

Assessing Knowledge, Attitudes, and Practices on Cancer Prevention in Rural Areas of Uttar Pradesh

¹Roopam Verma, ² Anupama Trivedi

¹M.Sc Zoology student, ²Assistant Professor

Department of Zoology,

MMH College, Ghaziabad, India

¹roopamverma2001@gmail.com, ²anu012@hotmail.com

Abstract— Cancer's a huge problem in India, being the second biggest killer and a major worry for public health all over. Bad habits like smoking, bad food, getting sick, and being around bad junk can make the chances worse early detection.

We did a study in suburban Ghaziabad with 104 adults (over 18). We used a set of questions to learn about them. People in the study lived in Ghaziabad, and we checked what they knew, felt, and did by giving them a score. This score covered things like if they knew about cancer, what makes it risky, how they felt about stopping it, and if they did things like breast self-exams, got checked by a doctor, got the HPV shot, or had their mouth checked. Everyone we talked to (100%) knew about cancer. They knew about breast cancer (83.7%), mouth cancer (67.3%), cervical cancer (48.1%), and lung cancer (48.1%). Things that they knew could cause cancer were smoking (83.7%), drinking alcohol (73.1%), not eating well (41.3%), and genes (36.5%). Most people (84.6%) were for campaigns to make people aware and 73.1% said they'd go to information meetings about it. But when it came to doing things to stop cancer the numbers were low: 25% of women checked their own breasts, 18.8% had a doctor check their breasts, 27.9% got the HPV shot, and 38.5% had their mouth checked by a doctor. How much people knew and made affected their attitudes and actions. Things like where people live and access to healthcare might play a role in why people aren't being screened. To prevent cancer better, we need to teach people in the community, make healthcare easier to access, and encourage people to take charge of their health.

I. INTRODUCTION

With the advancement of time, the world is witnessing a growing burden of non-communicable diseases. Cancer is predicted to be an increasingly important cause of morbidity and mortality in the next few decades, in all regions of the world. More than two-thirds of all cancer deaths occur in low- and middle-income countries. Steps for reducing the burden of morbidity and mortality from cancers are needed currently. One important step in this direction is awareness among the population about the causes and prevention of cancers. Early diagnosis based on awareness of early signs and symptoms improves survival, particularly for breast, cervical, colorectal, skin, and oral cancers ⁽¹⁾. Cervical cancer is the most common cancer in developing countries (Goel et al., 2005) ⁽²⁾. According to the GLOBOCAN 2020 report, the incidence rate of lip and oral cavity cancers per 100,000 population was estimated to be 4.8 in the world and 1.4 in Iran. The risk of developing oral cancer typically increases in individuals over the age of 40. However, over the past decade, there has been a notable increase in the prevalence of oral cancer among young individuals and those under the age of 45 years. Tobacco and alcohol consumption are the main risk factors that account for over 90% of oral cancer. Tobacco consumption is one of the most important public health concerns worldwide. In 2020, approximately 22% of the global population were reported to be tobacco users. In Iran, the prevalence of tobacco, cigarette, and hookah smoking was 14%, 9.3%, and 4.5% in 2021, respectively. Oral cancer predominantly affects individuals with lower socioeconomic status (SES) associated with some of the causal risk factors. Considering that most oral cancer cases are diagnosed at advanced stages with low survival rates, primary prevention strategies are crucial for decreasing the disease burden ⁽³⁾. The global burden of cancer is increasing largely because of the ageing and growth of the world population, with an increase in the practice of cancer-causing behaviours, particularly smoking, in economically developing countries. Breast cancer is the most diagnosed cancer and the prime cause of death due to cancer among females, accounting for 23% of the total cancer cases and 14% of deaths due to cancer in many low-income and middle-income countries ⁽⁴⁾. Indian women residing in urban areas. Indian women mostly present with breast cancer when it has already reached an advanced stage, which reduces the rate of survival. Early-stage diagnosis has a better chance of survival and a good prognosis. The whole scenario of the advanced stage presentation moves around the two major factors: non-existence of a breast cancer screening program and nonparticipation of women, if any such program does exist. Undoubtedly, breast cancer will become an epidemic in India in another 10 years if the status of detection continues. As there is no exact etiological agent for breast cancer, early diagnosis and treatment is of paramount importance in improving morbidity and mortality status. Early detection plays a pivotal role in the prevention of breast cancer. The 5-year survival rate has reached approximately 85% with early detection, whereas later detection has decreased the survival rate to 56% (4). The World Health Organisation (WHO) has estimated that about one-third of the diagnoses of cancer are attributable to lifestyle cancer-related behaviors, such as smoking habits, poor physical activity and nutrition, alcohol abuse and exposure to the sun without adequate protection. Therefore, providing information to adolescents about lifestyle cancer-related behaviors, driving them to more correct lifestyle choices, may be useful for developing active prevention programs for a healthy adulthood (5). Studies have also found that the perceived risk of prostate cancer, low knowledge about the disease and prostate cancer screening methods play an important role in cancer screening utilisation. Good knowledge and understanding of a disease is generally associated with a more optimal healthcare-seeking attitude and behavior. In controlling the effects of diseases like prostate cancer in our country, evaluating knowledge, attitudes and practices towards the condition is important to identify critical areas where interventions can be established. However, a low level of awareness about prostate cancer or the complete lack of it has been identified as the cause of the late presentation and poor prognosis. Due to the lack of adequate research on evaluating the knowledge, attitude and behaviours related to prostate cancer screening in our area, this study was conducted to provide current information on prostate cancer awareness. The findings will assist in developing and implementing preventive and treatment measures for this issue, as well as evaluating the effectiveness of the

