DISSERTATION TRAINING At

Doctors For You (DFY)

New Delhi

Project

"A cross-sectional study on beliefs about Third hand smoke among the Doctors in Delhi, India"

By:

KRITI SHARMA

PG/22/045

UNDER THE GUIDANCE OF

Dr. Altaf Yousuf

Post-Graduate Diploma in Health and Hospital Management

International Institute of Health Management Research

New Delhi -110075

March-May 2024

“A cross-sectional study on beliefs about Third hand smoke among the Doctors in Delhi, India”

A dissertation submitted in partial fulfilment of the requirements.

For the award of

Post-Graduate Diploma in Health and Hospital Management

By:

KRITI SHARMA

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March-May 2024

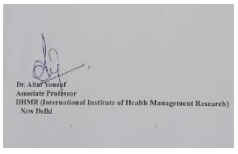
TO WHOM IT MAY CONCERN

This is to certify that Kriti Sharma student of PGDM (Hospital & Health Management) from the International Institute of Health Management Research, New Delhi has undergone internship training at Doctors For You from 1st March to 31st May 2024.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific, and analytical.

The internship is in fulfilment of the course endeavours. I wish him all success in all his future endeavours.

Dr. Sumesh Kumar



Associate Dean, Academic and Student Affairs

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(Completion of Dissertation from respective organization)

The certificate is awarded to

KRITI SHARMA

in recognition of having successfully completed his/her internship under

"DFY Internship & Volunteer Programme"

and has successfully completed his/her Project on

"A cross-sectional study on beliefs about Third Hand Smoke among the Doctors in Delhi, India"

Date – 1st March 2023- 15th June 2023

ORGANIZATION- Doctors For You

He/She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish him/her all the best for future endeavors.

26/06/24

Training & Development

DOCTOR FOR YOU Reg. No. F-56886 (Mum)

Zonal Head-Human Resource

DOCTOR FOR YOU Reg. No. F-56886 (Mum)

Date: 26th June 2023

Internship Completion Certificate

To Whomsoever It May Concern

This is to certify that **Ms. Kriti Sharma** has worked as a "Project Coordinator (Consultant)" with Doctors For You and has successfully completed the internship under the guidance of **Dr. Shubham Negi**.

Internship Duration: 1st March 2024 to 31st May 2024

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific, and analytical.
The Internship is in fulfilment of the course requirements.
I wish her all success in all her future endeavors.

We wish you all the best.

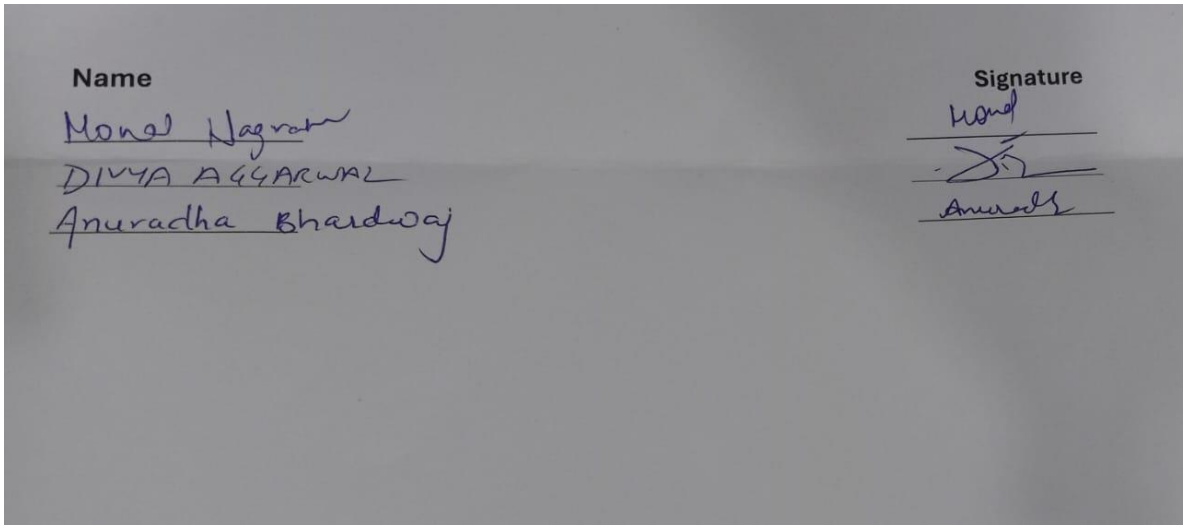
Human Resources

DOCTOR FOR YOU
Reg. No. F-56886 (Mum)

Certificate of Approval

The following dissertation titled "A cross-sectional study on beliefs about Third hand smoke among the Doctors in Delhi, India" at "Doctors For You" is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of Post- Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned does not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approves the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation



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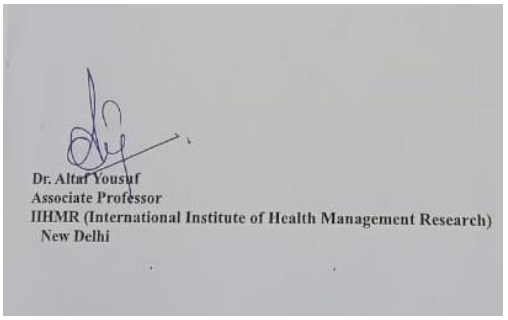
This is to certify that Kriti Sharma, a participant in the Post-Graduate Diploma in Health and Hospital Management, has worked under our guidance and supervision. He is submitting this dissertation titled "A cross-sectional study on beliefs about Third hand smoke among the Doctors in Delhi, India" in partial fulfilment of the requirements for the award of the Post-Graduate Diploma in Health and Hospital Management.a

This dissertation has the requisite standard and to the best of our knowledge, no part of it has been reproduced from any other dissertation, monograph, report, or book.



INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation **titled A cross-sectional study on beliefs about Third hand smoke among the Doctors in Delhi, India** and submitted by **Kriti Sharma** Enrollment No. **PG/22/045** under the supervision of **Dr. Altaf Yousuf** for the award of PGDM (Hospital & Health Management) of the Institute carried out during the period of **March 2024 to June 2024** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher fellowship, titles in this or any other institution of higher learning.

Kriti
Signature

FEEDBACK FORM

Name of the Student : Kriti Sharma

Name of the Organisation in Which Dissertation Has Been Completed : Doctors For You

Area of Dissertation : A cross-sectional study on beliefs about Third Hand Smoke among the Doctors in Delhi, India.

Attendance : 100 %

Objectives achieved : Over the past period, Ms. Kriti has effectively managed and documented numerous critical activities, ensuring timely task completion. She produced monthly situation reports and updated key state and camp reports. Additionally, she documented short project details and developed a project proposal. In program management, she coordinated events, conducted monthly training sessions for staff and volunteers, and maintained consistent volunteer engagement. She also supported DFY Disaster Secretariat project, organized meetings, and ensured regular updates. Furthermore, she has actively participated in the outreach activities including health camp & community awareness initiatives.

Deliverables : Reporting and Documentation, Program and Event Management, Collaborated effectively with diverse teams throughout the project.

Strengths : Efficient Task Management, Comprehensive Reporting, Program Coordination and Active Participation and Community Engagement.

Suggestions for Improvement : Can have more research mindset and read related new developments in the field. Should develop skills to write and publish articles related to work.

Suggestions for Institute (course curriculum, No suggestions **industry interaction, placement, alumni)**

DOCTOR FOR YOU Reg. No. F-56886 (Mum)

Dr. Rajat Jain
Signature of Head of Organization

DOCTOR FOR YOU Reg. No. F-56886 (Mum)

Dr. Shubham Negi
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Date: 26.06.2024
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Name of Student (in block letter)	Dr/Mr./Ms.: Kriti Sharma		
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Name of Guide/Supervisor	Dr/ Prof.: Dr. Altaf Yousuf		
Title of the Dissertation/Summer Assignment	A cross-Sectional study on beliefs about Third hand smoke among the Doctors in Delhi, India".		
Plagiarism detects software used	"TURNITIN"		
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Total words and % of similar contents Identified	8%		
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ACKNOWLEDGEMENTS

I would like to express my sincere thanks and gratitude to Doctors For You, Vasant Kunj Delhi for giving me a wonderful opportunity to work along with and at the same time complete my dissertation project titled “A cross-sectional study on beliefs about Third hand smoke among the Doctors in Delhi, India.”

I thank Dr. Rajat Jain (President, DFY), Dr. Shubham Negi (Senior Programme manager, DFY), Dr. Rohini Wadhawan (Assistant Director- Donor Relation, DFY) and Shandeepan G (Director- DRR, DFY) who were kind enough to spare their valuable time and provided the suitable environment and optimum guidance in the interest of my project completion.
Sincere thanks to my mentor Dr. Altaf Yousuf for helping and encouraging me at every step.
Last but not least, I want to express my gratitude to my parents for raising me with nothing but love and support. Their unwavering encouragement gave me the willpower to carry on.
Thanks to everyone.

Kriti Sharma
PGDHM,
IIHMR, New Delhi

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

S. No	Symbol	Abbreviations
1.	THS	Third Hand Smoke
2.	WHO	World Health Organization
3.	SHS	Second Hand Smoke
4.	GATS	Global Adult Tobacco Survey
5.	ICMR	Indian Council of Medical Research
6.	FCTC	Framework Convention on Tobacco Control
7.	COTPA	Cigarette and Other Tobacco Products (Prohibition of advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act
8.	ETS	Environmental Tobacco Smoke
9.	SIDA	Sudden Infant Death Syndrome
10.	NCRP	National Cancer Registry Program
11.	TAPS	Tobacco advertising, promotion and sponsorship
12.	CDC	Center for Disease Control
13.	CORESTA	Cooperation Centre for Scientific Research Relative to Tobacco
14.	CSR	Corporate Social Responsibility
15.	CTP	Center for Tobacco Products (FDA Office of Science)
16.	HCP	Healthcare Professionals
17.	NTC	Non-Tobacco Consumers
18.	OTP	Other Tobacco Products
19.	KAP	Knowledge, Attitude, and Practice
20.	R & D	Research & Development
21.	STP	Smokeless Tobacco Products

