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Prevalence of Smokeless Tobacco use among School Children in Selected Schools of Mizoram

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Abstract

Background: There is a dearth of research in our nation on the prevalence, initiation, and use of smokeless tobacco among kids. The people who use tobacco products for a long time and at a young age are the most vulnerable. Due to the young age of onset, intervention is vitally necessary to shield this vulnerable group from addiction. The variables most commonly cited as contributing to children beginning to use tobacco are peer pressure, parental tobacco usage, and pocket money given to children. The goal of the research is to shed light on this.

Methodology: A descriptive cross-sectional study was conducted on April 25 and 26, 2024 at three schools from Zemabawk, Aizawl, Mizoram. 90 students were included in the study. Data were collected using questionnaires and analyzed accordingly.

Results: Of the 90 samples that were taken, 73.3% of the pupils had tried smokeless tobacco and 26.6% had not. In response to peer pressure, 13.3% of students have used smokeless tobacco; under stress, 20% have used smokeless tobacco; and 42.2% have tried smokeless tobacco for enjoyment. Of the students, 58.8% utilize smokeless tobacco products once daily, 6.6% consume them twice daily, 3.3% consume them three times daily, and 18.8% consume them more than three times daily. The majority of students—43.3% opposed, followed by 27.7% strongly disagreeing, 20% agreeing, and 8.8% extremely agreeing—said they enjoyed using smokeless tobacco products.

Keywords: Prevalence; Smokeless Tobacco use; School Children

Abbreviations

ToFEI: Tobacco Free Educational Institutions; WHO: World Health Organization.

Introduction

Especially in underdeveloped nations, tobacco use is a major preventable cause of mortality worldwide. In India alone, around 10% of teenagers between the ages of 13 and 15 report having ever smoked cigarettes, with nearly 50% of these reports beginning tobacco usage before the age of 10. India's tobacco situation is distinct due to the wide range of tobacco products that are available for both smokeless and smoking use [1]. In India, smoking cigarettes, especially beedi and chewing tobacco (smokeless use), is a long-standing custom. However anecdotal data suggests that as society's dynamics have changed, the prevalence of smoking among mothers and small children has multiplied and is currently a serious public health issue [2].

Few studies have been conducted in our nation on the prevalence, initiation, and use of smokeless tobacco among minors [3]. The risks of tobacco use are highest among those who start early and continue its use for a long period [4]. The early age of initiation underscores the urgent need to intervene and protect this vulnerable group from falling prey to this addiction [5]. The most common reasons cited for children to start using tobacco are peer pressure, parental tobacco habits, and pocket money given to children [6].

There is enough proof that smokeless tobacco causes cancer in people. Numerous research works have demonstrated a direct link between the use of smokeless tobacco and pancreatic, oesophageal, and oral malignancies. Acute rises in blood pressure and heart rate are brought on by smokeless tobacco, which has also been linked to a slight increase in the risk of cardiovascular disease. It is possible that using smokeless tobacco has an impact on insulin sensitivity, glucose tolerance, and the risk of diabetes [6]. Smokeless tobacco use is harmful to the reproductive system and the developing child. It also raises the risk of preeclampsia and premature birth, increases placental weight, and lowers the mean birth weight when used during pregnancy. Men who use smokeless tobacco had lower semen volume, fewer sperm, lower motility, and more aberrant spermatozoa in their sperm [7].

One crucial step in lowering the global burden of non-communicable diseases is preventing young people from becoming addicted to tobacco use. Tobacco use among children and youth is specifically addressed by the COTPA-2003, which includes provisions like outlawing smoking in public areas, including all educational institutions, forbidding the sale of tobacco products to or to minors (those under the age of 18), and prohibiting the sale of tobacco products within 100 yards of any educational institution. In an effort to give tobacco control programs in educational institutions new life, the Health Ministry released the guidelines for Tobacco Free Educational Institutions (ToFEI) in 2019 [8].

Teachers serve as prominent members of society and role models for their students. By teaching communication and refusal skills, setting a positive example, educating students about the dangers of tobacco use, fostering a supportive environment, promoting critical thinking, helping at-risk students, and participating in ongoing professional development, teachers play a significant part in helping children avoid tobacco use.

The age at which tobacco use begins has been observed to be gradually declining with rising tobacco consumption patterns. Targeting teenagers—especially those in school—when they start consuming tobacco products is crucial to solving the systemic issue facing society.

