

Determinants of Sexual Behaviour among Adolescents with Disabilities: Comparative Study between The Deaf and The Intellectually Disabled

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ABSTRACT

Background: In Indonesia, approximately 7.7% of individuals aged 10-17 years live with disabilities, representing a substantial portion of the adolescent population. These adolescents experience puberty similarly to their non-disabled peers but face unique social and cognitive challenges that may influence their sexual behaviour. **This study aims** to identify the determinants of sexual behaviour among adolescents with hearing and intellectual disabilities. **Method:** A quantitative, cross-sectional study was conducted at a Public Special Needs School in Semarang City. The study population consisted of 73 students with hearing impairments and 101 students with intellectual disabilities. Based on total sampling and predefined inclusion criteria, 34 adolescents with hearing impairments and 38 with intellectual disabilities were included as participants. Data were collected using validated, closed-ended questionnaires administered with the assistance of teachers. Statistical analyses were performed using Spearman's rank correlation and the Mann-Whitney U test. **Result:** Attitudes ($p = 0.004$), peer influence ($p = 0.001$), and access to health information ($p = 0.015$) were significantly associated with sexual behaviour. However, no significant differences in sexual behaviour were found between adolescents with hearing impairments and those with intellectual disabilities. Among adolescents with hearing impairments, peer influence and access to information were the strongest predictors, whereas among those with intellectual disabilities, attitudes and peer roles emerged as the dominant determinants. **Conclusion:** Sexual behaviour among adolescents with disabilities is influenced by both interpersonal and cognitive factors. School-based programmes that enhance peer support, foster positive attitudes, and improve access to accessible reproductive health information are essential for promoting safer sexual behaviour within this population.

Keywords: Adolescents, Disabilities, Deafness, Intellectual Disability, Sexual Behaviour

INTRODUCTION

The global prevalence of disability is estimated at approximately 15%. Around 82% of persons with disabilities live in developing countries, often below the poverty line, and frequently face limited access to employment, health care, education, and training. In Indonesia, 7.7% of individuals with disabilities are between 10 and 17 years of age, representing a substantial proportion of the adolescent population. According to Somantri (2007)

and Guina et al. (2022), cognitive limitations associated with intellectual disability may reduce an individual's ability to anticipate the consequences of their actions or recognize the wrongfulness of certain behaviours, although Guina et al. highlight this within a nuanced clinical-legal context. Adolescents with intellectual disabilities also tend to have limited understanding of social norms, making it more difficult for them to regulate their behaviour, interpret social situations appropriately, and control



impulses (including sexual impulses) which may result in inappropriate behaviours (Suprihanti, 2007; Guina *et al.*, 2022).

Similarly, the deaf community remains highly marginalized within the healthcare system due to the interplay of socioeconomic and cultural barriers. For example, the limited proficiency in sign language among physicians and other healthcare staff often prevents hearing-impaired patients from receiving adequate and timely medical care (Idiong, Akwaowo and Umoh, 2021).

Adolescents, including those with disabilities, often experience a mismatch between their physical and emotional maturity, which heightens curiosity and risk-taking behaviours. When combined with limited knowledge and delayed age at marriage, this mismatch contributes to increased sexual and reproductive health risks, including the likelihood of engaging in premarital sexual activity (Jackson and Goossens, 2006; Musthofa and Winarti, 2010). Another study reported that 53.2% of adolescents engaged in risky sexual behaviours, with 12.72% classified as exhibiting severe risk behaviours. High-risk behaviours identified in the study included deep kissing, touching sensitive body areas, genital contact with or without clothing, and engaging in sexual intercourse (Aprianti, et al 2020).