government's strategies to reduce the disease's impact (6). While several studies have explored knowledge, attitudes, and practices and associated characteristics, most studies examine specific cancers, such as breast, cervical, and skin cancers. Only one study, conducted before the implementation of the National Cancer Control Plan, comprehensively examined the awareness of the main cancer risk factors in the general population, despite the relevance of this information to the development of a comprehensive cancer control plan. The success of cancer treatment depends on the disease stage and the timeliness of diagnosis and treatment. Often, symptoms develop before the disease progresses, and in the case of Morocco, relatively large-scale screening programs are only available for the most prevalent cancer types. Therefore, in most cases, symptoms should be recognised by patients and brought to the attention of physicians. In this sense, exploring attitudes and knowledge among the general population can provide insights into the likelihood of recognizing early symptoms and seeking care, thereby improving chances of survival. Therefore, in this study, we aim to assess the knowledge, attitudes, and practices regarding cancer prevention and associated characteristics to inform the development of targeted cancer prevention campaigns and policies (7).

II. AIM AND OBJECTIVES

Aim: To assess the knowledge, attitudes, and practices related to cancer prevention among individuals in Suburban areas of Uttar Pradesh.

Objective: -

Primary Objective: -

1. To assess the knowledge, attitudes, and practices (KAP) related to cancer prevention among residents of rural areas in Uttar Pradesh, identifying gaps and factors influencing awareness and preventive behaviours.

Secondary Objective: -

1. To evaluate the level of awareness regarding cancer risk factors, symptoms, and screening methods among rural populations.
2. To analyze attitudes toward cancer prevention, including perceptions of risk, trust in medical interventions.
3. To examine preventive practices such as lifestyle choices, dietary habits, and participation in cancer screening programs.
4. To identify socio-demographic factors (e.g., age, gender, education, income) that influence knowledge, attitudes, and practices related to cancer prevention