According to the Global Adult Tobacco Survey (GATS) 2009–10, Mizoram has the highest tobacco prevalence in India at 67.2%, with 72.5% of men and 61.6% of women consuming tobacco in some capacity. It also has the lowest national "planning to quit tobacco rate." At home, there is a very high 97.7% exposure to secondhand smoke. This report has succinctly brought attention to the depressing tobacco consumption status in Mizoram. Moreover, Mizoram has the greatest frequency [9].

Every year, tobacco usage claims the lives of around six million individuals globally. Based on estimates from the World Health Organization (WHO), tobacco smoking caused 100 million premature deaths worldwide in the 20th century. If present tobacco uses trends continue, this number is predicted to increase to 1 billion in the 21st century [10].

Materials and Methods

Research Design

The study aims to find out "The Prevalence of Smokeless Tobacco Use among School Children in Selected Schools of Mizoram". A descriptive research design was used for the investigation. Data were collected using an organized questionnaire with both closed- and open-ended questions for the chosen respondents that was administered to school children as part of a structured survey. Survey responses served as the primary source of data, and statistical analysis was performed on the findings.

Objectives for the study were:

- To assess the prevalence of smokeless tobacco use among school children.
- To identify the habits of smokeless tobacco use among school children.
- To find out the awareness regarding smokeless tobacco products.

Description of Study Setting

Population: The participants in this study were students from the different high schools in the Zemabawk area, specifically those attending Home Mission School, Sentea Memorial School, and Govt. Zemabawk High School.

Sampling Method and Sample Size: Ninety pupils from the three separate schools make up the sample size, and the sampling technique used was a straightforward random sampling technique.

Procedure of Data Collection: Official approval was obtained from the principals of the chosen schools that were visited. The school pupils were fully informed about the study prior to the data collection, which took place on April 25 and 26, 2024, between 1:00 and 3:00 pm, and their written agreement was collected. They were then given ample time

to finish the questionnaire and ask any queries they might have had. The data procedure was concluded by expressing gratitude to the participants.

Data Analysis

Frequency and percentage statistics, which were displayed as pie charts and bar graphs, were used for data analysis.

Results and Discussion

Description of the Demographic Variables (Table 1).

Sl No.	Demographic Characteristics	Frequency	Percentage
1	AGE:		
	· 14	11	12.20%
	· 15	42	45.50%
	· 16	27	30%
	· 17	11	12.20%
2	GENDER:		
	· Male	45	50%
	· Female	45	50%
	· Transgender	NIL	
	· Others	NIL	
3	Type of family		
	· Nuclear family	38	42.20%
	· Joint family	52	57.70%

Table 1: Description of the Demographic Characteristics, its Frequency and Percentage.

The Figure 1 represents the age distribution of the samples. It shows that 45.20% belong to age group of 15 years, 30% belong to age group of 16 years 12.20% belong to age group of 14 years, and 12.20% belong to age group of 17 years.

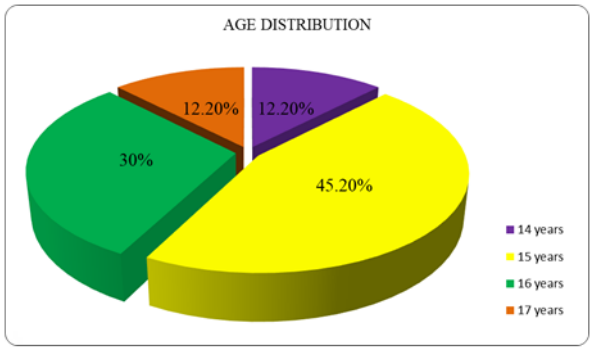

Figure 1: Pie Chart of Age Distribution.

The Figure 2 represents the gender distribution of the samples. It shows that 50% are male and 50% are female.

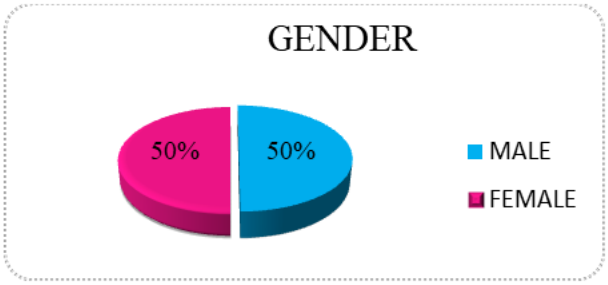

Figure 2: Pie Chart of Gender Distribution.

