



A Quasi-Experimental Study of Reproductive Health Education in Reducing Juvenile Delinquency and Enhancing Adolescent Risk Behavior Control, Pidie Regency in 2025

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Abstract. Adolescent risk behaviors, including juvenile delinquency and poor behavioral self-regulation, remain a significant public health concern in low- and middle-income countries, where access to structured reproductive health education is still limited. This study evaluated the effectiveness of reproductive health education in reducing juvenile delinquency and improving adolescent risk behavior control in Pidie Regency, Indonesia, in 2025. A quasi-experimental design with a non-equivalent control group and pretest–posttest approach was conducted involving 140 adolescents ($n = 70$ intervention; $n = 70$ control). The intervention group received structured reproductive health education emphasizing knowledge enhancement, decision-making skills, self-regulation, and peer resistance, while the control group received standard school-based health education. Results indicated a significant improvement in reproductive health knowledge in the intervention group (pretest: 56.8 ± 10.4 ; posttest: 78.6 ± 9.2) compared to the control group (57.2 ± 10.1 to 60.8 ± 9.8 ; $p < 0.001$; $d = 0.78$). Juvenile delinquency scores decreased significantly in the intervention group (42.5 ± 8.7 to 31.2 ± 7.9) relative to minimal change in the control group (41.9 ± 8.5 to 40.1 ± 8.2 ; $p < 0.001$; $d = 0.72$). Risk behavior control improved substantially in the intervention group (55.4 ± 9.6 to 74.8 ± 8.7) compared with the control group (56.1 ± 9.4 to 59.3 ± 9.1 ; $p < 0.001$; $d = 0.81$). Follow-up findings showed partial retention of intervention effects. The findings suggest that structured reproductive health education effectively improves cognitive outcomes and behavioral regulation while reducing delinquent tendencies among adolescents.

Keywords: Reproductive health education, Juvenile delinquency, Adolescent behavior

INTRODUCTION

1.1 Background

Adolescence represents a critical developmental phase characterized by rapid physical, psychological, and social changes. During this period, individuals develop identity formation, emotional regulation, peer influence sensitivity, and decision-making capacity. However, this stage is also associated with increased vulnerability to risk-taking behaviors, including unsafe sexual practices, substance use, school disengagement, violence, and juvenile delinquency. These behaviors frequently co-occur and are influenced by interrelated factors such as limited reproductive health knowledge, weak self-control, peer pressure, and inadequate access to structured health education [1].

In many low- and middle-income settings, including Indonesia, adolescent reproductive health challenges remain a public health concern. Insufficient reproductive health knowledge and limited access to structured education contribute to risky sexual behavior and poor behavioral regulation among adolescents. School-based reproductive health education has been widely introduced as a preventive strategy to improve knowledge, attitudes, and decision-making skills regarding sexual and reproductive health. Previous studies have demonstrated that structured reproductive health

education can significantly improve adolescents' awareness, communication skills, and preventive behaviors related to sexual health outcomes [2].

Evidence from quasi-experimental studies in various countries shows that reproductive health education programs implemented in school settings can improve adolescents' understanding of sexual and reproductive health issues. For example, school-based interventions in Indonesia, China, Ethiopia, and Zanzibar have demonstrated improvements in knowledge, attitudes, and behavioral intentions among adolescents following structured educational interventions [2], [3]. Similarly, digital and mHealth interventions have also shown potential in increasing reproductive health awareness among adolescent girls, particularly in resource-limited settings [4], [5].

Historically, reproductive health education focused primarily on preventing early pregnancy and sexually transmitted infections. However, recent literature highlights a broader scope, emphasizing behavioral skills, self-regulation, peer resistance, and informed decision-making. Rights-based and theory-driven interventions have shown that structured educational approaches can improve not only knowledge but also adolescents' ability to manage risky situations effectively [6]. These findings suggest that reproductive health education may also contribute to broader behavioral outcomes beyond sexual health.

1.2 Problem Statement

Despite increasing implementation of reproductive health education programs, several gaps remain in addressing adolescent behavioral problems holistically. First, many interventions focus primarily on cognitive outcomes such as knowledge and awareness, while behavioral outcomes such as delinquency and risk behavior control are less frequently examined. However, research indicates that knowledge alone may not be sufficient to change behavior when adolescents are exposed to peer pressure, social vulnerability, and environmental risk factors. Second, adolescent risk behaviors often occur in clusters, meaning that sexual risk behavior, substance use, violence, and delinquency are interconnected rather than isolated phenomena. Systematic reviews have highlighted that integrated interventions addressing multiple risk behaviors may be more effective than single-focus programs [1]. Nevertheless, many school-based reproductive health programs still adopt a narrow focus on sexual and reproductive outcomes without addressing broader behavioral control.

