

SMART-Teen: An Educational and Mentoring Program to Enhance HIV/AIDS Prevention among Adolescents

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ABSTRACT

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Adolescents are vulnerable to HIV/AIDS-related risk behaviors due to limited knowledge, misconceptions, peer influence, and inadequate access to accurate health information. Educational interventions and mentoring programs are important strategies to improve adolescents' awareness and preventive behaviors. The SMART-Teen (*Student Movement for Awareness, Resilience, and Prevention against HIV/AIDS*) program was developed as a community service initiative to strengthen HIV/AIDS prevention among adolescents. This community service program employed a participatory educational and mentoring approach involving 120 adolescents from five SMA/MA/SMK institutions in Tuban Regency, East Java, Indonesia. The intervention was implemented over five days and included educational sessions, group discussions, case-based learning, educational games, and peer mentoring activities. Pre-test and post-test assessments were conducted to evaluate changes in participants' knowledge and attitudes regarding HIV/AIDS prevention. The findings demonstrated an improvement in participants' knowledge and attitudes following the intervention. The mean knowledge score increased from 62.4 ± 10.8 before the intervention to 86.7 ± 8.3 after the intervention. Participants also demonstrated increased awareness and reduced misconceptions regarding HIV/AIDS prevention. The SMART-Teen program effectively improved adolescents' knowledge and awareness regarding HIV/AIDS prevention through educational and mentoring strategies.

1. INTRODUCTION

Adolescence is a transitional stage from childhood to adulthood characterized by significant physical, psychological, social, and emotional changes. During this period, adolescents tend to have a high level of curiosity and a greater tendency to explore new experiences, which may increase their vulnerability to various health risks, including exposure to HIV/AIDS-related risk behaviors. Limited knowledge regarding reproductive health, inadequate understanding of HIV/AIDS transmission and prevention, peer influence, inappropriate access to information, and the rapid development of digital media are factors that

may contribute to adolescents' susceptibility to risky behaviors.

HIV/AIDS remains a significant public health challenge at global, national, and regional levels. HIV (*Human Immunodeficiency Virus*) is a virus that attacks the human immune system, while AIDS (*Acquired Immune Deficiency Syndrome*) refers to a collection of symptoms and conditions resulting from severe immune suppression caused by HIV infection. HIV transmission may occur through unsafe sexual practices, sharing contaminated needles, unsafe blood transfusions, and mother-to-child transmission. However, misconceptions regarding the modes of HIV

transmission and prevention remain prevalent among adolescents and the general population.

In Indonesia, HIV/AIDS continues to represent an important public health concern, with cases predominantly occurring among adolescents and individuals of productive age. The increasing social mobility of young people, changes in lifestyle patterns, and inadequate comprehensive reproductive health education contribute to the increased vulnerability of this population. Furthermore, social stigma associated with HIV/AIDS frequently discourages adolescents from seeking reliable information and accessing early screening services.

Tuban Regency, one of the districts in East Java Province, also faces challenges related to adolescent health issues, including HIV/AIDS prevention. Based on preliminary observations and situational assessments conducted in five secondary educational institutions, including senior high schools (SMA), Islamic senior high schools (MA), and vocational high schools (SMK) in Tuban Regency, several issues related to adolescents' knowledge and preventive behaviors regarding HIV/AIDS were identified. Initial interviews conducted with school counselors, school health unit coordinators, and students indicated that many adolescents still possess limited knowledge concerning HIV/AIDS, particularly regarding its modes of transmission, preventive strategies, and health consequences.

In addition, the situational assessment demonstrated that educational activities related to HIV/AIDS within school environments have not been implemented consistently and remain largely incidental. Existing health education programs are commonly delivered in the form of brief educational sessions without sustained follow-up or mentoring activities. Several students also reported obtaining information

regarding HIV/AIDS primarily from social media platforms, where the credibility and accuracy of information cannot always be assured. This situation potentially contributes to misinformation and inappropriate perceptions concerning HIV/AIDS.

Based on the needs assessment conducted in the five SMA/MA/SMK institutions in Tuban Regency, several major issues were identified: (1) inadequate levels of knowledge among adolescents regarding HIV/AIDS and reproductive health; (2) the persistence of stigma and misconceptions toward people living with HIV/AIDS; (3) suboptimal implementation of school-based health education programs related to HIV/AIDS; and (4) the absence of sustainable adolescent mentoring systems through peer-based approaches.

One of the approaches that has been considered effective in improving health education outcomes among adolescents is peer-group-based education and mentoring. This approach is particularly relevant because adolescents often feel more comfortable communicating and exchanging information with individuals of similar age groups. Consequently, there is a need for an innovative intervention that not only focuses on information dissemination but also actively engages adolescents through mentoring and empowerment activities.