In Indonesia, existing adolescent reproductive health programmes have not effectively reached youth with disabilities, particularly those with hearing impairments, due to inaccessible information formats, limited sign-language support, and persistent negative societal perceptions (Suariyani *et al.*, 2020). As a result, adolescents with disabilities often lack adequate knowledge on sexuality, HIV prevention, and reproductive health, leaving them vulnerable to misinformation and at heightened risk of sexual exploitation (Muthoharoh, 2015; Chamidah, Hartini and Herini, 2021). Studies indicate that deaf and intellectually disabled adolescents engage in a range of sexual behaviours similar to their non-disabled peers but face heightened risks, including unsafe sexual practices, multiple partners, unintended pregnancy, and increased vulnerability to sexual violence (Findley, Plummer and McMahon, 2016; Chamidah, Hartini and Herini, 2021, Komisi Nasional Perempuan, 2021). Structural barriers such as

inadequate education, communication difficulties with health workers, and the lack of disability-friendly reproductive health media further exacerbate their vulnerability (Retnowati, 2013).

Research also shows that adolescents with intellectual disabilities frequently struggle to understand body parts, sexual relationships, and consent, increasing their risk of socially inappropriate behavior and sexual abuse—rates of which are more than double those among non-disabled peers (Satryawan, 2021). Despite international and national legal frameworks affirming their right to accessible information and protection from violence, these rights are often unmet (Gürol, Polat and Oran, 2014). Misconceptions that youths with disabilities are asexual lead parents and educators to avoid providing sex education, despite evidence showing that they are sexually active (Suariyani *et al.*, 2020). Comprehensive, early, and accessible sexuality education—supported collaboratively by parents, teachers, and health professionals—is essential to promote safe decision-making, protect against abuse, and foster healthy sexual development among adolescents with disabilities (Suariyani *et al.*, 2020).

METHODS

Research Design

This study used a quantitative method with a cross-sectional design. The research was conducted in 2021.

Population and Sample

This study was conducted at the Semarang City Special Needs School, which has the largest number of students with hearing and intellectual disabilities. The study population comprised all junior and senior high school students with hearing impairments and intellectual disabilities at the school, totalling 174 students (73 with hearing impairments and 101 with intellectual disabilities). Student data were obtained from the coordinators for the hearing-impaired and intellectually disabled programmes. The collected information included student characteristics, intellectual functioning levels (for those with intellectual disabilities), categories of hearing impairment, and class level.

The sampling technique employed was total sampling, with inclusion criteria consisting of students aged 15 years or older, those with mild intellectual disability, active enrolment at the Semarang City Special Needs School, and the ability to communicate. Exclusion criteria included multiple disabilities and absence from school during data collection. Based on these criteria, a total of 34 students with hearing impairments and 38 students with intellectual disabilities were included in the study.

Instruments and Variables

A pilot test of the questionnaire was conducted with experts, teachers of students with hearing impairments and intellectual disabilities, as well as with deaf and intellectually disabled students at SLB N Tompokersan (Tompokersan Special Needs School), Lumajang Regency. The instrument was subsequently evaluated for validity and reliability. The final questionnaire was designed to assess multiple dimensions of adolescent reproductive health knowledge, attitudes, access, and behaviour.

The knowledge component included six questions covering topics such as the possibility of pregnancy from a single sexual encounter, methods of pregnancy prevention, and the consequences of adolescent pregnancy. Nine items assessed attitudes toward permissiveness, the need for reproductive health education, and abortion. Access to health services was examined through six questions addressing the availability and accessibility of adolescent-friendly health services, while four items assessed the ease of locating and understanding health information.

Peer influence was measured with six questions related to dating invitations, exposure to pornographic content, and permissive attitudes toward dating. Parental influence was assessed through seven items concerning communication about sexuality, guidance on body boundaries, and practices related to genital hygiene. Finally, eight questions evaluated the sexual behaviour of adolescents with disabilities.

Data Collection

The time required to complete the questionnaire was approximately 30 minutes for respondents with hearing

impairments and 45 minutes for those with intellectual disabilities. The next stage involved data collection. Prior to data collection, all respondents were required to complete an informed consent form, acknowledged by their parents or guardians.