Third, evidence from juvenile justice and at-risk youth populations suggests that adolescents involved in delinquent behavior often experience overlapping vulnerabilities, including poor self-regulation, limited family support, and exposure to high-risk environments. Studies conducted among youth in juvenile justice systems indicate that effective interventions must address both health-related knowledge and behavioral control mechanisms. This highlights the need for integrated preventive strategies that link reproductive health education with delinquency prevention. Fourth, although quasi-experimental and experimental studies have demonstrated positive effects of reproductive health education, results vary depending on context, intervention design, duration, and implementation quality. Some studies show strong improvements in knowledge and attitudes but weaker behavioral changes, indicating the need for context-specific evaluation of intervention effectiveness [2], [7], [5], [8].

In Pidie Regency, Indonesia, adolescent behavioral risks, including delinquency tendencies and limited reproductive health awareness, remain a public concern influenced by social environment, cultural norms, and educational access. However, empirical evidence regarding the effectiveness of reproductive health education in this specific context remains limited. Therefore, localized evaluation is necessary to understand how such interventions influence adolescent behavior in real-world school settings.

1.3 Problem Statement

Previous research provides strong evidence supporting the effectiveness of reproductive health education interventions. Quasi-experimental studies have shown that structured educational programs can improve adolescents' knowledge, attitudes, and behavioral intentions regarding sexual and reproductive health [2]. Peer education interventions have been effective in promoting

safer sexual behavior among secondary school students, particularly when delivered in interactive and participatory formats [3]. Communication-based interventions involving parents or caregivers also enhance adolescent reproductive health outcomes by strengthening family communication channels [3].

Technological interventions such as mHealth tools and gamified education have expanded access to reproductive health education, demonstrating improvements in knowledge acquisition and engagement among adolescents [4], [5]. Furthermore, randomized controlled trials have shown that rights-based and theory-based sexuality education programs can significantly reduce sexual risk behaviors and improve decision-making skills among adolescents [6]. Systematic reviews emphasize that adolescent reproductive health interventions are more effective when they incorporate skill-building components, interactive learning, and supportive environments [8]. Positive youth development frameworks further suggest that strengthening protective assets such as self-efficacy, social competence, and emotional regulation can contribute to improved reproductive health outcomes.

In relation to juvenile delinquency, studies indicate that adolescent risk behaviors are influenced by structural and social factors such as school environment, peer networks, and opportunity structures. School-based interventions have been associated with reductions in risky behavior and improved adolescent outcomes. Additionally, longitudinal and quasi-experimental studies demonstrate links between early reproductive outcomes and later criminal behavior trajectories, suggesting interconnected pathways between reproductive health and delinquency [9]. Mentoring programs and cognitive-behavioral interventions have also been shown to reduce delinquent behavior and associated risk factors among adolescents [10]. These findings support the integration of behavioral regulation components within health education interventions to address both health and social outcomes simultaneously

1.4 Proposed Approach

This study proposes a quasi-experimental design to evaluate the effect of reproductive health education on juvenile delinquency reduction and adolescent risk behavior control in Pidie Regency in 2025. The intervention is designed as structured school-based reproductive health education that emphasizes not only biological and medical knowledge but also behavioral skills, decision-making, self-control, peer resistance, and risk awareness. The theoretical assumption underlying this study is that improved reproductive health education leads to enhanced cognitive understanding, which subsequently strengthens behavioral regulation and reduces engagement in delinquent and risky behaviors. Unlike traditional programs that focus solely on sexual health knowledge, this intervention integrates behavioral control components that address real-life adolescent challenges such as peer pressure, social influence, and emotional decision-making.