LIST OF FIGURES AND TABLES

ORGANIZATION VIEW

Doctors For You, Organization

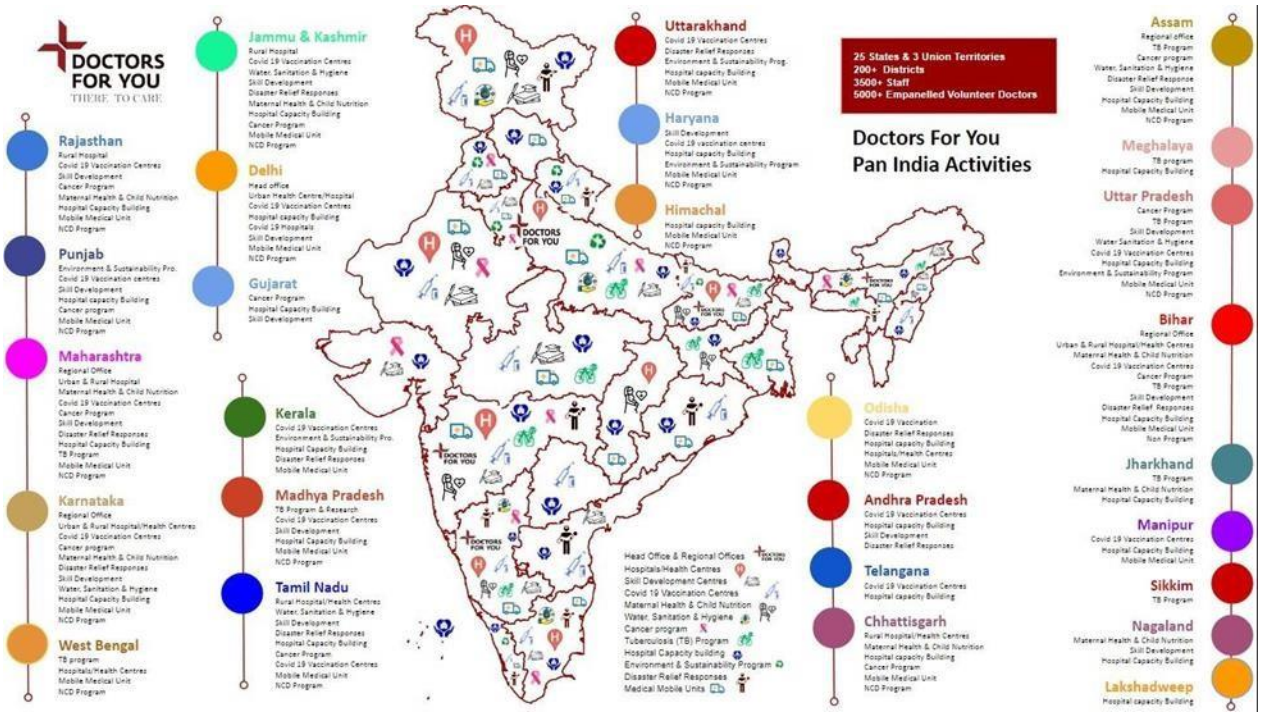
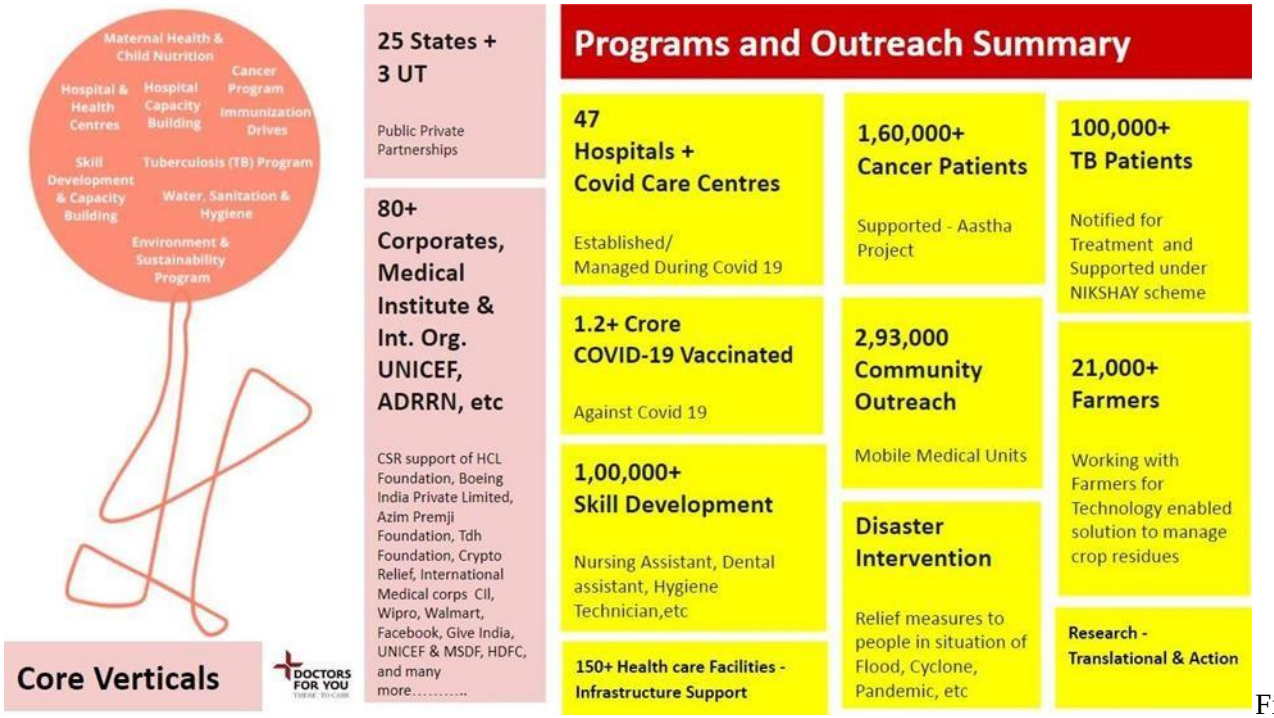


Fig 1: Locations and Types of Activities: Doctors For You

DOCTORS FOR YOU (DFY) is a registered society, registered under the Societies Registration Act 1860 Section 21 having registration no. F-56886 (Mum). DFY is a pan- India humanitarian organization with international presence and is working in various disaster hit zones for the last 14 years. DFY focuses on providing medical care to vulnerable communities during crisis and non-crisis situations, emergency medical aid to people affected by natural disaster, conflicts and epidemics. We are also committed to reducing disaster risk to human society by delivering training and capacity development in emergency preparedness and response. The work of DFY is guided by humanitarian principles of humanity, impartiality, and neutrality. It offers services and assistance to people based on need, irrespective of race, class, caste, religion and gender. Doctors For You was founded in India in 2007, by doctors, medical students and like-minded people with a vision of "Health for all." Currently, DFY is working on various projects in different states of India involving Health Professionals, Disaster Management Practitioners, Social Workers and Administrative Staff. The organization has received several awards including The SAARC Countries Award (2009), The British Medical Journal (BMJ) Group Award Best Medical Team in Crisis Zone Category (2011), Golden Ruby Award (2015), CSR BOX Award for Covid 19 Response (Large) (2021) and recognition from state governments for its outstanding contribution to the humanitarian field.



Fig

Fig 2: Programs and Outreach Summary

The functioning of Doctors For You is guided by a set of ethical values and guidelines. DFY functions on humanitarian principles of humanity, impartiality, and neutrality. It offers services and assistance to people based on need, irrespective of race, class, caste, religion and gender. The following are vision, mission and guiding principles of Doctors For You (DFY).

Organization Objective:

Vision-

"Health For All".

MISSION-

Providing sustainable, equitable, effective and efficient health care services to the most vulnerable individuals and communities.

GUIDING PRINCIPLES - (BUILDING BRICKS WHICH HELP AN ORGANISATION ACHIEVE ITS MISSION)

- Rapid response
- Reaching the unreached
- Accountable to our Partners, Donors & Communities
- Community Participation in decision making
- Neutrality & Non-Political

Journey, started in 2007

2018-2023

- Started Cancer Help-Desk Program.
- Started Crop Residue Management Program.
- Vistex Hospital, MDJ Hospital, CH Pulwama, MCH Clinic Noida, KPCL Hospital started.
- Orissa cyclone , Acute Encephalitis syndrome, Bihar flood , Covid- 19 , Assam, Bangalore, Uttarakhand, Himachal Pradesh flood relief response .
- Health Centre (Angul Odisha, Belur W.B., Nalwa Haryana) started.
- DFY listed among Top 50 NGOs by World Economic Forum, NDTV True Legend Awards,

2012-2017

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- Health Centre (Angul Odisha, Belur W.B., Nalwa Haryana) started.

About DFY:

DFY, standing for Development for You, encapsulates a multifaceted approach to address critical public health challenges across India. Spanning various domains such as disaster response, maternal and child health, cancer care, tuberculosis, skill development, and public health system strengthening, DFY's initiatives aim to positively impact the lives of approximately 2 crore individuals across 25 states and 3 union territories.

One of DFY's primary objectives is to bolster the Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) program nationwide. By focusing on this program, DFY seeks to enhance healthcare services and support systems targeting mothers, newborns, children, and adolescents, thereby ensuring comprehensive care throughout crucial stages of life. This initiative is integral to reducing maternal and child mortality rates and improving overall health outcomes.

In tandem with the RMNCH+A program, DFY is deeply committed to combating maternal and child malnutrition. Malnutrition remains a persistent challenge in India, affecting millions of lives. DFY's interventions in this sphere aim to address the root causes of malnutrition and implement targeted strategies to ensure adequate nutrition for mothers and children, thereby promoting healthy growth and development.

Furthermore, DFY recognizes the importance of addressing Non-Communicable Diseases and Injuries (NCDI) by strengthening access to related healthcare services. NCDs such as diabetes, cardiovascular diseases, and cancer pose significant health risks, and DFY endeavors to improve prevention, diagnosis, and treatment options for these conditions. By enhancing NCDi care services, DFY aims to mitigate the burden of these diseases and improve overall population health.

Antimicrobial resistance (AMR) represents another critical area of focus for DFY. The emergence of

drug-resistant pathogens pose a serious threat to global public health, and India is no exception. DFY's efforts to prevent and control AMR involve implementing robust surveillance systems, promoting appropriate antibiotic use, and fostering interdisciplinary collaborations to address this complex challenge effectively.

Moreover, DFY recognizes the imperative of building a disaster-resilient health system capable of withstanding and responding to natural or man-made calamities. Investing in disaster response preparedness, infrastructure, and capacity building is essential to minimize the impact of disasters on public health and ensure swift and effective response and recovery efforts.

In addition to healthcare initiatives, DFY places significant emphasis on strengthening medical, nursing, and paramedical education systems across India. By enhancing the quality and accessibility of healthcare education, DFY aims to cultivate a skilled workforce capable of meeting the diverse healthcare needs of the population and driving innovation in healthcare delivery.

DFY's commitment extends beyond healthcare to encompass resilient livelihood systems and environmental sustainability. Recognizing the interconnectedness of health, livelihoods, and the environment, DFY advocates for policies and interventions that promote sustainable development and safeguard the well-being of communities.

Furthermore, DFY prioritizes high-quality research aimed at informing evidence-based public health interventions and policies. By fostering research collaborations and partnerships, DFY endeavors to generate knowledge that can translate into tangible improvements in health outcomes at both the grassroots and policy levels.

DFY's approach to addressing public health challenges in India is characterized by collaboration, innovation, and a steadfast commitment to improving the lives of millions. Through its multifaceted

initiatives spanning healthcare, education, livelihoods, and research, DFY strives to create lasting impact and contribute to the advancement of public health in the country.

Fig 3: DFY Programs Summary

PROJECT REPORT

ABSTRACT:

Background: Second-hand smoke (SHS) and thirdhand smoke (THS) pose significant public health risks, with a myriad of compounds affecting both indoor and outdoor environments.

Despite recent awareness, risks are not fully understood. SHS alone caused 171,000 deaths and 4.3 million Disability-Adjusted Life Years in 2019. The emergence of THS, lingering long after smoking ceases, adds a new dimension to the problem, especially concerning during & after COVID-19 pandemic. People's homes have become a major source of secondhand smoke (SHS) and thirdhand smoke (THS) with the adoption of smokefree legislation in public places, particularly for youngsters. Doctors play a crucial role in public health by influencing patient behaviour, making it essential to understand their knowledge and opinions on THS to mitigate its health impacts.

Objective: Objective of this cross-sectional study is to investigate the awareness level of THS among doctors in Delhi, India. To understand the smoking habits and regulations among doctors. To Explore the specific beliefs and perception of doctors towards the potential health risk associated with THS exposure.

Methods: The methodology of the study involves a cross-sectional design to investigate the belief of doctors about Third Hand Smoke. Data will be collected using a structured questionnaire distributed through online platforms. The questionnaire will consist of multiple-choice questions to assess participant's level of belief about THS. Data analysis was performed using SPSS.

Results: The survey findings will provide a comprehensive overview of doctors' current awareness and attitudes towards third-hand smoke (THS). Female doctors exhibit higher awareness of THS compared to their male counterparts, indicating a significant association between gender and awareness levels. Despite being aware of the harmful effects of THS, some doctors still report current smoking status, highlighting a discrepancy between knowledge of THS risks and personal smoking behaviors among healthcare professionals.