Data collection for respondents with intellectual disabilities was conducted through one-on-one interviews, with each respondent accompanied by one enumerator and one teacher. For respondents with hearing impairments, data collection was conducted in groups of 4-6 students per class, guided by a teacher who served as a sign-language interpreter, with each respondent accompanied individually by an enumerator. Prior to these activities, training was provided for both enumerators and accompanying teachers to ensure a shared understanding of the questionnaire and consistency in data collection procedures.

Data Analysis

Data analysis began with cleaning the completed questionnaires, followed by data entry and organization for subsequent analysis. All variables were measured on a ratio scale; therefore, a normality test was performed. Because none of the variables were normally distributed, bivariate correlations were examined using the Chi-square test, and group differences were assessed using the Mann-Whitney test.

RESULTS AND DISCUSSION

A total of 34 students with hearing impairments and 38 students with intellectual disabilities participated in the study. Table 1 presents the demographic characteristics of the respondents.

Table 1. Demographic Characteristics of Respondent

Demographic Characteristics	N (72)	%
Gender		
Male	46	63.9
Female	26	36.1
Age group		
13 - 15	19	26.4
16 - 18	22	30.5
19 - 21	31	43.1
Education Level		
Junior High School	23	31.9
Senior High School	49	68.1

The majority of respondents were male (63.9%). The dominant age group was 19-21 years (43.1%). Most respondents were at the senior high school level (68.1%).

Table 2. Respondents' Sexual Behavior

Sexual Behaviour	n (72)	%
Holding hands with girlfriends/boyfriends	21	29.2
Hugging	10	13.9
Cheek kissing	8	11.1
Lip kissing	5	6.9
Touching sensitive body parts (thighs, buttocks and genitals)	7	9.7
Touching each other / sticking genitals while clothed	3	4.2
Touching each other / sticking genitals without clothes	2	2.8
Sexual intercourse	2	2.8

Table 2 shows that the majority of respondents reported having held hands with a girlfriend or boyfriend (29.2%). Additionally, 9.7% had touched sensitive body parts, 4.2% had engaged in genital contact while clothed, and 2.8% had had sexual intercourse.

Adolescents with disabilities have the same likelihood of being sexually active as their non-disabled peers. Although adolescents with intellectual disabilities may exhibit atypical emotional development, their physical and sexual development progresses similarly to that of other teenagers, including experiencing puberty, developing romantic interest in the opposite sex, and undergoing both physical and psychological maturation—although often at a slower pace than typically developing adolescents. Meanwhile, adolescents who are deaf develop in ways comparable to other children; their limitations relate primarily to hearing and speech.

This study found no significant difference in sexual behaviour between adolescents with intellectual disabilities and those who are deaf. These findings are consistent with research by Farakhiah et al., which also reported no difference in the tendency to express romantic interest in the opposite sex between adolescents

with intellectual disabilities and those with hearing impairments (Farakhiyah, Raharjo and Apsari, 2018). The difference that emerges lies in the level of cognitive functioning and psychological maturity, which is considerably lower than that of typically developing adolescents. Sexual behaviours reported among adolescents with intellectual disabilities and those who are deaf include hugging, kissing, and sexual intercourse. According to a study conducted in Nigeria, the majority of adolescents with disabilities (81.2%) had engaged in sexual activity, with a mean age of sexual debut at 11 years. Nearly half (49.5%) reported initiating sexual activity before the age of 15, with significantly more girls (47.5%) than boys (32.0%) reporting early sexual debut ($p = 0.028$). Although 65.3% had engaged in unprotected intercourse in the previous two years, only 18% were aware of how to protect themselves against sexually transmitted diseases (Idiong, Akwaowo and Umoh, 2021) (Brkić-Jovanović *et al.*, 2021). The students with hearing impairments in this study generally demonstrated favourable attitudes and adequate knowledge regarding condom use as a preventive measure against sexually transmitted diseases (STDs). Positive attitudes were observed among both male and female respondents. In light of these findings, ensuring accessible HIV/AIDS counselling and testing services for individuals with hearing impairments is essential to improving condom use as a preventive measure against sexually transmitted infections (Nwachuku, Okoro and Eyo, 2020).

