Assessment Of Knowledge Regarding Risk Factors And Prevention Of Lung Cancer Among Male Adolescents Residing In Selected Regions Of Jammu

Ms. Sobiya Majeed[1] , Ms. Vaishali[2]

[1]M.Sc Nursing (Medical Surgical Nursing-Critical Care) Stephen's College of Nursing, Nihalpur, Miran-Sahib, Jammu.
[2]Assistant Professor, Stephen's College of Nursing Nihalpur, Miran-Sahib, Jammu.

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Abstract

Lung cancer remains a significant global health challenge. In India, its burden is increasing, particularly due to rising tobacco use and environmental pollution. This study aims to assess the level of knowledge regarding risk factors and preventive measures of lung cancer among male adolescents in selected areas of Jammu. Data were collected from 100 participants aged 15–21 years through a structured questionnaire. The findings reveal varying degrees of awareness, with smoking and air pollution recognized by a majority as major risk factors, while knowledge about genetic risks and early symptoms was comparatively lower. These results highlight the need for targeted awareness programs.

Introduction

Lung cancer is one of the leading causes of cancer-related deaths globally. Tobacco smoking remains the most significant risk factor, with environmental pollution and genetic predisposition also playing major roles. Early prevention through education, particularly among adolescents, can reduce future incidence. This study focuses on assessing the level of knowledge among male adolescents in selected areas of Jammu.

Lung cancer continues to be a formidable global health challenge, ranking among the most common and deadliest forms of cancer. According to the World Health Organization (WHO), lung cancer is responsible for more deaths than any other type of cancer worldwide. In 2022 alone, there were approximately 2.2 million new cases and 1.8 million deaths attributed to lung cancer globally. This staggering toll reflects both the aggressiveness of the disease and the difficulty of achieving early diagnosis. The burden of lung cancer is increasing steadily in low- and middle-income countries, including India, due to the rising prevalence of key risk factors such as tobacco use, industrial pollution, and changing lifestyles.

In India, lung cancer constitutes a significant proportion of all cancer cases, particularly among males. It is the most commonly diagnosed cancer in Indian men and the leading cause of cancer-related mortality. The situation is compounded by the fact that most cases are diagnosed at an advanced stage when curative treatment is no longer possible. According to data from the Indian Council of Medical Research (ICMR), the five-year survival rate for lung cancer remains below 15%, which is significantly lower than that for many other types of cancer. This highlights the urgent need for prevention, early detection, and greater public awareness, especially among vulnerable populations.

The primary risk factor for lung cancer is tobacco smoking, which is responsible for approximately 85% of all cases. Both active smoking and passive (secondhand) exposure significantly elevate the risk. Cigarettes, bidis, hookahs, and other forms of smoked tobacco are widely consumed across India, including among adolescents and young adults. The National Family Health Survey (NFHS-5) reported an alarming rise in tobacco use among adolescents in rural areas, underscoring the need for targeted health education campaigns. In addition to tobacco, other major contributors include air pollution, occupational exposure to carcinogens (such as asbestos and radon), chronic respiratory infections, and genetic predisposition.

In recent years, the link between environmental pollution and lung cancer has gained increasing attention. India is home to 14 of the 20 most polluted cities in the world, with air quality levels consistently breaching safe limits. Long-term exposure to particulate matter (PM2.5 and PM10), nitrogen dioxide, sulfur dioxide, and other pollutants has been associated with an increased incidence of lung cancer, especially among individuals living in industrial and urban areas. Jammu, while not among the most polluted cities in India, is gradually experiencing environmental degradation due to urbanization, traffic congestion, and construction activities.

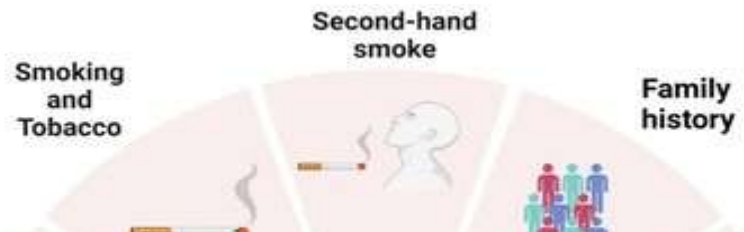
Genetic factors also play a role in determining an individual's susceptibility to lung cancer. People with a family history of cancer, particularly lung cancer, are at higher risk even in the absence of smoking or environmental exposures. This suggests that cancer prevention strategies must take a multifactorial approach—addressing not only behavioral and environmental risk factors but also promoting awareness about genetic vulnerabilities.