III. REVIEW OF LITERATURE

1. Cancer is still a big health problem worldwide, and it hits poor and middle-income countries like India hard. For women, breast and cervical cancers are the main cause of sickness and death from cancer. Finding cancer early and treating it fast are super important to lower the number of deaths. What people know about cancer and what they do about their health often depends on their social status and culture. A study by Sharma and team looked at what women in Delhi know about cancer and what they do to protect themselves, based on their social and economic status. The research shows that there are some big holes in what they know, how they prevent it, and how they seek medical help, mainly for women from poorer backgrounds. The study *found* that most women didn't know much about common cancers for women, like breast and cervical cancer, or what causes them. Women with higher incomes knew more about the symptoms, how to get checked (like Pap smears and mammograms), and ways to prevent cancer, compared to women with lower incomes. This fits with other studies that say education and income have a big impact on health knowledge and whether people use preventative health services (8).
2. Cervical cancer is a big health issue, ranking as the fourth most frequent cancer in women globally. It's a major cause of cancer deaths, especially in lower-income countries like Bangladesh. The good news is that it can usually be prevented if caught early and treated quickly. Screening programs like Pap smears and VIA are key to finding it early. Despite this, awareness, screening uptake, and treatment access remain low in many resource-limited settings. Numerous studies have indicated that knowledge, attitude, and practice (KAP) toward cervical cancer are critical determinants of preventive behavior among women. In a lot of South Asian nations, such as Bangladesh, folks don't know much about cervical cancer or how to get checked for it. This is really true for women who don't have many advantages in life. Things like cultural beliefs, fearing what the doctor might find, not knowing much about health, and wrong ideas about the sickness stop women from getting checked out and looked after when they should. A study in rural Bangladesh by Nahar et al. (2010) found that only a small proportion of women had heard of cervical cancer, and even fewer were aware of screening services. Similar findings were reported by Islam et al. (2017), who observed that most women lacked basic understanding of cervical cancer symptoms and risk factors. Furthermore, many women believed that cancer was an incurable disease, contributing to poor health-seeking behavior. Urban populations, like those in Dhaka, may have slightly better access to health information and services; however, disparities still exist. Research suggests that while urban women may exhibit more positive attitudes toward screening, their actual screening practices remain suboptimal due to fear, embarrassment, or lack of recommendation from healthcare providers. Moreover, a consistent finding across studies is the critical role of healthcare providers and community education programs in influencing women's decision to undergo screening. The current study by Qayum et al. addresses an important gap by focusing on the urban context of Dhaka, exploring how socio-demographic variables influence women's knowledge, attitudes, and practices related to cervical cancer. It contributes to a growing body of evidence that underscores the need for comprehensive, culturally sensitive public health interventions to improve cervical cancer awareness and screening behavior among Bangladeshi women (9).
3. Growing up is a really important time to learn habits that keep you healthy for life, especially when it comes to avoiding cancer. Back in 2021, Gabriella Di Giuseppe and her team did a study where they checked out what Italian teens knew, how they felt, and what they did about cancer and how to prevent it. It gives us some good info on this topic. This study is part of a bigger conversation about how we need to start teaching young people about health early on, so we can fight things like cancer, which are becoming bigger problems. Cancer is still a big health problem around the world and causes a lot of deaths. Things like smoking, bad eating habits, not exercising, and drinking too much can really raise your chances of getting it. The World Health Organization says that about 30–50% of cancer cases could be prevented if people avoided these risks and took steps to prevent it. Teens don't always think they're likely to get sick later in life, so

they usually don't focus on doing things that will keep them healthy. The study by Di Giuseppe et al. involved a cross-sectional survey conducted among high school students in Southern Italy, evaluating their knowledge about cancer risk factors, attitudes towards prevention, and engagement in protective or risky behaviors. Findings indicated a significant gap in knowledge, with many adolescents unaware of critical cancer risk factors such as HPV infection, poor diet, and sun exposure. Despite having generally positive attitudes toward prevention, a considerable proportion of students reported engaging in high-risk behaviors, including smoking, alcohol use, and physical inactivity (10).

4. Cervical cancer is a big health problem in countries with lower incomes, especially in sub-Saharan Africa. It's a major cause of cancer deaths for women there. Back in 2020, Nyambe and others did a study in Zambia to see what people knew, how they felt, and what they did about preventing cervical cancer. The study showed that lots of folks didn't know about key risk factors like HPV, or that there are ways to prevent it, like Pap tests and the HPV vaccine. This shows a real lack of awareness. Despite high awareness of cervical cancer as a disease, detailed understanding of its causes, early symptoms, and prevention was limited. Gender stereotypes, worries, stigma, and culture really shaped how people felt. Like, guys didn't really get involved when their wives needed medical care. Cervical cancer? People often thought that was just a girl thing. But since it's super important for women to get support from their partners to get checked out, this can really get in the way of stopping the disease early. The study also showed that not many people were taking steps to prevent it, which is pretty much the same story in other African countries (Louie et al., 2009; Mwaka et al., 2016). A few problems included weak public awareness campaigns, not enough trained healthcare people, and it being hard to get to clinics. Some people also said they felt embarrassed or scared of the tests, and that kept them from participating, too. Nyambe et al. advocate for community-based, gender-inclusive education and the integration of cervical cancer prevention into broader reproductive health services. Addressing misinformation, improving access, and involving men in awareness programs are key strategies to enhance the effectiveness of cervical cancer prevention (11).
5. Ray et al. in West Bengal, which observed that 98.3% of participants had heard about cancer. Another study with a high level of overall cancer awareness was by Raj et al., which found that 87% of the population had heard about cancer in the five Indian states. However, the other two studies did not find the same level of awareness with Seshachalam et al. in Mysore reporting that only 60.48% and Puri et al. Chandigarh reporting only 57.2% of their study participants had heard about cancer. These differences could be partly explained by the difference in literacy rates of the study population. If one considers the literacy rate alone, the level of awareness should not be as low as 57% and not as high as 98%. Cancer awareness is likely to be associated with many other factors besides literacy rate; one of which was found to be the level of income. Gadgil et al. in urban women of Mumbai found a significant association between breast cancer awareness and family income level. High income group participants had better knowledge than those of low-income groups. This is plausible as a better income level would equip them with better access to knowledge (12).

