie non-randomized pretest posttest with control group design by providing intervention in the form of providing school-based reproductive health programs at 10 to 12 high school students in Denpasar and Palangkaraya using RA and RR materials, compared to Center for Information and Communication of Reproductive Health of Youth and / or National Narcotics Agency in the form of the AIDS and Drugs Student Group. The schools involved were selected randomly and subsequently treated, whether the RA, RR, and standard programs were selected randomly as well. The treatment groups in the form of RR intervention were at public senior high school 4 at Denpasar City and public senior high school 3 at Palangka Raya, RA treatment group at public senior high school 5 Denpasar City and public senior high school 2 Palangka Raya City, and control group in the form of standard programs were public senior high school 2 Kota Denpasar and public senior high school 1 Palangka Raya City.

## MATERIALS AND METHOD

The large sample formula used according to Lemeshow et al, for the sample size of the students of public senior high schools with 95% confidence level,  $\beta = 0.15$ . The difference of mean values between the two groups was 1.8 with the standard deviation of 2.8, so that

the sample size was obtained:

$$n = \frac{2 \left( \left[ \frac{\sigma}{\mu_1 - \mu_2} \right] \right)^2 \left( \left[ Z\alpha + Z\beta \right] \right)^2}{\left( \left[ \frac{\sigma}{\mu_1 - \mu_2} \right] \right)^2}$$

Sample in the study was divided into two groups and treated differently, and there was one control or comparison group to enforce the internal validity of the study (Kerlinger, 2003).

The research variables include: independent variables, intermediate variables, and dependent variables.

Univariate, bivariate, and multivariate analyzes used independent analysis of t-test, chi square and one way anova. Analyzes were conducted for assessing changes in knowledge, attitudes, parental values or normative beliefs, self-efficacy and perceptions of contraceptive use / condom during the last sexual intercourse between the respondents before and after the intervention. Data analysis through data entry steps, coding, cleaning and statistical analysis.

## RESULTS

This research is done by giving explanation in advance to the selected team to collect the data, the next respondent is given informed consent without coercion. The researcher ensures the confidentiality of the data obtained as well as the identity of the respondent. Ethical clearance has been issued by the Ethics Committee of the Faculty of Medicine, Udayana University, Denpasar.

The schools involved in this study were public senior high school 2, 4 and 5. Meanwhile, the schools involved in Palangka Raya were public senior high school 1, 2 and 3. The respondents were not homogeneous according to gender, grade and age characteristics ( $p > .05$ ). Table 1 describes the characteristics of respondents in three public senior high schools in Denpasar City and in Palangka Raya.

**Table 1. Number of respondents by characteristics and intervention in three public senior high schools in Denpasar City and Palangka Raya City, year 2015 (N = 210 people)**

	RR (n=70 people)		RA (n=70 people)		Control (n=70 people)		<i>p-value</i>
	n	%	n	%	n	%	
Gender							
Male	38	54.3	49	70.0	35	50.0	0.041*
Female	32	47.7	21	30.0	35	50.0	
Grade							
10	30	42.9	17	24.3	23	32.9	0.017*
11	39	55.7	50	71.4	39	55.7	
12	1	1.4	3	4.3	8	11.4	
Age (year)							
14	6	8.6	2	2.9	5	7.1	0.004**
15	31	44.3	25	35.7	31	44.3	
16	32	45.7	39	55.7	22	31.4	
17	1	1.4	4	5.7	12	17.1	

There are differences in pretest scores based on dependent variables (knowledge, attitudes supporting abstinence, known peer norms, self-efficacy to reject premarital sex, perceptions of condom use or contraception at last sex, perceptions of avoiding pregnancy, and peer behavior known ( $p < .05$ ), as described in Table 2.