Lung cancer typically develops silently over time, with symptoms such as chronic cough, breathlessness, chest pain, hoarseness of voice, and unexplained weight loss often mistaken for less serious conditions. By the time patients seek medical help, the cancer is often in an advanced stage, significantly limiting treatment options. In many parts of India, particularly rural and semi-urban regions, limited access to healthcare, financial constraints, and lack of awareness contribute to delayed diagnosis and poor outcomes.

The role of education in lung cancer prevention cannot be overstated. Multiple studies have demonstrated that knowledge about the disease, its risk factors, and early warning signs is essential in motivating individuals to adopt preventive behaviors and seek timely medical attention. Adolescents, in particular, represent a critical target group for preventive interventions. Habits formed during adolescence often persist into adulthood, and early exposure to tobacco or environmental risks can set the stage for future disease. Adolescents are also highly susceptible to peer pressure, media influences, and social norms, all of which can contribute to risk behaviors such as smoking.

Health education aimed at adolescents can yield long-term benefits by shaping positive attitudes and behaviors. Schools, community centers, and digital platforms can be leveraged to disseminate scientifically accurate, age-appropriate information about lung cancer. Adolescents who are well-informed about the dangers of smoking and the benefits of healthy living are more likely to make responsible choices and influence their peers and family members.

Despite the importance of adolescent-focused health education, there is limited research on the level of awareness and knowledge among this age group in India. Most studies on lung cancer knowledge have focused on adult populations, cancer patients, or healthcare workers. This leaves a significant gap in our understanding of how young people perceive lung cancer risk and what they know about prevention strategies. Furthermore, regional disparities in awareness are considerable. Jammu, being a culturally and geographically diverse region with both urban and rural populations, offers a unique context for exploring adolescent health knowledge.



Jammu district, located in the Union Territory of Jammu and Kashmir, comprises a mix of rural villages, suburban townships, and urban neighborhoods. It is home to people from diverse socioeconomic and educational backgrounds. Adolescents in this region are exposed to varying degrees of health infrastructure, educational quality, and lifestyle habits. While some attend well-equipped urban schools with regular health workshops, others may lack even basic awareness about cancer. This variation makes Jammu an ideal setting for conducting a detailed assessment of adolescent knowledge related to lung cancer.

Objectives

- To assess the knowledge regarding risk factors of lung cancer among male adolescents.
- To assess the knowledge regarding preventive measures of lung cancer.
- To identify the association between knowledge level and selected demographic variables.

Methodology

A quantitative research approach was adopted for the present study to systematically assess the level of knowledge among male adolescents. The study utilized a descriptive research design to evaluate knowledge regarding risk factors and prevention of lung cancer. The key variable of this study was the knowledge level of male adolescents regarding risk factors and prevention of lung cancer in the Gujjar Nagar area of Jammu.

The study was conducted in the Gujjar Nagar area of Jammu, Union Territory of Jammu and Kashmir. The population consisted of male adolescents residing in the Gujjar Nagar area. The target population included all male adolescents aged 15 to 21 years who met the inclusion criteria for participation. The accessible population comprised male adolescents aged 15–21 years who were available during the data collection period in the Gujjar Nagar locality.

Sample: A total of 100 male adolescents aged 15–21 years were selected as the sample for the study.

Sampling Technique:
A non-probability, convenience sampling technique was employed to recruit participants who were readily available and willing to take part in the study.

Sample Size: The study included a sample size of 100 male adolescents.

Criteria for Sample Selection

Inclusion Criteria: - Male adolescents willing to participate. - Those present at the time of data collection. - Belonging to the age group of 15 to 21 years.

Exclusion Criteria: - Male adolescents who were unwilling to participate. - Those absent during the data collection phase. To assess the knowledge regarding lung cancer risk factors and prevention, a structured knowledge questionnaire was developed and utilized for data collection.

Data Collection

- Permission was obtained from the Ward Corporator of Gujjar Nagar, Jammu.
- Data collection was conducted over a four-week period, from the 3rd week of September to the 2nd week of October 2024.
- Participants were selected based on the inclusion criteria using a convenient sampling technique.
- The purpose and confidentiality of the study were explained to participants, and informed consent was obtained.
- Each participant took approximately 15–20 minutes to complete the questionnaire.
- At the end of the process, participants were thanked for their time and cooperation.

