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The relationship of learning experiences on the human respiratory system with health literacy and perspective on the dangers of smoking among students in class XI SMAN 1 Godean

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Abstract. Health literacy is an important literacy for today's youth. Health literacy is formed through their learning experiences at school and in the surrounding environment. This study aims to 1) determine the level of learning experience on the human respiratory system, 2) determine the level of health literacy on the human respiratory system, 3) determine students' perspectives on the dangers of smoking, 4) determine the relationship between learning experience on the human respiratory system and health literacy levels, and 5) determine the relationship between learning experience on the human respiratory system and perspectives on the dangers of smoking among eleventh-grade students of SMAN 1 Godean. This study is a correlational study with quantitative analysis. The sample comprised 125 eleventh-grade students from SMAN 1 Godean, obtained through simple random sampling. The research instruments used were a Likert-scale questionnaire for the learning experience and student perspective variables, a multiple-choice test for the health literacy variable, and an interview guide. Data analysis techniques included descriptive statistics, normality tests, linearity tests, cross-tabulation and correlation tests, and Spearman's rank correlation test. The results showed that students' learning experiences were predominantly in the moderate category (48%). Students' health literacy related to the respiratory system was predominantly in the moderate category (44%). Students' perspectives on the dangers of smoking were predominantly in the moderate category (40%). Based on the results of the correlation test, there was a positive and significant relationship between learning experiences and students' health literacy related to the human respiratory system, with a significance value of 0.002 and a correlation coefficient of 0.271. In addition, no significant relationship was found between learning experiences about the human respiratory system and students' perspectives on the dangers of smoking, with a significance value of 0.250 and a correlation coefficient of 0.104.
Keywords: Health literacy, Learning experience, Respiratory system, Smoking

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INTRODUCTION

Health is a basic human need. In accordance with Article 1, paragraph (1) of Law No. 36 of 2009 concerning Health, health is a state of health, both mental, spiritual, and social, that enables everyone to live socially and economically productively. Health is important to maintain, one of which is a healthy lifestyle, to avoid various diseases (Abdillah & Pertiwi, 2025). On the contrary, unhealthy lifestyles such as smoking can cause many types of diseases (Lestari & Pertiwi, 2025). Smoking behavior among Indonesian people is very common. The habit of smoking for active smokers will provide a sense of pleasure. However, behind the pleasure obtained, smoking is very dangerous to health. Cigarettes contain harmful substances, including nicotine, tar, carbon dioxide, carbon monoxide, and nitrogen oxides (Irianto, 2014; Phanucharas et al., 2009).

The health threat to smokers is very large, including the threat of diseases to the respiratory system. Some types of respiratory system diseases caused by smoking can be cancer, ISPA, emphysema, tuberculosis, asthma, pneumonia, and bronchitis (WHO, 2021). According to data from the World Health Organization in 2019, Indonesia has the highest percentage of smokers among ASEAN countries. The highest number of active smokers in adolescents (10-18 years) has increased from 7.2% in 2013 to 9.1% in 2018 (Almaidah et al.,

2021). Based on National Statistics data on the percentage of adolescents aged 15 years and above who smoke by province in Indonesia, Yogyakarta province shows two patterns in the 2020-2022 period. First, the percentage of smoking in adolescents has increased from 22.64% in 2020 to 24.54% in 2021. Furthermore, the percentage decreased in 2022 to reach 23.97% (Badan Pusat Statistik, 2023).

Several factors, including social environment factors such as peers, social environment, and family, can cause smoking behavior in adolescents. An unhealthy social environment often makes smoking behavior a form of self-adjustment (Rochayati et al., 2015). The poor impact of smoking on health and the high rate of smoking among adolescents raise awareness of the importance of efforts to prevent smoking behavior. Prevention of smoking behavior, especially for adolescents, is very important to be carried out as one of the efforts to optimize the potential and personal quality of healthy and resilient adolescents as the next generation in continuing development for the future of the nation.

Efforts to prevent smoking behavior in adolescents who are generally still in school will be effective, such as by providing knowledge. Schools as educational institutions have a big role in providing knowledge and improving literacy (Aryadi & Kurniawati, 2025). Efforts made by schools to improve health literacy of the respiratory system include learning biology related to the human respiratory system. Biology lessons on the respiratory system provide a learning experience and increase students' knowledge. Learning experience is a student activity that is carried out to obtain new information and competencies in accordance with the learning objectives to be achieved (Sanjaya, 2008). The presence of learning experiences and high literacy on respiratory health is expected to provide students with an understanding of the respiratory system and the behaviors that can trigger disorders or abnormalities. The understanding that students have is expected to instill perspectives to prevent and overcome bad behavior that causes respiratory disorders, especially related to smoking behavior in students (Apriani & Sudrajat, 2025).

