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The Effect of Counseling on Adolescents' Knowledge and Attitudes Regarding Reproductive Health at SMAN 1 Palu

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ABSTRACT

Adolescent reproductive health encompasses the physical, mental, and social conditions related to the reproductive system. Lack of knowledge increases the risk of engaging in risky behaviors, such as premarital sex, which contributes to high rates of unwanted pregnancies (UP), abortions, and sexually transmitted infections (STIs), including HIV/AIDS. Previous studies have shown that adolescents' level of knowledge regarding reproductive health remains low. The objective of this study was to determine whether health education (counseling) influences the knowledge and attitudes of students at SMAN 1 Palu regarding reproductive health. The research method used was analytical research with a pre-experimental design,. The sample consisted of 94 students from SMAN 1 Palu, selected using proportional stratified random sampling. To analyze the effect on knowledge and attitudes, the Wilcoxon test was used. A questionnaire served as the research instrument. The results showed a significant increase in knowledge levels after the intervention, The number of respondents with good knowledge increased from 23 respondents (24.5%) in the pretest to 87 respondents (92.6%) in the posttest. The fair knowledge category decreased from 64 respondents (68.1%) to 7 respondents (7.4%). The poor knowledge category decreased from 7 respondents (7.4%) to 0 respondents (0%). Similarly, attitudes improved significantly: Very positive attitudes increased from 78 respondents (83%) to 92 respondents (97.9%). Positive attitudes decreased from 12 respondents (12.8%) to 1 respondent (1.1%). Negative attitudes decreased from 4 respondents (4.3%) to 1 respondent (1.1%). Very negative attitude remained at 0 respondents (0%) before and after counseling. The p-value was < 0.05, indicating statistically significant changes after the delivery of reproductive health counseling to the students of SMAN 1 Palu. In conclusion, the health education intervention significantly improved students' knowledge (from fair to good categories) and shifted their attitudes (from negative and positive to very positive) regarding reproductive health at SMAN 1 Palu.

INTRODUCTION

Adolescence is a transitional period from childhood to adulthood, involving biological, psychological, and social changes.[1] This stage is often referred to as a life transition period, during which adolescents are in the process of searching for their identity. This leads to a sense of wonder or confusion about the changes happening within themselves—known as puberty—which involves biological, cognitive, social, and emotional changes.

These conditions make adolescents more vulnerable to risky behaviors that can affect their reproductive health.[2]

Adolescent reproductive health is defined as a state of well-being concerning the reproductive system, its functions, and processes. It is not merely the absence of disease or disability but also includes mental and socio-cultural well-being.[3]

Adolescent reproductive health also encompasses how adolescents maintain the health of their genital organs and how they are able to avoid risky behaviors that can harm their future. Risky behaviors include engaging in sexual intercourse before marriage and having multiple sexual partners, which can lead to the transmission of Sexually Transmitted Infections (STIs) and Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS).[2]

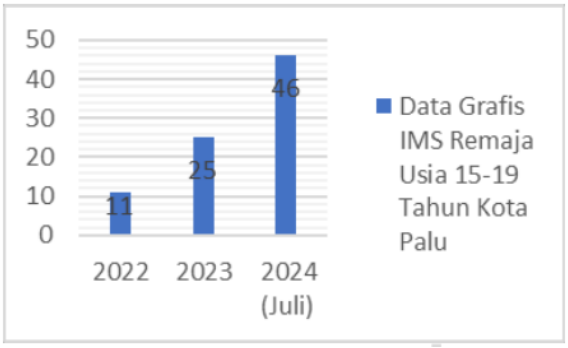
According to the World Health Organization (WHO, 2024), each year an estimated 21 million girls aged 15–19 in developing countries become pregnant, and 50% of these pregnancies are unintended, with 55% of unintended pregnancies ending in abortion.[4]

For STI cases, more than 1 million treatable STIs are transmitted every day worldwide among people aged 15–49, most of which are asymptomatic.[5] Approximately 67% of new HIV/AIDS cases in developing countries occur among young people aged 15–24 years.[6]

In Indonesia, according to data from the National Population and Family Planning Board (BKKBN) (2021), among adolescents in Indonesia aged 14–19 years, there were 19.6% cases of unwanted pregnancies (UP) and 20% of abortion cases were performed by adolescents. The national target was to reduce the UP rate to 8% by 2021.[7]

