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RESEARCH ARTICLE

NEEDS ANALYSIS OF PUBERTY REPRODUCTIVE HEALTH LITERACY FOR BLIND STUDENTS

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ABSTRACT

Digital health is a discipline encompassing the study and application of digital technology to enhance health systems. It involves using digital health technology to benefit the general public, healthcare professionals, healthcare service providers, and the industry by empowering individuals and promoting a comprehensive health agenda.

This study uses a qualitative methodology, explicitly utilizing the phenomenological design. This study included a questionnaire analysis to assess the reproductive health needs of adolescents experiencing puberty. Additionally, we conducted in-depth interviews to collect data. School teachers, peers, and the use of online sites for information retrieval are the primary sources for providing reproductive health education to adolescent children. The teaching process encounters several challenges due to societal taboos and discomfort surrounding sensitive topics like sexuality. Consequently, children, including those with special needs and who require specialized approaches, often experience delays in acquiring knowledge about reproductive health.

There is a pressing need for innovation in the healthcare sector to enhance the provision of digital services to various communities, including students.

KEYWORDS

reproductive health, blind, puberty, blind literacy, Subject classification codes: Reproductive Health, Blind, Puberty, blind literacy

BACKGROUND

Digital health studies and implementation of digital technology enhances health systems [1]. Applying digital health technology empowers individuals and creates a comprehensive health agenda for the public, health professionals, healthcare providers, and industry. The development of digital health is highly beneficial for dealing with groups with disabilities, such as people who are blind; however, the development of media must consider the limitations of blind individuals. [2,3]

In the healthcare sector, the uncritically shared information is unjustifiable, constituting a fraud that misleads the public . To address these issues, contemporary healthcare professionals must exhibit innovation in health promotion, mainly digital

health promotion. Social media and digital health promotion can enhance public health literacy, given that most Indonesians possess and use smartphones with internet connectivity.

In Indonesia, the government pays little attention to reproductive health education for blind teenagers. The lack of literature addressing reproductive health issues for blind teenagers is evident, despite the necessity for such information, as blind adolescents experience growth and sexual urges comparable to their sighted peers. [4–6]

Previous research has concentrated chiefly on specific facets of online learning, such as the adoption of technology, student engagement, or specific pedagogical methods. There is a paucity of studies that delve into the comprehensive interaction of technological, pedagogical, and institutional factors impacting the effectiveness of online education, particularly during rapid shifts like the COVID-19 pandemic. Moreover, existing literature lacks a robust framework for evaluating online learning programs that consider the varied needs of different stakeholders. This research contributes to developing reproductive health education literacy materials for blind and visually impaired students in Jambi Province. This study addresses the identified gap by proposing a holistic evaluation framework integrating technological, pedagogical, and institutional dimensions. It explores how these factors influence online learning experiences' quality and effectiveness. The research explicitly considers the sudden transition to online learning due to the pandemic, providing valuable insights into the challenges and opportunities during this period. It also collects data from multiple stakeholders (students, instructors, and administrators) to offer a more nuanced and comprehensive understanding of online learning effectiveness.

This study is part of broader research on developing reproductive health education literacy media for blind and blind students in Jambi Province, Indonesia.

RESEARCH METHODS

This explanatory study utilized a mixed-methods approach, combining quantitative and qualitative data collection techniques. The study population consisted of nine blind students (age range) from 12 to 18 years old, six parents of blind students, and six parents of blind students. To ensure a representative sample of blind students and their parents who could provide valuable insights into the research question, we employed purposive sampling. The study employed a phenomenological approach, focusing on the lived experiences of blind students and their parents regarding reproductive health literacy during puberty. This approach is suitable for understanding this population's unique perspectives and challenges. [7]

The Ethics Committee of the Jambi Ministry of Health Polytechnic approved the study ethically (Reference Number: No. LB.02.06/2/03 2022). The study aims to ensure participant anonymity and confidentiality while adhering to ethical norms for collecting sensitive data in adolescent research.

We successfully conducted a study with students and parents to evaluate visually impaired students' reproductive health literacy needs during puberty. Our approach included private interviews, impartial language, and clear instructions to ensure unbiased responses. By analyzing quantitative data through descriptive statistics and qualitative data through thematic analysis, we gained valuable insights into participants' experiences. This comprehensive methodology provided a deep understanding of these students' specific needs. This study aims to explore the complex interactions of various factors that influence the effectiveness of online learning, providing a framework for future research and practical improvements, especially for implementing health promotion media designs for people who are blind.

