

# Peer educator training program for enhancing knowledge on issues in the growth and development of adolescents and risk behavior problems in Indonesian context<sup>†</sup>

Original article

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**Abstract: Objective:** This article aimed to evaluate the effects of an educational intervention programme on improving peer educator (PE) knowledge in issues around growth and development and its risk behavior problems of adolescents in Indonesia.

**Methods:** The study was conducted in 31 of PEs to evaluate their knowledge in adolescents. The PEs received health education and were assessed by individual work during the structured three-week programme. Data were collected before and after the training programme as pre- and post-tests.

**Results:** The PE demonstrated significant improvements in their knowledge after attending the three-week structured training programme. The post-test scores had significant effects on the dimensions of PE knowledge scores. The PE become knowledgeable to maintain and monitor adolescents health issues around growth and development and its risk behavior problems of adolescents.

**Conclusions:** The PE become knowledgeable to respond to the adolescent problems and readiness to become PE during puberty.

**Keywords:** *peer educator • adolescent development • risk behavior • assertive*

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## 1. Introduction

Adolescents are trying to show a new challenging behavior that influences their growth and development, particularly, in adolescent reproductive health issues.<sup>1</sup> This situation has placed adolescents to become a vulnerable population who needs special attention from parents<sup>2</sup> and schools<sup>3</sup> to prevent the risk behaviors. Meanwhile, in its development, the behavior of adolescent reproductive health is strongly influenced by the peer group: descriptive norms (peer sexual behaviors),



injunctive norms (peer sexual attitudes), and peer pressure to have sex and adolescent sexual behavior outcomes (sexual activity and sexual risk behavior),<sup>4</sup> even though sexual behavior may be universal, which links early maturation with risky peers regardless of the adverse life experiences.<sup>5</sup> Therefore, peer-based interventions may be best suited the needs of at-risk adolescent behavior and issues in growth and development in the school education/promotion program.

Meanwhile, the World Health Organization (WHO) promotes school health programs as a strategic means to prevent important health risks among youth and to engage the education sector in efforts to change the educational, social, economic, and political conditions that affect risk.<sup>6</sup> In Indonesian context, the Ministry of Health of Indonesia launched the adolescent-friendly program (Pelayanan Kesehatan Peduli Remaja [PKPR] in Indonesian language) in 2007 with the aim of

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fostering the knowledge, attitude, and skills of adolescent health.<sup>7</sup> However, Adolescent Friendly Program is limited to be applied in Indonesia, in social, cultural, and religion context.<sup>8</sup> Evidence shows that sexual education in schools can assist students to navigate the physical and developmental process of adolescent sexuality,<sup>9</sup> while the school health promotion could be as follows: knowledge, attitude, and skills of students in clean and healthy living behavior in Indonesia.<sup>10</sup> Therefore, school environment should be the empowerment of adolescents to become peer educators (PEs) to promote positive youth development.

Furthermore, peers could be a facilitator for adolescents to gain further insights into their knowledge-, attitude-, and skill-related issues in growth and development and risk behavior problems of adolescents. Peers are trained through educational program in the school context to improve their capabilities as a changing agent in their peer groups. Therefore, the purpose of this study was to evaluate the effectiveness of a structured educational intervention to enhance adolescent health care of PEs with regard to their knowledge on the growth and development of adolescents and risk behavior problems, as well as their knowledgeable, related services on adolescent program in schools. The ultimate objective was to enhance the quality of peer counseling capabilities in East Java, Indonesia.

## 2. Methods

Quantitative approaches were used in this study. The quasi-experimental design with pre- and posttests and repeated measures involved 31 PEs from 49 community health centers (CHCs) of Jember, East Java, Indonesia. This study was approved by the ethical review committee of the University of Jember prior to starting the data collection. The researchers conducted the study to evaluate the knowledge of PEs in the growth and development of adolescent and risk behavior problems and then to become knowledgeable for a target group in the youth school center in the last week of the intervention program. A validated self-assessment tool was used to measure the knowledge of PEs in the growth and development of adolescent and risk behavior problems before and after the 3-week educational intervention. The validated self-assessment tool was explained in the following sections.