Results

Table 1: Frequency and Percentage Distribution of Respondents by Age

Age Group (in years)	Frequency	Percentage
15–16	38	38%
17–18	42	42%
19–21	20	20%

Table 2: Educational Qualification of Respondents

Education Level	Frequency	Percentage
Secondary	60	60%
Higher Secondary	40	40%

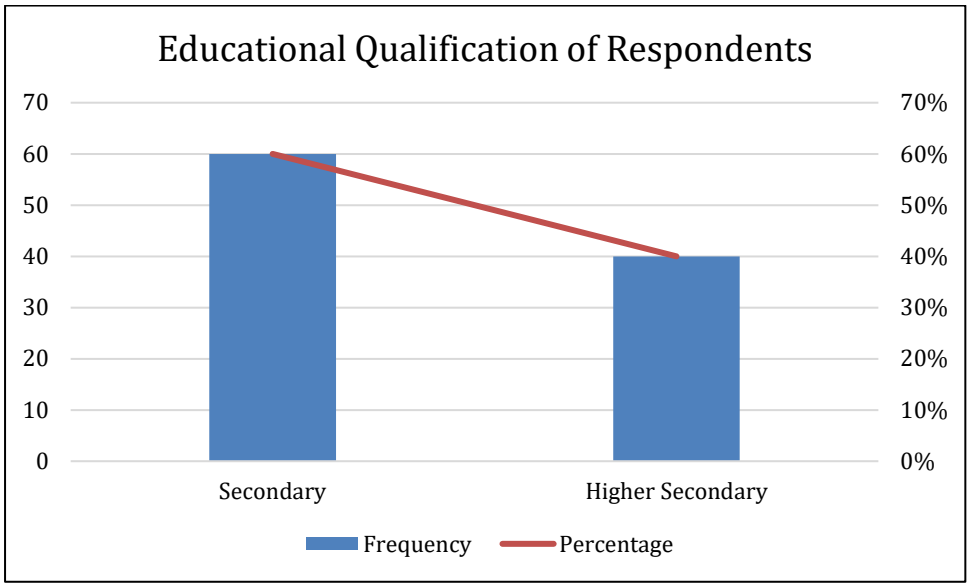
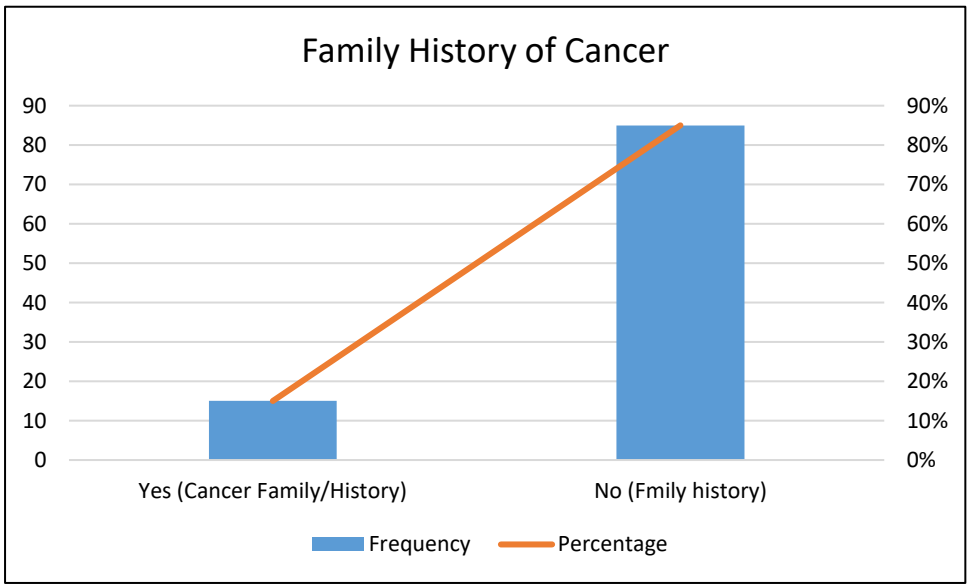


Table 3: Family History of Cancer

Family History	Frequency	Percentage
Yes	15	15%
No	85	85%



Data Analysis and Interpretation

- Data was compiled and analyzed in accordance with the study objectives.
- Descriptive statistics (mean, percentage, frequency) were used to assess the level of knowledge.
- Chi-square test was employed to determine the association between knowledge scores and selected socio-demographic variables.