The Figure 3 shows that majority of the students 57.70% belongs to joint family and 42.20% belongs to nuclear family.

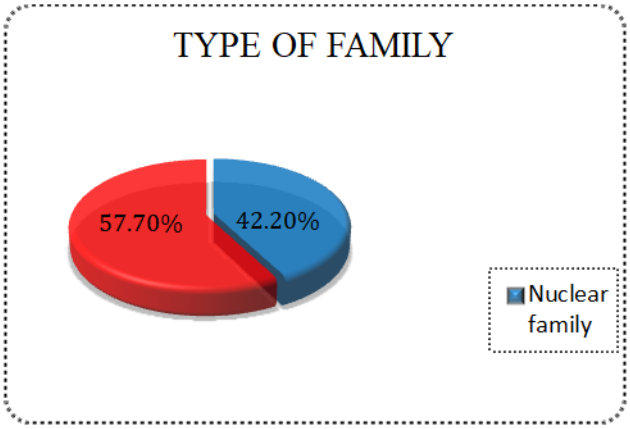

Figure 3: Pie Chart on Type of Family.

Section II: Description of the Prevalence of Smokeless Tobacco use among School going Children (Table 2).

Particulars	Frequency	Percenatage
Have you ever try smokeless tobacco product?		
a)Yes	66	73.30%
b) No	24	26.60%
If yes, in what products?		
a) Zarda	33	36.60%
b) Sahdah	2	2.20%
c) Shikhar/ Rajnigandha	31	34.40%
d) Tobacco water (Tuibur)	5	5.50%

Table 2: The Percentage and Frequency of Who Tried Smokeless Tobacco and in what form.

The Figure 4 shows that 73.30% have consumed smokeless tobacco at least once and 22.60% have not consumed any smokeless tobacco product.

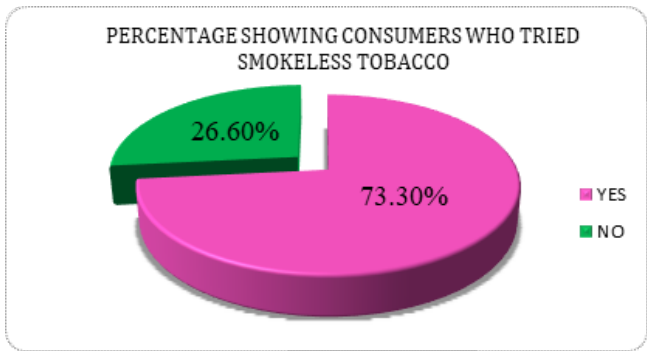

Figure 4: Pie Chart Showing Percentage of Consumers who Tried Smokeless Tobacco.

The Figure 5 shows that among the smokeless tobacco consumers, 36.60% have consumed Zarda, 34.40% have consumed Shikhar product, 5.50% consumed Tuibur and 2.20% have consumed Khaini.

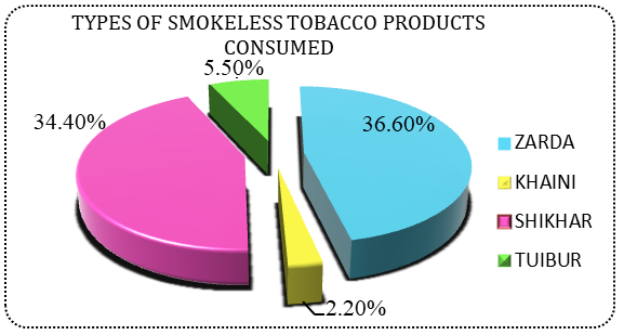

Figure 5: Pie Chart Showing Types of Smokeless Tobacco Product Consumed.

Section III: Description of Habits of Smokeless Tobacco Use among School going children Table 3:

SL/No	Particulars	Frequency	Percentage
1	How often do you consume smokeless tobacco products in a day?		
	a) once a day	53	58.80%
	b) twice a day	6	6.60%
	c) thrice a day	3	3.30%
	d) more than 3 times a day	17	18.80%
2	Do you ever feel like consuming smokeless tobacco first thing in the morning?		
	a) yes	10	11.10%
	b) no	18	28.80%
3	Approximately how much do you spend on smokeless tobacco products in a month?		
	a) less than rs100	51	56.60%
	b)rs100- rs 200	11	12.20%
	c) rs300-rs500	8	8.80%
	d) more than rs500	8	8.80%

4	During the past 30 days, on how many days did you used on smokeless tobacco?		
	a) 0 day	56	62.20%
	b) 1-10days	20	22.20%
	c) 11- 20days	3	3.30%
	d) 20 days and above	9	10%

Table 3: Percentage Showing the Habits, Money and Day Spent on Smokeless Tobacco.