Based on initial observations and interviews with the Biology Teacher at SMAN 1 Godean, information was obtained regarding grade XI students' learning experience on the respiratory system and the school's efforts to prevent smoking among students. SMAN 1 Godean is recognized as an adiwiyata school and takes care of the health of both the environment and its residents. The school rules of conduct state a ban on students smoking. In addition, based on the information, the school seeks to educate students about the dangers of smoking by procuring counseling programs from the local Health Center and Police. In addition to these efforts, the school invites parents to play an active role in supervising students by holding student guardian meetings at the start of new student admissions. Teachers and employees are also urged not to smoke in the school environment.

Based on the background and problems encountered, the researcher conducted a study entitled "The Relationship between the Learning Experience of the Human Respiratory System and Health Literacy and the Perspective of the Dangers of Smoking in Grade XI Students of SMAN 1 Godean" to find out the relationship related to the relationship between learning experience and the level of health literacy and students' perspectives on the dangers of smoking.

METHODS

Research design

This study is a correlational survey research with *a cross-sectional* approach. Correlational survey research is a quantitative research method used to determine relationships between variables and produce results that are typically generalized (Cohen et al., 2018). *Cross-sectional* research is a type of research that examines data from a population at a specific point in time. Analytical *cross-sectional* research requires researchers to collect data for exposure and outcomes at a specific point in time or simultaneously (Wang & Cheng, 2020).

This study was carried out to determine the relationship between learning experiences with respiratory system materials and health literacy, and the perspectives on the dangers of smoking among grade XI students at SMAN 1 Godean. The study experience covered aspects of 5M. Health literacy includes print literacy, measured using knowledge tests aligned with the stages of the thinking process in Bloom's taxonomy. Furthermore, the perspective was measured by considering the tendency of students' responses, both positive and negative, to statements related to the facts of the impact and harm caused by smoking behavior. The research was conducted at SMA Negeri 1 Godean, located at Jalan Sidokarto No. 5, Rice Field Area, Sidokarto, Godean District, Sleman Regency, Special Region of Yogyakarta, in June 2023.

Population and sample

In this study, the population is students of SMAN 1 Godean Class XI in 2023 who receive biology learning, which consists of MIPA 1 and MIPA 2 classes. MIPA 3, MIPA 4, and XI IPS 2. The total population is 179 students, and the research sample is 125. The number of samples was calculated using the Slovin formula with a minimum of 124 students. The sampling technique was simple random sampling.

Data Collection Techniques and Instruments

The data collection technique in this study used questionnaires, knowledge tests, and interviews. The instruments used for each variable in the form of (1) learning experience variables were measured using a questionnaire prepared with a Likert scale of 24 statement items. (2) A multiple-choice test was used in collecting student health literacy data, with as many as 25 question items. (3) The variables of the perspective of the dangers of smoking were measured using a questionnaire compiled on a Likert scale of 20 statement items. (4) Finally, the interview guidelines to obtain information from biology teachers in grade XI include the learning process, which includes media, methods, assessment systems, and assignments.

The interview results were analyzed descriptively as supporting information. The scoring for each instrument of each variable is shown in Tables 1 and 2.

Table 1. Questionnaire score with a Likert scale

Alternative answers	Score	
	Positive	Negative
Strongly agree	4	1
Agree	3	2
Disagree	2	3
Strongly disagree	1	4

Table 2. Multiple choice score

Alternative answers	Score
Correct answer	1
Distractor	0

The preparation of learning experience instruments is based on the 5M aspect, which includes observing, questioning, collecting information, associating, and communicating in accordance with the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 81A of 2013 concerning the Implementation of the Curriculum of General Guidelines for Learning, as shown in Table 3.

The preparation of health literacy instruments is adapted according to the dimensions of health literacy by Sørensen et al. (2012) and is compiled based on Bloom's taxonomy. The scope of the health literacy dimension is shown in Table 4.

The preparation of perspective instruments is based on considering the tendency of students' responses, both positive and negative, to statements related to facts of the impacts and dangers arising from smoking behavior, as shown in Table 5.

Table 3. Learning experience questionnaire grid

Aspect	Explanation	Item number	Tipe	
			Positive	Negative
Observing	Includes listening, paying attention, or seeing to identify the desired problem.	1,4,5,	√	
		2,3,		√
Asking Questions	Asking questions about information not understood from what is observed can also be an effort to obtain additional information about what is observed.	6		√
		7,8,9,10	√	
Gathering Information	Data collection through experiments, reading various sources, observing objects and events, and conducting interviews with sources.	11,12,13, 15	√	
		14		√
Processing Information	Activities of processing the collected information.	16,18,19		√
		17	√	
Communicating	Communicating results or conclusions obtained either verbally, in writing, or through other media.	20,21,22,2 3,24	√	

Table 4. Health literacy measurement indicators

Dimensions of Health Literacy	Explanation
Accessing	The ability to search for, find, and obtain health information.
Understanding	The ability to understand accessed health information.
Assessing	The ability to interpret, select, assess, and evaluate accessed health information.
Applying	The ability to use health information to make decisions to maintain and improve health.

