

Midwife As Change Agent: Improving HIV/AIDS Knowledge and Preventive Behaviors in Senior High School Students

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ABSTRACT

Adolescents are a vulnerable group in the spread of HIV/AIDS due to limited knowledge and a lack of accurate information. Schools, as educational institutions, play a strategic role in providing health education, with midwife positioned to act as change agents in promoting awareness and prevention of HIV/AIDS among students. This study aims to evaluate the effectiveness of midwife as change agents in improving HIV/AIDS education and prevention among senior high school students. A quasi-experimental design with a one-group pre-test and post-test approach was employed. The study involved 110 students selected through total sampling. The intervention consisted of HIV/AIDS education delivered by midwife. Data were collected using a structured questionnaire and analyzed using the Wilcoxon signed-rank test due to non-normal distribution. Results shows an increase in the median values across all variables following the intervention: the midwife role increased from a median score of 40 to 70, knowledge increased from 35 to 90, and preventive behavior increased from 35 to 80. The Wilcoxon test results indicated a statistically significant difference for all three variables before and after the intervention ($p = 0,000 < \alpha = 0,05$). Most respondents showed improvement across all three variables, indicating the effectiveness of midwife in enhancing HIV/AIDS education and preventive actions. In conclusion, midwife serve effectively as change agents in increasing knowledge and preventive behaviors regarding HIV/AIDS among adolescents in schools. Continued collaboration between the health and education sectors is essential to sustain adolescent health initiatives.

Key Messages:

- Midwife play a crucial role as change agents in improving adolescents' knowledge and the prevention of HIV/AIDS.
- Structured and continuous educational interventions significantly enhance students' understanding and preventive behaviors toward HIV/AIDS

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GRAPHICAL ABSTRACT

MIDWIFE AS CHANGE AGENTS : IMPROVING HIV/AIDS KNOWLEDGE AND PREVENTIVE BEHAVIORS IN SENIOR HIGH SCHOOL STUDENTS

Through the educational intervention provided, there was a significant improvement in students' knowledge, attitudes, and preventive actions toward HIV/AIDS. The benefit of this study is that it provides strong evidence of the importance of ongoing collaboration between the health and education sectors in efforts to prevent the spread of HIV/AIDS among adolescents, as well as strengthening the role of healthcare professionals as key drivers of healthy behavioral change within the school environment.



**HIV/AIDS Education
for Adolescents**

- **The Role of the Midwife**
- **Knowledge**
- **HIV/AIDS Prevention**



- Recommendations:**
- **Preventive Education**
 - **Knowledge**
 - **Midwife as Agents of Change**

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INTRODUCTION

In the context of public health services, midwives play a clinical role and act as agents of change individuals who actively promote behavioral, attitudinal, and cognitive transformation within communities through educational, promotive, and preventive approaches (1). As agents of change, midwives are expected to facilitate increased awareness and capacity among individuals and communities to maintain health, particularly in the area of reproductive health and HIV/AIDS prevention (2). This role positions midwives as key figures in bridging scientific knowledge and practical implementation, especially among vulnerable groups such as adolescents (3).

Adolescents are in a critical developmental phase marked by significant physical, emotional, and social changes. During this period, heightened curiosity, a desire to experiment, and strong peer influence increase their vulnerability to risky behaviors, particularly about sexual and reproductive health(4). One of the significant health risks faced by adolescents is infection with the Human Immunodeficiency Virus (HIV), which can progress to Acquired Immune Deficiency Syndrome (AIDS) if not addressed promptly and appropriately (5)(6). The prevalence of HIV/AIDS among adolescents remains high, while their understanding of prevention strategies is often inadequate (7). HIV/AIDS continues to pose a significant public health challenge in Indonesia, particularly among adolescents and young adults (8).