- Smoking was correctly identified as a risk factor by 78% of respondents.

- Air pollution awareness stood at 65%.
- 42% were aware that genetic predisposition can also lead to lung cancer.
- Early symptoms like persistent cough were recognized by 58% of adolescents.
- Awareness of preventive measures such as quitting smoking and avoiding pollutants was high at 71%.

Discussion

This study revealed that while general knowledge about smoking and air pollution is satisfactory among adolescents, there is a lack of depth in understanding other contributing factors such as genetics and early symptom recognition. Findings are consistent with previous studies that found limited cancer awareness among youth in India. The role of mass media, school curriculum, and health workshops is significant in shaping awareness.

Conclusion

The findings of this study reveal that the level of knowledge regarding the risk factors and prevention of lung cancer among male adolescents residing in selected regions of Jammu is moderate, with noticeable gaps in awareness about lesser-known factors such as genetic predisposition and early symptoms of the disease. While a substantial number of participants demonstrated awareness about common risk factors like smoking and air pollution, many lacked comprehensive understanding of how lifestyle, environmental conditions, and hereditary factors interplay in the development of lung cancer. This highlights an alarming disconnect between known medical facts and the awareness levels among youth—an issue that must be addressed with urgency.

Given that lung cancer remains one of the leading causes of cancer-related deaths both globally and nationally, the importance of early prevention through education cannot be overstated. Adolescents represent a particularly crucial demographic because they are at a formative stage of developing lifelong habits. The initiation of smoking and other risky behaviors during adolescence significantly increases the likelihood of health complications later in life, including the development of lung cancer. Therefore, empowering this group with accurate knowledge is essential not only for personal health preservation but also for broader public health improvement.

The study reinforces the need for structured, evidence-based health education initiatives aimed at adolescents, especially in semi-urban and rural areas where access to reliable health information may be limited. Schools, being central to adolescent development, must be at the forefront of this educational movement. Curriculum designers should integrate comprehensive cancer education into health syllabi, covering not only the biology of cancer but also practical prevention strategies and healthy lifestyle promotion. Moreover, co-curricular activities such as awareness campaigns, quizzes, workshops, and interaction with healthcare professionals can make learning more interactive and impactful.

Community-based interventions must also be strengthened. Non-governmental organizations, local health authorities, and youth-focused community programs should collaborate to reach out-of-school adolescents and other underserved populations. Educational content should be culturally sensitive, language-appropriate, and tailored to the specific context of the region. Digital platforms, which are widely used by adolescents, can be a powerful tool to disseminate such information effectively through social media, mobile apps, and online learning modules.

Furthermore, the findings of this study suggest the importance of involving parents, teachers, and community leaders in reinforcing health messages. Adolescents are heavily influenced by their immediate environment, and the role of adults in shaping health behavior cannot be ignored. Parent-teacher meetings, community health camps, and intergenerational education models can further reinforce preventive messages and help create a health-conscious culture.

Policy-makers also have a vital role to play in combating the rise of lung cancer. The results of this study should serve as an impetus to advocate for stronger anti-tobacco laws, better air quality monitoring in urbanizing areas like Jammu, and increased investment in adolescent health promotion. The implementation of school health programs under national health policies should be strengthened to ensure continuity and coverage of cancer prevention education.

In conclusion, while this study reveals moderate knowledge levels among male adolescents, it also sheds light on the potential to significantly improve awareness and prevention through targeted interventions. The moderate awareness levels observed should not be a cause for complacency but a call to action. With collective effort from educators, healthcare providers, community stakeholders, and policy-makers, it is possible to build a well-informed adolescent population that is capable of making health-conscious decisions. Empowering youth with the right knowledge today is the most sustainable strategy to reduce the future burden of lung cancer and improve the overall health outcomes of our nation.

Recommendations

1. Conduct regular health awareness campaigns in schools.
2. Include lung cancer education in school curricula.
3. Engage healthcare professionals to deliver community workshops.
4. Promote anti-tobacco messaging among youth using digital media.

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