According to the Indonesian Pediatric Society (IDAI) (2022), the 15–19 age group, categorized as adolescents, is the group most infected with HIV, with a prevalence of 3.3%.[8]

Data from the Central Sulawesi Provincial Health Office show that among adolescents aged 10–19 years, there were 24 cases of unwanted pregnancy, 9 cases of adolescent childbirth, 11 cases of STIs, and 8 cases of reproductive tract infections.[9]



Picture 1. Number of Adolescents STIs, Palu City, in 2022-2023

For STI (sexually transmitted infection) cases, the most common diseases are syphilis, gonorrhea, and vaginal discharge infections. Meanwhile, in Palu City, according to the Provincial AIDS Commission (2024), HIV remains the largest contributor to cases, accounting for approximately 50%, with 23.5% occurring among adolescents aged 15–24 years. In 2023, 63% of HIV cases among individuals aged 15–24 were caused by premarital sexual activity.[10]

According to BKKBN (2019), the lack of dissemination of information regarding reproductive health has led to teenage pregnancies, abortions, adolescents contracting sexually transmitted diseases (STDs), and HIV infections.[11] Low knowledge levels combined with limited information influence adolescents' attitudes and behaviors.[12] As positive attitudes are formed, it is expected that adolescents will behave appropriately and not deviate from prevailing norms. Conversely, negative attitudes among adolescents can lead to an increase in reproductive health problems.[13]

The solution to addressing these issues is to conduct reproductive health education (counseling) activities for adolescents. Reproductive health counseling is effective in increasing adolescents' knowledge. This is because the counseling method involves two-

way communication, making it more impactful.[14]

According to the Palu City Health Office, Talise Community Health Center (Puskesmas Talise) has the highest number of STI cases. SMAN 1 Palu is located within the working area of this health center and has the largest number of students among all high schools in Palu City.

Based on this background, the authors were motivated to conduct a study on the level of knowledge and attitudes of adolescents regarding reproductive health at SMAN 1 Palu.

MATERIAL AND METHOD

Research Design

This study employed a pre-experimental design with a one-group pre-test and post-test approach to measure changes in knowledge and attitudes before and after the intervention.

Time and Place of Research

The study was conducted at SMA Negeri 1 Palu on January 13-14, 2025.

Population and Sample

The population consisted of students of SMA Negeri 1 Palu. A total of 94 students were selected using Proportionate Stratified Random Sampling, with the sample size determined through the Slovin formula to ensure representativeness of the population.

Data Presentation

Data were analyzed using the **Wilcoxon Signed Rank Test**, as the **Kolmogorov–Smirnov normality test** indicated that the data were **not normally distributed**. Data processing included **editing**, **coding**, **data entry**, and **tabulation**.

RESULTS AND DISCUSSIONS

Table 1. Characteristic Sampling according to Gender, Age, and Education Level

Category	Frequency n	Percentage %
Male	39	58.5
Female	55	41.5
Total	**94**	**100**
Age	**n**	**%**
15	19	20.2
16	34	36.2
17	31	33
18	10	10.6
Total	**94**	**100**
Education Level	**n**	**%**
Class X	28	29.8
Class XI	34	36.2
Class XI	32	34
Total	**94**	**100**

Based on Table 1, the characteristics of respondents in this study, which consisted of students of SMAN 1 Palu, can be described as follows:

By gender, there were 39 male students (58.5%) and 55 female students (41.5%).

By age, there were 19 respondents (20.2%) aged 15 years, 34 respondents (36.2%) aged 16 years, 31 respondents (33%) aged 17 years, and 10 respondents (10.6%) aged 18 years.

By education level, there were 28 respondents (29.8%) from grade X, 34 respondents (36.2%) from grade XI, and 32 respondents (34%) from grade XII.

Table 2. Frequency Distribution of Students Knowledge SMAN 1 Palu (Pre Test and Post Test)

Knowledge Category	Pre Test		Post Test	
	n	%	n	%
Poor	7	7.4	0	0.0
Fair	64	68.1	7	7.4
Good	23	24.5	87	92.6
Total	94	100	94	100

Based on Table 2, the frequency distribution of students' knowledge at SMAN 1 Palu before receiving counselingshows that 23 respondents

(24.5%) were in the good knowledge category, 64 respondents (68.1%) were in the fair knowledge category, and 7 respondents (7.4%) were in the poor knowledge category.