RESULTS AND DISCUSSION

ACCESS TO REPRODUCTIVE HEALTH INFORMATION DURING PUBERTY

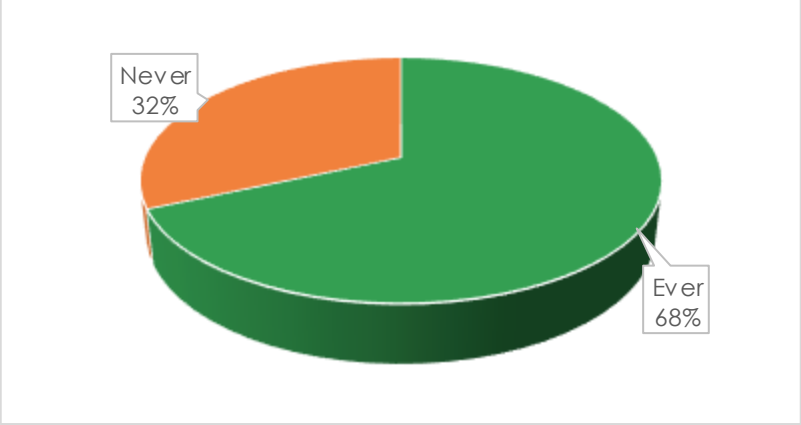
Student interviews were conducted in phases and were participated in by educators who instructed visually impaired students. The exhaustive description effectively yielded the results, demonstrating a thorough understanding and precision:

TABLE 1 FREQUENCY DISTRIBUTION OF ACCESS TO REPRODUCTIVE HEALTH PROMOTION FOR BLIND STUDENTS' REPRODUCTIVE HEALTH (N=20)

No	Statement	f	%
1	Experience of getting Reproductive Health Promotion/education at puberty by Health Workers		
	Ever	0	0
	Never	20	100
2	The experience of being asked/discussing changes in puberty by parents		
	Ever	0	0
	Never	20	100
3	The experience of being asked/discussing changes in puberty by friends		
	Ever	20	100
	Never	0	0
4	Experience Finding out reproductive health information via the internet/social media		
	Ever	20	100
	Never	0	0

Sources of health education regarding reproductive health during puberty experienced by blind students come from schoolteachers, peers, and looking for information on the Internet.

FIGURE 1 FREQUENCY DISTRIBUTION OF ACCESS OF DEAF STUDENTS REGARDING EXPERIENCES OF BEING ASKED/DISCUSSED ABOUT PUBERTY CHANGES BY TEACHERS



Teenagers require education on reproductive health, beginning with understanding and safeguarding their reproductive organs. We must convey information about sexual changes during puberty with extra care and patience. Use simple, straightforward, and easy-to-understand language. Adolescents in any condition have the right to live, grow, develop, and participate according to their dignity and worth. Without guidance, adolescents may struggle to adapt to their environment. Many parents are reluctant to tell their children about puberty, which results in the child looking for information about puberty on their own through the Internet and other media, which can have bad results. [2,4,5]
Participants stated that they had received health promotions regarding dental health from health workers before the COVID-19 pandemic.
"*…. I have received counseling about dental health once, but it has been a long time….*" *(Respondent 1, 15 years old)*

"*… I have received counseling about toothbrushes, but I have never had about reproduction. I got information about reproduction from searching on my cellphone or the Internet, as well as discussions with friends…*" *(Respondent 3, 17 years old)*

All participants expressed a desire to receive health promotions from health workers more frequently, covering a wider range of topics. Students with hearing impairments also said they were curious about caring for their health. Puberty confusion resulted from a lack of information about changes.

Health workers face obstacles in their health promotion activities for blind students, primarily due to their limited communication skills. However, multimedia development can now overcome the difficulty of communicating with blind students. Multimedia will minimize the shortcomings of blind people.

Health workers can also maximize health promotion activities through social media, which maximizes captivating writing and images. Research has proven that social media technology can facilitate more social interaction between blind students and their social environment, thus assisting social and educational integration. We suggest adopting social media in online and mixed learning contexts. Adoption of social media can go beyond classroom studies. Blind and blind students can use social media to help them access academic and social interactions and reduce feelings of isolation. [8,9]

Few studies have looked at disability in rural areas; some have explicitly focused on disability and healthcare access. Prioritizing more remarkable quantitative research contributions to assess and improve healthcare access for persons with disabilities is necessary. People with disabilities have significantly lower well-being scores and limited access to health services, employment, rehabilitation, education, government social welfare, and disaster management is higher than non-disabled persons. Researchers identify disability and negative family attitudes as barriers for people with disabilities. People with disabilities participate in work, community meetings, and religious and social events. [8,10]

"*…I was never told that I would menstruate when I was older. When I first started bleeding after taking a shower, I was confused and scared, and then I was told to wear sanitary napkins. I was taught how to use it, but I was not invited to discuss other matters (Respondent 7, 18 years old) ….*"

Most students serving as resource persons expressed that they had never received an invitation to discuss the changes they would experience upon entering puberty. The female resource persons, particularly those who were Muslim, expressed that they received only instruction on how to use sanitary napkins and bathe after menstruation. Male resource persons who are Muslim are only taught how to "full ablution" without ever being invited to discuss what they experience and feel in the changes of puberty.

We must convey information about the sexual changes that occur during puberty with extreme caution and tolerance. This information necessitates the use of clear, straightforward, and easy-to-understand language. Young people can live, develop, grow, and contribute while maintaining their value and dignity, no matter their circumstances. Without

supervision, teenagers may struggle to adapt to their environment. Because many parents are reluctant to discuss puberty with their children, they may use the Internet and other media to research topics, which could be harmful.

