

# Effectiveness of a Nurse-Assisted Digital Sexual Literacy and Consent Education Intervention on Sexual Decision-Making, The risk Perception, and Help-Seeking Behaviour Among Rural Adolescents

Mrs. Sumi K Mathew<sup>1</sup>, Prof. Dr. Kavitha Mol P J<sup>2</sup>

<sup>1</sup>Research scholar, child health nursing, Malwanchal university, Madhya Pradesh, India

<sup>2</sup> Research supervisor, Malwanchal university, Madhya Pradesh, India

## ABSTRACT

**Background:** Adolescents in rural areas often do not have access to comprehensive and structured sexual health education because of cultural and social hurdles, a lack of school-based programs, and a lack of services that are friendly to teens. This gap leads to wrong knowledge, not being able to understand risks clearly, making bad sexual decisions, and not asking for help when needed. School nurses are in a unique position to provide digital interventions that are culturally sensitive and appropriate for the child's age that improve sexual health literacy and encourage safe practices.

**Objective:** To assess the efficacy of a nurse-led digital sexual health literacy and consent education intervention on sexual decision-making, risk perception, and help-seeking behaviour among rural teenagers.

**Methods:** A cluster randomized controlled study was executed including 240 adolescents aged 13–17 years from four rural educational institutions. We randomly put schools into two groups: an intervention group (n=120) and a control group (n=120). The intervention was an 8-week organized digital program administered by certified school nurses, encompassing puberty education, consent and boundaries, online safety, risk recognition, and access to support services. Data were gathered at baseline, immediately after the intervention, and during a three-month follow-up utilizing validated standardized scales. Independent t-tests and repeated measures ANOVA were used for statistical analysis, and the p-value was fixed at  $p < 0.05$ .

**Results:** The intervention group exhibited substantial enhancements in sexual decision-making (48.6±8.2 to 71.4±7.5), risk perception (52.1±9.1 to 78.3±8.4), and help-seeking behaviour (34.5±6.7 to 59.8±7.2), in contrast to negligible alterations in the control group ( $p < 0.001$ ). The benefits persisted during the three-month follow-up.

**Conclusion:** Nurse-led digital sexual health literacy treatments significantly improve protective decision-making and help-seeking behaviour among rural adolescents. It is highly suggested that these kinds of activities be included in school health services.

**Keyword:** - Adolescent sexual health, Sexual health literacy, Nurse-led intervention, Digital health education, Consent education

## 1. INTRODUCTION

Adolescence is a crucial time of development when people go through major changes in their bodies, hormones, brains, and social identities. During this time, young people start to develop their thoughts, feelings, and actions

about relationships, sex, and personal space. Consequently, access to precise and age-appropriate sexual health information is vital for fostering healthy development and facilitating informed decision-making. But in many rural areas, teenagers have a hard time getting good sexual health education. Sociocultural taboos around topics of sexuality, discomfort among parents and educators, and fear of stigma frequently inhibit free conversation. Consequently, adolescents could depend on peers, unverified online sources, or social media platforms for information, which may be deficient or erroneous. This false information can change how people think about consent, relationships, and risk, which could make them more likely to engage in dangerous behaviour and have bad health effects.

In rural India, a number of new problems make it clear that we need to improve sexual health education for teens right away. Reports show that more and more people are getting involved in early romantic relationships, using digital devices without supervision, being exploited online, being forced to do things, and not reporting sexual assault because they are afraid, ashamed, or don't know how to. Early sexual activity without a proper understanding of permission and protection can lead to problems that weren't planned, such as mental health issues and a higher risk of getting sexually transmitted illnesses. There are national programs that focus on the health of teenagers, but they aren't always carried out in rural schools, and when they are, they typically don't include structured, skill-based parts. Programs may focus too much on the biological parts of puberty and not enough on consent, internet safety, respect for all genders, and how to get help. Additionally, there is a scarcity of culturally sensitive and developmentally suitable modules specifically designed for rural teenagers. This gap highlights the necessity for innovative, context-specific educational initiatives that transcend mere knowledge transmission, aiming instead at empowerment and the cultivation of protective behaviour.