After receiving counseling, the number of respondents in the good knowledge category increased to 87 respondents (92.6%), the fair knowledge category decreased to 7 respondents (7.4%), and there were no respondents in the poor knowledge category (0%).

Table 3. Frequency Distribution of Students' Attitudes SMAN 1 Palu (Pre-test and Post test)

Knowledge Category	Pre Test		Post Test	
	n	%	n	%
Very Positive	78	83.0	92	97.9
Positive	12	12.8	1	1.1
Negative	4	4.3	1	1.1
Very Negative	0	0.0	0	0.0
Total	94	100	94	100

Based on Table 3, the frequency distribution of students' attitudes at SMAN 1 Palu before the counseling interventionshows that 78 respondents (83%) were in the very positive attitude category, 12 respondents (12.8%) were in the positive category, and 4 respondents (4.3%) were in the negative category.

After the counseling, the number of respondents in the very positive attitude category increased to 92 respondents (97.9%), while the positive attitude category decreased to 1 respondent (1.1%), and the negative attitude category also decreased to 1 respondent (1.1%).

Table 4. Distribution of Question Categories on Reproductive Health (Pre-Test and Post Test)

No.	Question	Pre Test		Post Test	
		%	Category	%	Category
1	Definition of Reproductive Health	57.5	Fair	92	Good
2	Growth and Sexual Development in Adolescents	74	Fair	91.5	Good
3	Anatomy of the Male and Female Reproductive Organs	53	Poor	88.75	Good
4	Pregnancy Process	51	Poor	94	Good
5	Sexually Transmitted Infections	62.5	Fair	91	Good
6	HIV/AIDS	65.6	Fair	93.2	Good
7	Unwanted Pregnancy and Abortion among Adolescents	72	Fair	93.1	Good

Based on Table 4, the question category with the highest number of correct answers in the pre-test was "Growth and Sexual Development in Adolescents", with a percentage of 74%. The questions with the most incorrect answers were those related to the pregnancy process and anatomy of the reproductive organs, with percentages of 51% and 53%, respectively — both classified as poor.
After the counseling session, students' knowledge in all question categories improved to the "good" category.

Table 5. Distribution of Attitude Question Items on Reproductive Health

No	Pertanyaan	*Pre Test*		*Post Test*	
		Sangat Positif (%)	Sangat Negatif (%)	Sangat Positif (%)	Sangat Negatif (%)
1.	Tindakan remaja putri dan putra menonton, jalan bersama, berpegangan tangan, dan berciuman pipi diperbolehkan	71,2	28,7	88,29	11,7
2.	Seorangа remaja tidak boleh melakukan hubungan seksual (intercouse) sebelum menikah	63,8	36,17	95,74	4,25
3.	Informasi tentang seks dan kesehatan reproduksi tidak penting bagi remaja karena menjelaskan perubahan-perubahan baik secara fisik maupun anatomi	88,29	2,12	97,8	11,7
4.	Hubungan seksual merupakan suatu cara untuk mengungkapkan rasa cinta kepada sang pacar	96,8	3,19	98,9	1,06
5.	Menurut saya seksual pranikah seperti berciuman bibir, saling bersentuhan dibagian-bagian tertentu, dan melakukan hubungan intim bisa dilakukan asalkan ada persetujuan antara keduanya, laki-laki dan perempuan	88,2	11,7	98,9	0
6.	Menurut saya jika tanda ungkapan cinta harus dibuktikan dengan berciuman dan melakukan hubungan seksual	96,8	3,19	98,9	1,06
7.	Menurut saya aborsi atau penggugurun kandungan bisa dilakukan yang penting persetujuan dari pihak yang terlibat dan secara diam-diam	92,5	7,44	92,5	7,44
8.	Menurut saya, batasan pacaran adalah sampai berpegangan tangan dan berciuman pipi saja	53,19	45,7	91	8,51
9.	Berpacaran tidak boleh melakukan hubungan seksual	67,02	11,7	88,29	1,06
10.	Seorang yang terkena PMS (HIV/AIDS) tidak boleh dikucilkan/ dijauhkan dari masyarakat	75,5	24,4	90,42	9,57
11.	Selama pacaran saya dan pacar saya berkomitmen untuk tidak melakukan seks pranikah apapun bentuknya	93,6	6,3	93,6	6,3
12.	Seorang pria dan wanita harus melakukan hubungan seksual terlebih dahulu sebelum menikah, untuk menunjukkan kasih sayang mereka	100	3,19	100	0
13.	Banyak teman saya yang setuju "cinta satu malam" adalah hal yang wajar	98,9	4,25	94,6	1,06
14.	Saya setuju untuk melakukan hubungan seksual, asalakan menggunakan alat kontrasepsi	89,3	10,6	92,5	7,44
15.	Pendidikan dan konseling tentang kesehatan reproduksi dibutuhkan sebelum menikah	97,8	3,19	96,8	2,12
16.	Saya tidak setuju jika seseorang wanita melakukan hubungan sebelum menikah	82,9	17,2	92,5	7,44
17.	Seorang laki-laki tidak menganggap penting keperawanan seorang wanita	86,17	13,82	89,3	10,6