Conclusion: The findings revealed that healthcare providers who acknowledge the harmful effects of Thirdhand Smoke (THS) are more inclined to engage in discussions about THS with others. Enhancing healthcare provider knowledge about THS has the potential to ensure that more smokers and individuals exposed to THS receive vital information from credible sources, which can bolster their motivation to quit smoking or reduce exposure to smoke. This educational intervention could be particularly advantageous for parents who smoke, as recognizing the benefits of quitting for their children is linked to successful cessation efforts. Notably, our study did not find a correlation between attitudes towards smoking and the likelihood of discussing THS, underscoring the importance of educating providers about the hazards of THS. Such efforts have the potential to influence perceptions of smoking regulations and enhance practices related to advising on harm reduction strategies.

CHAPTER: 1

INTRODUCTION

Background – Global Tabacco Burden

The global tobacco epidemic presents one of the most pressing public health challenges, claiming over 8 million lives annually worldwide. Of these fatalities, more than 7 million results from direct tobacco consumption, while approximately 1.3 million are attributed to second-hand smoke exposure.

All forms of tobacco usage pose serious health risks, with no safe threshold for exposure. Cigarette smoking stands as the predominant form of tobacco consumption globally, alongside various other products such as waterpipes, cigars, cigarillos, heated tobacco, roll-your-own tobacco, pipe tobacco, bidis, kreteks, and smokeless tobacco.

The overwhelming majority of the world's 1.3 billion tobacco users reside in low- and middle-income countries, where the toll of tobacco-related illnesses and fatalities is most severe. Tobacco usage exacerbates poverty by diverting household finances away from essential needs like food and shelter, reflecting its highly addictive nature.

The economic ramifications of tobacco consumption are substantial, encompassing substantial healthcare expenditures for treating tobacco-induced ailments, alongside the loss of human potential due to tobacco-related sickness and premature death.

Secondhand smoke (SHS) comprises the smoke emitted from the lit end of cigarettes or other tobacco products like pipes and cigars, as well as the smoke exhaled by the smoker. Also known as passive smoking, environmental tobacco smoke, and tobacco smoke pollution, SHS contains over 7,000 chemicals, including irritants, toxins, mutagens, carcinogens, and substances harmful to reproductive and developmental health.

More than 70 of these compounds are classified as carcinogens, leading entities like the US Environmental Protection Agency and the International Agency for Research on Cancer to designate SHS as a group A and group 1 carcinogen, respectively, indicating its status as highly hazardous cancer-causing agents. Scientific consensus holds that there is no safe level of exposure to SHS, which can linger in the air for hours after tobacco is no longer being smoked, contributing to various adverse health effects in both adults and children, even with brief exposure

Adults exposed to secondhand smoke face increased risks of lung cancer, acute and chronic coronary heart disease (CHD), as well as eye and nasal irritation. Research indicates that the risks for CHD from passive smoking are essentially equivalent to those from active smoking. Children exposed to SHS may suffer from worsened asthma symptoms, bronchitis, pneumonia, chronic middle ear infections, and ongoing respiratory issues. Pregnant women exposed to SHS are at higher risk of stillbirths, giving birth to babies with congenital abnormalities and lower birth weights; infants exposed to SHS face significantly elevated risks of sudden infant death syndrome (SIDS).

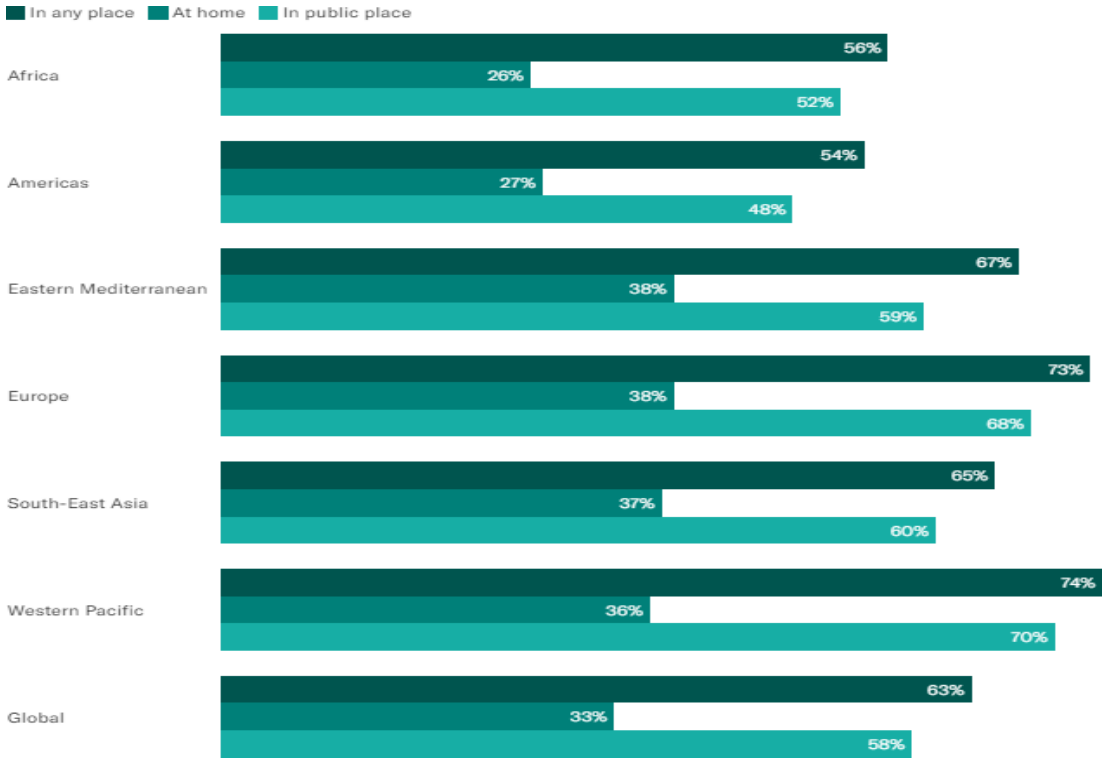

Figure 4 Percentage of Youth exposure to Second Hand Smoke by WHO

Thirdhand smoke consists of residual pollutants left behind indoors after tobacco has been smoked, containing harmful chemicals like nicotine, formaldehyde, and naphthalene, known to cause cancer. This residue accumulates on various surfaces including clothing, furniture, carpets, and walls, persisting for months even after smoking ceases.

Conventional methods like ventilation or cleaning often fail to fully remove thirdhand smoke. It poses a particular threat to nonsmokers, especially children, who may inadvertently ingest or inhale these toxic substances through touching contaminated surfaces or breathing in released gases. Infants and young children face heightened risks due to their behaviors and extended exposure.

Burden of SHS and THS in India-

Exposure to secondhand smoke (SHS) remains a significant public health issue worldwide, particularly in regions with high smoking prevalence. According to the Global Adult Tobacco Survey (GATS) Atlas report of 2015, approximately 392 million adults are subjected to SHS in their workplaces, while about 1.5 billion individuals encounter SHS exposure at home across the 22 countries surveyed.

Global Overview

The impact of SHS is profound, affecting millions of non-smokers globally. The data underscores the need for stringent tobacco control measures to protect individuals from involuntary exposure to harmful tobacco smoke. The workplace and home environments are primary sites of exposure, necessitating policies that enforce smoke-free environments in both settings.

Case Study: India

India provides a critical case study in understanding the dynamics of SHS exposure. The initial GATS survey (GATS I) conducted in 2009–2010 revealed that 48.0% of respondents experienced SHS exposure at home, while 26.1% faced SHS exposure in the workplace. This data highlighted the extensive reach of SHS within Indian households and work environments.

However, subsequent data from GATS II (2016–17) indicated a significant reduction in SHS exposure among non-smokers at home, dropping to 35.0%. This reduction can be attributed to increased awareness, stricter enforcement of smoke-free policies, and a general shift in societal attitudes towards smoking in private spaces. Despite this progress, the exposure in public places saw a slight decrease from 29% to 25.7%, indicating a need for continued efforts to curb SHS in public areas.

In contrast, the proportion of non-smokers exposed to SHS in enclosed work environments experienced a marginal increase from 26.1% in GATS I to 26.2% in GATS II. Although this increase is not statistically significant, it underscores the persistent challenge of protecting non-smokers in workplace settings. This stagnation suggests that while efforts have been made, they are insufficient or inconsistently applied across different work environments.

While the health risks associated with firsthand and secondhand smoke are well-established, attention has recently turned to the potential dangers of "thirdhand smoke" (THS) exposure. THS refers to the residual tobacco smoke contaminants that linger on surfaces such as clothing and furniture after smoking has ceased. These remnants, including nicotine and carcinogenic tobacco-specific nitrosamines, can be absorbed into the environment and pose a particular risk to children and infants who may ingest, inhale, or absorb them through the skin.

Nonsmokers residing in homes previously inhabited by smokers may unknowingly encounter THS through contaminated dust and surfaces, with fabrics retaining these toxins for extended periods. While research on the health effects of THS is still emerging, evidence suggests it could have detrimental impacts. Studies have shown significant DNA damage to human cells following THS exposure, along with toxicity to various cell types and adverse effects on zebrafish development.

Animal studies have further demonstrated physiological changes in mice exposed to THS, including liver metabolism alterations, increased collagen production, lung inflammation, impaired wound healing, and hyperactive behavior. Despite limited research on public perceptions of THS, some studies indicate a growing awareness of its potential harm, particularly among parents concerned about children's health. However, disparities exist, with fathers and heavy smokers less likely to acknowledge the risks, underscoring the importance of education and intervention in promoting smoke-free environments.

Rationale: -

Thirdhand smoke (THS) represents a significant yet often overlooked health hazard, consisting of residual nicotine and other chemicals that linger on indoor surfaces long after active smoking has ceased. This issue has become particularly pressing during the COVID-19 pandemic, as people spend more time indoors, increasing their exposure to these harmful residues. Doctors play a crucial role in public health by shaping patient behavior and public attitudes through education and advocacy. Understanding their beliefs and knowledge about THS is essential for developing effective public health strategies and educational interventions. This cross-sectional study aims to assess the awareness and perceptions of doctors in Delhi regarding THS, thereby informing efforts to mitigate its health impacts and enhance community health outcomes.

Problem Statement:

Despite the growing body of evidence on the dangers of THS, public awareness and understanding remain limited. With smokefree legislation reducing exposure to secondhand smoke (SHS) in public places, homes have become a significant source of both SHS and THS exposure, particularly for vulnerable populations such as children. The knowledge and beliefs of healthcare professionals, especially doctors, are crucial in shaping public attitudes and behaviors towards smoking and THS.

Importance of the Study

Doctors play a pivotal role in public health by providing education, influencing behavior, and advocating for policies, making their understanding of thirdhand smoke (THS) critical. Knowledgeable doctors can educate patients about THS risks, promote smoking cessation, and support stronger public health policies to reduce exposure. The COVID-19 pandemic, with increasedindoor time during lockdowns, has highlighted the importance of respiratory health and the dangers of indoor pollutants, including THS, raising significant concerns about the long-term health impacts on children and non-smoking adults.

Objectives:

The primary objective of this study is to Explore the specific beliefs and perception of doctors towards the potential health risk associated with THS exposure.

Specifically, the study aims to:

1. To Explore the specific beliefs and perception of doctors towards the potential health risk associated with THS exposure.
2. To investigate the awareness level of THS among doctors in Delhi, India
3. To understand the smoking habits and regulations among doctors.

Hypothesis: -

Null Hypothesis (H_0): The demographic characteristics of doctors (age, gender, years of practice) in Delhi have no impact on their knowledge and beliefs about thirdhand smoke (THS).

Alternate Hypothesis (H_1): The demographic characteristics of doctors (age, gender, years of practice) in Delhi have an impact on their knowledge and beliefs about thirdhand smoke (THS).

Scope of the Study:

1. Explore the specific beliefs and perceptions of doctors towards the potential health risks associated with THS exposure.
2. The study aims to assess the level of awareness among doctors about THS in Delhi, India.
3. The scope of the study will include understanding the smoking habits and regulations among doctors.
4. The study aims to explore the impact of demographic characteristics of doctors (age, gender, years of practice) in Delhi have on their knowledge and beliefs about thirdhand smoke (THS).