Table 5. Student perspective instrument grid

Indicators	Item number
Common smoking behavior in adolescents' social circles	1,2
Effects perceived by active smokers of smoking	3,4,5,6,7
Ease of access for adolescents to purchase cigarettes	8,9,10
Adolescents' ignorance of the chemical content of cigarettes	11
Adolescents' awareness of the health dangers of smoking	12
Awareness of the dangers of smoking to others	13,14
Lack of parental supervision and concern regarding smoking behavior and the dangers of smoking	15,16,17
Societal perspectives on adolescent smoking	18,19,20

Instrument Validity

An instrument is said to be valid, meaning that the instrument can be used to measure the intended variable (Cohen, et al., 2018). Validity shows how accurately an instrument measures a variable. The validity of an instrument must always be associated with a specific purpose or decision-making process (Cohen, et al., 2018). The validity used in this study is the construct validity. Construct *validity* concerns how well test items measure what is intended to be measured according to the conceptual definition set. Validation of the constructs of an instrument is carried out through expert *judgement* (Cohen, et al., 2018). Instruments that have been prepared and determined to be valid or feasible after the improvement stage, in accordance with the food validator's direction, can be used in the data collection process.

Data Analysis

The data obtained was then analyzed descriptively for each variable. Through descriptive analysis*, mean* values and standard deviations will be obtained and used to analyze

categories of both learning experience variables and health literacy, as well as student perspectives. Data on learning experience, health literacy, and student perspectives are categorized into five categories as shown in Table 6.

Table 6. Categorization guidelines

No	Interval	Category
1	M+1,5SD < X	Very high
2	M + 0,5SD < X ≤ M + 1,5SD	High
3	M - 0,5SD < X ≤ M + 0,5SD	Moderate
4	M - 1,5SD < X ≤ M - 0,5SD	Low
5	X ≤ M - 1,5SD	Very Low

(Azwar, 2021)

Hypothesis testing used correlation analysis methods, including cross-tabulation and Spearman's Rank Correlation. *Cross-tabulation* will map the percentage of each category of each variable. The basis for interpreting the relationship level in the *Spearman Rank* test is the correlation coefficient obtained, using the following guidelines (Table 7).

Table 7. Interpretation of the correlation coefficient

Interval	Relationship Level
0,00-0,199	Very Weak
0,200-0,399	Weak
0,400-0,599	Moderate
0,600-0,799	Strong
0,80-1,000	Very Strong

RESULTS AND DISCUSSION

Results

Learning experience

The data obtained in this study consisted of biology learning experience data, health literacy data, smoking hazard perspective data, and the results of biology teacher interviews. The results of the analysis of students' learning experience are shown in Figure 1.

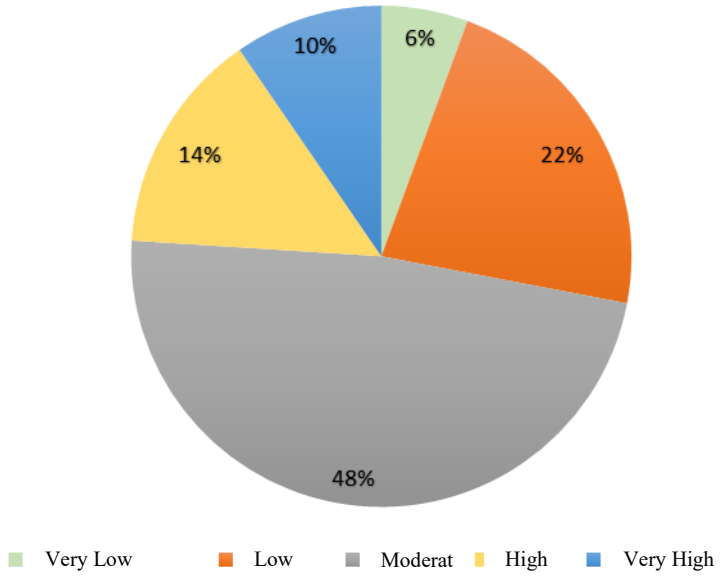

Figure 1. Level of learning experience

The results show that the level of student learning experience in respiratory system material is predominantly in the medium category, at 48%. The categorization of learning

experiences is based on the 5M framework, which includes observing, questioning, gathering information, associating, and communicating, as shown in Figure 2.