Epidemiological data in Indonesia indicate that new HIV cases are no longer confined to key populations such as injecting drug users and sex workers but are increasingly emerging among adolescents. Data from the Ministry of Health show that between January and September 2024, there were 35,415 new HIV cases and 12,481 AIDS cases. Of these, 19% occurred among individuals aged 20–24, while 6% were among adolescents under 20. Overall, nearly 90% of HIV cases are found in the productive age group—adolescents and young adults (9). It reflects the high vulnerability of adolescents to HIV transmission, compounded by low levels of comprehensive knowledge about HIV/AIDS. Only around 14% of male and 10% of female adolescents possess comprehensive knowledge, including the understanding of transmission methods, prevention strategies, and the importance of HIV testing (10).

Early education and prevention efforts are key strategies for reducing the spread of HIV/AIDS (11). Midwives hold a strategic position as agents of change by delivering evidence-based and contextually relevant education to adolescents (12). Their role extends beyond curative services to include health educators capable of providing comprehensive understanding and promoting healthy behavior (13).

Midwives are strategically positioned to deliver accurate education and information on HIV/AIDS (14). Their active involvement in educational programs, particularly in high school settings, is considered

a potentially practical and evidence-based approach to mitigating the spread of HIV/AIDS within this age group (15). However, there is limited research exploring in depth the effectiveness of midwives as change agents in school-based HIV/AIDS education programs. This study, therefore, aims to make a meaningful contribution by providing practical recommendations for midwives and policymakers in designing more targeted and impactful HIV/AIDS prevention strategies within educational settings (16).

In pursuit of reducing HIV/AIDS prevalence, the Indonesian Ministry of Health promotes reproductive health education among youth as part of its "Three Zeros" target—zero new infections, zero discrimination, and zero AIDS-related deaths. However, implementing such education in high schools continues to face challenges, including limited resources and insufficient direct involvement of midwife. Through active engagement in schools or adolescent communities, midwife can fulfill their role as agents of change by improving adolescent health literacy regarding HIV/AIDS and strengthening sustainable prevention efforts(17).

Accordingly, this study aims to analyze the role of midwives as agents of change in enhancing HIV/AIDS knowledge and preventive behaviors among high school students. The findings are expected to provide practical recommendations for midwives and policymakers in developing more targeted and impactful HIV/AIDS prevention strategies within educational environments.

METHODS

This study employed a quasi-experimental design using a one-group pre-test–posttest approach (18). This approach is used to evaluate changes in knowledge, attitudes, and preventive actions regarding HIV/AIDS before and after the educational intervention provided by healthcare workers. The study was conducted in 2024 within a school environment involving adolescent students as participants. The intervention focused on increasing knowledge, the role of midwife, and preventive behavior related to HIV/AIDS. The population in this study consisted of 110 adolescents aged 16-18 years. The sample was taken using total sampling, involving all students who met the inclusion criteria and were willing to participate in the educational activities. Age distribution showed that 32.8% were 16 years old, and 33.6% were each 17 and 18 years old. The sample consisted of 50% males and 50% females. Primary data were collected using a structured questionnaire developed by the researcher. The questionnaire measured three main variables: the role of healthcare workers, knowledge about HIV/AIDS, and preventive behaviors..

The research instrument underwent validity and reliability testing to ensure that each item accurately measured the intended construct. Validity testing was conducted using the Product Moment correlation method, demonstrating that all items were valid (r -calculated $>$ r -table = 0.374). Furthermore, the reliability test results indicated acceptable Cronbach's Alpha values: midwives' role (0.430), knowledge of HIV/AIDS (0.617), and preventive behavior (0.780). These findings confirm that the instrument was appropriate and reliable for data collection. The variable representing the role of midwife was operationalized as the effort made by midwife to provide information and health education related to HIV/AIDS to students. This variable was measured from the students' perspective by assessing how they received, understood, and responded to the education provided by the midwife.