Significance of the Study:

1. Understanding the beliefs and perceptions of doctors in Delhi regarding thirdhand smoke (THS) is crucial for public health. Doctors are key opinion leaders and play a vital role in educating patients and the broader community about health risks. By assessing their knowledge and attitudes towards THS, this study can identify gaps in awareness and understanding, providing a foundation for targeted educational initiatives.
2. Doctors' perceptions and beliefs significantly influence the guidance and counselling they provide to patients. By exploring these beliefs, the study can highlight areas where additional training and resources are needed, enabling doctors to more effectively educate patients about the risks associated with THS. This can lead to better-informed patients who are more likely to take preventive measures to protect their health and the health of their families.
3. Informed doctors can become strong advocates for public health policies aimed at reducing THS exposure. The study's findings can empower doctors to support and advocate for stronger smokefree legislation and policies, both in clinical settings and at the community level. This can contribute to broader efforts to reduce the prevalence of smoking and exposure to tobacco-related pollutants.
4. The COVID-19 pandemic has increased the time people spend indoors, potentially increasing their exposure to indoor pollutants such as THS. This is particularly concerning for vulnerable populations, including children and non-smoking adults. By understanding doctors' awareness and perceptions of THS, the study can help identify and address disparities in health education and protection, ensuring that all segments of the population are better protected against the harmful effects of THS.
5. The findings of this study can provide valuable insights for policymakers. By highlighting the current level of awareness and beliefs among doctors, the study can inform the development of policies and interventions aimed at reducing THS exposure. This includes the creation of public health campaigns, regulatory measures, and guidelines for healthcare providers.

Chapter 2

REVIEW OF LITERATURE

1. The study reviewed the existing literature on the current smokers as according to World Health Organization (WHO) estimates that 21% of adults worldwide (36% of men and 7% of women) are. Beyond the active smoking individual, the surrounding community is also vulnerable to the harmful effects of second hand and thirdhand smoke. Being aware of all these negative effects of smoking will not only reduce smoking rate, but also increase self-protection efforts, which will increase society's health.
2. A study was conducted on Third-hand smoke perception and awareness among medical students which examined Male students were more likely than female students to be smokers and more aware of THS. However, when asked about THS, 85% of the participants said they had no knowledge of THS. Being aware of THS but claiming not to know about THS may be due to not knowing or hearing the nomenclature. Similarly, a study found that six out of ten young adults living in California had never heard of THS. But, a meta-analysis of 12 studies found that society's knowledge of the harmful effects of THS was 80.1%. This was also a clue to the higher consciousness, but not knowing its existence.
3. A study examined healthcare professionals' awareness and attitudes towards Thirdhand Smoke (THS), highlighting a notable lack of attention to THS issues among a significant portion of the sample. Responses regarding perceptions of THS harm and willingness to discuss it varied, underscoring a complex landscape of beliefs and practices. Those who believed THS to be harmful tended to hold more negative attitudes towards smoking in general, including support for smoking bans. These findings suggest a need for targeted education among healthcare providers to enhance awareness and discussion of THS, potentially influencing broader tobacco control efforts.
4. The literature review on gender and smoking attitudes highlighted that men are less likely than women to perceive Thirdhand Smoke (THS) as harmful, consistent with broader trends showing higher smoking rates among men and lower receptiveness to smoke-free policies. This disparity suggests a need for educational campaigns on THS to incorporate gender-specific messaging tailored to engage male populations effectively. Such targeted approaches could help address the gender gap in perceptions of THS harm and promote more inclusive strategies in tobacco control initiatives.

CHAPTER 3

METHODOLOGY

Type of Study: Cross-Sectional Study

Study area: New Delhi, NCR

Duration of study: 3 Months (1st March 2024- 31st May 2024)

Type of data: Primary Data

Sampling Size: 58

Sampling Technique: Snowball sampling

Study Population: Doctors residing inside New Delhi, NCR

Selection Criteria: -

Inclusion Criteria

1. Doctors residing in Delhi, NCR.
2. Doctors having experience more than a year.

Exclusion Criteria

1. Doctors not willing to participate.
2. Doctors residing outside Delhi, NCR.

Data Collection Tool: The structured questionnaire contains

a) individual information;
b) smoking behaviour;
c) Belief on THS on Google form.

The tool is based on pre-tested validated tools available from the literature which was further adapted based on the study population.

Tools used in the study is from “Evaluation of Third Hand Cigarette

Smoke Exposure and Awareness in University Students” & in other studies also for which ethical approval for the study was obtained.

Variables: -

1. **Dependent variable:**

   The dependent variables in this study encompass doctors' beliefs and perceptions about thirdhand smoke (THS), including their views on the health risks associated with THS exposure and its significance as a public health issue. It also examines their awareness level of THS, such as their knowledge about its dangers and familiarity with current research and guidelines. Further, it explores doctors' engagement in advocacy efforts for smokefree environments and their support for legislation aimed at reducing THS exposure. Lastly, the study considers doctors' personal smoking habits and their adherence to and enforcement of smoking regulations in healthcare settings.

2. **Independent variables:**

The study examines various independent variables related to healthcare professionals' awareness and management of third-hand smoke (THS). These variables encompass demographic characteristics such as age, gender, years of practice, and medical specialty.

Data Collection Procedure: Survey Questionnaire Design

Quantitative data was expressed using frequency and percentage.

Chi square test was used to test statistical significance

Google Form: It will contain open-ended questions.

Data Analysis: SPSS(Version 2019)

CHAPTER 4

RESULT

4.1 Demographic Profile-

This report provides an analysis of the demographic profile of the respondents. The data includes age, gender, marital status, highest qualification, and years of experience in the healthcare professional field. A total of 58 respondents participated in the survey.

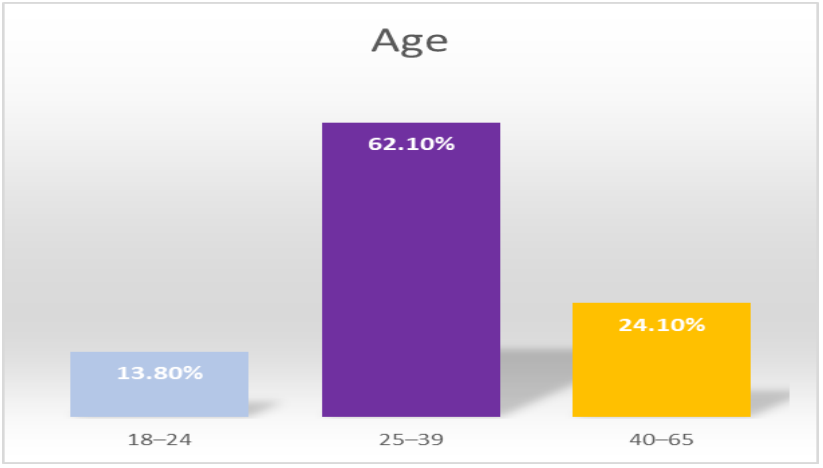

Figure 5: Age wise distribution of participants

Age Distribution

The age distribution of the respondents is as 18–24 years: 8 respondents (14%), 25–39 years: 36 respondents (62%) and 40–65 years: 14 respondents (24%. The majority of respondents fall within the 25-39 age group, accounting for 62% of the total. This is followed by the 40-65 age group at 24%, and the 18-24 age group at 14%.

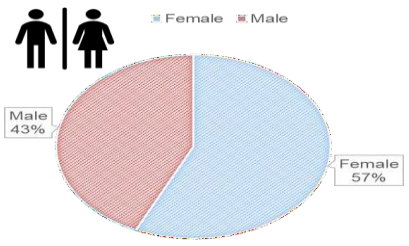

Figure 6: Gender Wise Distribution

Marital status

The marital status distribution is Divorced: 1 respondent (1.7%), Married/living with partner: 23 respondents (39.7%), Single: 34 respondents (58.6%). Most respondents are single, accounting for 58.6%. Married or those living with a partner make up 39.7%, and a small fraction are divorced at 1.7%.

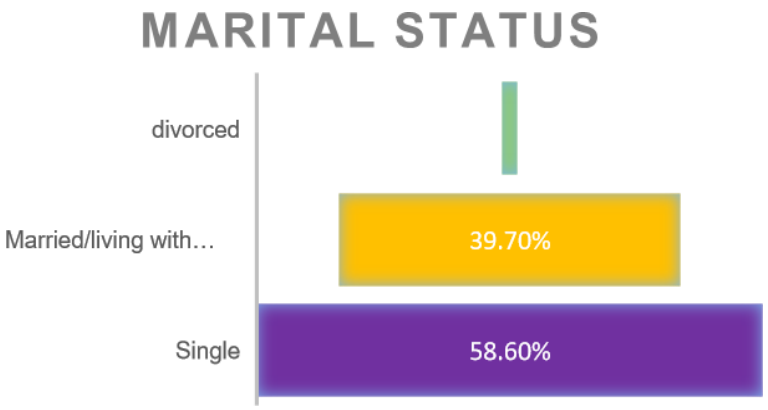

Figure 7: Marital Status distribution of participants

Highest Qualification

The distribution of the highest qualifications among respondents is BDS: 13 respondents (22.4%), BHMS: 7 respondents (12.1%), MBBS: 25 respondents (43.1%), MD: 1 respondent (1.7%), MDS: 5 respondents (8.6%), and PhD: 7 respondents (12.1%). MBBS holders form the largest group at 43.1%, followed by BDS holders at 22.4%. PhD and BHMS holders each make up 12.1% of the respondents. MD and MDS holders constitute 1.7% and 8.6% respectively.

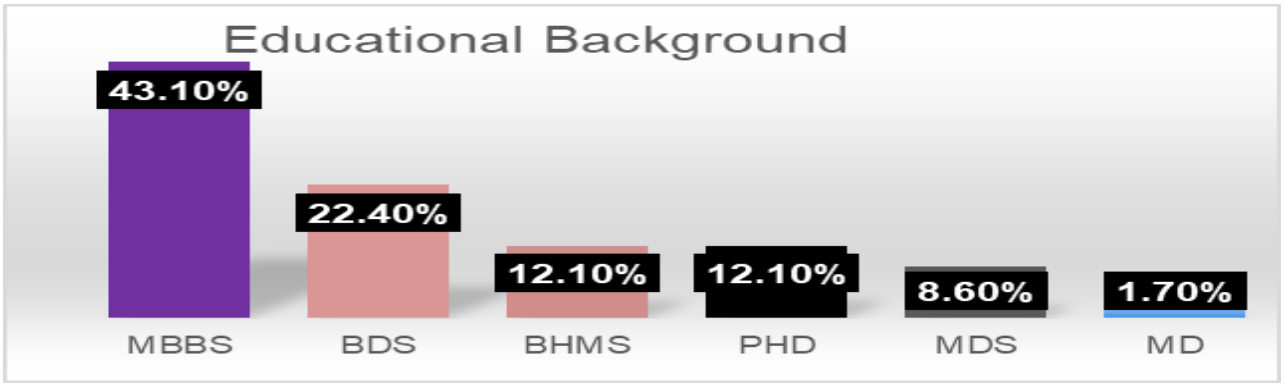

Figure 8: Educational Background distribution

Years of Experience in the Healthcare Professional Field

The experience distribution among respondents is 1-7 years: 37 respondents (63.8%), 8-15 years: 9 respondents (15.5%), and 16+ years: 12 respondents (20.7%). The majority of respondents, 63.8%, have between 1 and 7 years of experience. Those with 8 to 15 years of experience constitute 15.5%, and those with over 16 years of experience make up 20.7%.

The demographic profile of the respondents is predominantly young adults aged 25-39, with a majority being female. Most respondents are single and hold an MBBS degree. In terms of professional experience, a significant proportion of the respondents have relatively few years of experience, with 1-7 years being the most common range. This demographic profile provides valuable insights for understanding the composition of the respondent group, which can be crucial for tailoring healthcare programs, educational initiatives, and other relevant activities to better suit the characteristics of the population.