IV. METHODOLOGY

- Study design: -
The study in the sub-urban of Uttar Pradesh with male and female participants from various socio-economic strata. A structured questionnaire was used to collect data on demographic characteristics, cancer-related knowledge, attitudes, and screening behaviours. The participants were categorized into different socio-economic strata based on income, education, and occupation.
- Study area: -
We're doing this research in a few sub-urban parts of Uttar Pradesh. I picked these spots to get a good mix of different people, cultures, and how well-off they are. The areas were chosen based on how many people live there, if they're easy to get to, and what kind of healthcare they have.
- Study population: -
The study population will include adults aged 18 years and above, residing in the selected sub-urban areas. Inclusion will not be limited by gender, occupation, or educational status.
- Inclusion criteria-
 - Age should be more than >18 years
 - Individuals residing in urban areas of Uttar Pradesh
- Exclusion criteria-
 - Individuals below 18 years of age.
- Data Collection Tool
A pre-tested, semi-structured questionnaire will be used, divided into four sections:
 1. Socio-demographic details (age, sex, education, income, occupation, etc.)
 2. Knowledge of cancer types, risk factors, symptoms, screening methods
 3. Attitudes toward cancer prevention and perceptions about medical care
 4. Practices regarding lifestyle habits, tobacco/alcohol use, dietary patterns, participation in screening

COMPOSITE KAP SCORING

KAP Component	Indicators	Frequency (n)	Percentage (%)
Knowledge	Heard of cancer	104/104	100
	Recognized Breast cancer	87/104	83.7
	Recognized Oral cancer	70/104	67.3
	Recognized Cervical cancer	50/104	48.1
	Recognized Lung cancer	50/104	48.1
	Identified Smoking as a risk factor	87/104	83.7
	Identified Alcohol as a risk factor	76/104	73.1
	Identified Poor diet as a risk factor	43/104	41.3
	Identified Genetic/Hereditary as risk	38/104	36.5
Attitude	Believe awareness campaigns help	88/104	84.6
	Willing to attend awareness sessions	76/104	73.1
	Negative Attitude	10/104	9.6
Practice	Females performing BSE (n=48)	Dec-48	25

Females with CBE (n=48)	Sep-48	18.8
HPV Vaccination received	29/104	27.9
Undergone Oral Check-up	40/104	38.5

- The KAP survey showed high knowledge of cancer and its risk factors, generally positive attitudes toward awareness, but lower adoption of preventive practices like BSE, CBE, HPV vaccination, and oral check-ups.

Discussion

This study looked at what people in the suburban areas of Uttar Pradesh know, think, and do when it comes to preventing cancer. We had 104 people take part. The results give us some good info on cancer prevention habits and how aware people are of it in their communities. In low- and middle-income countries, patients with cancer generally have a poorer prognosis compared with patients in high-income countries; the reasons being lack of awareness, late diagnosis and inequitable access to affordable curative services. Lack of awareness contributes to the late reporting of cancer. cases to the healthcare facility. Data from four major centres in India showed that most individuals with cancer seek healthcare for the first time at late stages. The importance of cancer awareness has been emphasised as a means of ensuring behaviour that facilitates early detection, whereas the absence of cancer awareness has been seen as a detriment to this end. Delay in health-seeking is also attributed to factors such as illiteracy, financial constraints, as well as myths and superstitions, along with lack of awareness, and these go together, most of the time. Most of the studies focused on awareness about specific cancers, with very few studies on overall cancer. Only four studies were identified that studied awareness about overall cancers, one of the earliest of which was by Ray et al. in West Bengal, which observed 98.3% of participants had heard about cancer.