The Figure 6 shows that among those smokeless consumers, 58.80% consumes once a day, 6.60% consumes twice a day, 3.30% consumes thrice a day and 18.80% consumes more than 3 times a day.

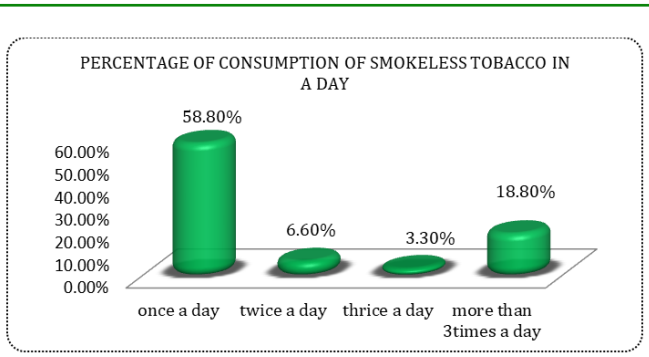

Figure 6: Percentage of Consumptions of Smokeless Tobacco in a Day.

The Figure 7 shows that among those smokeless consumers, 88.8% does not like to consume smokeless tobacco first thing in the morning while 11.10% likes to consume smokeless tobacco first thing in the morning.

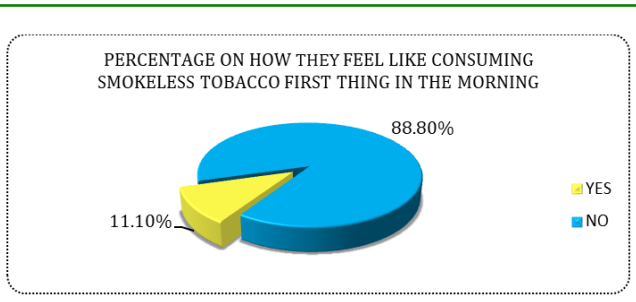

Figure 7: Percentage on how they Feel Like Consuming Smokeless Tobacco First Thing in the Morning.

The Figure 8 shows that majority of the students 56.60% have spent less than Rs 500 on smokeless tobacco, 12.20% spent around Rs 200-300, 8.80% spent around Rs 300-500 and another 8.80% has spent more than Rs 500 in a month for consuming smokeless tobacco.

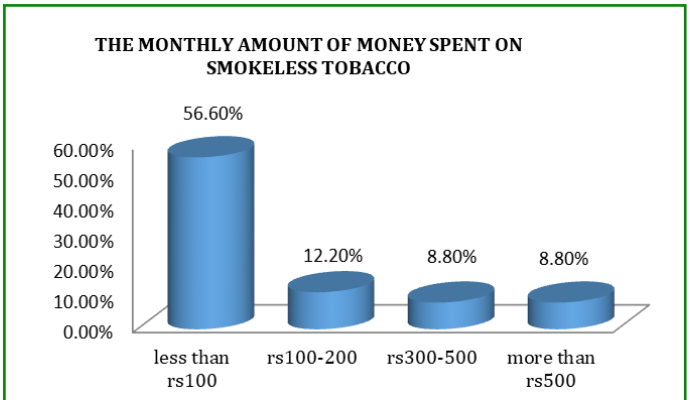

Figure 8: Cylindrical bar graph showing the monthly amount of money spent on smokeless tobacco among school going children.

The Figure 9 shows that 62.20% have not consumed smokeless tobacco in the past 30 days, 22.20% have consumed between1-10 days, 10% have consumed more than 20 days in the past 30 days and 3.30% consumed for 11-20 days.