Pre- and posttests including demographics, a questionnaire on the knowledge of PEs in growth and development, nutrition, delinquency, smoking, reproductive health, free sex, pregnancy, HIV/AIDS, and assertive behavior, were used to evaluate changes in the knowledge of PEs after attending a structured PE educational intervention. The 31 PEs achieved statistically

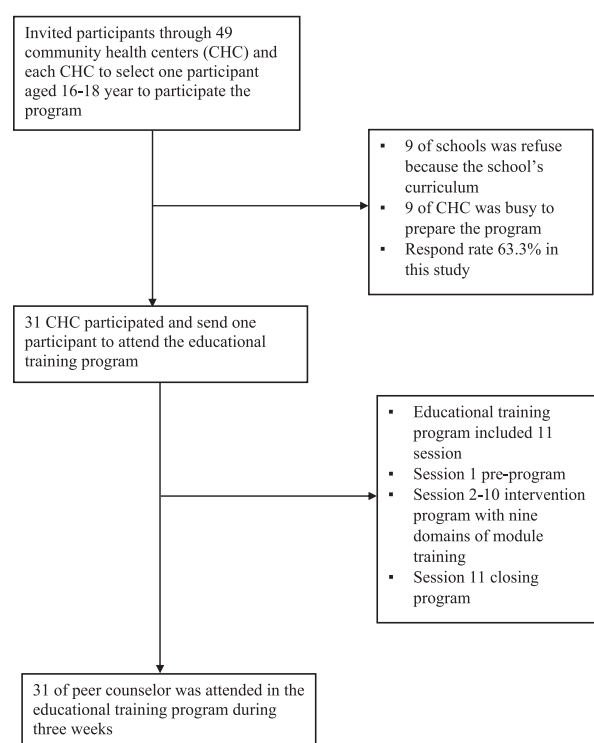
significant higher median knowledge scores in the posttest phase. The majority showed increased knowledge and awareness after participating in the structured PE educational intervention.

The Ministry of Health of Indonesia launched the adolescent-friendly program (PKPR in Indonesian language) in 2007 with the aim of fostering the knowledge, attitude, and skills of adolescent health. These programs under the supervision of CHCs were implemented in the health program of schools. The public health nurses (PHNs) in CHCs should train three to five students from each school in their CHCs as PEs. After training, PEs should plan and implement health education for all students in their centers to teach about adolescent health care topic during training period. Every month, PHNs should supervise the program in all schools.

This study was conducted in Jember, East Java, Indonesia. The area has 49 CHCs; therefore, we invited 49 CHCs to send one student from senior high schools to follow PE educational training program. Thirty-one participants were recruited with the permission from the Department of Education and Department of Health in East Java. The participants were a convenience sample of PEs ( $n = 31$ ) aged 16–17 years, recruited from 10 schools, who enrolled in the 3-week PEs educational training program. The response rate was 63.3%.

A 3-week educational training program on adolescent health care was delivered for 31 PEs. The purpose of this study was to examine the knowledge of PEs on issues in growth and development and related risk behavior problems of adolescents after joining the 3-week PE training program. The program planning committee, comprising three nursing academic colleagues in promoting adolescent health care and the Department of Health as technical officer specializing in adolescent health care, implemented the program based on the PKPR program<sup>7</sup> into the curriculum for the training of PEs. The educational training program is shown in Figure 1.

The study endorsed and systematically integrated these lessons into the training program focusing on adolescent health care with needs (growth and development, nutrition, and reproductive health), assessment of risk behavior problems (delinquency, smoking, free sex, pregnancy, and HIV/AIDS), and assertive behavior to enhance the knowledge of PEs in planning adolescent health service delivery in schools. The training manual and lecture notes were used and adopted from PKPR handbook of training<sup>7</sup> for this training curriculum.<sup>11</sup> Table 1 summarizes a detailed description of the intervention modules, which were composed of a 3-week intervention schedule of lecture sessions, small-group discussions, presentations, project planning, and quizzes.



**Figure 1.** Study design of educational training program.

The PEs were informed of the date, time, and location of the training program by post-letter through the head office of CHC. During registration on day 1, the information sheet was given to the PEs and the researchers addressed any questions raised. The PEs who decided to participate in the study were asked to sign consent forms. Each PE was given a study number to ensure confidentiality. A questionnaire with demographic questions and the knowledge of PEs on issues in growth and development and its risk behavior problems of adolescents was distributed to the participants on day 1 as the pretest phase. The training days lasted 2 hours including 30 minutes for coffee break and the entire course lasted 3 weeks for 3 days a week. The same questionnaire was readministered to participants on the last day of the 3-week program. The schedule of educational training program is described in Table 2.