- Knowledge about Cancer and Its Risk Factors:** - The survey results showed everyone knew about cancer. The types of people heard about the most were breast cancer (83.7%), oral cancer (67.3%), and lung and cervical cancers (both at 48.1%). This strong awareness, mostly for oral and breast cancers, could be from more media coverage and health programs in India. Most people know that smoking (83.7%) and drinking alcohol (73.1%) can really increase your chances of getting cancer. This is what other studies have also found – people get that lifestyle choices matter when it comes to cancer risk (12, 13). But not even half knew that bad eating (41.3%) and genes (36.5%) could be risks. This shows some folks don't get all the risks involved. Past research shows the same thing - people pay closer attention to risks they can change instead of those from family or food. (14).
- Attitudes Toward Cancer Prevention:** - People here seem to think prevention is a good idea. Around 84.6% think awareness campaigns can help, and 73.1% said they'd go to these sessions. So, mostly everyone's open to learning about health. Still, some folks (9.6%) aren't so sure, maybe because of cultural stigmas, fear, or just thinking cancer is unavoidable in rural India (15).
- Preventive Practices and Behavioral Trends:** - People seemed to know a bit about prevention and had okay attitudes, but they weren't really doing much about it. For example, out of 48 women, only a quarter said they checked their own breasts, and less than 19% had a doctor check them. This shows that even though people are aware, they aren't doing what they should. Also, not many got the HPV vaccine (only about 28%), even though it's known to prevent cervical cancer (16). Oral cancer screening through dental check-ups was reported by only 38.5% of participants, reflecting poor uptake of routine preventive care. They show that even when people know about cancer, it doesn't always lead to lasting changes in behavior, especially for those who need help the most (17,18). Limited access to screening services, socio-cultural barriers, and lack of proactive health systems may account for this discrepancy.
- Socio-demographic Influences:** - This study didn't break down the results by things like education or income. But past studies show that stuff like your education, gender, how much money you make, and your job changes how good you are at understanding health info and taking care of yourself (19). It's likely that some things probably played a part in how this study turned out. If we look at these things in the future, we could get a better handle on everything, which would be a big help in creating programs that work.
- Strengths and Limitations:** - A key strength of this study is its focus on a semi-urban population, which is often underrepresented in cancer prevention research. Using a structured KAP lets you fully check what people know, how they feel, and what they do. Studying does have snags. With only 104 folks in the study, the results might not apply to everyone. Also, since people told us about themselves, their answers might be a bit biased because they may want to look good or not remember things right. Also, we didn't break down the results by demographics, so it's hard to know how things like social class or age play a role. Implications and Future Directions (20). The findings of this study highlight an urgent need to bridge the gap between knowledge and practice through targeted interventions. Health education programs should be customized to address not only awareness but also behavioral motivation and access to preventive services. Community-based participatory programs, especially those involving local health workers and NGOs, may yield better outcomes.

Furthermore, the inclusion of cancer education in school curricula and use of mobile health units for screening could substantially improve preventive engagement.

- Implications and Future Directions: - This study shows that we really need to connect what people know with what they do, and we can do this with focused actions. Health classes should be done to fit people's needs, so they know what is going on. They should also encourage people to act and make sure they can get to services that prevent illness. Programs that work with people in their communities, mostly ones that include local health folks and charities, might get better results. Also, teaching kids about cancer in schools and using mobile health places to do tests could really help more people get involved in preventing disease.
- Recommendations: -
 1. Bridge the Knowledge-Practice Gap: Implement behavior-change interventions, not just awareness campaigns.
 2. Enhance Screening Access: Deploy mobile units and increase rural screening camps.
 3. Community Engagement: Involve local health workers and NGOs for trusted delivery.
 4. Youth & School Programs: Include cancer education in school curricula.
 5. Research Expansion: Conduct multi-centered, stratified, and qualitative studies for deeper insight.

Conclusion

This study looks at what people in Uttar Pradesh sub-urban areas know, think, and do when it comes to preventing cancer. It turns out that many folks are aware of cancer and the big risks, like smoking, drinking, and certain cancers (breast, oral, etc.). But, knowing isn't the same as doing. Things like breast self-exams, checkups, HPV shots, and getting checked for oral cancer are not common. This gap between knowledge and practice indicates the presence of various socio-cultural, infrastructural, and motivational barriers that hinder individuals from taking proactive steps toward cancer prevention. People seem to like the awareness campaigns and say they'll try to prevent problems, but they still aren't doing much. This shows we need to focus our efforts better. Community-based education, improved access to screening services, and integration of cancer awareness into school and public health programs are critical for enhancing preventive behaviour. Also, getting local health folks involved and doing regular community outreach can build trust and get more people to participate. Future studies with bigger, more varied samples and surveys are key to really dig into the core problems and create cancer prevention plans that work for people.

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