The SMART-Teen (Student Movement for Awareness, Resilience, and Prevention against HIV/AIDS) program is designed as an educational and mentoring intervention aimed at improving adolescents' knowledge, attitudes, and preventive behaviors related to HIV/AIDS through interactive educational methods, innovative learning media, and peer support group formation. The program is expected to increase adolescents' awareness regarding the importance of HIV/AIDS prevention while simultaneously developing young peer educators who can act as agents of change within school environments.

This community service program will be implemented in five SMA/MA/SMK institutions in Tuban Regency as an effort to enhance adolescents' health literacy regarding HIV/AIDS in a comprehensive and sustainable manner. Through this initiative, improvements in knowledge, positive attitudes, and preventive behaviors toward HIV/AIDS are expected to be achieved, thereby supporting the development of healthier, more productive, and health-conscious young generations.

2. METODE

This community service program employed a participatory educational and mentoring approach through the implementation of the SMART-Teen (Student Movement for Awareness, Resilience, and Prevention against HIV/AIDS) program. The program was designed to improve adolescents' knowledge, attitudes, and preventive behaviors related to HIV/AIDS through comprehensive health education and peer mentoring strategies. The intervention was conducted in five senior secondary educational institutions consisting of Senior High Schools (SMA), Islamic Senior High Schools (MA), and Vocational High Schools (SMK) in Tuban Regency, East Java, Indonesia.

The target participants of this program consisted of 120 adolescents recruited from five participating schools in Tuban Regency. Participant selection was conducted in collaboration with school administrators, counseling teachers, and school health coordinators. Each school contributed approximately 24 students representing different educational levels and backgrounds to ensure broad participation and dissemination of information within the school community. Students from grades X to XII who were willing to participate throughout the program activities were included in this intervention.

The implementation of the SMART-Teen program was conducted over a period of five days, with one school participating each day. Prior to implementation, preparatory

activities were carried out through coordination meetings with school authorities and relevant stakeholders to obtain administrative approval and discuss the implementation process. Educational materials and intervention media were developed and prepared before program initiation. The educational content focused on HIV/AIDS prevention among adolescents and included topics related to the basic concepts of HIV/AIDS, modes of transmission, prevention strategies, reproductive health, risk behaviors, misconceptions regarding HIV/AIDS, and the importance of reducing stigma and discrimination toward people living with HIV/AIDS. Educational materials were supported by visual media, leaflets, videos, presentations, and interactive learning tools to enhance participants' understanding and engagement.

Before the educational sessions began, participants underwent an initial assessment through a pre-test to identify baseline knowledge and perceptions regarding HIV/AIDS. The pre-test was administered using a structured questionnaire that assessed participants' understanding of HIV transmission, preventive behaviors, attitudes toward individuals living with HIV/AIDS, and awareness of reproductive health issues. The results of this initial assessment served as baseline information for evaluating program effectiveness and determining participants' educational needs.

The educational intervention constituted the primary activity of the SMART-Teen program and was implemented using interactive and adolescent-centered learning approaches. Educational sessions were delivered through lectures, group discussions, question-and-answer sessions, educational games, and case-based learning activities. Interactive lectures were conducted by facilitators and health professionals to provide accurate information regarding HIV/AIDS prevention and reproductive health. Group discussions allowed participants to actively exchange ideas and discuss issues relevant to adolescent experiences and challenges.

Educational games and ice-breaking activities were incorporated throughout the sessions to improve motivation and maintain participant engagement. In addition, case-based learning methods were utilized by presenting real-life scenarios related to adolescent risk behaviors, enabling participants to analyze problems and propose appropriate preventive actions.

Following the educational sessions, mentoring activities were conducted to strengthen understanding and encourage sustainable behavioral changes among participants. The mentoring process adopted a peer-based approach because adolescents generally feel more comfortable discussing sensitive issues with individuals within their own age groups. Participants demonstrating leadership potential and active participation during educational activities were encouraged to become peer ambassadors within their respective schools. These students were expected to act as agents of change by disseminating information and promoting HIV/AIDS prevention practices among their peers. Mentoring activities also included reflective discussions, experience sharing, and collaborative development of health promotion messages related to HIV/AIDS prevention.

At the end of the intervention, an evaluation process was conducted to assess the effectiveness of the SMART-Teen program. A post-test using the same questionnaire administered during the pre-test phase was conducted to evaluate changes in participants' knowledge and attitudes following the intervention. In addition to the quantitative assessment, direct observations were performed during program implementation to assess participants' engagement, participation, communication skills, and responses to the educational activities. Participant feedback and reflections were also collected to identify strengths and areas for improvement within the program implementation process.