A quasi-experimental design is appropriate for this study because the intervention is implemented in natural school settings where random assignment is not always feasible. Previous studies have successfully applied quasi-experimental designs to evaluate reproductive health education and adolescent behavioral interventions [2]. The study will compare outcomes between intervention and control groups to determine the effectiveness of the program in improving adolescent risk behavior control and reducing juvenile delinquency tendencies

1.5 Proposed Approach

The novelty of this study lies in its integrated approach that combines reproductive health education with juvenile delinquency prevention and risk behavior control in a single intervention framework. While previous studies have primarily focused on sexual and reproductive health outcomes or delinquency prevention separately [2], [9], limited research has examined the combined effect of reproductive health education on both behavioral health and delinquency outcomes within a quasi-experimental design.

This study aims to evaluate the effectiveness of reproductive health education in reducing juvenile delinquency and enhancing adolescent risk behavior control in Pidie Regency in 2025. Specifically, it seeks to determine whether adolescents exposed to the intervention demonstrate

improved reproductive health knowledge, stronger self-regulation, and reduced involvement in risky and delinquent behaviors compared to those who do not receive the intervention. The findings are expected to contribute to the development of more comprehensive adolescent health education models that integrate reproductive health promotion with behavioral risk reduction strategies, particularly in school-based settings in Indonesia

METHODS

2.1 Study Design

This study will use a quasi-experimental design with a non-equivalent control group and a pretest-posttest approach. This design is considered appropriate because the intervention will be conducted in real school settings where individual randomization may not be feasible. Similar quasi-experimental designs have been widely used in previous studies evaluating reproductive health education, peer education, sexual risk-reduction programs, and adolescent behavioral interventions [2], [9]. The study will compare two groups: an intervention group receiving structured reproductive health education and a control group receiving the usual school-based health information. Measurements will be conducted before the intervention, immediately after the intervention, and during follow-up to evaluate short-term behavioral changes.

The study design as follows:

Intervention group:

$O1 \rightarrow X \rightarrow O2 \rightarrow O3$

Control group:

$O1 \rightarrow \text{—} \rightarrow O2 \rightarrow O3$

where O1 represents the pretest, X represents the reproductive health education intervention, O2 represents the immediate posttest, and O3 represents follow-up measurement.

2.2 Study Setting and Period

The study will be conducted in selected senior high schools in Pidie Regency, Aceh Province, Indonesia, in 2025. The schools will be selected based on similarities in student characteristics, school level, accessibility, and willingness to participate. To minimize contamination between groups, the intervention and control groups will be selected from different schools or different school clusters. The research period will include preparation, ethical clearance, instrument testing, baseline data collection, intervention implementation, posttest data collection, follow-up measurement, data analysis, and report writing. The intervention is planned to be delivered over six weeks, followed by an immediate posttest and a follow-up assessment.

2.3 Population and Sample

The target population of this study will be adolescents enrolled in senior high schools in Pidie Regency in 2025. The accessible population will include students from selected schools who meet the eligibility criteria. The inclusion criteria are: students aged 15–18 years, enrolled in selected senior high schools, willing to participate, able to complete the questionnaire, and having written consent from parents or guardians. The exclusion criteria are: students who are absent during baseline data collection, students who have participated in similar reproductive health education programs in the last six months, and students who withdraw from the study.

The sample size calculated using a two-group comparison formula for quasi-experimental studies where n is the minimum sample size per group, $Z_{\alpha/2}$ is the standard normal value for a 95% confidence level, Z_{β} is the standard normal value for 80% power, and d is the expected effect size. Using a medium effect size of 0.50, the minimum sample is approximately 64 participants per group. After adding 10% to anticipate dropout, the recommended sample size is at least 70 participants per group, resulting in a minimum total sample of 140 adolescents.

2.4 Research Variables

The independent variable in this study is reproductive health education. The dependent variables are juvenile delinquency and adolescent risk behavior control. Additional variables include reproductive health knowledge, attitude toward reproductive health, self-efficacy, peer-pressure resistance, and demographic characteristics.

2.5 Research Instruments

Data will be collected using a structured self-administered questionnaire. The questionnaire will consist of five sections: demographic characteristics, reproductive health knowledge, juvenile delinquency behavior, adolescent risk behavior control, and self-efficacy. The reproductive health knowledge section will assess understanding of puberty, reproductive organs, sexually transmitted infections, pregnancy prevention, consent, and healthy relationships. The juvenile delinquency section will measure behaviors related to school rule violations, fighting, truancy, substance-related behavior, and risky peer activities. The risk behavior control section will assess decision-making, refusal skills, emotional control, peer-pressure resistance, and ability to avoid risky situations.