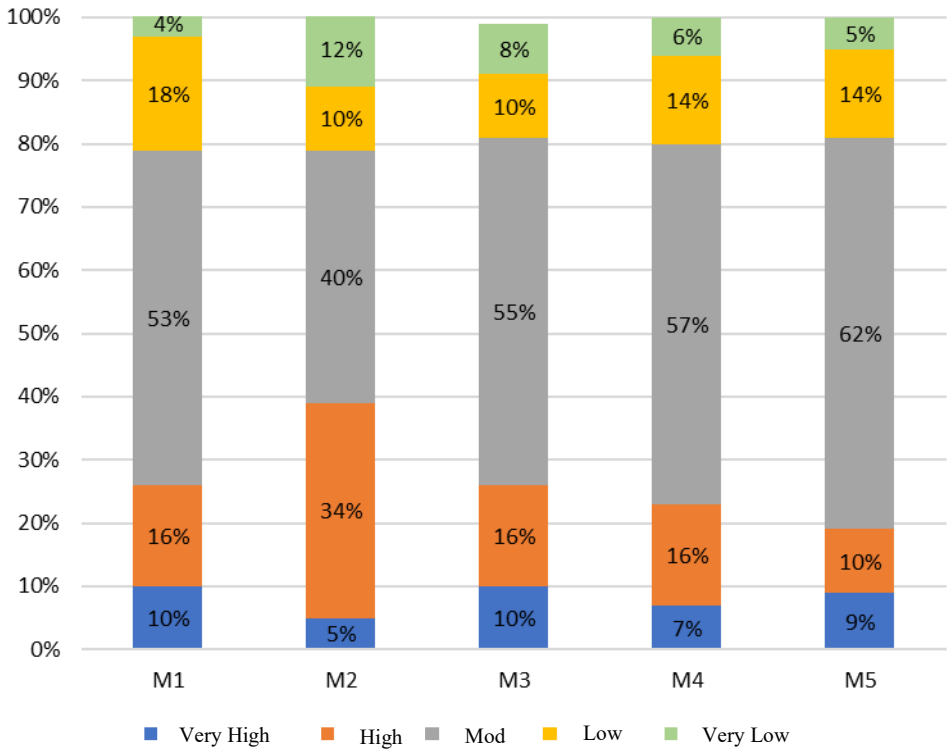

Figure 2. Graph of learning experience level in each aspect

Description:
M1: Observing
M2: Asking
M3: Gathering Information
M4: Processing Information
M5: Communicating

Based on Figure 2, in general, the majority of respondents have a moderate level of learning experience across all aspects. Based on the percentages for each aspect, it can be seen that students' strongest aspect is observing. Then there are three aspects with equal percentages, namely communicating, collecting information, and processing information. Meanwhile, the questioning aspect is the weakest.

Health literacy

The results of the analysis of the level of students' learning experience are shown in Figure 3.

Based on Figure 3, the largest share of students with high student health literacy is in the medium category, at 44%. The test preparation is based on basic competencies related to the respiratory system, namely KD 3.8, which reads: "Analyzing the relationship between the structure of the organ constituent tissues in the respiratory system in relation to bioprocesses and functional disorders that can occur in the human respiratory system". The instrument of knowledge is based on the stages of the thinking process according to *Bloom's* revised taxonomy. Based on *Bloom's* revised taxonomy, the levels of the cognitive domain range from C1 to C6. The ability of students at each level is shown in Figure 4.