Based on Table 4.5, the attitude question item with the highest "very positive" response was item number 12, with a percentage of 100%. Meanwhile, the item with the highest "very negative" response was item number 8, with a percentage of 45.7%.

After the counseling intervention, students' attitudes improved across all question categories, with a clear shift toward more positive and very positive responses.

Table 6. Wilcoxon Signed Rank Test Results for Knowledge Variable

Knowledge Category	Wilcoxon Signed Rank Test				P-Value	Results
	Pre Test		Post Test			
	n	%	n	%		
Poor	7	7.4	0	0.0	< 0.001	Reject H_0
Fair	64	68.1	7	7.4		
Good	23	24.5	87	92.6		
Total	94	100	94	100		

Based on Table 4.6, the results of the Wilcoxon Signed Rank Test show a p-value of < 0.001. Since this value is less than 0.05 ($p < 0.05$), it can be concluded that H_0 is rejected and H_1 is accepted, meaning that there is a significant increase in knowledge before and after the counseling intervention.

Table 7. Wilcoxon Signed Rank Test Results for Attitude Variable

Attitude	Wilcoxon Signed Rank Test				P-Value	Results
	Pre Test		Post Test			
	n	%	n	%		
Very Positive	78	83.0	92	97.9	< 0.001	Reject H_0
Positive	12	12.8	1	1.1		
Negative	4	4.3	1	1.1		
Very Negative	0	0.0	0	0.0		
Total	94	100	94	100		

Based on Table 4.7, the results of the Wilcoxon Signed Rank Test show a p-value of < 0.001. Since this value is less than 0.05 ($p < 0.05$), it can be concluded that H_0 is rejected and H_1 is accepted, indicating that there is a significant difference in students' attitudes before and after the counseling intervention.

DISCUSSION

The Effect of Counseling on Respondents' Knowledge Before and After the Intervention

The level of adolescents' knowledge regarding reproductive health before the counseling intervention tended to be at low to moderate levels. Most adolescents only had basic understanding of reproductive health aspects, such as menstruation and puberty. However, they generaly lacked understanding of more complex topics, such as the risk of premarital sexual activity and prevention of sexually transmitted infections (STIs).[15]

The findings of this study are consistent with research conducted by Sutjiato (2022), which also reported that knowledge levels before counseling were generally low in that study, the proportion of respondents with adequate knowledge before receiving counseling was 51.1%. In the present study, many students had limited knowledge and were unfamiliar with several aspects of adolescent reproductive health, such as how to properly care for and maintain reproductive organs, the process of development during puberty, and the consequences of engaging in sexual intercourse before marriage. This highlights the need for continued education and information on reproductive health.[16]

These results are consistent with the study by Halipah (2022) on the level of reproductive health knowledge, which revealed that in the absence of counseling from schools and health institutions, the majority of respondents (51.6%) were in the fair knowledge category regarding reproductive health. This was because most students had acquired their knowledge from biology lessons during junior high school, but supporting facilities were still lacking, and there was a limited number of qualified personnel to provide reproductive health education.[17]

To increase respondents' knowledge of adolescent reproductive health, information delivery plays a crucial role. The effectiveness of information delivery is influenced by the methods and media used, as these can have a significant impact on learning outcomes. In this study, the lecture method was used,

supported by PowerPoint presentations, videos, and leaflets as educational media.[16]