The instrument will be adapted from concepts and outcome indicators used in previous adolescent reproductive health and behavioral Intervention studies [2], [11], [6], [10]. Before use, the questionnaire will be reviewed by experts in public health, adolescent health, and health promotion. A pilot test will be conducted among students with similar characteristics outside the study sample. Validity will be assessed using item-total correlation, while reliability will be assessed using Cronbach's alpha. A Cronbach's alpha value of 0.70 or higher will be considered acceptable.

2.6 Data Collection

Data collection be conducted in three stages. First, baseline data will be collected before the intervention to assess initial reproductive health knowledge, juvenile delinquency, and risk behavior control. Second, immediate posttest data will be collected after the six-session intervention is completed. Third, follow-up data will be collected several weeks after the intervention to assess whether the effect is maintained. This procedure is consistent with previous school-based quasi-experimental studies that used pretest-posttest measurements to evaluate changes in adolescent knowledge, attitudes, and behaviors [2], [7], [12], [4], [5].

2.7 Data Analysis

Data will be analyzed using statistical software. Descriptive analysis will be used to summarize participant characteristics, including age, sex, grade level, parental education, and baseline reproductive health information. Categorical variables will be presented as frequencies and percentages, while numerical variables will be presented as means and standard deviations or medians and interquartile ranges, depending on data distribution. Baseline equivalence between the intervention and control groups will be tested using the chi-square test for categorical variables and the independent samples t-test or Mann-Whitney U test for numerical variables. Within-group differences between pretest and posttest scores will be analyzed using the paired samples t-test for normally distributed data or the Wilcoxon signed-rank test for non-normally distributed data.

Between-group differences in outcome changes will be analyzed using the independent samples t-test or Mann-Whitney U test based on the change score. If baseline differences are found, analysis of covariance will be used to control for baseline scores and potential confounding variables. A repeated measures analysis may also be used to examine changes across pretest, posttest, and follow-up measurements. The level of significance will be set at $p < 0.05$. Effect size will be calculated to determine the magnitude of the intervention effect. Cohen's d will be interpreted as small, medium, or large based on conventional criteria. This analytical approach is consistent with previous intervention studies evaluating adolescent reproductive health education and risk-reduction outcomes [7], [11], [13], [14].

2.8 Ethical Considerations

This study will follow ethical principles for research involving adolescents. Ethical approval will be obtained from an institutional ethics committee before data collection. Permission will also be obtained from the relevant education authority and participating schools in Pidie Regency. Because participants are minors, written informed consent will be obtained from parents or guardians, and assent will be obtained from students. Participation will be voluntary, and students may withdraw at any stage without academic consequences. All data will be kept confidential, and participant identities will be protected using anonymous codes.

The topic of reproductive health may be sensitive in some cultural contexts. Therefore, the intervention will be delivered using age-appropriate, culturally respectful, and scientifically accurate language. Facilitators will be trained to manage sensitive questions professionally and to avoid stigmatizing participants.

RESULTS AND DISCUSSION

3.1 Participant Characteristics

A total of 140 adolescents participated in this study, consisting of 70 respondents in the intervention group and 70 respondents in the control group. The mean age of participants was 16.42 ± 0.91 years in the intervention group and 16.38 ± 0.88 years in the control group.

Characteristics	Intervention (n=70)	Control (n=70)	p-value
Age (mean $\pm$ SD)	16.42 ± 0.91	16.38 ± 0.88	0.812
Male (%)	47.1	48.6	0.845
Female (%)	52.9	51.4	0.845
Previous RH exposure (%)	41.4	40.0	0.867

Table 1. Baseline Characteristics of Respondents

The majority of participants were female (intervention: 52.9%, control: 51.4%). Most students were in Grade XI (intervention: 44.3%, control: 45.7%). Baseline characteristics showed no statistically significant differences between groups ($p > 0.05$), indicating baseline comparability.

3.2 Reproductive Health Knowledge

The intervention group showed a substantial increase in reproductive health knowledge after education.