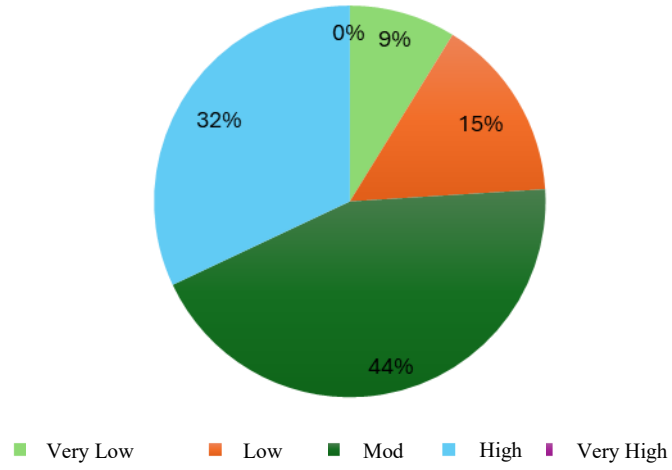

Figure 3. Categorization of student health literacy

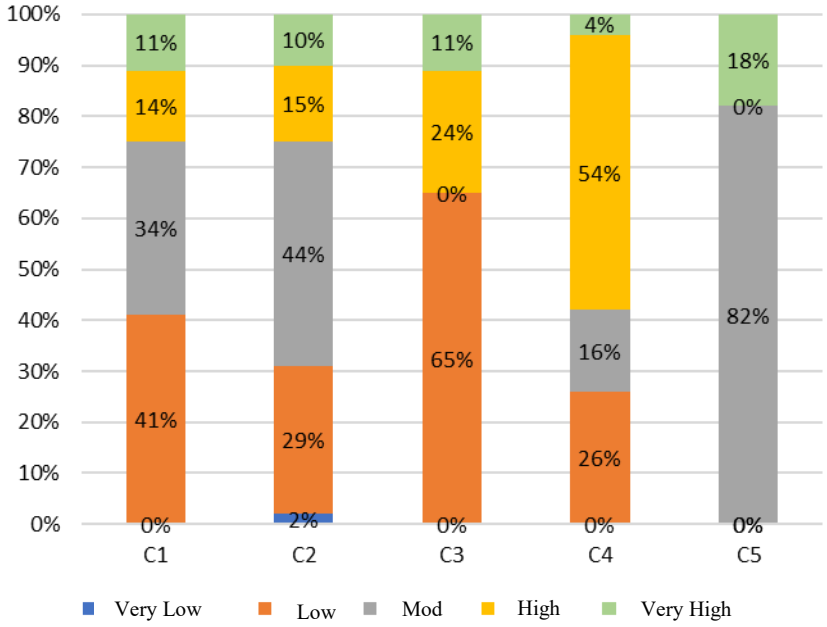

Figure 4. Results of student knowledge analysis regarding the respiratory system based on Bloom's taxonomy

Based on Figure 4, students' abilities decline with higher cognitive levels in Bloom's taxonomy. Based on the scope of the health literacy dimension, which includes four aspects, namely accessing, understanding, assessing, and applying, a categorization of students' abilities for each dimension can be seen in Figure 5.

The results of the analysis in Figure 5 show that students' abilities across the dimensions of health literacy differ in percentage. The health literacy component is gradual, so the higher the stage, the more difficult it is to master. Based on the percentage shown in Figure 9, students' ability to access is the most mastered, with a high category percentage of 70%. Then it decreases in the dimension of understanding, but experiences a slight increase in the dimension of assessing. Lastly, there has been a drastic decrease in the dimension of applying.

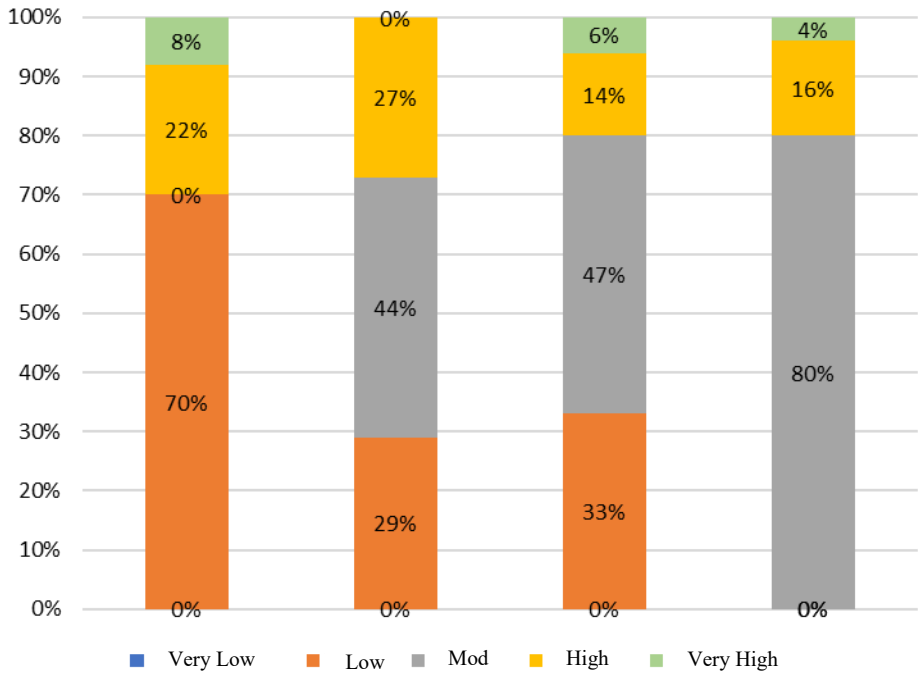

Figure 5. Results of health literacy test component analysis

Students' perspectives on the dangers of smoking

The results of the analysis of the level of students' learning experience are shown in Figure 6.

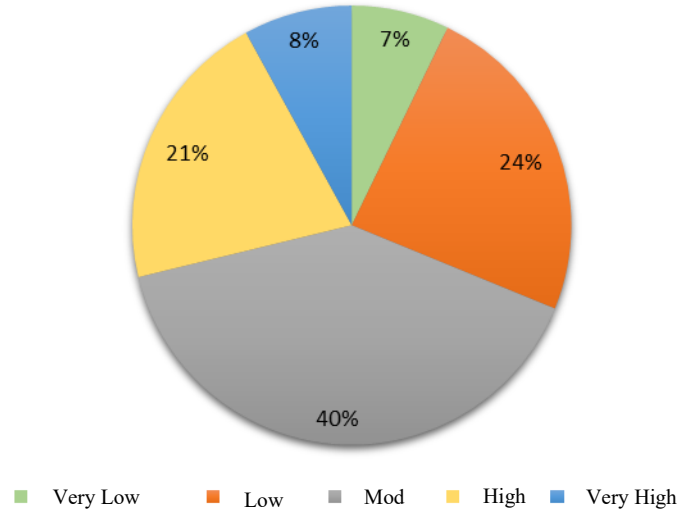

Figure 6. Categorization of perspectives on the dangers of smoking in students

Based on Figure 6, it is known that the perspective of the dangers of smoking is highest in the medium category, with a percentage of 40%.