Primary data were collected through a pre-test to assess respondents' baseline conditions. Participants then received an intervention consisting of four weekly educational sessions. Each session's content was validated by experts in midwife and public health, covering the following topics: basic facts and concepts of HIV/AIDS and transmission methods (Session 1); prevention methods and early detection (Session 2); issues related to stigma and discrimination against people living with HIV/AIDS (PLWHA), students' roles in HIV/AIDS prevention, and available health services (Session 3); and evaluation (Session 4). The educational sessions were delivered through interactive presentations utilizing images, videos, and simple case studies to enhance participant comprehension. Data analysis included univariate analysis to describe the characteristics of the respondents and bivariate analysis using the Wilcoxon test, given that the data were not normally distributed based on the Kolmogorov-Smirnov test. The Wilcoxon test was applied to examine significant differences between pre-test and post-test scores (19).

CODE OF HEALTH ETHICS

This study has received ethical approval with the number 31/KEP/III.3.AU/F/2024 from the Research and Community Service Institute (LPPM) of University Muhammadiyah Palopo.

RESULTS

The respondents in this study consisted of all senior high school students who met the inclusion criteria and agreed to participate in the educational intervention, totaling 110 individuals.

Table 1. Characteristics of Respondents

Respondent Characteristics	n	%
Age		
16 Years old	36	32,8
17 Years old	37	33,6
18 Years old	37	33,6
Gender		
Male	55	50
Female	55	50
Total	110	100

As shown in Table 1, most respondents were 17 or 18 years old, with each age group accounting for 33.6% of the total sample. The gender distribution was equal, with male and female participants comprising 50% of the sample.

Table 2. The effectiveness of healthcare workers' roles as change agents in improving education and prevention of HIV/AIDS

Variable	Median	Δ	Min-Max	P Value
1. Midwife role				
Before intervention	40	30	40 - 50	0,000
After intervention	70		45 - 80	
2. Knowledge				
Before intervention	35	55	20 - 50	0,000
After intervention	90		30 - 90	
3. Prevention				
Before intervention	35	45	25 - 50	0,000
After intervention	80		35 - 80	

Wilcoxon test; Positive ranks for the role of midwife (n=103), knowledge (n=93), and prevention (n=98); Ties ranks for the role of midwives (n=7), knowledge (n=17), and prevention (n=8)

Table 2 shows an increase in the median values across all variables following the intervention: the midwife role increased from a median score of 40 to 70, knowledge increased from 35 to 90, and preventive behavior increased from 35 to 80. The Wilcoxon test results indicated a statistically significant difference for all three variables before and after the intervention ($p = 0,000 < \alpha = 0.05$). These findings suggest that the role of midwife as agents of change had a significant impact on enhancing education and prevention related to HIV/AIDS. Furthermore, the analysis of positive ranks revealed that most respondents experienced improvements. Specifically, 103 respondents showed increased scores in the midwife role variable, with 7 showing no change (ties); 93 respondents showed increased knowledge scores, with 17 showing no change (ties); and 98 respondents showed improvement in preventive behavior, with 8 showing no change (ties).

DISCUSSION

The study involved 110 senior high school students as respondents. Based on the univariate analysis, most participants were 17 and 18 years old (33.6% each), with an equal gender distribution (50% male and 50% female). The Kolmogorov-Smirnov test indicated that data for all variables (midwife role, knowledge, and HIV/AIDS prevention) were not normally distributed ($p < 0.05$), prompting the use of the

non-parametric Wilcoxon test for subsequent analyses. The effectiveness of midwife as agents of change was demonstrated through an increase in the median scores for all variables following the educational intervention, with the midwives' role increasing from a median of 40 to 70.

These findings affirm that midwife significantly enhanced students' perceptions regarding the importance of HIV/AIDS prevention, as reflected in the increased median score for their role. The effectiveness of health communication is not solely determined by message content but also by the communicator's credibility and ability to convey information accurately and convincingly. It highlights the strategic role of midwife in improving public perception and knowledge of HIV/AIDS prevention (20).