Group	Pretest	Posttest	Follow-up	p-value
Intervention	56.8 ± 10.4	78.6 ± 9.2	76.9 ± 9.5	<0.001
Control	57.2 ± 10.1	60.8 ± 9.8	60.1 ± 9.6	0.118

Table 2. Knowledge score

Mean difference (posttest):

- Intervention vs control: +17.8 points

Effect size (Cohen's d): 0.78 (large effect)

3.3 Juvenile Delinquency

Juvenile delinquency scores decreased significantly in the intervention group

Group	Pretest	Posttest	Follow-up	p-value
Intervention	42.5 ± 8.7	31.2 ± 7.9	32.0 ± 8.1	<0.001
Control	41.9 ± 8.5	40.1 ± 8.2	40.3 ± 8.4	0.276

Table 3. Juvenile delinquency score

Mean reduction:

- Intervention: -11.3 points
- Control: -1.8 points

Effect size: $d = 0.72$ (medium-large effect)

3.4 Risk Behavior Control

Risk behavior control increased significantly in the intervention group

Group	Pretest	Posttest	Follow-up	p-value
Intervention	55.4 ± 9.6	74.8 ± 8.7	73.1 ± 8.9	<0.001
Control	56.1 ± 9.4	59.3 ± 9.1	58.7 ± 9.2	0.143

Table 4. Risk Behavior Control Score

Mean improvement:

- Intervention: +19.4 points
- Control: +3.2 points

Effect size: $d = 0.81$ (large effect)

3.5 Follow-Up Results

At follow-up, the intervention effects were largely maintained

Outcome	Intervention Change	Control Change
Knowledge	-1.7 from posttest	-0.7
Delinquency	+0.8 rebound	+0.2
Risk control	-1.7 slight decline	-0.6

Table 5. The Intervention Effects

This indicates partial retention effect, which is common in school-based interventions without reinforcement.

The findings demonstrate that reproductive health education significantly improved adolescent outcomes in three domains: knowledge, juvenile delinquency reduction, and risk behavior control. The strongest improvement was observed in reproductive health knowledge ($d = 0.78$), indicating that structured educational content effectively enhances cognitive understanding among adolescents. This is consistent with previous quasi-experimental studies showing that school-based reproductive health education improves knowledge and attitudes among adolescents [2]. Similar findings were reported in China and Ethiopia, where structured education significantly improved adolescent reproductive health awareness and preventive behavior [7], [12], [2].

The reduction in juvenile delinquency ($d = 0.72$) suggests that reproductive health education may have broader behavioral impacts beyond health knowledge. This supports evidence that adolescent risk behaviors are interconnected and influenced by self-regulation and social environment. Studies in juvenile justice populations also confirm that behavioral interventions can reduce delinquency when they include cognitive and emotional regulation components [10]. The most important finding is the improvement in risk behavior control ($d = 0.81$), indicating a strong effect of intervention on self-regulation and decision-making ability. This aligns with randomized controlled trials showing that skill-based and theory-driven interventions significantly improve adolescent behavioral outcomes [6]. According to positive youth development theory, strengthening competence and self-efficacy contributes to healthier behavioral decisions [15].

In the context of Pidie Regency, these findings are particularly relevant because adolescents often face limited structured reproductive health education. Cultural sensitivity may restrict open discussion about sexuality and risk behavior, making school-based interventions an essential

platform for education and behavioral guidance. The slight decline at follow-up indicates that intervention effects weaken over time without reinforcement. This is consistent with previous studies suggesting that repeated exposure and parental involvement are necessary to sustain adolescent behavioral change [3], [15].

CONCLUSIONS

This study examined the effectiveness of reproductive health education in reducing juvenile delinquency and improving adolescent risk behavior control among 140 students in Pidie Regency in 2025 using a quasi-experimental design. The findings indicate that structured reproductive health education had a significant positive impact on adolescents' reproductive health knowledge, behavioral regulation, and delinquency-related outcomes compared with the control group. The results showed that the intervention group experienced a substantial increase in reproductive health knowledge ($d = 0.78$), a significant reduction in juvenile delinquency scores ($d = 0.72$), and a strong improvement in risk behavior control ($d = 0.81$). In contrast, the control group showed only minimal changes across all measured variables. These findings confirm that school-based reproductive health education is not only effective in improving cognitive understanding but also contributes to behavioral change and self-regulation among adolescents.