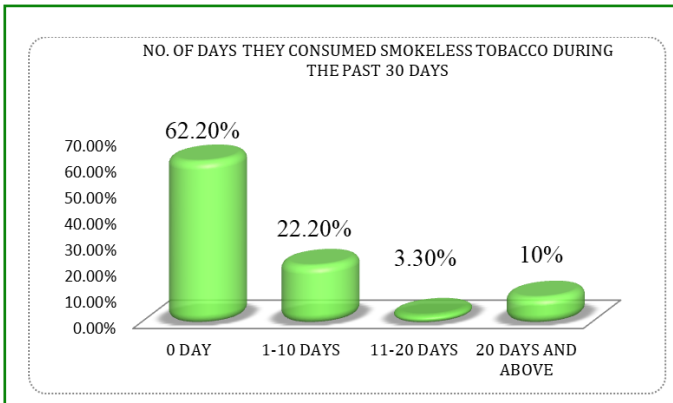

Figure 9: Cylindrical bar chart showing the no. Of days school going children consumed smokeless tobacco in the past 30 days.

Section IV: Description of the awareness regarding smokeless tobacco products Table 4.

SL/No	Particulars	Percentage	Frequency
1	Are there any awareness programs conducted in your school regarding tobacco?		
	a) yes	73	81.10%
	b) no	17	18.80%
2	Are you aware of any rules and regulations stating that minors under age 18 are not allow to buy smokeless tobacco?		
	a) yes	68	75.50%
	b) no	22	24.40%
3	Do you think the sale of smokeless tobacco products to minors under age 18 should be banned?		
	a) yes	73	81.10%
	b) no	12	13.30%
4	Have you noticed information about the dangers of smokeless tobacco?		
	a) yes	85	94.40%
	b) no	5	5.50%

Table 4: Percentage of awareness programmes, rules and regulations and information given to school going children.

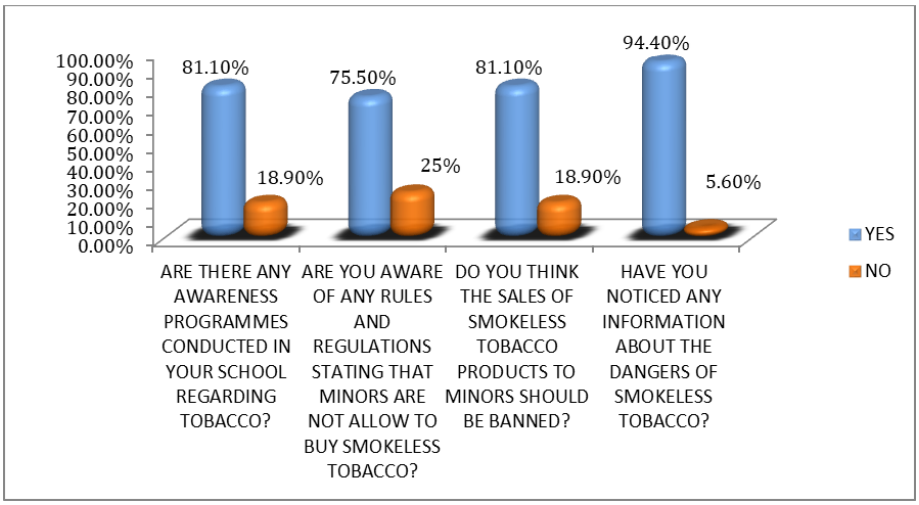

Figure 10: Cylindrical bar graph showing awareness regarding smokeless tobacco products.

The above Figure 10 shows that:

- Out of 90 students, 81.10% know about awareness programs conducted in school about tobacco whereas, 18.90% does not have any knowledge about it. This means that the percentage of students having knowledge about awareness is higher than those who do not have.
- Among the school-going children, 75.50% are aware of the rules and regulations stating that minors are not allowed to buy smokeless tobacco products while the other 25% are not about the rules and regulations.
- 81.10% think that the sales of smokeless tobacco products to minors should be banned while the other 18.90% think that it should not be banned. This means awareness must be given to the students regarding the rules and regulations.
- 94.40% have had information about the dangers of smokeless tobacco whereas the other 5.60% have no information about the danger of smokeless tobacco. This proves that the information given about the dangers of smokeless tobacco is effective and efficient.