**Table 2. Differences in pretest scores in the RR, RA and control groups in Denpasar City and Palangka Raya City (2015).**

Variables	Pretest (N=210 people)				
	Mean	Sd	Mean diff	95% CI	<i>p-value</i>
Knowledge:					
RR	8.88	1.62	0.06	-0.52-0.63	0.847
RA	8.51	1.55		-0.89-0.26	
Control	8.82	2.02	-0.31		0.289
Attitude toward abstinent:					
RR	50.26	1.58	1.41	0.69-2.13	0.001***
RA				0.52-1.96	
Control	48.84	3.01	1.24		
Peer normative believe:					
RR	6.91	0.28	0.20	0.03-0.36	0.021*
RA	6.87	0.44		0.01-0.32	
Control	6.71	0.70	0.16		0.069

**Cont...Table 2. Differences in pretest scores in the RR, RA and control groups in Denpasar City and Palangka Raya City (2015).**

Self efficacy:					
RR	16.08	4.02			
RA	16.67	3.34	2.46	0.95-3.96	0.002**
Control	13.63	5.82	3.04	1.53-4.54	0.001***
Avoiding pregnant:					
RR	6.97	0.16			
RA	6.98	0.11	0.27	0.01-0.14	0.035*
Control	6.83	0.65	0.16	0.02-0.28	0.021*
Condom use:					
RR	25.06	3.61			
RA	24.66	3.11	1.76	0.44-3.07	0.009**
Control	23.3	4.88	1.36	0.04-2.67	0.043*
Peer behavior:					
RR	24.97				
RA	24.40	1.23	2.13	1.37-2.88	0.001***
Control	22.84	1.84	1.84	0.90-2.41	0.001***
		1.66			

Note: \*p < .05; \*\*p < .01; \*\*\*p < .005

There were significant differences in posttest scores on the knowledge component (p < .001), peer norms (p < .001), perceptions of condom use (p < .05), and known peer behavior (p < .001) which is shown in Table 3 below.

**Table 3. Differences in posttest scores in the RR, RA and control groups in Denpasar City and Palangka Raya City (2015)**

Variables	Posttest (N=210 people)				
	Mean	Sd	Mean diff	95% CI	p-value
Knowledge:					
RR	8.88	1.65	0.90	0.44-1.35	
RA	9.00	1.51	1.06	0.60-1.51	0.001***
Control	7.94	1.31			0.001***
Attitude toward abstinent:					
RR					
RA	50.78	1.52	0.57	-0.01-1.4	0.052
Control	50.47	1.80	0.26	-0.32-0.83	0.381
	50.21	1.84			

**Cont... Table 3. Differences in posttest scores in the RR, RA and control groups in Denpasar City and Palangka Raya City (2015)**

Peer normative believe:					
RR	6.93	0.25	0.23	0.09-0.36	0.001***
RA	6.88	0.43			
Control	6.70	0.49	0.18	0.04-0.32	0.008**
Self efficacy:					
RR	18.63	2.60	-0.40	-1.24-0.44	0.354
RA	18.38	3.04	-0.64		
Control	19.03	1.84		-1.49-0.20	0.137
Avoiding pregnant:					
RR	6.91	0.40			
RA	7.00	0.00	0.01	-0.11-0.14	0.824
Control	6.90	0.51	0.10	-0.02-0.22	0.120
Condom use:					
RR	24.93	2.87			
RA	25.34	2.24	0.58	-0.26-1.43	0.175
Control	24.34	2.48	1.00	0.15-1.84	0.021*
Peer behavior:					
RR	25.11	1.07			
RA	24.78	1.37	1.47	0.96-1.97	0.001***
Control	23.64	1.94	1.14	0.64-1.64	0.001***

Source: Primary Analysis (2015)

Note: \*p < .05; \*\*p < .01; \*\*\*p < .005

The results obtained on the difference in differences between pretest and posttest in the RR, RA and control

intervention groups found that only attitudes supporting abstinensia and self-efficacy showed a significant relationship (p < .001). Thus, there is an increase in attitudes that support abstinensia and self-efficacy in RR, RA and control treatment on pretest or posttest, and the results are shown in Table 4 below.