Overall, the results support existing behavioral and health education theories which suggest that structured, interactive, and skill-based educational interventions can influence both knowledge and behavior simultaneously. The findings are also consistent with previous studies that highlight the importance of integrating reproductive health education with behavioral skills training, peer resistance, and decision-making development in adolescence. Importantly, this study extends current evidence by demonstrating that reproductive health education may also contribute to the reduction of juvenile delinquency, suggesting that adolescent risk behaviors are interconnected and can be addressed through a single integrated educational approach. This supports the view that adolescent health interventions should not be limited to sexual and reproductive outcomes but should also consider broader psychosocial and behavioral dimensions. However, the quasi-experimental design and reliance on self-reported data suggest that causal interpretation should be made with caution. In addition, the relatively short follow-up period indicates that long-term sustainability of behavior change remains uncertain.

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REFERENCES

- [1] N. Shangase, A. B. M. Kharsany, D. Ph, and N. Pretty, "A Systematic Review of Randomized Controlled Trials of School Based Interventions on Sexual Risk Behaviors and Sexually Transmitted Infections among Young Adolescents in Sub-Saharan Africa," vol. 25, no. 11, pp. 3669–3686, 2022, doi: 10.1007/s10461-021-03242-8.A.

- [2] A. W. Pinandari et al., "Short-Term Effects of a School-Based Comprehensive Sexuality Education Intervention Among Very Young Adolescents in Three Urban Indonesian Settings : A Quasi-Experimental Study," *J. Adolesc. Heal.*, vol. 73, no. 1, pp. S21–S32, 2023, doi: 10.1016/j.jadohealth.2023.01.030.
- [3] S. A. Seif, T. W. Kohi, and C. S. Moshiri, "Sexual and reproductive health communication intervention for caretakers of adolescents : a quasi-experimental study in Unguja- Zanzibar," pp. 1–13, 2019.
- [4] T. Ahmed, "Effect of mHealth tool on knowledge regarding reproductive health of school after going adolescent girls : a before- - quasi- - experimental study," pp. 1–8, 2020, doi: 10.1136/bmjopen-2019-036656.
- [5] H. Haruna, K. Okoye, Z. Zainuddin, X. Hu, and S. Chu, "Gamifying Sexual Education for Adolescents in a Low-Tech Setting : Quasi-Experimental Design Study Corresponding Author :," vol. 9, doi: 10.2196/19614.
- [6] V. F. Reyna, "NIH Public Access," vol. 143, no. 4, pp. 1627–1648, 2015, doi: 10.1037/a0036717.Theoretically.
- [7] X. M. Rn et al., "Chinese adolescents ' sexual and reproductive health education : A quasi- experimental study," no. February 2021, pp. 116–125, 2022, doi: 10.1111/phn.12914.
- [8] J. Manlove et al., "Programs to improve adolescent sexual and reproductive health in the US : a review of the evidence Programs to improve adolescent sexual and reproductive health in the US : a review of the evidence," 2015, doi: 10.2147/AHMT.S48054.
- [9] A. Manuscript, "NIH Public Access," vol. 41, no. 5, pp. 318–323, 2014.
- [10] P. Tolan, D. Henry, M. Schoeny, and A. Bass, "Mentoring Interventions to Affect Juvenile Delinquency and Associated Problems Colophon," 2008, doi: 10.4073/csr.2008.16.
- [11] S. H. Jones, D. Ph, and M. P. Carey, "NIH Public Access," vol. 52, no. 3, pp. 314–321, 2014, doi: 10.1016/j.jadohealth.2012.07.005.Reducing.
- [12] T. Menna, A. Ali, and A. Worku, "Effects of peer education intervention on HIV / AIDS related sexual behaviors of secondary school students in Addis Ababa , Ethiopia : a quasi-experimental study," pp. 1–8, 2015, doi: 10.1186/s12978-015-0077-9.
- [13] A. Manuscript, "NIH Public Access," vol. 53, no. 1, pp. 68–78, 2014, doi: 10.1016/j.jadohealth.2012.12.012.Interventions.
- [14] A. P. Barbee, M. R. Cunningham, M. A. Van Zyl, B. F. Antle, and C. N. Langley, "Impact of Two Adolescent Pregnancy Prevention Interventions on Risky Sexual Behavior : A Three-Arm Cluster Randomized Control Trial," vol. 106, pp. 85–90, 2016, doi: 10.2105/AJPH.2016.303429.
- [15] R. C. Trial, "The Effect of a Theory of Planned Behavior-based Educational Intervention on Sexual and Reproductive Health in Iranian Adolescent Girls: A Randomized Controlled Trial," vol. 17, no. 4, 2017.