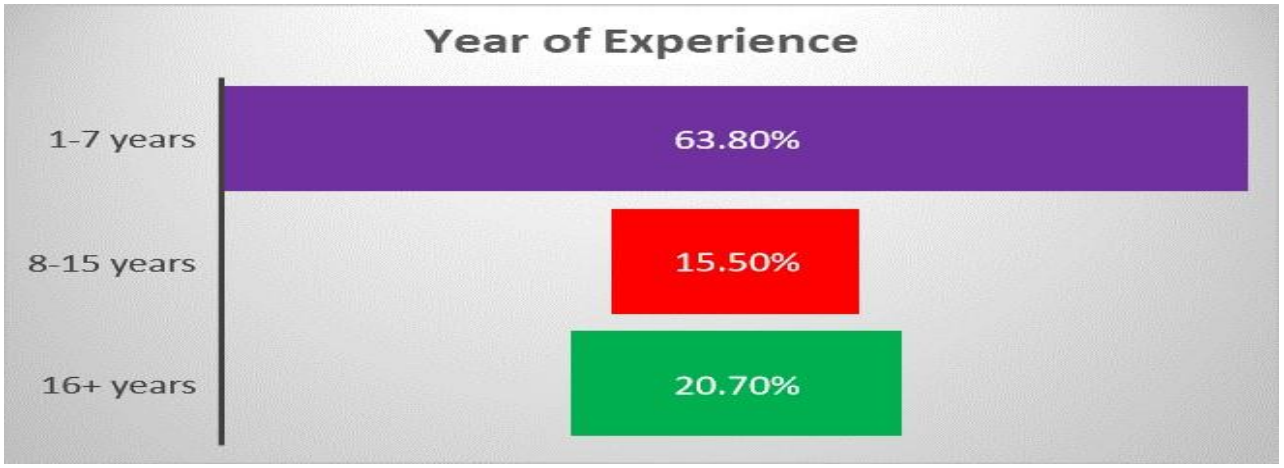

Figure 9: Year of Experience of Participants

Demographics	N (%)
Age	
18-24	8(13.80%)
25-39	36(62.10%)
40-65	14(24.10%)
Gender	
Male	25(43%)
Female	33(57%)
Marital Status	
Single	34(58.6%)
Married	23(39.7%)
Divorced	1(1.7%)
Educational Background	
MBBS	25 (43.1%)
BDS	13 (22.4%)
BHMS	7 (12.1%)
PHD	7 (12.1%)
MDS	5 (8.6%)
MD	1(1.7%)
Experience in the Healthcare Professional (in yrs.)	
1-7 years	37(63.8%)
8-15 years	9 (15.5%)
16+ years	12 (20.7%)

Table 1: Descriptive Statistics (N = 58)

4.2 Smoking Habits and Regulations

This report examines the influence of smoking habits and related regulations on the Behavioural, Affective, Thinking, Habits, and Sensation (BATHS) scale and its sub-scales.

Awareness of Thirdhand Smoke

Data was collected from 58 respondents regarding their awareness of thirdhand smoke, current smoking status, and household smoking rules. The demographic variable considered was the gender of the respondent. The distribution of awareness about thirdhand smoke was compared across genders.

42.4% of females and 36% of males were unaware of thirdhand smoke and 45.5% of females and 48% of males were aware of thirdhand smoke. The Pearson Chi-Square value of 1.322 ($p = 0.516$) indicates no significant association between gender and awareness of thirdhand smoke.

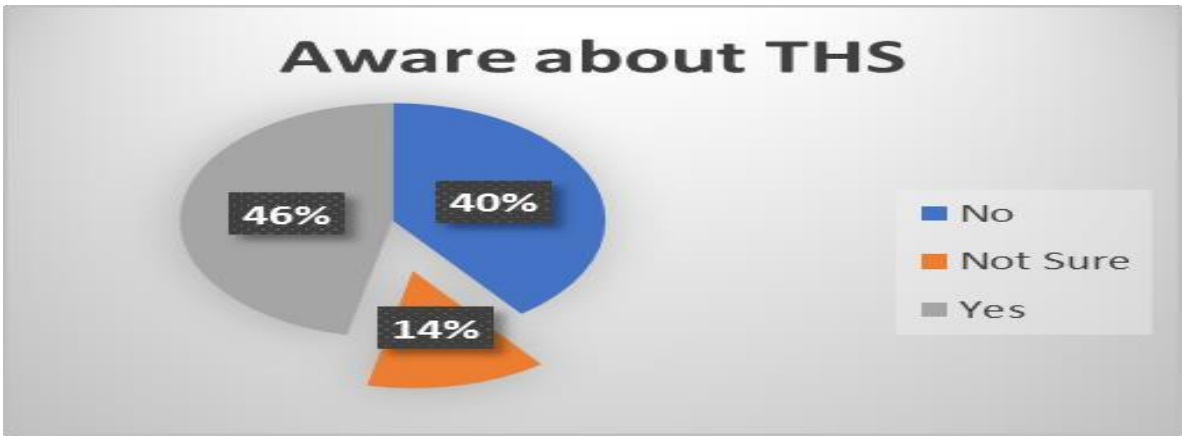

Fig 10: Figure Awareness about THS among participants

	Male	Female
Aware about THS	**36%**	**42.4%**
Unaware about THS	**45.5%**	**48%**

Table 2: Awareness among male & females

Current Smoking Status

The smoking status (current, former, never) was compared across genders. 81.8% of females and 56% of males have never smoked, 0% of females and 20% of males are current smokers. The Pearson Chi-Square value of 8.174 (p = 0.017) indicates a significant association between gender and current smoking status.

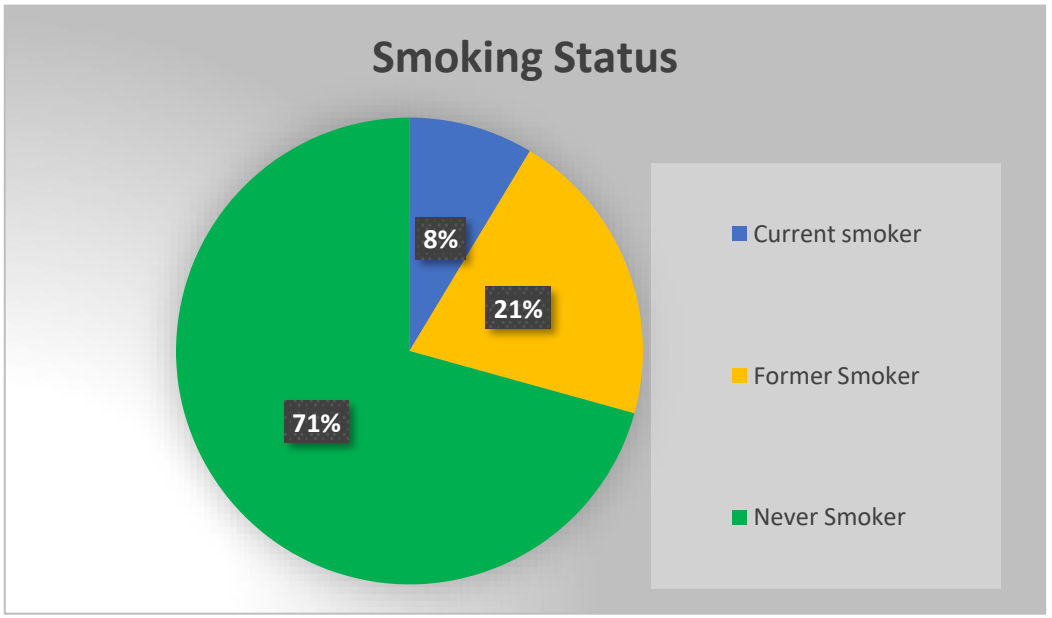

Figure 11: Smoking status of Participants

	Male	Female
Never Smoked	81.8%	56%
Current Smoker	0%	20%
Former Smoker	18.5%	9.6%

Table 3: Smoking status among male & females

Household Smoking Rules

Household smoking rules were compared across genders 60.6% of females and 68% of males do not allow smoking even on the property outdoors. The Pearson Chi-Square value of 0.622 (p = 0.733) indicates no significant association between gender and household smoking rules.

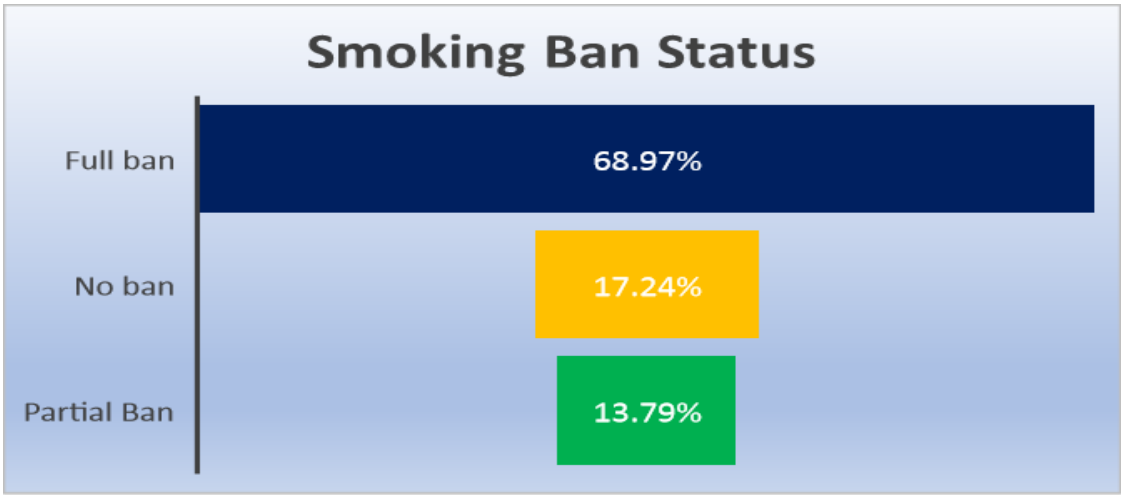

Figure 12: Smoking Ban status of participants

4.3 Perceptions and Beliefs about Thirdhand Smoke

This report analyzes perceptions and beliefs about thirdhand smoke based on survey data. The survey collected responses from 58 participants, addressing various aspects of thirdhand smoke and its potential impacts on health and the environment.

Harm to Infants and Children

50.0% strongly agree and 32.8% agree that breathing air in a room today where people smoked yesterday can harm the health of infants and children. Only 3.4% strongly disagree, and 8.6% disagree

with this statement. The consensus (82.8% either agree or strongly agree) suggests a significant concern about the impact of thirdhand smoke on children's health.

Harm to Adults

39.7% strongly agree and 34.5% agree that breathing air in a room today where people smoked yesterday can harm the health of adults. 13.8% are not sure, while 8.6% disagree and 3.4% strongly disagree. A majority (74.2%) believe that thirdhand smoke can harm adults, though with slightly less certainty compared to concerns for infants and children.

Perception of Thirdhand Smoke Particles

Cancer Risk 32.8% agree and 17.2% strongly agree that particles in rooms where people smoked yesterday can cause cancer. A significant portion (36.2%) are unsure, with 10.3% disagreeing and 3.4% strongly disagreeing. There is noticeable uncertainty about the cancer risk posed by thirdhand smoke, with 50% either agreeing or strongly agreeing.

Duration of Smoke Particles in a Room

58.6% agree and 15.5% strongly agree that smoke particles can remain in a room for days. 27.6% agree and 8.6% strongly agree that particles can remain for weeks, while 13.8% agree and 6.9% strongly agree that they can remain for months. Notably, 44.8% are unsure if particles can remain for weeks and 50.0% are unsure if they can remain for months, highlighting uncertainty about the longevity of thirdhand smoke.