This aligns with the study by Faijurahman and Ramdani (2022), which found that using video as a counseling medium was more effective in increasing adolescents' reproductive health knowledge compared to PowerPoint presentations. This is further supported by the findings of Rahmi (2019), which showed that counseling using animated videos was more effective—the proportion of students with fair knowledge increased from 57% to 90% in the good category, whereas with PowerPoint, fair knowledge increased from 60% to only 60% in the good category.[18]

Most of the information a person acquires comes through the senses of sight and hearing. Video is an audio-visual medium, which can be received through both hearing and sight. As a result, it is easier to understand and more engaging, since it includes sounds that can be heard and moving images that can be seen, and it can be played repeatedly with controlled delivery.

PowerPoint, on the other hand, is a visual aid that can incorporate various elements such as text, images, graphs, and more.[18]

The findings of Susanti (2020) also support that the lecture method combined with leaflet media is effective in increasing knowledge. A leaflet is a folded sheet containing health information, allowing the target audience to learn independently and practically, as it reduces the need to take notes while providing comprehensive information.

The lecture method involves verbal delivery of information to a group of listeners with the aim of informing, educating, or motivating. It allows for structured and systematic presentation of information.[19] This method also enables the audience to clarify information they do not understand and helps them to better grasp complex concepts.[20]

However, this differs from the study conducted by Damanik and Lasmawanti (2019), in which the Wilcoxon testproduced a p-value of 0.178 (> 0.05), indicating that there was no significant difference in knowledge before and after the counseling. The absence of a significant effect was attributed to several factors, such as the fact that most students had already received reproductive health information, as well as less conducive conditions during the counseling session and while filling out the questionnaires, which took place at the end of the school day and coincided with religious activities, causing students to feel tired and less focused.[21]

Based on the results of the study at SMAN 1 Palu, the statistical analysis using the Wilcoxon test the Wilcoxon test showed a significance value of < 0.001, which is less than 0.05. This means that H_0 is rejected and H_1 is accepted, indicating that reproductive health counseling had a significant effect on the knowledge of adolescents at SMAN 1 Palu.

Effect of Counseling on Respondents' Attitudes Before and After the Intervention

Attitude is a person's internal reaction or response toward a stimulus or object. It is not yet an action or behavior but rather a predisposition to act or behave.[22]

This is consistent with the study conducted by Shoclihah et al. (2019), which found that before the intervention, adolescents' attitudes toward reproductive health were very good in 19 respondents (61.3%), good in 10 respondents (32.3%), and fair in 2 respondents (6.5%).[23]

The very positive attitudes shown by most adolescents can be attributed to several factors, such as personal experiences, exposure to information from mass media, educational and religious institutions, cultural background, health education interventions, influences from significant others, and emotional factors[24]

Students with low levels of knowledge about reproductive health are influenced by factors such as limited access to reproductive health information and cultural beliefs that consider reproductive health knowledge a taboo subject.[25]

However, the presence of adolescents with negative attitudes indicates that there is still a need to enhance their understanding and awareness of the importance of reproductive health.

From the results of this study, after the counseling intervention, there was a change in adolescents' attitudes toward premarital sexual activity, becoming more positive and responsible. Adolescents who receive adequate information about sexual education tend to adopt wiser attitudes and decisions,

choosing not to engage in premarital sexual activities, whereas adolescents with limited information about from the results of this study, after the counseling intervention, there was a positive change in adolescents' attitudes toward premarital sexual activity. Adolescents who receive adequate sexual education information tend to adopt wiser attitudes and decisions, choosing not to engage in premarital sexual activities. In contrast, adolescents with limited sexual education find it more difficult to make wise decisions regarding premarital sexual activities and their consequences.[23]

This study is consistent with the research conducted by Mahmud et al. (2023), which found that before receiving reproductive health education, students' attitudes were very good in 14 respondents (28.6%), good in 34 respondents (69.4%), and negative in 1 respondent (2%). After receiving reproductive health education, the number of students with very good and good attitudes increased to 40 respondents (81.6%) and 9 respondents (18.4%), respectively.