The prevalence of respondents who have had sexual intercourse is higher than in this study because, in Indonesia, premarital sexual activity is culturally unacceptable (Asbi Juliani; Aras, Dara Ugi, 2019). This study also did not examine condom use among respondents because, based on the initial survey, it was found that the respondents had no knowledge of condoms.

Table 3. Bivariate Test Results for Respondents' Sexual Behavior

Variable	Sexual Behaviour				P-value
	Risk		Not risk		
	%	f	%	f	
Knowledge Level					
Sufficient	18	36	32	64	0.407
Problematic	6	27.3	16	72.7	
Attitude					
Positive	10	24.4	31	75.6	0.004
Negative	14	45.2	17	54.8	
Role of parents					
Involved	9	27.3	24	72.7	0.646
Not involvd	15	38.5	24	61.5	
Role of friends					
Involved	13	56.5	10	43.5	0.001
Not involved	11	22.4	38	77.6	
Acces to adolescents health care					
Good	16	35.6	29	64.4	0.372
Less	8	29.6	19	70.4	
Acces to health reproductive information					
Good	19	50.0	19	50	0.015
Less	5	14.7	29	85.3	

Table 3 shows that risky sexual behaviour was more common among respondents with sufficient knowledge (36%), negative attitudes (45.2%), parents who were not involved (38.5%), peers who played an influential role (56.5%), adequate access to health services (35.5%), and good access to health information (50%). Statistical analysis showed that attitudes ($p = 0.004$), peer influence ($p = 0.001$), and access to health information ($p = 0.015$) were significantly associated with sexual behaviour. Furthermore, differences in behaviour and associated factors between adolescents with hearing impairments and those with intellectual disabilities were analysed, with the following results:

Table 4. Test for Differences Factors Associated Sexual Behavior among the deaf and mentally disabled

Variable	Z score	P-value
Sexual behaviour	0.384	0.701

Level of knowledge	of 0.406	0.685
Attitude	2.473	0.012
Role of friends	1.681	0.093
Role of parents	0.523	0.601
Acces to adolescents health care	to 3.920	0.001
Acces to health reproductive information	2.568	0.010

Table 4 indicates that there is no difference in behaviour ($p = 0.701$), level of knowledge ($p = 0.685$), the role of friends ($p = 0.093$), or the role of parents ($p = 0.601$) between adolescents with intellectual disabilities and those with hearing impairments. However, there are differences in attitude ($p = 0.012$), access to services ($p = 0.001$), and access to information ($p = 0.010$) between the two groups. The analysis is continued by examining the differences in correlation between adolescents with hearing impairments and those with intellectual disabilities in Table 5, as follows:

Table 5. Correlation Test of Respondents with Deaf and Intellectual Disabilities

Variable	Deaf Disability P-value	r	Mentality Disability P-value	r
Level of knowledge	0.868	-	0.225	-
Attitude	0.394	-	0.001	0.543
Role of friends	0.018	0.405	0.001	0.498
Role of parents	0.745	-	0.281	-
Acces to adolescents health care	0.182	-	0.605	-
Acces to health reproductive information	0.001	0.526	0.770	-

Table 5 presents the results of the stratified correlation analysis between deaf and intellectually disabled respondents. Among adolescents with hearing impairments, factors that were statistically significantly associated with sexual behaviour were peer influence ($p = 0.018$, $r = 0.405$) and access to information ($p = 0.001$, $r = 0.526$). Among adolescents with intellectual disabilities, attitudes ($p =$

0.001, $r = 0.543$) and peer influence ($p = 0.001$, $r = 0.498$) were the factors significantly associated with sexual behaviour.