**Table 4. Results of Oneway anova Analysis: The relationship between RR, RA, and Control treatment with difference change on the dependent variable (2015)**

Variables	Treatment group				Control		
	RR		RA		<i>p-value</i>		
	Mean	Sd	Mean	Sd	Mean	Sd	
Knowledge	-41.41	1.77	41.08	2.00	-40.90	2.91	0.404
Attitude toward abstinent	0.53	1.52	0.38	2.15	1.37	2.36	0.009**
Peer normative believe	0.01	0.26	0.01	0.39	-0.01	0.82	0.939
Self efficacy	2.54	4.44	1.71	4.24	5.40	5.65	0.001***
Avoiding Pregnant	-0.06	0.37	0.01	0.11	0.07	0.42	0.079
Condom use	-0.13	2.69	0.68	2.97	1.04	3.87	0.090

Note: \*p < .05; \*\*p < .01; \*\*\*p < .005



## DISCUSSION

There are difference of respondent characteristic given by program intervention in the form of RR, RA and control group especially on gender, level / class and age / age of respondent ( $p < .05$ ). According to Chin et al. (2012), that the heterogeneity of the sample is over 50% of the boundary line, thus the substantial or substantial variations of the individuals involved in the study should be tested<sup>7-11</sup>.

There are significant differences in pretest and posttest between several interventions: RR, RA and control groups in Denpasar City and Palangka Raya City, particularly in the knowledge component with  $p < .001$ , attitudes supporting abstinensia in RR interventions with  $p < .005$  and groups of control with  $p < .001$ , self-efficacy to reject premarital sex  $p < .001$ , adolescent perceptions of contraceptive / condom use in recent sex with controls  $p < .05$ , and perceptions of peer behavior in the control group ( $p < .05$ ). The highly significant difference in outcomes for knowledge, attitude, self-efficacy, perceptions of condom use and perceptions of peer behavior are the result of learning and other internal factors. Internal factors include cognitive, gender, genetic and attitude of adolescent<sup>4</sup>. The main health issues in among adolescent in the worldwide include mental health problems, early pregnancy and childbirth, HIV and sexually transmitted infection (STI) and other infectious diseases, violence, unintentional injuries, malnutrition, and substance abuse<sup>5</sup>.

There is a difference between pretest and posttest values in the RR, RA and control groups, particularly in the attitude component supporting abstinensia ( $p < .01$ ) and self-efficacy to reject premarital sex ( $p < .001$ ). These results indicate if not all the expected components change, although there is no statistically significant difference, but there appears to be an increase between pretest and posttest and gives practical meaning. Respondents' knowledge is not the main fact that affects behavior, but better knowledge can improve attitudes, perceptions of peer skills. Statistical results do not always show a direct impact on knowledge to behave<sup>1,4,7,11-13</sup>.

According to the previous study by Viner et al<sup>14</sup>, found that adolescence health affected by social factors (personal, family, community, and national levels), besides developmental effects related to puberty and brain development that leading the new sets of behaviors

and capacities. Structural factors as the strongest determinants of adolescent health in the worldwide, such as income inequality and access to education. Addressing risk and protective factors to decrease risky behavior among adolescence in the social environment at school, community and the most important is in family<sup>15-17</sup>.

## CONCLUSION

There were significant differences in the characteristics of the respondents in the RR, RA and control groups according to gender, grade / grade and age with  $p < .05$ . The pretest results of the RR and RA intervention groups differed from the control group, as did the posttest results. There was a very significant relationship between the provision of RR, RA and control group ( $p < .05$ ), attitude and self-efficacy of respondents ( $p < .005$ ). There is an increase in attitudes that support abstinensia and self-efficacy in RR, RA and control treatment in both pretest and posttest ( $p < .05$ ).

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**Conflict of Interest:** There are no conflict of interest.

**Ethical Clearance:** Obtained from Udayana University Committee

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