A validated self-assessment tool, as well as the knowledge of PEs on issues in growth and development and its risk behavior problems of adolescents,<sup>7</sup> was used to measure the knowledge of PEs before and after the 3-week educational intervention. The instrument used in this study adopted the module of PKPR from the Ministry of Health of Indonesia.<sup>7</sup> The study outcome was an evaluation of the knowledge of PEs in nine components, including growth and development,

Domain of knowledge in adolescent health care	Description
Growth and development	Adolescent development entails the biological, psychological, and emotional changes that occur in human beings during adolescence
Nutrition	For life and the process of growth and development, the human body requires a diverse diet consisting of nutrients, namely carbohydrates, proteins, fats, vitamins, minerals, water, and fiber in a balanced amount
Delinquency	A person's behavior or actions that are not appropriate or prohibited by the norms or provisions that apply in the community or the environment according to age but not violated the rules or provisions of applicable law
Smoking	The pattern of tobacco use behavior among adolescents without control
Reproductive health	Comprehensive health, including physical, mental, and social aspects, and not just the absence of disease or disorder in all matters relating to the reproductive system, function, and process itself
Free sex	Sexual intercourse between men and women without any legal attachment/marriage either religious or legal. Usually based on likes and often change pairs
Pregnancy	The occurrence of conception (the inclusion of spermatozoa into the egg/ovum). The result of conception is called a zygote. It develops in the womb until it is born as a baby
HIV/AIDS	A collection of symptoms of illness due to a person experiencing immune system deficiency due to damage caused by the HIV
Assertive behavior	The ability of teens to express their feelings without having to offend others

**Table 1.** Description of educational intervention on issues in growth and development and its risk behavior problems of adolescent modules.

nutrition, delinquency, smoking, reproductive health, free sex, pregnancy, HIV/AIDS, and assertive behavior after attending a structured PE educational intervention. The nine components were assessed by 10 questions with multiple choice answers. The participants chose the best answer, ranging from the right answer = 1 to the wrong answer = 0. Each component of the knowledge of PEs was summed up for the analyses, where the high scores indicated the high knowledge of level on adolescent health care.

Descriptive statistics were used to compute the study sample's demographic characteristics. The Shapiro–Wilk test was adopted to examine the normality of the knowledge scores of PEs, with the results suggesting that nonparametric tests were suitable. The Wilcoxon signed-rank test was used to evaluate changes in each

Session	Description
Session 1	Explaining the program Informed consent of the study Pretest knowledge on issues in growth and development and its risk behavior problems of adolescents (nine domains)
Session 2	Domain 1: The growth and development Explaining the dimension of growth and development Measuring the height and weight Identifying the secondary sexual development Identifying the psychological aspect during puberty
Session 3	Domain 2: Nutrition Explaining the importance of nutrition for adolescents Discussing issues about stigma of weight among adolescent "size does not matters" Making a balanced menu for adolescents
Session 4	Domain 3: Delinquency Identifying the kind of delinquency Discussing negative impact of delinquency for adolescents Making a rule to prevent delinquency based on school regulation
Session 5	Domain 4: Smoking Identifying the smoking behavior among adolescents Discussing the issues of masculine and feminism in smoking behavior Making a program to free smoking area in schools
Session 6	Domain 5: Reproductive health Explaining the issues in reproductive health among adolescents Having a discussion to make healthy population in reproductive health during puberty Discussing how to be hygienic in menstruation and nocturnal emission Identifying the anatomy of the organ of reproductive system and its function and also the problems during puberty
Session 7	Domain 6: Free sex Identifying the issues of sexual behavior among adolescents Discussing about cultural and social issues in sexual behavior in adolescents Identifying family norms and religion to prevent negative sexual behavior Making a program "say no to free sex"
Session 8	Domain 7: HIV/AIDS Explaining about the HIV/AIDS among adolescents Discussing the program to prevent HIV/AIDS in adolescents
Session 9	Domain 8: Pregnancy What is pregnancy and how it happens? Discussing the impact of pregnancy during adolescence Making a program to family planning in the future
Session 10	Domain 9: Assertive behavior What is the dimension of positive youth development? How we become be assertive in adolescence? Role play to be assertive youth behavior
Session 11	Posttest Closing educational training program

**Table 2.** Schedule of the educational training program.

component of knowledge score between the pre- and post-outcomes in this group. The Mann–Whitney *U* test was used to evaluate variances in each knowledge score for the groups both pre and post test. All statistical

analyses were performed using Statistical Package for Social Science (SPSS; version 22.0).