Mixing and Settling with Dust

65.5% agree and 10.3% strongly agree that cigarette smoke mixes and settles with dust.

A small percentage (5.2%) strongly disagree. This indicates a broad belief (75.8%) that thirdhand smoke particles interact with household dust.

Cleaning and Removal of Thirdhand Smoke

Sticky Particles on Surfaces 48.3% agree and 15.5% strongly agree that sticky particles are left on surfaces after smoking. 27.6% are unsure, and only a small fraction strongly disagrees (3.4%). Most respondents (63.8%) acknowledge that thirdhand smoke leaves residue on surfaces.

Absorption into Furniture and Walls

37.9% agree and 6.9% strongly agree that smoke particles get absorbed into furniture and walls. A significant 44.8% are unsure, indicating ambiguity among respondents about the absorption of smoke particles. The agreement (44.8%) reflects some awareness but also highlights the need for more information.

Effectiveness of Cleaning

70.7% agree and 6.9% strongly agree that opening windows or using air conditioners does not eliminate all smoke particles. Only 1.7% strongly disagree. This strong agreement (77.6%) underscores the perception that typical cleaning methods are insufficient for removing thirdhand smoke.

Children's Exposure and Behavior

Children's Ingestion of Particles:

60.3% agree and 6.9% strongly agree that children who touch surfaces and then put their hands in their mouths can swallow smoke particles. A minority strongly disagree (3.4%). This suggests a significant concern (67.2%) for children's exposure to thirdhand smoke through typical behaviors.

General Beliefs Smoke-Free Home Protection

32.8% strongly agree and 31.0% agree that having a smoke-free home will protect nonsmokers from smoke particles. 24.1% are unsure, while a small percentage strongly disagree (3.4%). majority (63.8%) believe in the protective effect of a smoke-free home.

The survey results reveal substantial awareness and concern about the impacts of thirdhand smoke, particularly on vulnerable populations like infants and children. There is a strong belief that thirdhand smoke can harm health, linger for extended periods, and interact with household dust and surfaces. However, there is also considerable uncertainty, especially regarding the longevity of smoke particles and the effectiveness of cleaning methods.

These findings highlight the need for increased public education on the risks associated with thirdhand smoke and the importance of comprehensive measures to mitigate these risks in home environment

Aspect	*Percentage Agree/Strongly Agree*	*Percentage Disagree/Strongly Disagree*	*Percentage Unsure*	*Notes*
Harm to Infants and Children	***83%***	***12%***	***5%***	***Significant concern about thirdhand smoke's impact on children's health.***
Harm to Adults	***74%***	***12%***	***14%***	***Majority believe in harm to adults, but with slightly less certainty than harm to children.***
Cancer Risk	***50%***	***14%***	***36%***	***Substantial uncertainty regarding cancer risk from thirdhand smoke.***
Duration of Smoke Particles	***Varies (See Below)***	*-*	*-*	***Uncertainty about longevity of smoke particles in the environment.***
- Days	***74%***	***7%***	***19%***	***Majority agree particles can remain for days.***
- Weeks	***36%***	***19%***	***45%***	***Significant uncertainty about particles remaining for weeks.***
- Months	***21%***	***29%***	***50%***	***High uncertainty about particles remaining for months.***
Mixing and Settling with Dust	***76%***	***5%***	***19%***	***Strong belief that smoke interacts with household dust.***
Cleaning and Removal	***Varies (See Below)***	*-*	*-*	***Acknowledgement of residue but uncertainty about effectiveness of cleaning.***
- Sticky Particles	***64%***	***9%***	***27%***	***Majority acknowledge residue on surfaces.***
- Absorption into Furniture	***45%***	***10%***	***45%***	***Ambiguity about absorption into furniture and walls.***
-Effectiveness of Cleaning	***78%***	***2%***	***20%***	***Strong perception that typical cleaning methods are insufficient.***

Table 4: Perceptions and beliefs about thirdhand smoke

The table summarizes the survey findings regarding perceptions and beliefs about thirdhand smoke

It indicates the percentages of respondents who agree or strongly agree with each aspect, those who disagree or strongly disagree, and those who are unsure. Additionally, notes provide insights into the level of certainty or uncertainty observed in the survey responses

CHAPTER 4

RESULTS & FINDINGS

The survey reveals that a significant proportion of healthcare professionals, including 42.4% of females and 36% of males, lack awareness of thirdhand smoke, despite their educational backgrounds and exposure to health-related information. While awareness levels were fairly balanced overall—with 45.5% of females and 48% of males being aware of thirdhand smoke—there was no statistically significant difference between genders in this regard ($\chi^2 = 1.322$, $p = 0.516$). This finding underscores a notable gap in knowledge among healthcare professionals, particularly concerning a lesser-knownaspect of smoking-related health risks. Addressing this gap through targeted education and awareness campaigns could enhance healthcare providers' ability to effectively educate patients and advocate for smoke-free environments, thereby potentially reducing overall smoking-related health burdens.

The survey highlights a striking gender disparity in smoking habits among healthcare professionals, with 81.8% of females reporting never having smoked compared to 56% of males. In contrast, 20% of males identified as current smokers, while none of the females reported current smoking. This significant difference was statistically significant ($\chi^2 = 8.174$, $p = 0.017$), underscoring a clear trend of lower smoking prevalence among female healthcare professionals compared to their male counterparts. This finding mirrors broader societal trends where women tend to exhibit lower smoking rates than men across various populations. The results suggest that female healthcare professionals in this study are adhering more strongly to smoke-free behaviors, potentially influenced by their professional roles in promoting health and adopting healthier lifestyles themselves. Efforts to maintain and reinforce these trends could contribute positively to overall health outcomes and further support smoking cessation initiatives within healthcare settings.

The survey among healthcare professionals highlights widespread concern about thirdhand smoke's harm to children, with strong consensus (82.8%) on its detrimental effects. While 74.2% recognize risks to adults, uncertainty persists regarding cancer risks and the longevity of smoke particles indoors. A majority (76% to 78%) believe smoke interacts with household dust and that standard cleaning methods are inadequate. These findings underscore the need for targeted education to clarify risks and promote effective mitigation strategies. Enhanced awareness could empower healthcare providers to advocate for smoke-free environments and implement measures to protect vulnerable populations from the lingering effects of thirdhand smoke in home settings.

CHAPTER 5

DISCUSSION

The survey results provide valuable insights into the knowledge, attitudes, and behaviors related to lung cancer among the respondents. It is evident that there are gaps in awareness and understanding of lung cancer, its risk factors, symptoms, and available screening and treatment options. These knowledge gaps pose significant challenges in early detection and prevention efforts.

One notable finding is the limited knowledge about lung cancer symptoms and diagnostic methods. Many respondents expressed uncertainty or lack of knowledge in these areas. This highlights the importance of increasing public awareness and education about the signs and symptoms of lung cancer, as well as the diagnostic tests used for early detection. By providing clear and accessible information, individuals can be empowered to recognize potential symptoms and seek medical attention promptly.

Furthermore, the survey highlights the low rate of lung cancer screening among the respondents. This underscores the need for targeted interventions to promote screening programs and encourage individuals to discuss screening options with their healthcare providers. Increasing awareness about the benefits of lung cancer screening and addressing common concerns or misconceptions can help improve screening rates and enable early detection of the disease.

The survey also sheds light on the limited discussions between respondents and their doctors regarding lung cancer screening. This communication gap hampers the dissemination of valuable information and recommendations. Enhancing healthcare provider education on lung cancer screening and facilitating open discussions with patients can play a crucial role in increasing screening rates and improving patient outcomes.

Additionally, the reliance on the internet as the primary source of health-related information indicates the importance of ensuring the availability of accurate and reliable online resources.

Efforts should be made to enhance online platforms and provide evidence-based information on lung cancer to counter misinformation and support informed decision-making.

Overall, the survey results underscore the need for comprehensive and targeted lung cancer awareness campaigns. These campaigns should address knowledge gaps, promote healthy behaviors, and emphasize the importance of early detection through screening. By increasing awareness, enhancing communication between healthcare providers and patients, and providing accessible and accurate information, we can make significant strides in reducing the burden of lung cancer and improving outcomes for individuals at risk.

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CHAPTER 6

LIMITATIONS

While the survey provides valuable insights into lung cancer knowledge and behaviors, there are certain limitations that should be acknowledged. These limitations include:

1. Sample Representativeness: The survey sample may not fully represent the broader population, as it is based on a specific group of respondents. The findings may not be generalizable to the entire population or other specific demographics. This limitation affects the external validity of the survey results and should be considered when interpreting the findings.
2. Self-Reported Data: The survey relies on self-reported data, which may be subject to recall bias and social desirability bias. Participants may not accurately recall or report their knowledge, behaviors, or attitudes related to lung cancer. Additionally, individuals may provide responses that are socially desirable or conform to perceived societal norms, potentially leading to biased results.
3. Lack of Detailed Information: The survey provides a general overview of lung cancer knowledge, attitudes, and behaviors. However, it may lack detailed information about specific factors, such as the duration and frequency of engagement in risky behaviors or the extent of discussions with healthcare providers. Without more specific data, it is challenging to draw precise conclusions or make targeted recommendations.
4. Limited Response Options: The survey response options may not capture the full range of possible answers or nuances in participants' responses. For example, the "Don't know" option may be chosen due to lack of knowledge, uncertainty, or other reasons. Providing more comprehensive response options could have yielded more detailed and accurate data.
5. Potential Bias in Survey Design: The survey questions and response options may introduce biases or limitations in data collection. The wording of the questions, order of presentation, or response scale could influence participant responses. Additionally, the survey design may not account for all relevant factors or variables that could impact lung cancer knowledge and behaviors.
6. Lack of Longitudinal Data: The survey offers a snapshot of the knowledge and actions of the respondents at a certain period. A more thorough understanding of lung cancer awareness and behaviours, including trends and the efficacy of proposed interventions, would be possible with longitudinal data that records changes over time.
7. Limited Sample Size: The survey's sample size may impact the statistical power and generalizability of the findings. With a larger sample size, more robust conclusions could be drawn, and subgroup analyses could be conducted to explore differences across various demographics or characteristics.
8. Self-Selection Bias: Participants in the poll who made the decision to reply might have unique qualities or levels of knowledge and awareness as compared to those who did not. This self-selection bias could affect the findings' generalizability and inject biases into the data.
9. Considering these limitations, it is important to interpret the survey findings with caution and recognize that further research is needed to provide a comprehensive understanding of lung cancer knowledge, behaviors, and interventions. Future studies should address these limitations by employing representative samples, using validated measurement tools, and conducting longitudinal research to capture changes over time.

CHAPTER 7

RECOMMENDATIONS

Based on the findings and limitations of the survey, the following recommendations can be made:

1. Increase Public Education and Awareness: Given the variation in lung cancer knowledge and the considerable number of "Don't know" responses, there is a need for targeted public education campaigns to improve awareness about lung cancer risk factors, symptoms, and screening. These campaigns should utilize multiple channels, including the internet, television, and print media, to reach a wide audience and provide accurate and accessible information.
2. Encourage Regular Lung Cancer Screening: With a low percentage of respondents reporting undergoing lung cancer screening, efforts should be made to promote the importance of early detection. Healthcare providers should engage in proactive discussions with patients about the benefits of screening, particularly among individuals with a higher risk, such as smokers or those with a family history of lung cancer.
3. Enhance Healthcare Provider-Patient Communication: The survey reveals a gap in discussions about lung cancer screening between doctors and patients. Healthcare providers shouldactively initiate conversations with their patients about lung cancer screening and provide relevant information to address any misconceptions or concerns. Providing educational materials, hosting seminars or workshops, and utilizing digital platforms for information dissemination can facilitate effective communication.
4. Tailor Interventions for High-Risk Groups: The survey findings highlight specific groups, such as individuals engaging in risky behaviours or those with a family history of cancer, who may require targeted interventions. Developing specialized programs that address smoking cessation, occupational safety, and genetic counselling can be effective in reducing lung cancer risk and improving outcomes in these high-risk populations.
5. Conduct Longitudinal Studies: To better understand changes in lung cancer knowledge, attitudes, and behaviors over time, longitudinal studies should be conducted. These studies would provide valuable insights into the effectiveness of awareness campaigns, screening programs, and interventions, allowing for adjustments and improvements in strategies and policies.
6. Collaboration and Knowledge Exchange: Collaboration among healthcare professionals, researchers, policymakers, and advocacy organizations is crucial to address the multifaceted aspects of lung cancer. Establishing platforms for knowledge exchange, conferences, and workshops can facilitate collaboration, sharing of best practices, and dissemination of evidence-based interventions.
7. Further Research on Understudied Areas: The survey reveals gaps in knowledge and understanding, such as the limited awareness of diagnostic and treatment options for lung cancer. Further research should focus on these understudied areas to provide comprehensive information and address potential misconceptions or barriers that hinder optimal lung cancer care.