The relationship between learning experience and health literacy

Hypothesis testing was carried out using correlation analysis, cross-tabulation, and Spearman's rank correlation to determine the relationships between learning experience variables and health literacy, and students' perspectives on smoking danger. The results of the correlation test between the variables of learning experience and health literacy are shown in Tables 7 and 8.

Table 8. Cross-tabulation results between learning experience and health literacy

		Health Literacy					Total
		Very High	High	Moderate	Low	Very Low	
Learning Experience	Very High	0 (0%)	4 (3.2%)	7 (5.6%)	**1** (0.8%)	0 (0%)	12 (9,6%)
	High	0 (0%)	8 (6.4%)	6 (4.8%)	**2** (1.6%)	**2** (1.6%)	18 (14,4%)
	Moderate	0 (0%)	22 (17.6%)	27 (21.6%)	7 (5.6%)	4 (3.2%)	60 (48%)
	Low	0 (0%)	5 (4%)	11 (8.8%)	8 (6.4%)	4 (3.2%)	28 (22,4%)
	Very Low	0 (0%)	1 (0.8%)	4 (3.2%)	1 (0.8%)	1 (0.8%)	7 (5,6%)
Total		0 (0%)	40 (32%)	55 (44%)	19 (15.2%)	11 (8.8%)	125 (100%)

Table 9. Results of the correlation test between learning experience and health literacy using Spearman's rank correlation analysis

			Learning Experience	Health Literacy
Spearman's rho	Learning Experience	Correlation Coefficient	1.000	.271**
		Sig. (2-tailed)	.	.002
		Jumlah Responden	125	125
	Healt Literacy	Correlation Coefficient	.271**	1.000
		Sig. (2-tailed)	.002	.
		Jumlah Responden	125	125

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8 shows the percentage mapping results of each category of each variable. Based on Table 9, the Spearman Rank analysis results indicate a significant relationship (Sig.). (2-tailed) The obtained value is 0.002, which means it is < 0.01. Furthermore, regarding the level of the relationship, the Correlation Coefficient value of 0.271 indicates this. Based on Table 3, this value can be categorized as quite weak. Finally, the Correlation Coefficient is also positive, indicating that the correlation is in the same direction.

The results of the correlation test between the variables of learning experience and students' perspectives are shown in Tables 10 and 11. Table 10 shows the percentage mapping results of each category of each variable. Based on Table 11 and the Spearman Rank correlation test above, the relationship is insignificant because the Sig. (2-tailed) The value obtained is 0.250, which means it is > 0.01. Furthermore, regarding the level of the relationship, the correlation coefficient (R) is 0.104. Based on the guidelines in Table 3, this value can be categorized as very weak. Finally, the value of the correlation coefficient is also positive, indicating that the correlation is in the same direction.

Discussion

Learning experience of the human respiratory system material

Learning experiences are student activities carried out to obtain new information and competencies in accordance with the learning objectives to be achieved (Sanjaya, 2008). A good and correct learning process is based on the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 81A of 2013 concerning the Implementation of the

General Learning Guidelines Curriculum. The learning process consists of five main experiences: observing, questioning, collecting information, associating, and communicating. Based on the research conducted on grade XI students of SMAN 1 Godean, the results indicate that student experience levels are dominated by the medium category, with 48% of the total sample of 125 students, as shown in Figure 1. This shows that the application of the 5M framework in learning respiratory system material has not been maximized.

Table 10. Cross-tabulation results between learning experience and perspectives on the dangers of smoking in students

		Health Literacy					Total
		Very High	**High**	**Moderate**	**Low**	**Very Low**	
Learning Experience	**Very High**	1 (0.8%)	7 (5.6%)	2 (1.6%)	2 (1.6%)	0 (0%)	12 (9,6%)
	High	3 (2.4%)	3 (2.4%)	7 (5.6%)	5 (4%)	0 (0%)	18 (14,4%)
	Moderate	3 (2.4%)	11 (8.8%)	24 (19.2%)	14 (11.2%)	8 (6.4%)	60 (48%)
	Low	3 (2.4%)	4 (3.2%)	14 (11.2%)	6 (4.8%)	1 (0.8%)	28 (22,4%)
	Very Low	0 (0%)	1 (0.8%)	3 (2.4%)	3 (2.4%)	0 (0%)	7 (5,6%)
Total		10 (8%)	26 (20.8%)	50 (40%)	30 (24%)	9 (7.2%)	125 (100%)

Table 11. Results of the correlation test between learning experience and students' perspectives on the dangers of smoking using Spearman's rank correlation analysis

			Learning Experience	**Students' Perspective**
Spearman's rho	Learning Experience	Koefisien Korelasi	1.000	.104
		Sig. (2-tailed)	.	.250
		Jumlah Responden	125	125
	Students' Perspective	Koefisien Korelasi	.104	1.000
		Sig. (2-tailed)	.250	.
		Jumlah Responden	125	125
****. Correlation is significant at the 0.01 level (2-tailed).**				