The results of this study indicated no difference in knowledge levels among adolescents and no significant relationship between knowledge and behavior in adolescents with intellectual disabilities and deafness. These results differ from the results of research conducted by Shulhan, where there is a significant relationship between the level of knowledge and sexual behavior in adolescents with intellectual disabilities (Hidayat *et al.*, 2021).

One of the individual elements is the requirement for information and knowledge about reproductive health that is available in educational settings. Maintaining a healthy and high-quality reproductive life has been proven to depend heavily on having a thorough understanding of reproductive organs and their functions. The reproductive health knowledge of adolescents with hearing impairment is still very superficial due to limited access to health information and the fact that the information currently available is not written in Braille letters, does not use simple language, and is not communicated in sign language. Research conducted in Ethiopia revealed similar results, with over half of the participants not receiving adequate, high-quality information regarding reproductive health (Suariyani *et al.*, 2020).

Furthermore, the attitude variable is significantly related to adolescent sexual behavior in both intellectually disabled and deaf adolescents. They have limitations in accessing sex education. Proper sex education can change a person's behavior by knowing the stimulus or object by preventing sexual behavior deviations, then making an assessment or opinion on what is known. In the following process, the child will practice what he knows or does. The use of sexual education for adolescent psychological resilience, namely to answer adolescent questions of curiosity through providing correct information regarding sexuality and forming positive adolescent attitudes in dealing with premarital and premarital sexual behavior (Handayani, Yamtinah and Kristiyanto, 2021; Amin, Multaazam and Kurnaesih, 2019). Especially for youth with deaf disabilities, where the ability to receive information is minimal,

statistically, there is a significant relationship between access to information and sexual behavior in adolescents with hearing disabilities. In addition, health information has little impact on the incidence of sexual violence. A study conducted on 101 students with disabilities at Northeastern Public University, showed that 62% of respondents had experienced some form of physical or sexual harassment before the age of 17. Access to sexual and reproductive education is a human right. Many youths have not comprehensively fulfilled their rights, especially those with disabilities (Pinandari *et al.*, 2015). A study in Ghana found that people with hearing impairment sought information from various media. This finding is highly similar to that of this study. There was a tendency for participants to consult various media sources, especially in the form of pictures or videos, to obtain a more in-depth understanding about this topic. However, the information available on the Internet may not always be reliable and credible, and there is also a possibility that the adolescents will end up accessing pornographic content.

In addition to the school's responsibility, sex education is also the responsibility of parents at home. Parents have the potential to be significant sources of information and support for their children regarding sexual issues (Khodijah *et al.*, 2019). However, many parents think that sex education is a taboo subject to talk about with their children and does not need to be given to their children because they think that when their children grow up, and their children will understand themselves. In addition, many parents feel they lack skills and are not confident in providing sexual education to their children. In addition, not all parents understand the importance of providing sexual education for their children, and not all parents are willing to be open with their children in discussing sexual issues (Zhang *et al.*, 2013). In line with this study on reinforcing factor role of parents as determinants to risky sexual behaviour in adolescents, if there is no role of parents in providing education to adolescents, statistically, there is no relationship between the role of parents and the sexual behavior of the respondents.

Parents understood how crucial it was to have a solid grasp of religion when

teaching sex education. They clarified that after outlining religious regulations, it was simpler to provide sex education. Parents frequently advise their kids that it is wrong to roam around nude after taking a bath and to engage in inappropriate behavior, like hugging, with a friend of the opposite sex. This is consistent with Wilson's explanation [10] that a number of parents used religious instruction or religious communities to support sex education. Due to their lack of awareness about their children's sexual development, parents admitted that it was difficult to react to their children's questions about sex, particularly from their sons, or to offer sex education. Parents reported that they were unsure about how to begin teaching their kids about sex and what language would be most understandable to them. They came to see that their ignorance of their children's sexual development led to resistance and uncertainty about how to begin sex education. They want to do it correctly and on schedule. This was challenging for the parents because it was already challenging to teach the kids with intellectual disabilities about everyday activities. They had to wait until their kids asked about sex or, occasionally, until they had a specific sex issue before taking on the responsibility of providing sex education. Parents also cited several adverse effects of delayed sex and social interaction education, such as their children's inappropriate sexual behavior and their ignorance of how to take care of their reproductive systems. When kids recognize their faults in sexual activity, they can defend themselves against exploitation that could harm their physical and mental well-being, fulfilling the goal of sex education. Children with intellectual disabilities can develop into independent, self-assured individuals with the support of quality sex education. Additionally, the kids will improve their social skills, have a good outlook, engage in healthy sexual conduct, and be less vulnerable to STDs, unintended pregnancy, and sexual harassment (Ariadni, Prabandari and DW, 2017).