### 3. Results

Among 31 participants, 61.3% were female, 71.0% were 16-year-olds (16–17 years), 61.3% were from Jawa ethnic (Jawa and Madura ethnic), and 93.5% were from Islam religion.

Table 3 summarizes the results of the pre- and post-tests of the knowledge of adolescent health care based on PKPR module<sup>7</sup> for the 31 PEs in this study. The overall scores, mean (M), and standard deviation (SD) of the knowledge of component module variables increased from the pretest to the posttest in the PC knowledge questionnaire (M = 46.71, SD = 6.14 to mean = 61.94, SD = 4.10) and its nine domains: the growth and development domain (from M = 6.39, SD = 1.15 to M = 7.65, SD = 1.14), the nutrition domain (from M = 6.13, SD = 1.18 to M = 7.52, SD = 0.77), the delinquency domain (from M = 5.32, SD = 1.19 to M = 7.26, SD = 1.26), the smoking domain (from M = 6.19, SD = 1.49 to M = 7.48, SD = 0.93), the reproductive health domain (from M = 3.19, SD = 1.08 to M = 5.81, SD = 0.98), the free sex domain (from M = 5.19, SD = 0.83 to M = 6.19, SD = 0.98), the HIV/AIDS domain (from M = 5.52, SD = 0.93 to M = 7.19, SD = 0.87), the pregnancy domain (from M = 3.61, SD = 1.36 to M = 5.74, SD = 0.97), and the assertive behavior domain (from M = 5.16, SD = 1.23 to M = 7.10, SD = 1.27). The higher the score in each subscale, the greater the improvement in knowledge on issues in growth and development and its risk behavior problems of adolescents.

Wilcoxon signed-rank test was used to examine whether there were any significant differences in the knowledge variables between the pre- and posttest scores of the nine domains. There was a significant increase from the pretest to posttest in the total score for the variables in the PKPR module ( $Z = -4.87$ ,  $P < 0.001$ ) and its nine aspects: the growth and development domain ( $Z = -3.97$ ,  $P < 0.001$ ), the nutrition domain ( $Z = -3.96$ ,  $P < 0.001$ ), the delinquency domain ( $Z = -4.68$ ,  $P < 0.001$ ), the smoking domain ( $Z = -4.40$ ,  $P < 0.001$ ), the reproductive health domain ( $Z = -4.92$ ,  $P < 0.001$ ), the free sex domain ( $Z = -4.49$ ,  $P < 0.001$ ), the HIV/AIDS domain ( $Z = -4.89$ ,  $P < 0.001$ ), the pregnancy domain ( $Z = -4.66$ ,  $P < 0.001$ ), and the assertive behavior domain ( $Z = -4.84$ ,  $P < 0.001$ ). When examining the changes in the knowledge of PEs on issues in growth and development and its risk behavior problems of adolescents between the pretest and the posttest scores, significant differences were found in all the adolescent health knowledge domains: (1) the growth and development subscale, (2) the nutrition subscale, (3) the



Nine components (modules) of the peer counselor training	Pretest (n=31)		Post-test (n=31)		Z	P
	Range	Mean (SD)	Range	Mean (SD)		
1. Growth and development	4–8	6.39 (1.15)	5–10	7.65(1.14)	–3.97	<0.001*
2. Nutrition	4–8	6.13 (1.18)	6–9	7.52 (0.77)	–3.96	<0.001*
3. Delinquency	4–7	5.32 (1.19)	5–10	7.26 (1.26)	–4.68	<0.001*
4. Smoking	4–9	6.19 (1.49)	6–9	7.48 (0.93)	–4.40	<0.001*
5. Reproductive health	1–6	3.19 (1.08)	4–8	5.81 (0.98)	–4.92	<0.001*
6. Free sex	3–6	5.19 (0.83)	4–8	6.19 (0.98)	–4.49	<0.001*
7. HIV/AIDs	4–7	5.52 (0.93)	5–8	7.19 (0.87)	–4.89	<0.001*
8. Pregnancy	1–6	3.61 (1.36)	4–7	5.74 (0.97)	–4.66	<0.001*
9. Assertive behavior	3–7	5.16 (1.23)	5–9	7.10 (1.27)	–4.84	<0.001*
Total score of nine domains	37–59	46.71 (6.14)	54–71	61.94 (4.10)	–4.87	<0.001*

**Table 3.** Comparison of peer counselor knowledge in pre- and post-tests after attending three-week educational intervention.