Based on Figure 2, the dominance of each aspect by the medium category indicates sufficient student ability for each aspect of 5M. One reason for the learning method used is that it is a discussion-based approach. The discussion method is a learning method based on solving problems together by exchanging ideas (Djamarah & Zain, 2006). The use of discussion methods can encourage students to interact with each other to exchange opinions in analyzing and solving problems (Putriyanti & Fensi, 2017). The influence of the discussion method on each aspect of 5M, as seen in the observation aspect (medium category: 53%), indicates that students understand the problems discussed well. Shiva is quite good at listening, listening, or seeing in an effort to identify problems. Through discussion activities, students are trained to listen and listen a lot, especially in discussion groups. This is so that a group can analyze and understand every idea from each member, which can then lead to a decision and an answer.

Furthermore, in the category of asking questions (medium, 40%), it shows that students have quite a good ability to ask questions to obtain information. Discussion activities require students to actively ask questions or answer questions to share information with fellow group members and with all students in the class, in an effort to solve problems. The aspect of

collecting information (medium category, 55%) indicates that students have a sufficient ability to search for and gather information from various sources. In addition, students have provisions during the pandemic, during which data collection efforts through various methods, especially through literature, have been commonly carried out by students during the online school period. This is one of the factors behind students' high ability to collect information.

The processing information aspect (medium category, 57%) shows students' ability to process information quite well. The discussion method certainly requires a discussion group to process the information obtained and submitted by the members, so that it can then become an agreed-upon discussion result. Finally, the communication aspect (medium category, 62%) demonstrates students' ability to convey the results of discussions. The ability to communicate this aspect cannot be separated from the learning method of group discussions. The end of this method is the delivery of the discussion results, either orally through presentations or in written reports.

Health literacy

Student health literacy is dominated in the medium category. The tests were based on Bloom's taxonomy, namely C1-C5, with sub-material including knowledge related to the structure, function, and mechanism of the respiratory system, respiratory volume and lung capacity, disorders of respiratory organ function, the content and dangers of smoking, as well as efforts to maintain the health of the respiratory system. The knowledge aspect test is used to determine how well students understand the respiratory system material covered in school. Based on the results of the analysis shown in Figure 4, students' abilities decline with higher cognitive levels in Bloom's taxonomy.

According to Sørensen et al. (2012), Health literacy skills include four components, namely accessing, understanding, assessing, and applying health-related information. The health literacy component is gradual, so each component will affect the next. Figure 5 shows that the access dimension has the highest category percentage, at 70%, and is the highest in the high category, indicating that access is the most mastered ability among students. Self-access is related to the ability to search, find, and obtain health information (Sørensen et al, 2012). Access is the first component of health literacy, so it has the lightest weight of difficulty because it does not require mastery of the abilities required by other components.

The second component is understanding. The comprehension component refers to the ability to comprehend the health information that has been accessed (Sørensen et al, 2012). At this stage, students are said to have good understanding skills if they can grasp the intent conveyed by the health information they obtain. Based on the analysis results diagram shown in Figure 5, this component has a 29% share in the high category. Compared with the access component in the high category, this percentage decreases. This is because the level of difficulty is getting heavier. The ability of students in the category to understand is dominated by the medium category, which is 44%.

The third component is the assessment component. The assessment component refers to the ability to interpret, select, assess, and evaluate health information that has been accessed and understood (Sørensen et al, 2012). Based on Figure 5, this component falls in the high category, with a percentage of 33%. The component assessed has a higher percentage than the component understanding in the high category. However, in the very low category, the assessment component has also increased to 6%. This shows a decrease in students' ability to feel in the assessment component.

The fourth or last component is the applying component. The implementing component refers to the ability to use health information to make decisions to maintain and improve health (Sørensen et al., 2012). Based on the analysis results diagram shown in Figure 5, the highest category achievable by students in this component is the medium category, at 80%. This shows a significant decrease in students' ability to apply health information. The decline in students'

ability in the application component occurs because applying has the heaviest difficulty weight, as it is the last stage where, to master this ability, one must first master the previous components (Munthe et al., 2023; Rasyid, 2023).

Based on the results of the analysis in Figure 5, students are in the high category for the accessing, understanding, and assessing component. However, they are still in the medium and low categories for applying. Therefore, it can be concluded that students have intermediate health literacy (interactive health literacy). This is in accordance with the opinion of Nutbeam & Kickbusch (2000) who explain that at this level, a person can search for and extract information and relate the knowledge obtained at the basic level to information in the environment, but is not yet able to demonstrate this ability in action.