Furthermore, besides the role of parents, the role of peers is crucial in adolescent sexual behavior. Adolescents are vulnerable to bad things because they will try something new, find their identity, and cannot be fully responsible for their behavior. Just as their knowledge about

premarital sex is undoubtedly minimal, they are more comfortable finding out with their group through books, the internet, and pornographic films and even try it for themselves. Each member of the group will follow what is done by other members. They have the same attitude towards something that is believed (Dannayanti, Yuniar and Mery, 2011; Maryatun, 2013). Research conducted by Aprianti shows that the role of friends has the most substantial relationship with adolescent premarital sexual behavior (Aprianti, Anggraini Nursal and Pradipta, 2020). In line with this research, the findings show a significant relationship between the role of friends and sexual behavior among adolescents with intellectual disabilities and hearing impairments. This result is supported by a study conducted by Mafhira, which found that the peer interaction variable (X2) was related to the attitudes of adolescents with intellectual disabilities toward premarital sexual behavior (Y). This relationship is reflected in the Kendall-Tau correlation analysis, which shows a significance value of $0.000 < 0.05$. The correlation coefficient of 0.657 indicates a strong relationship, as it falls within the 0.5-0.75 range (Naryoso, 2020).

CONCLUSION

The findings of this study highlight the importance of context-specific interventions to promote healthy sexual behavior among adolescents with disabilities. For adolescents with intellectual disabilities, schools should strengthen peer influence and foster positive attitudes through structured and adaptive reproductive health education programs. These programs should incorporate peer-led activities, counseling sessions, and accessible learning materials presented in simplified language with visual aids tailored to students' cognitive levels.

For adolescents with hearing impairments, schools are advised to enhance access to accurate and easily understood reproductive health information. This can be achieved by providing educational content in sign language, visual infographics, and captioned audiovisual materials, as well as ensuring that teachers are trained in inclusive and effective communication methods.

At the policy level, collaboration between the Department of Education and the Department of Health is essential to integrate comprehensive and disability-inclusive reproductive health education into existing school curricula. This partnership should prioritize teacher capacity building, the development of culturally and cognitively appropriate learning tools, and the establishment of sustainable school-community linkages to ensure equitable access to reproductive health information for all adolescents with disabilities.

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Author contributions

FDP and KM designed the study and conducted literature research. AP participated in recruiting participant, data analysis, protocol formulation, and ethical approval. The original draft of the work was written RW. SPR contributed to the review and editing of the article. All authors contributed to the review, modification, and approval of the manuscript.

Research Limitation

This study has several limitations that should be taken into account when interpreting the findings. First, the sample size was relatively small, which may limit the generalizability of the results to the broader adolescent population with disabilities. Future studies with larger and more diverse samples are recommended to strengthen statistical power and external validity.

Second, communication barriers inherent to the participants' disabilities, particularly among those with hearing impairments and intellectual limitations, may have influenced the depth and accuracy of their responses. Although efforts were made to use simplified language, visual aids, and assistance from interpreters or teachers, some nuances in participants' perceptions and experiences may not have been fully captured.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

This study has passed a research ethics test from the Faculty of Health, the University of Dian Nuswantoro, with ethical number No: 139/EA/KEPK-Fkes-UDINUS/XII/2021.

Informed consent

Written informed consent was obtained from all participants prior to the study.

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