Discussion

Similar to a study conducted in Raipur, Chhattisgarh, by Shrivastava N, et al. where 66.6% of the students were in the 12–15 age group, [11] the majority of the students in this study—45.20 percent—belong to the age group of 15 years, followed by thirty percent to the age group of 16 years, and twelve twenty percent to the age group of 17 years.
50% of school children are male and 50% are female. Majority of the students 57.70% belongs of joint family and 42.20% belongs to nuclear family among the population. Most of the students 73.30% have consumed smokeless tobacco at least once and 22.60% have not consumed any smokeless tobacco product. the smokeless tobacco consumers 36.60% have consumed Zarda, 34.40% have consumed Shikhar product, 5.50% consumed Tuibur and 2.20% have consumed Khaini. The findings of Shrivastava N, et al. [11] also revealed that majority of the students were consuming gutka/pan masala (81%) followed by gudaku (13%), 4.7% were using multiple forms.

In this study, among the smokeless consumers, 58.80% consume once a day, 6.60% consume twice a day, 3.30% consume thrice a day and 18.80% consume more than 3 times a day. Among the students, 88.8% do not like to consume smokeless tobacco first thing in the morning while 11.10% likes to consume smokeless tobacco first thing in the morning.

56.60% have spent less than Rs 500 on smokeless tobacco, 12.20% spent around Rs 200-300, 8.80% spent around Rs 300-500 and another 8.80% has spent more than Rs 500 in a month for consuming smokeless tobacco. Majority of the students 62.20% do not consumed smokeless tobacco in the past 30 days, 22.20% had consumed between 1-10 days, 10% had consumed more than 20 days in the past 30 days and 3.30% consumed for 11-20 days.

Out of 90 students, 81.10% have knowledge regarding awareness programs conducted in school about tobacco whereas, 18.90% does not have any knowledge about it. This means that the percentage of students having knowledge about awareness is higher than those who do not have.

Among the school-going children, 75.50% are aware of the rules and regulations stating that minors are not allowed to buy smokeless tobacco products while the other 25% are not about the rules and regulations. 81.10% think that the sales of smokeless tobacco products to minors should be banned while the other 18.90% think that it should not be banned. This means awareness must be given to the students regarding the rules and regulations which is similar to the study by Verma, et al. [12] that the majority of the students 74.6% of the students reported that they had a program or discussion in their school that told them about bad effects of tobacco and 96.3% had tried quitting the use of tobacco products, whereas 3.7% of students had not tried it ever.

Majority of the students 94.40% had received information about the dangers of smokeless tobacco whereas the other 5.60% have no information about the dangers of smokeless tobacco in line with similar findings by Sharma AD, et al. [13] 56 (70.8%) of the students wanted to quit the habit of Smokeless tobacco use whereas 49 (62%) students tried to quit the habit and 43 (54.4%) students sought help in order to quit the habit. This proves that the information given about the dangers of smokeless tobacco is effective and efficient.

Ethical Considerations

- Formal written permission was obtained from the principal of the selected schools prior to the study.
- Written informed consent was obtained from the participants and they are assured of anonymity and confidentiality of the data obtained. No data that may link them such as names, phone number or emails were collected from them.

Limitations

- The study's sample size is limited to 90 students from three schools in Zemabawk, Aizawl, Mizoram which do not adequately represent the diversity and variability across all school children in Mizoram. Therefore, the findings may not be generalizable to the whole population in the same age group.
- The study employs a descriptive cross-sectional design that lacks depth in understanding causal relationships,

temporal trends, or changes over time and relies solely on self-reported data, which may be subject to biases such as social desirability or recall bias.

- The study does not provide sufficient context regarding the socioeconomic, cultural, or environmental factors that may influence Mizoram's smokeless tobacco use among school children.
- Given the high percentage of students expressing awareness of tobacco control programs (81.1%) and laws prohibiting the sale of tobacco products to minors (75.5%), indicates that the study may have a potential bias due to respondents' tendency to give socially acceptable answers or to misrepresent the true amount of their knowledge.

Recommendations

- A study can be conducted to find out the health risks associated with smokeless tobacco use and the specific health outcomes or the severity of these risks among school children.
- A longitudinal study can be conducted to have an insight into trends, changes in behavior, and effectiveness of interventions over time.
- The study can be replicated on a broader population of school children in the region.

Conclusion

This study concluded that a significant majority of the students had tried smokeless tobacco and continued using the tobacco products. So, the future awareness effort should focus on proactive educational initiatives targeting youth and involve continuous awareness campaigns in schools and communities to promote a healthier, well-informed generation about tobacco's health impacts.

Acknowledgement: The researchers would like to thank all of the school principals for allowing them to conduct the study in their esteemed institutions and all of the study participants for their enthusiastic engagement.

Conflict of Interest: The authors declare no conflict of interest.

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