The statistical test results showed a significance value of 0.001 ($p < 0.05$), indicating that there was a significant effect of the counseling intervention on attitudes before and after the intervention. The researchers also explained that the health education process provides additional information that can improve a person's knowledge, which in turn can change attitudes and behaviors, in line with the objective of health education, which is to transform unhealthy behaviors into behaviors aligned with health values, develop positive behaviors, and reinforce existing positive behaviors.[24]

Other factors that can enhance attitudes through counseling include beliefs and confidence, as well as the appeal and motivational quality of the educational material, which can influence individuals' thinking patterns and perspectives toward matters they consider important.[25 26]

Attitude is a predisposition to engage or not engage in certain behaviors, and it is not merely an internal psychological state, but also a process of individual awareness. Attitudes are influenced by beliefs that the behavior will lead to desired or undesired outcomes, and individuals will act when they perceive the consequences of that behavior to be positive.[27]

Knowledge Questions on Reproductive Health

The analysis conducted by the researchers on seven categories of knowledge questions showed that the highest number of correct answers among respondents was in the category of growth and sexual development, with a percentage of 74%. In general, respondents were already familiar with the concept of puberty. Puberty-related material has been introduced since elementary school, which means there has already been prior exposure to information on this topic. This early exposure has contributed to better knowledge and awareness of the changes occurring within themselves.[28]

The categories with the highest number of incorrect answers were the pregnancy process and anatomy of the reproductive organs, with percentages of 51% and 53%, respectively. The low level of understanding in these areas may be caused by limited access to accurate information, insufficient formal education on reproductive health in schools, and social stigma, which makes adolescents reluctant to seek information.[12]

The study by Desmukh and Chaniana (2020) explained that adolescents undergo physical and emotional growth leading to sexual maturity, which must be accompanied by increased knowledge about reproductive organs, sexuality, and contraception. Their research highlighted that due to increased media exposure, adolescents in India are caught between conservative cultural values and Western culture. As a result, adolescents with insufficient knowledge about reproductive organs are at higher risk of engaging in risky sexual behaviors and are more vulnerable to sexually transmitted infections, unwanted pregnancies, and abortions.[29]

After the counseling, there was a significant increase in all aspects, with an average improvement of more than 30%, indicating the effectiveness of the educational intervention. However, prior to the intervention, although most respondents had knowledge in the fair category, their understanding was still limited to basic information.

This is consistent with the study by Yulastini, Fajriani, & Rukmana (2021), which stated that adolescents often receive information from peers or social media, which is not always accurate.[30] Furthermore, Maria (2019) found that limited communication between parents and children regarding reproductive health is a major factor contributing to adolescents' limited knowledge.[31]

Attitude Questions on Reproductive Health

In this study, the analysis of adolescents' attitudes toward reproductive health revealed that question number 12 stated: "A man and a woman should have sexual intercourse before marriage to show their love for each other."

The high proportion of very positive responses to this question indicates that the majority of adolescents reject the notion that premarital sexual intercourse is necessary to express affection. This attitude reflects a good understanding of the importance of upholding moral values and reproductive health. Previous research has shown that reproductive health education can improve adolescents' knowledge and attitudes in rejecting premarital secual behavior.[32]

Conversely, question number 8 stated: "In my opinion, the limits of dating are only holding hands and kissing on the cheek."

The high proportion of very negative responses to this question indicates that many adolescents disagree with these boundaries, which may reflect perceptions that the boundaries are either too lenient or too strict. Factors such as religious understanding, family values, and peer influence can shape adolescents' perceptions of dating boundaries. Additionally, the influence of globalization and the increasingly open flow of informartion can also affect adolescents' view on dating behaviors.[33]

CONCLUSION

Based on the study conducted on the effect of counseling on adolescents' knowledge and attitudes regarding reproductive health at SMAN 1 Palu, it can be concluded that:

1. There was a significant effect on knowledge and attitudes after the reproductive health counseling was provided.
2. The level of knowledge before counseling was mostly in the fair category.
3. The attitude before counseling was generally very positive.
4. The level of knowledge after counseling increased, with most respondents falling into the good knowledge category.
5. The attitude after counseling improved, with a greater number of respondents showing a very positive attitude.

AUTHOR CONTRIBUTIONS

Conceptualization, T.T, D., S.H.P.; Methodology, T.T.,; Validation, D., S.H.P.; Formal Analysis, T.T.; Investigation, T.T., Resources, T.T.; Data Curation, T.T.; Writing-Original Draft Preparation, T.T., D., and S.H.P.; Visualization, T.T. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declares that there is no conflict of interest.

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