The quantitative data obtained from pre-test and post-test assessments were analyzed using descriptive statistical methods to determine improvements in knowledge and

attitudes before and after participation in the program. Qualitative findings derived from observations and participant reflections were analyzed narratively to provide a more comprehensive understanding of the impact of the intervention. Through this structured implementation process across five schools in Tuban Regency, the SMART-Teen program was expected to improve adolescents' awareness, knowledge, and preventive behaviors related to HIV/AIDS while establishing sustainable peer-support mechanisms within school environments.

3. RESULTS AND DISCUSSION

Results

The implementation of the SMART-Teen (Student Movement for Awareness, Resilience, and Prevention against HIV/AIDS) program was successfully conducted in five senior secondary educational institutions consisting of SMA, MA, and SMK in Tuban Regency over a five-day period. A total of 120 adolescent participants completed all educational and mentoring activities, with approximately 24 students participating from each school. Participants demonstrated active involvement throughout the program, particularly during interactive discussions, educational games, case-based learning sessions, and peer mentoring activities.

The baseline assessment conducted through the pre-test revealed that many participants had limited knowledge regarding HIV/AIDS, particularly concerning modes of transmission, preventive measures, and misconceptions surrounding the disease. Several participants demonstrated inaccurate perceptions regarding HIV transmission routes and showed uncertainty regarding appropriate preventive behaviors. In addition, some participants expressed stigmatizing attitudes toward people living with HIV/AIDS, indicating the need for targeted educational interventions.

Following the implementation of educational and mentoring activities, the post-test results demonstrated improvements in participants' knowledge

and attitudes regarding HIV/AIDS prevention. Participants showed a greater understanding of the mechanisms of HIV transmission, preventive strategies, and the importance of maintaining healthy behaviors during adolescence. Furthermore, misconceptions related to HIV/AIDS were reduced after participants received evidence-based information during educational sessions.

The findings indicated that the mean knowledge score increased from 62.4 ± 10.8 during the pre-test assessment to 86.7 ± 8.3 in the post-test assessment. This represented an improvement of approximately 24.3 points, indicating a substantial increase in participants' understanding following the SMART-Teen intervention. Similarly, participants' attitudes toward HIV/AIDS prevention and individuals living with HIV/AIDS showed positive changes after the intervention.

Participant engagement during program implementation was also observed to be high. More than 90% of participants actively participated in discussions, responded to facilitator questions, and engaged in group activities. Students demonstrated enthusiasm during interactive learning activities and were willing to share opinions and experiences regarding adolescent health issues. The use of visual media, educational games, and case-based learning methods contributed to creating a more engaging learning environment and improved participant interaction.

The peer mentoring component of the SMART-Teen program also yielded positive outcomes. Several students who demonstrated leadership abilities and communication skills were identified as potential SMART-Teen Peer Ambassadors within their respective schools. These students expressed willingness to continue promoting HIV/AIDS awareness and prevention activities among their peers following completion of the intervention. The establishment of peer support groups within participating schools may contribute to sustaining educational efforts and

reinforcing healthy behaviors among adolescents.

In addition to quantitative improvements, qualitative feedback obtained from participant reflections indicated that students perceived the program as beneficial, informative, and relevant to their needs as adolescents. Many participants reported increased confidence in discussing HIV/AIDS-related topics and indicated a greater awareness of the importance of avoiding risky behaviors. Participants also suggested the continuation of similar educational activities within schools to strengthen health literacy and reproductive health awareness among adolescents.

Overall, the implementation of the SMART-Teen program demonstrated positive outcomes in improving adolescents' knowledge, attitudes, and engagement regarding HIV/AIDS prevention. The findings suggest that educational interventions combined with mentoring and peer-based approaches may serve as effective strategies for strengthening HIV/AIDS prevention efforts among adolescents in school settings.

Discussion

The findings of the SMART-Teen program demonstrated that educational interventions combined with mentoring and peer-based approaches can effectively improve adolescents' knowledge and attitudes regarding HIV/AIDS prevention. The implementation of the program across five SMA/MA/SMK institutions in Tuban Regency showed significant improvements in participants' understanding of HIV/AIDS, indicating that structured educational activities may contribute positively to adolescent health literacy. These findings suggest that adolescents possess substantial potential to adopt positive health behaviors when provided with appropriate educational opportunities and supportive learning environments.