Note: Wilcoxon signed-rank test. The nine components (modules) of the peer counselor training subscale consists of 10 items; scores ranged from 0–10, higher the scores, higher the knowledgeable level. Total, sum of nine subscales of the peer counselor; the total scores ranged from 0–90, higher the scores, higher the knowledge level. \* $P < 0.005$ .

delinquency subscale, (4) the smoking subscale, (5) the reproductive health subscale, (6) the free sex subscale, (7) the HIV/AIDS subscale, (8) the pregnancy subscale, and (9) the assertive behavior subscale, as summarized in Table 3.

## 4. Discussion

In this study, the PEs demonstrated significant improvements in their knowledge after attending the 3-week structured training program. The post-test scores had significant effects on the dimensions of the knowledge scores of PEs. The PEs became knowledgeable to maintain and monitor adolescents' health issues in growth and development and risk behavior problems of adolescents. These findings are consistent with previous study in the context of participants' skills development as HIV prevention PEs in their communities.<sup>12</sup>

The overall scores of the knowledge of component module variables increased from the pretest to post-test in the PC knowledge questionnaire and its nine domains. These findings were consistent with the previous study in the context of peer education approach in the PIK-KRR program (*Pusat Informasi dan Konseling Kesehatan Reproduksi Remaja* in Indonesian language) which became the entry point in the adolescent reproduction health education.<sup>13</sup> The results reflected the following: the higher the score in each subscale, the greater the improvement in knowledge on issues in growth and development and its risk behavior problems of adolescents. This situation was supported that media for peer education training was effectively to facilitate the education training program. In peer education, the PEs became more confident to learn about adolescents'

health issues.<sup>14</sup> It was proven that they were more comfortable and open to discuss the matters pertaining to the issues in adolescents' health with their peers. They considered their peer as having emotional closeness, equal knowledge level, and being in common culture of social solidarity in which one's problem was also other's problem. Therefore, the PE training program was an effective method to transfer the right and reliable information of the issues in growth and development and its risk behavior problems of adolescents. The PEs played an important role in promoting, educating, and counseling their peers in the issues in growth and development and risk behavior problems of adolescents.

There was a significant increase from the pretest to the posttest in the total score for the variables in the PKPR module and its nine aspects. When examining the changes in the knowledge of PEs on issues in growth and development and its risk behavior problems of adolescents between the pretest and the posttest, significant differences were found in all the adolescent health knowledge domains. These results were consistent with the previous study that PEs' enthusiasm and satisfaction with their educator role, very few postintervention changes in knowledge, communication with parents about topics covered in the course, self-efficacy, perceived peer norms, or intentions to have sex were obtained.<sup>15</sup> This finding may reflect the finding that adolescents in the peer groups can learn through themselves by lecture sessions, small-group discussions, presentations, project planning, and quizzes in the context of schools.<sup>16</sup> A previous study reported that peer-to-peer model was effective, as community strategy, in improving adolescents' reproductive health<sup>17</sup> that supported through game therapy as media information of education of health.<sup>18</sup> This situation indicated that media

education in training is important to improve the knowledge of PEs, although the contents of education training should be related to cultural, social, and religion context of PEs<sup>19</sup> and need an encouragement from their family.<sup>20</sup> This finding suggested that PEs should implement the health education for adolescents based on school health program.

The current study has several limitations. First, the participants were not representative of the population whose response rates were low in this study to generalize the findings. Second, the questionnaire of the knowledge of PEs needs to be improved as the standard development tool, although, in this study, we developed this questionnaire based on the PKPR module. Third, the data were collected from the quantitative study that the perception of PEs during the training education program was not identified. Therefore, the mixed-method study should be performed in the future to compare the quantitative and qualitative data. Thus, a participatory action study could be performed to evaluate the PE trying the peer education in the schools health program.

## 5. Conclusions

This educational intervention can improve the knowledge of PEs on issues in growth and development and their

risk behavior problems. The PEs will become knowledgeable to respond to adolescent problems and will become prepared during puberty after participating in the 3-week intensive intervention program. Therefore, the PEs should implement the health education for adolescents based on school health program. Thus, to evaluate self-confidence and the sustainability of program, a participatory action study could be performed to evaluate the PE trying the peer education in the school health program.

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## Conflicts of interest

All contributing authors declare no conflicts of interest.

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