   By implementing these recommendations, it is possible to enhance lung cancer awareness, promote early detection, and improve the overall understanding of lung cancer prevention and management. These efforts can contribute to reducing the burden of lung cancer and improving outcomes for affected individuals.

CHAPTER 8

CONCLUSION

In conclusion, the survey findings indicate a need for increased awareness and education about lung cancer among the surveyed population. There is a variation in knowledge and understanding of lung cancer risk factors, symptoms, and screening methods. The majority of respondents have not undergone lung cancer screening, and there is a lack of communication between healthcare providers and patients regarding screening. To address these challenges, recommendations include implementing targeted education campaigns, promoting regular screening, improving healthcare provider-patient communication, tailoring interventions for high-risk groups, conducting longitudinal studies, fostering collaboration, and further researching understudied areas. By implementing these recommendations, we can work towards improving lung cancer awareness, early detection, and overall outcomes for individuals affected by the disease.

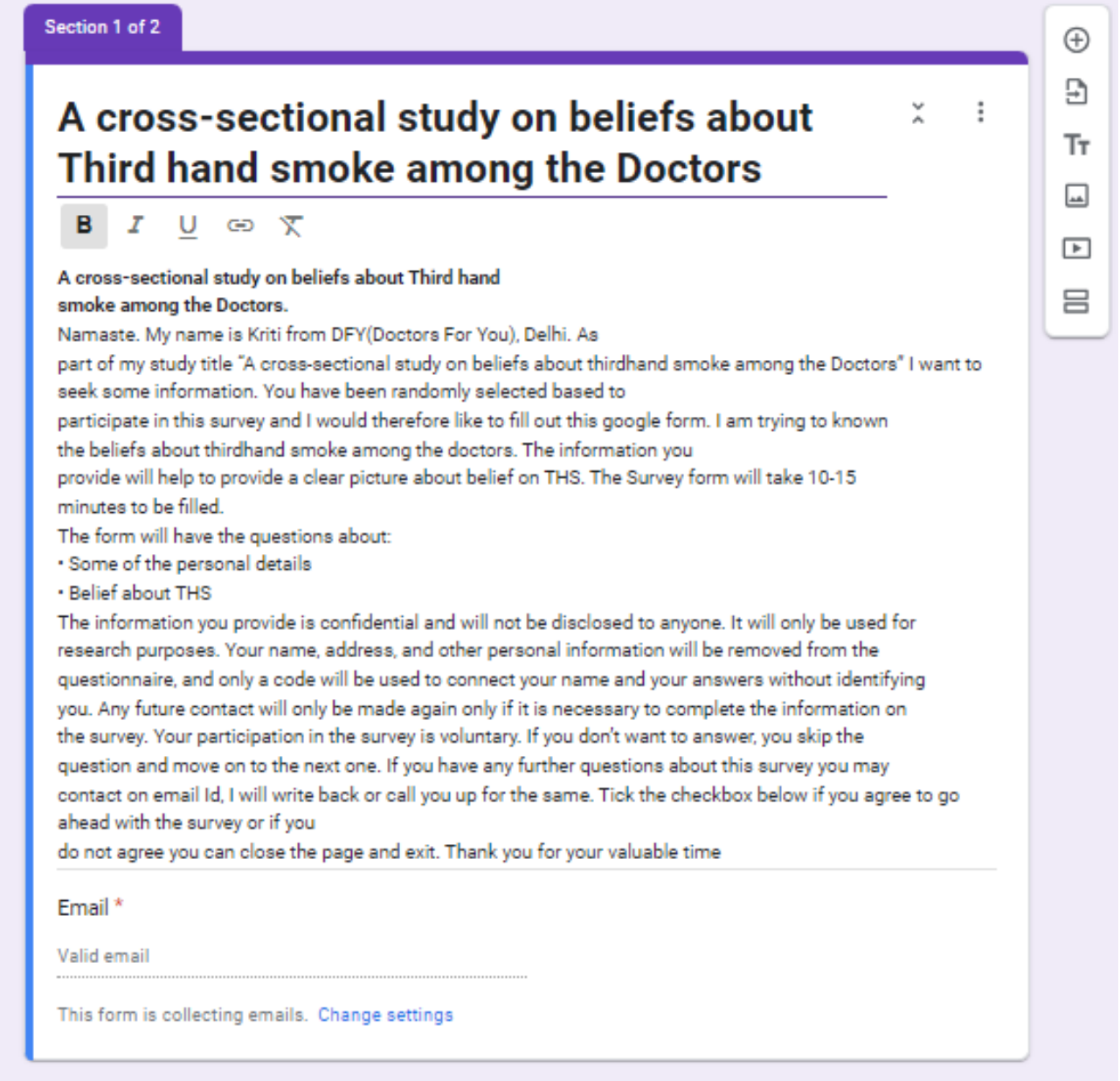
CHAPTER 9

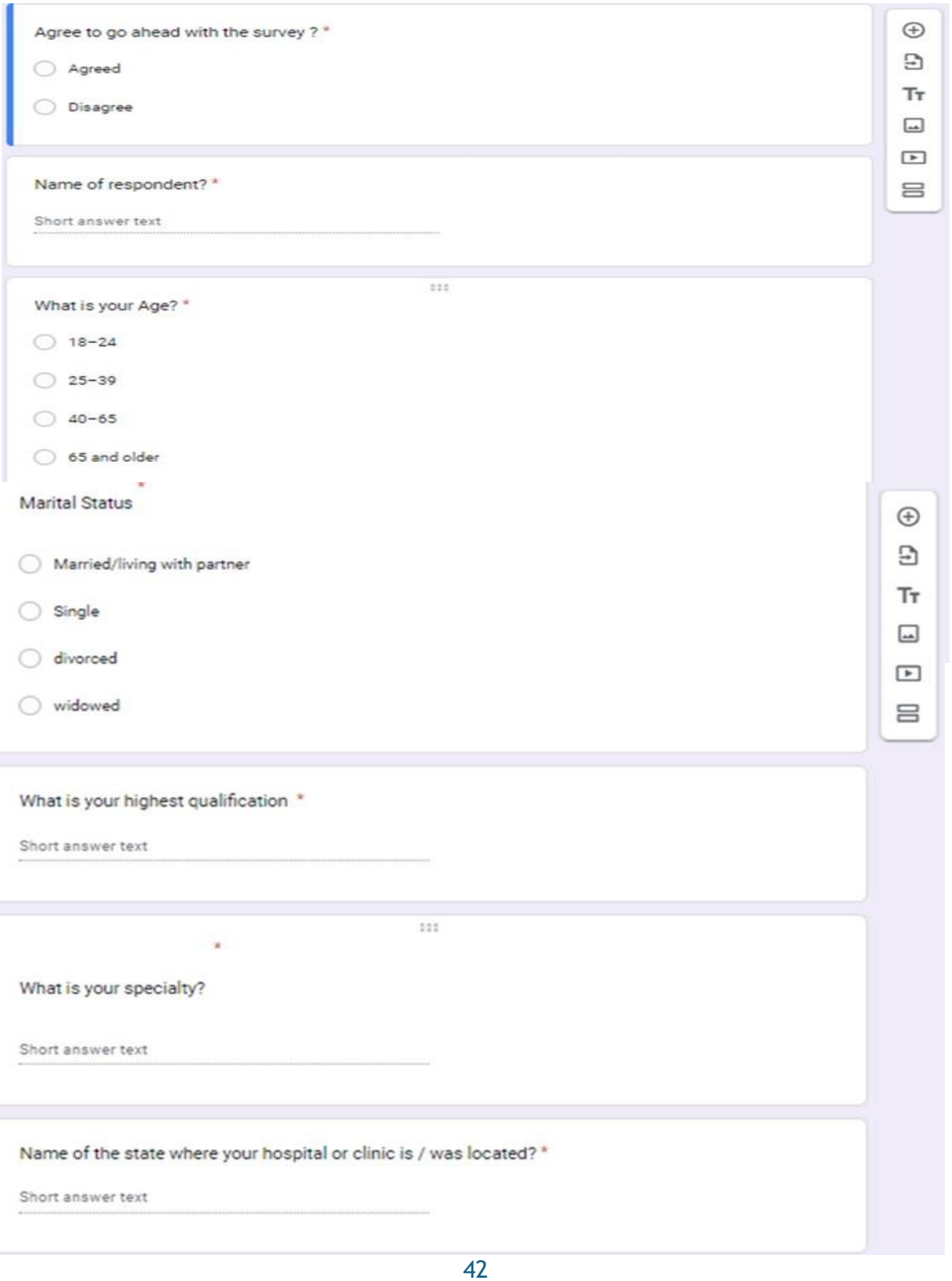
BIBLIOGRAPHY

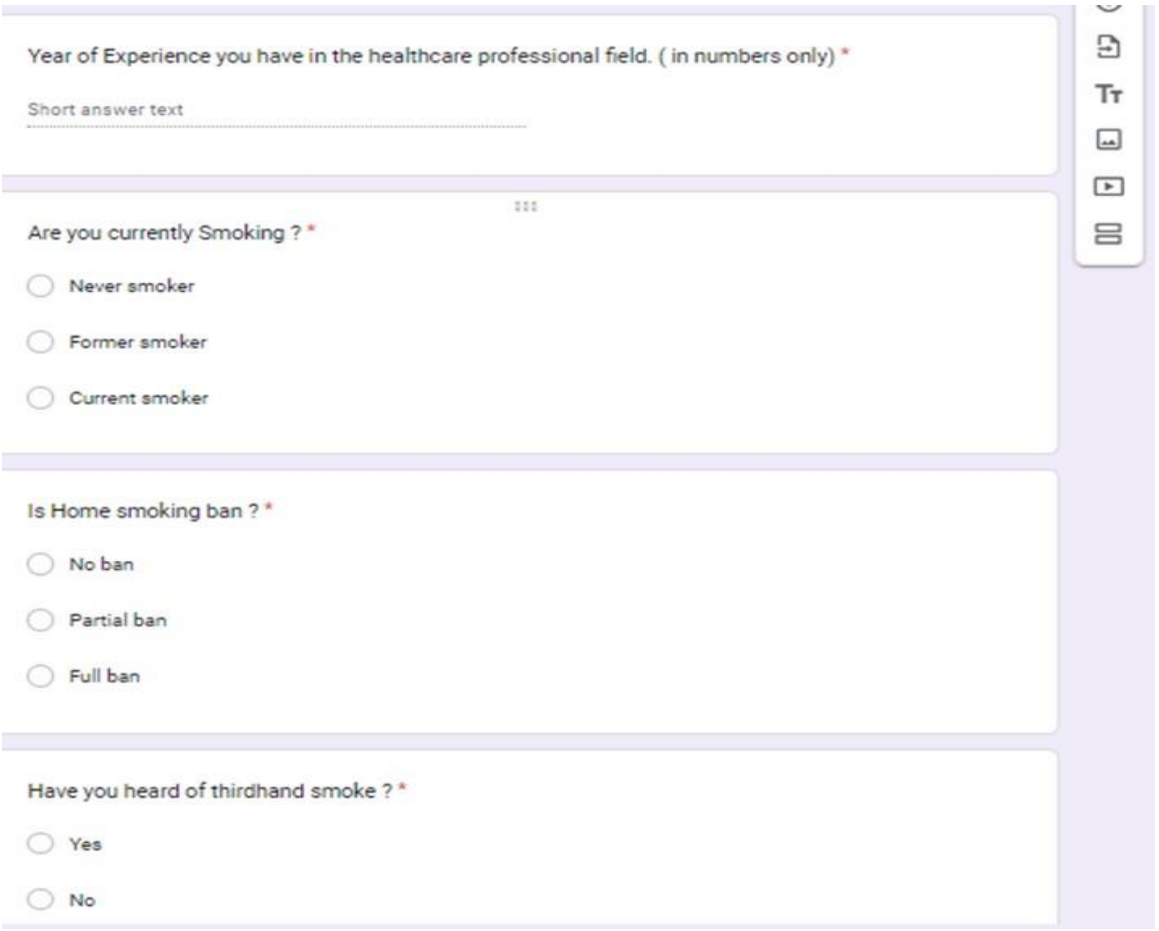
1. Aras A, Bayraktar M. Third-hand Smoke Perception and Awareness among Medical Students: A Survey Study [Internet]. 2024 [cited 2024 Jun 9]. Available from: https://www.researchsquare.com/article/rs-3958787/v1
2. Darlow SD, Heckman CJ, Munshi T, Collins B. Thirdhand Smoke Beliefs and Behaviors among Healthcare Professionals. Psychol Health Med [Internet]. 2017 Apr [cited 2024 Jun 9];22(4):415–24. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5659263/
3. Thirdhand smoke beliefs and behaviors among families of primary school children in Shanghai - PMC [Internet]. [cited 2024 Apr 17]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7873816/
4. Çoşğun İG, Çilekar Ş, Balcı A, Köymen BN, Moral S, Nur B, et al. The beliefs of medical faculty students about thirdhand smoke. Tob Induc Dis [Internet]. 2023 Jan 31 [cited 2023 Dec 24];21(January):1–8. Available from: http://www.tobaccoinduceddiseases.org/The-beliefs-of-medical-faculty-students-about-thirdhand-nsmoke,157202,0,2.html
5. Pandiyan I, Kumar.R P, Indiran MA. KNOWLEDGE AND AWARENESS OF THIRDHAND SMOKE AMONG SMOKERS AND NON-SMOKERS -A COMPARATIVE CROSS SECTIONAL STUDY. 2020 Jul 8;
6. (2) (PDF) Promoting Smoke-Free Environments: The Impact of Thirdhand Smoke Awareness on Smoking Bans at Home [Internet]. [cited 2023 Dec 25]. Available from: https://www.researchgate.net/publication/373488978_Promoting_Smoke-Free_Environments_The_Impact_of_Thirdhand_Smoke_Awareness_on_Smoking_Bans_at_Home?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InNlYXJjaCIsInBhZ2UiOiJzZWFyY2giLCJwb3NpdGlvbiI6InBhZ2VIZWFkZXIifX0
7. Chandran MP, M P, S G, Madhavan A, V A. A cross-sectional study on beliefs about thirdhand smoke among the general population in Bangalore city, India. Int J Community Med Public Health [Internet]. 2022 Sep 28 [cited 2024 Jan 15];9(10):3694–700. Available from: https://www.ijcmph.com/index.php/ijcmph/article/view/10066
8. Turkish Pediatrician Beliefs About Third-hand Smoking Fatma Sargin, Ebru Buldu
9. Journal of Pediatric Health Care.
10. Dermal thirdhand smoke exposure induced epidermal alterations in human keratinocyte cells through oxidative damage and MMP-1 expression Rengin Reis, Kubra Kolci, Eda Nil Yedikardes, Goknil Pelin Coskun, Yasemin Uzuner Experimental Dermatology.
11. Haardörfer R, Berg CJ, Escoffery C, Bundy ŁT, Hovell M, Kegler MC. Development of a scale assessing Beliefs About ThirdHand Smoke (BATHS). Tobacco Induced Dis. 2017;15(1):1-8.
12. Xie Z, Chen M, Fu Z, He Y, Tian Y, Zhang X et al. Thirdhand smoke beliefs and behaviors among families of primary school children in Shanghai. Tobacco Induced Dise. 2021;19.
13. Roberts C, Wagler G, Carr MM. Environmental tobacco smoke: public perception of risks of exposing children to second-and third-hand tobacco smoke. J Pediat Health Care. 2017;31(1):e7-13.