The increase in participants' knowledge scores after the intervention may be explained by the use of interactive educational methods that actively engaged

adolescents in the learning process. Unlike conventional lecture-based approaches, the SMART-Teen program incorporated group discussions, educational games, case-based learning, and question-and-answer sessions that encouraged active participation. Previous studies have suggested that active learning approaches are more effective in enhancing knowledge retention and promoting behavioral changes among adolescents because they encourage participants to become directly involved in educational experiences rather than functioning as passive recipients of information.

The findings also demonstrated improvements in participants' attitudes toward HIV/AIDS and individuals living with HIV/AIDS. Prior to the intervention, several participants exhibited misconceptions and stigmatizing perceptions regarding HIV transmission and affected individuals. Misunderstandings and social stigma remain common challenges in HIV/AIDS prevention programs, particularly among adolescents with limited access to accurate health information. Following educational sessions, participants showed more positive attitudes and a greater understanding of HIV/AIDS-related issues. This finding suggests that accurate and evidence-based information can reduce misconceptions and help create more supportive perspectives toward individuals living with HIV/AIDS.

Another important outcome of the SMART-Teen program was the high level of participant engagement throughout the intervention process. Most participants actively participated in discussions and educational activities, indicating that adolescent-centered educational strategies were appropriate for this target population. Adolescents generally prefer learning environments that are interactive, participatory, and socially engaging. The incorporation of educational games and peer discussions likely contributed to increased motivation and attention among participants. Such findings support previous evidence indicating that educational

interventions designed according to adolescent developmental characteristics may produce better educational outcomes.

The peer mentoring component also contributed significantly to the overall effectiveness of the intervention. Adolescents often rely heavily on peer relationships when forming beliefs, attitudes, and behaviors. Consequently, peer-based educational strategies may facilitate communication and increase acceptance of health messages because information is delivered through familiar and trusted social networks. The identification of potential SMART-Teen Peer Ambassadors within participating schools may further strengthen the sustainability of the intervention by creating student-led educational support systems. Peer educators may serve as important agents of change who continue disseminating health information and promoting preventive behaviors beyond the formal program period.

Despite the positive findings, several limitations should be considered. The program implementation was conducted over a relatively short period of five days, which may not be sufficient to evaluate long-term behavioral changes among participants. While improvements in knowledge and attitudes were observed immediately after the intervention, sustained behavioral outcomes require longer follow-up periods. Additionally, the study involved participants from only five schools within one district, which may limit the generalizability of findings to other populations or settings with different social and cultural characteristics.

Future community service initiatives and intervention programs should consider implementing longer mentoring periods and follow-up evaluations to assess the sustainability of behavioral changes among adolescents. Collaboration among schools, healthcare providers, parents, and community organizations is also necessary to strengthen HIV/AIDS prevention efforts. Continuous educational activities and school-based peer support programs may provide a sustainable framework for improving adolescent health literacy and reducing HIV/AIDS-related risks.

Overall, the findings of this program suggest that the SMART-Teen intervention effectively improved knowledge, attitudes, and engagement among adolescents regarding HIV/AIDS prevention. The integration of educational strategies with peer mentoring approaches appears to be a promising and practical model for community-based HIV/AIDS prevention programs targeting adolescent populations.

4. CONCLUSION

The implementation of the SMART-Teen (Student Movement for Awareness, Resilience, and Prevention against HIV/AIDS) program demonstrated positive outcomes in improving adolescents' knowledge, attitudes, and awareness regarding HIV/AIDS prevention among students from five SMA/MA/SMK institutions in Tuban Regency. The integration of educational sessions and mentoring activities through interactive and peer-based approaches successfully increased participant engagement and facilitated a better understanding of HIV/AIDS-related issues.

The findings indicated that participants experienced substantial improvements in their knowledge regarding HIV transmission, prevention strategies, and reproductive health following the intervention. In addition, positive changes in attitudes toward HIV/AIDS and individuals living with HIV/AIDS were observed, suggesting that educational interventions may contribute to reducing misconceptions and stigma among adolescents.

The use of adolescent-centered learning methods, including interactive discussions, case-based learning, educational games, and peer mentoring, played an important role in enhancing the effectiveness of the program. Furthermore, the establishment of peer ambassadors within participating schools may support the sustainability of HIV/AIDS prevention efforts by promoting continuous dissemination of health information among adolescents.

Overall, the SMART-Teen program may serve as an effective and practical

community-based intervention model for strengthening HIV/AIDS prevention among adolescents. Continuous implementation and collaboration among schools, healthcare professionals, families, and communities are recommended to ensure sustainable improvements in adolescent health literacy and preventive behaviors related to HIV/AIDS.

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