School nurses are in a unique position within the school system to make a difference in the health of teens. Their professional expertise, availability in schools, and trusted position in promoting health make them well-suited to carry out preventative actions. Nurse-led programs can combine health education with counselling, early detection of risk, and referral services to give teens a full range of assistance. As digital technology spreads even to remote areas, adding digital platforms to health education can make learning more participatory, fun, and private. Digital modules might include scenario-based learning, animations, and reflection exercises that help people understand permission, boundaries, and how to recognize risk. Despite this promise, empirical information concerning organized nurse-led digital sexual health literacy treatments in rural Indian school contexts is still scarce, especially research utilizing stringent experimental designs to assess behavioral outcomes.

Filling this gap in the evidence is important for making adolescent health policy and school-based preventive services stronger. The current study aimed to assess the efficacy of an organized, culturally attuned, nurse-led digital sexual health literacy and consent education initiative among rural adolescents. The intervention aims to enhance awareness as well as sexual decision-making abilities, risk perception, and help-seeking behaviour—crucial factors influencing preventative health practices. The program seeks to equip adolescents with practical skills rather than just academic knowledge by integrating interactive digital content, facilitated discussions, and information on available support resources. Gathering strong proof that these kinds of interventions work can help them become part of school health services and help create long-lasting, scalable ways to improve the sexual and reproductive health of teens in remote areas.

## 2. METHODS

A cluster randomized controlled study was performed in four rural secondary schools with 240 adolescents aged 13 to 17 years. At the cluster level, schools were randomly assigned to either an intervention group (n=120) or a control group (n=120). The intervention was an 8-week digital sexual health literacy program supervised by a nurse, including 60-minute sessions every week. The program had interactive digital modules, audio-visual animations, talks based on real-life situations, role-playing activities on consent, lessons on internet safety, information about health services for teens in the area, an anonymous question box, and a session for parents to learn more about the program. Data were gathered at baseline (week 0), directly following the intervention (week 8), and at a three-month follow-up. The Sexual Decision-Making Self-Efficacy Scale (0–100), the Adolescent Risk Perception Questionnaire (0–100), and the Help-Seeking Behaviour Scale (0–80) were all used to measure the results. Descriptive statistics, independent t-tests, repeated measures ANOVA, and effect size (Cohen's d) were used to examine the data. The level of statistical significance was established at  $p < 0.05$ .

### 3. RESULTS

The average age of the participants was  $14.8 \pm 1.2$  years, with 52% being female and 48% being male. There were no significant differences between the intervention and control groups at the start of the study ( $p > 0.05$ ). The intervention group exhibited a big shift in sexual decision-making scores, going from  $48.6 \pm 8.2$  at the start to  $71.4 \pm 7.5$  after the test and staying at  $69.8 \pm 7.9$  three months later. The control group, on the other hand, only showed a small change ( $49.1 \pm 7.9$  to  $51.3 \pm 8.4$ ). The mean difference after the test was 20.1 ( $t = 14.82$ ,  $p < 0.001$ ), and the effect size was large ( $d = 1.25$ ). Risk perception improved from  $52.1 \pm 9.1$  to  $78.3 \pm 8.4$  after the intervention and stayed high at follow-up ( $75.9 \pm 8.7$ ). There were significant differences between groups ( $F(2,236) = 96.42$ ,  $p < 0.001$ ). The propensity to seek assistance escalated from  $34.5 \pm 6.7$  to  $59.8 \pm 7.2$  and subsequently to  $57.6 \pm 7.5$  at follow-up ( $p < 0.001$ ), while the readiness to consult a nurse grew from 28% to 67%.

### 4. DISCUSSION

The results indicate that a nurse-led digital sexual health literacy intervention markedly enhanced teenagers' sexual decision-making self-efficacy, risk perception, and help-seeking behaviour. The substantial effect size ( $d=1.25$ ) indicates that the intervention had a strong effect. Better risk perception means being better able to spot dangerous circumstances, especially online exploitation and compulsion. In rural areas, where stigma often keeps teens from getting treatment, teens asking for aid more often is especially important.

Sustained progress at the three-month follow-up suggests information retention and behavioral reinforcement. Compared to traditional lecture-based instruction, the digital format probably made it easier for students to connect with and engage with the material. These results support the idea that school nurses should take on more leadership roles in teaching teens about digital health and preventing health problems.

### 5. Conclusion

The nurse-led digital sexual health literacy and consent education intervention significantly enhanced sexual decision-making, risk perception, and help-seeking behaviour among rural teenagers. It is highly suggested that structured digital sexual health education be included in school health programs, especially in rural areas. Scaling this strategy through national adolescent health initiatives may considerably contribute to the prevention of hazardous behaviour and sexual exploitation.

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