The family plays a primary role in educational orientation by teaching reproductive health material earlier. Obstacles often occur in the teaching process because people still view it as taboo and deem it inappropriate to talk about sensitive areas such as sex. Many presume that children will comprehend their identity, the appropriate actions to take in such situations, and the terminology involved; nevertheless, this is not the issue for youngsters. Teaching children about reproductive health can be a lengthy process, particularly for those with special needs who employ unique methods. The delay in reproductive health knowledge will impact several aspects later, especially since many people take advantage of this to commit indecent behavior. [5,8,11]

LITERACY NEEDS FOR REPRODUCTIVE HEALTH EDUCATION IN PUBERTY FOR BLIND STUDENTS

All participants agreed that literacy is needed to prepare their children to face puberty.

"... I admit that I am perplexed about how to prepare our child for puberty, given our child's imperfections, and the topic is challenging to discuss..." (Parent, Y, 40 years old)

TABLE 2 ANALYSIS OF LITERACY NEEDS FOR REPRODUCTIVE HEALTH EDUCATION IN PUBERTY FOR BLIND STUDENTS (STUDENTS N=20, PARENTS N=6)

No	Statement	Student		Parent	
		f	%	f	%
1.	Reproductive Health Information Needs Puberty				
	Need	20	100	6	100
	No need	0	0	0	0
2.	Reproductive Health Education Topics				
	(you can choose more than one option)				
	Reproductive Organs Introduction	20	100	6	100
	Changes in Puberty	20	100	6	100
	How to care for reproductive organs	20	100	6	100
	Target Media promotion				
	Only Students	0	0	0	0
	Only Parent/Companion	0	0	0	0
	For students and parents/guardians	*20*	100	6	100
	Expected health promotion media				
	Digital Media	0	0	0	0
	Interactive Multimedia	20	100	6	100

Problems Parents of special needs children, as well as parents of teenagers in general, struggle to prepare their children for puberty, face communication challenges, and encounter a "taboo" culture when discussing reproductive health. Technological advances, such as the availability of information via the Internet, have significantly enhanced the quality of life for people with disabilities in developed countries. All people with disabilities, even those in developing nations, must have access to new technologies.

The World Health Organization (WHO) advises expanding access to health promotion information and communication for people with disabilities, including the following: Diverse communication approaches are employed to improve access

to health resources and public health information.: sign language or text, clear and easy-to-understand visual formats, large print or braille content, and information broadcasted through radio, television, or other non-print media. These efforts ensure inclusivity and comprehensibility for everyone. [6,8,12,13]

The results also demonstrate that parents and participants from blind school's desire access to interactive multimedia-based literacy anytime, anywhere.

This result is in line with the research results, which stated that research indicates that information sources directly affect the reproductive health behaviors of adolescents with visual impairments. Libraries, periodicals, newspapers, and the Internet all play an essential part in molding the behavior of impaired teens when it comes to understanding reproductive health issues. Health and non-health workers are highly esteemed as the most reliable sources of reproductive health information. Their guidance empowers adolescents to enhance their knowledge about reproductive health and adopt responsible sexual behaviors, fostering a healthier and well-informed community. Knowledge is linked to reproductive health behaviors in teenagers with disabilities because it allows them to discern between good and poor behaviors and avoid seeking information from friends or other sources. Participating in programs specifically designed to address adolescents' visual impairments can significantly enhance their comprehension and conduct in this domain. These tailored initiatives improve their comprehensive and empower them to meet their unique needs better, fostering a more inclusive and supportive learning environment. [2,9,14,15]

The literature study conducted by the research has not found any media that promotes the reproductive health of blind adolescents issued by the Ministry of Health or government agencies. Promotional media is necessary to promote reproductive health, considering more attractive media and information technology, which can expand the scope of targets for health promotion. Various promotional media for blind adolescents include interactive multimedia, digital media, health promotion activities, and accessible materials. Interactive multimedia, desired by both blind students and their parents, involves resources such as audio descriptions and tactile graphics. Despite the lack of explicit preference, digital media remains significant through accessible websites and mobile applications. Health promotion activities, like counseling, are crucial and delivered by trained professionals. We also emphasize the use of accessible materials like braille and large print. [16–18]

The study uses a qualitative approach with a phenomenological design and in-depth interviews, yielding rich data. However, limitations include a small sample size, lack of quantitative data, and limited geographic representation. Despite these limitations, the study underscores the significance of inclusive media for reproductive health education and calls for further research to validate and enhance these approaches.

CONCLUSIONS AND SUGGESTIONS

Blind students obtain health education about reproductive health during puberty from schoolteachers, peers, and online resources. All participants concurred that preparing their children for puberty requires literacy. To provide better digital services to the community, including blind students, innovation in health services is also necessary.

Health promotion media addresses not only blind youths but also their parents and companions, including families, educators, and therapists. Reproductive health resources are provided throughout puberty, ensuring that students receive support not only after experiencing puberty-related changes but also in preparation for puberty itself. This proactive approach equips students with essential knowledge and skills, fostering informed and healthy development.

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