Students' knowledge showed a substantial improvement, with the median score increasing from 35 to 90, while preventive behavior rose from 35 to 80. The Wilcoxon test confirmed that the differences in both variables were statistically significant ($p < 0.001$; $\alpha = 0.05$). Most respondents demonstrated positive changes post-intervention: 103 students improved their perception of the midwife role, 93 improved their knowledge, and another 93 improved their preventive behavior. These results confirm the effectiveness of midwife-led educational interventions in fostering positive changes in knowledge and preventive behavior among students.

This study aligns with previous research indicating that HIV/AIDS education delivered by midwife in school settings can significantly enhance students' knowledge not only in terms of transmission and prevention but also in reducing stigma toward people living with HIV/AIDS (PLWHA). The marked increase in knowledge median from 35 to 90 suggests that the educational content provided by midwife was informative and effective in correcting common misconceptions among adolescents. It is supported by reports from UNAIDS, which highlight misinformation as a key barrier to effective HIV prevention among youth (21)(22)(23). Community and healthcare workers need to provide better infrastructure for HIV/AIDS prevention and treatment, especially for Men Who Have Sex with Men (MSM) living with HIV (24). Collaborative support from healthcare workers and the community is crucial in strengthening and assisting MSM.

The findings are consistent with the Health Belief Model (HBM), which posits that health behavior change is influenced by an individual's perceptions of susceptibility, severity, benefits, and barriers. The educational intervention provided by midwife improved adolescents' perceptions of their vulnerability to HIV/AIDS and the benefits of preventive behavior, thereby motivating them to adopt healthier practices. Similarly, the Change Agent Theory emphasizes that agents of change such as midwife play a strategic role in facilitating individual and group transformation by delivering accurate and relevant information and fostering trust in social interactions. In this context, midwife in schools serve as a source of information and as role models who encourage positive behavioral changes among adolescents (25).

The active role of midwife as educators in schools proves essential in raising adolescent awareness about the risks of unsafe sexual behavior and the importance of early detection of HIV/AIDS. Prior research has shown that interactive counseling interventions significantly improve preventive behavior among high school students. This study further demonstrates that midwife are effective change agents in enhancing HIV/AIDS education and prevention efforts among youth (26).

Midwife-delivered education was found to increase students' understanding of HIV/AIDS and encourage them to adopt more preventive behaviors. The significant increase in post-intervention knowledge scores indicates that the information was well-received and could influence students' thinking and attitudes. This finding is consistent with other studies suggesting that midwife' educational approaches are highly effective in increasing adolescents' awareness and understanding of reproductive health issues, including HIV/AIDS (27)(28).

Furthermore, the improvement in preventive behavior underscores that education not only influences knowledge but also has a tangible impact on student's attitudes and behaviors in avoiding risky actions. It reinforces the critical role of midwife in creating a supportive learning environment that empowers adolescents to make informed health decisions (29).

A limitation of this study lies in its one-group pretest-posttest design, which, while helpful in exploring changes in knowledge and behavior after the educational intervention, lacks a control group. It limits the ability to attribute observed changes solely to the intervention. Factors such as participant

maturation, external experiences, or test-retest effects may have contributed to the results. Therefore, the findings should be interpreted with caution. Future research should adopt experimental designs with control groups to strengthen internal validity and causal inference.

CONCLUSION

This study demonstrates that midwives play a significant role as agents of change in enhancing HIV/AIDS knowledge and preventive behaviors among senior high school students. The intervention proved effective in increasing students' knowledge about HIV/AIDS (median score from 35 to 90), fostering more positive perceptions of midwife' roles (median from 40 to 70), and improving preventive behaviors (median from 35 to 80). These results reinforce the idea that the active involvement of midwife in educational settings can address adolescents' need for accurate information and promote healthier, more preventive behaviors toward HIV/AIDS risk. Further research using more rigorous methodological designs such as randomized controlled trials (RCTs) or longitudinal studies is needed to strengthen the generalizability and long term effectiveness of this intervention. Diverse social and cultural contexts must also be incorporated to ensure consistent and sustainable impact.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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