Perspectives on the dangers of smoking in students

The main cause of smoking behavior can be the influence of the environment or yourself. The data environment consists of playmates, friends at school, and family. However, all factors that cause smoking behavior in adolescents will ultimately boil down to key factors in the form of adolescent belief factors who believe that cigarettes do not cause harm (Hidayat & Ibargel, 2021). Based on the *Health Belief Model*, one of the main factors for a person to prevent behavior that is detrimental to health is the formation of a strong belief that this behavior can threaten health (Hidayat & Ibargel, 2021). A behavior can be stimulated or driven, one of which is by perspective.

According to Sumaatmadja & Wihardit (1999), Perspective is a way of looking and thinking about a problem or event. Based on this definition, if a person views smoking as a threat to health, they are expected to avoid it. In this study, the researcher tested students' perspectives on the dangers of smoking using a questionnaire that presented positive and negative statements about smoking behavior.

The results of the study are shown in Figure 6. Based on these results, it is known that the medium category dominates the perspective of SMAN 1 Godean students on the dangers of smoking by 40%. The high and very high categories obtained percentages of 21% and 8%, while the low and very low categories obtained percentages of 24% and 7%. The percentages for the low and very low categories are higher than those for the high and very high categories. Students with low categories have a negative perspective on the great dangers of smoking. The view that smoking harms health will be low, so it allows students to smoke.

The relationship between learning experience and health literacy

Based on the *Crosstab* data in Table 8, students in high health literacy categories are predominantly those with very high, high, and medium learning experiences. Meanwhile, students with the medium health literacy category are dominated by students with low and very low learning experience. This is in accordance with the opinion expressed by Nazmi et al. (2015) in the form of a consistent relationship between low health literacy (measured by reading ability) and more limited knowledge, comprehension, and health. This opinion indicates that low health literacy is associated with a limited learning experience.

There are striking results in Table 8 where students with very high learning experiences have health literacy at moderate (5.6%) and low (0.8%) levels. In addition, students with low learning experience can have high health literacy (4%), and those with very low learning experience can have high health literacy (0.8%). This happens because health literacy is not only influenced by learning experiences but also by other significant factors, including age, education level, and ease of access to health information (Latif & Riana, 2020; Wahyuningsih, 2019).

It is known that a person's health literacy level increases with age and education. However, in this study, the age factor and education level were treated as the same because all samples were drawn from grade XI students at the same school. The third factor is access to

health information, where a person with high access to health information has high health literacy. However, in Figure 5, the first literacy component varies greatly across the high, low, and very low categories. In addition, the media used to access this information vary, including print, electronic, and social media, with varying levels of validity.

The relationship of learning experience with the perspective of the dangers of smoking

Based on the *Crosstab* data in Table 10, in general, students with high learning experiences have a perspective on the dangers of smoking in the high to medium range. Meanwhile, students with low learning experience have a perspective on the dangers of smoking in the medium to low range. These results show that the lower the learning experience, the lower the students' perspective on the dangers of smoking.

Based on Table 10, several striking results were obtained that contradicted the hypothesis. The data shows that students with high learning experience have a moderate (5.6%) and low (4%) (4%) perspective on the dangers of smoking. In addition, there are also students with low learning experience who are able to have a very high (2.4%) and high (3.2%) perspective on the dangers of smoking. This happens because the perspective of the dangers of smoking and smoking behavior is not only limited to learning experiences, but is also influenced by other factors, including the social environment. An unhealthy social environment often makes smoking behavior a form of self-adjustment without caring about the dangers of smoking (Rochayati & Hidayat, 2015). Meanwhile, in terms of family, parenting can be one of the factors that causes children to have a low perspective on the dangers of smoking and smoking behavior. An example of parenting that can increase the potential for smoking behavior in children is permissive parenting. This parenting style tends to be liberating and less controlling of children. The negative impact is that it can cause children to become uncontrolled individuals and have the opportunity to commit acts that lead to delinquency, such as promiscuity, smoking, or other behaviors (Isnaniar et al., 2019).

CONCLUSION

Based on the findings of the research conducted on students in grades XI and XII of MIPA at SMA Negeri 1 Godean, it can be concluded that the learning experience in the respiratory system material is generally in the medium category, with all aspects of the learning experience—including communicating, processing information, gathering information, observing, and questioning—also dominated by the same category, where the communication aspect shows the highest proportion. The majority of students' health literacy levels are at the intermediate level (interactive health literacy), with strong performance in accessing, understanding, and assessing health information, but still relatively limited in applying information in the context of health behavior. Students' perspectives on the prevalence of smoking behavior among adolescents are relatively low, which is reflected in the negative perception of the level of harm of smoking and low assessment of its adverse health impacts, thus potentially increasing vulnerability to smoking behavior. Correlation analysis showed that the learning experience of the respiratory system had a significant but weak, positive relationship with health literacy, indicating that improving the quality of learning experience tended to be associated with an increase in students' health literacy. In contrast, no significant relationship was found between the learning experience of the respiratory system and students' perception of the dangers of smoking. These findings affirm the importance of strengthening learning strategies that are not only oriented towards cognitive mastery but also towards internalizing attitudes and forming a more comprehensive perception of health.

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