14. Karaçorlu F, Pirinçci E. Evaluation of the Behaviors of Physicians Working in Primary Healthcare Institutions About Secondhand Smoke. Addicta. 2023;10:10.5152/ADDICTA.2023.22098.
15. Winickoff JP, Friebely J, Tanski SE, Sherrod C, Matt GE, Hovell MF, McMillen RC. Beliefs About the Health Effects of Thirdhand Smoke and Home Smoking Bans. Pediatrics. 2009 Jan;123(1). doi:10.1542/peds.2008-2184.

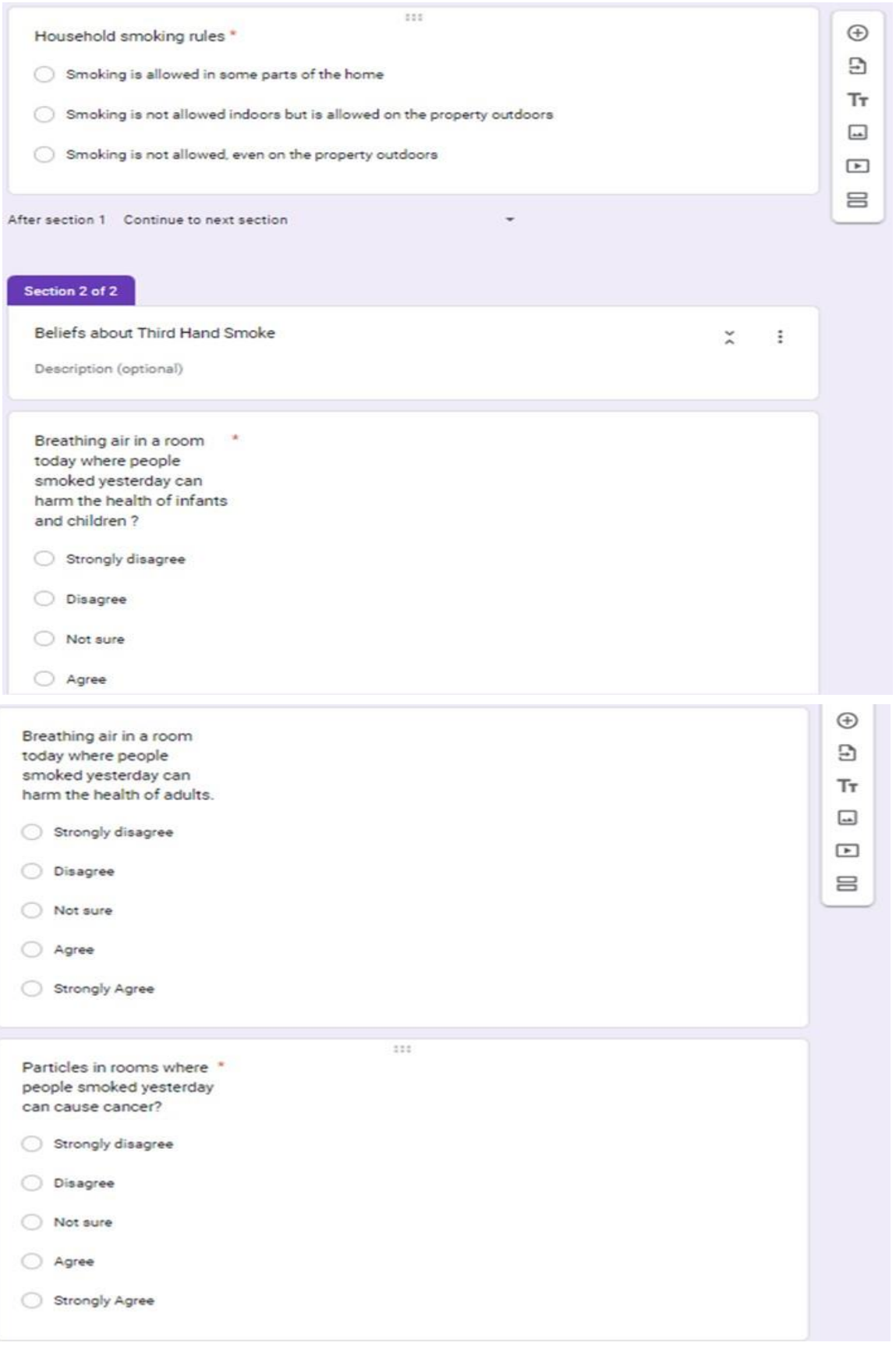
ANNEXURE

GOOGLE FORM QUESTIONNAIRE




Agree to go ahead with the survey ? *
Agreed
Disagree
Name of respondent? *
Short answer text
What is your Age? *
18–24
25–39
40–65
65 and older
Marital Status *
Married/living with partner
Single
divorced
widowed
What is your highest qualification *
Short answer text
What is your specialty? *
Short answer text
Name of the state where your hospital or clinic is / was located? *
Short answer text


Year of Experience you have in the healthcare professional field. (in numbers only) *
Short answer text
Are you currently Smoking ? *
Never smoker
Former smoker
Current smoker
Is Home smoking ban ? *
No ban
Partial ban
Full ban
Have you heard of thirdhand smoke ? *
Yes
No


Household smoking rules *
Smoking is allowed in some parts of the home
Smoking is not allowed indoors but is allowed on the property outdoors
Smoking is not allowed, even on the property outdoors
After section 1 Continue to next section
Section 2 of 2
Beliefs about Third Hand Smoke
Description (optional)
Breathing air in a room today where people smoked yesterday can harm the health of infants and children ? *
Strongly disagree
Disagree
Not sure
Agree
Breathing air in a room today where people smoked yesterday can harm the health of adults.
Strongly disagree
Disagree
Not sure
Agree
Strongly Agree
Particles in rooms where people smoked yesterday can cause cancer? *
Strongly disagree
Disagree
Not sure
Agree
Strongly Agree


Smoke particles can remain in a room for days? *
Strongly disagree
Disagree
Not sure
Agree
Strongly Agree
Smoke particles can remain in a room for weeks? *
Strongly disagree
Disagree
Not sure
Agree
Strongly Agree

Smoke particles can remain * in a room for months?

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Cigarette smoke mixes and * settles with dust?

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

After someone smokes in a * room, sticky particles are left on surfaces in the room?

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Smoke particles get * absorbed into furniture and walls?

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

The smell of cigarette * smoke can return even after deeply cleaning a smoking room?

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Smoke stains on walls can reappear after walls have been painted? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Removing smoke particles from carpet is almost impossible ? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Sticky smoke particles cannot be removed from surfaces with regular cleaning ? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

After smoking a cigarette, smoke particles on skin, hair, and clothing can be passed on to others through touch ? *

- Strongly disagree

- Disagree
- Not sure
- Agree
- Strongly Agree

After touching surfaces where cigarette smoke has settled, particles can enter the body through the skin ? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Children who touch surfaces and then put their hands in their mouths can swallow smoke particles ? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Opening windows or using air conditioners does not eliminate all smoke particles in a room ? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Smoking only in the bathroom does not stop smoke particles from settling in other rooms ? *

Smoking only in the bathroom does not stop smoke particles from settling in other rooms ? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

Having a smoke-free home will protect nonsmokers from smoke particles in your home ? *

- Strongly disagree
- Disagree
- Not sure
- Agree
- Strongly Agree

D Report K

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