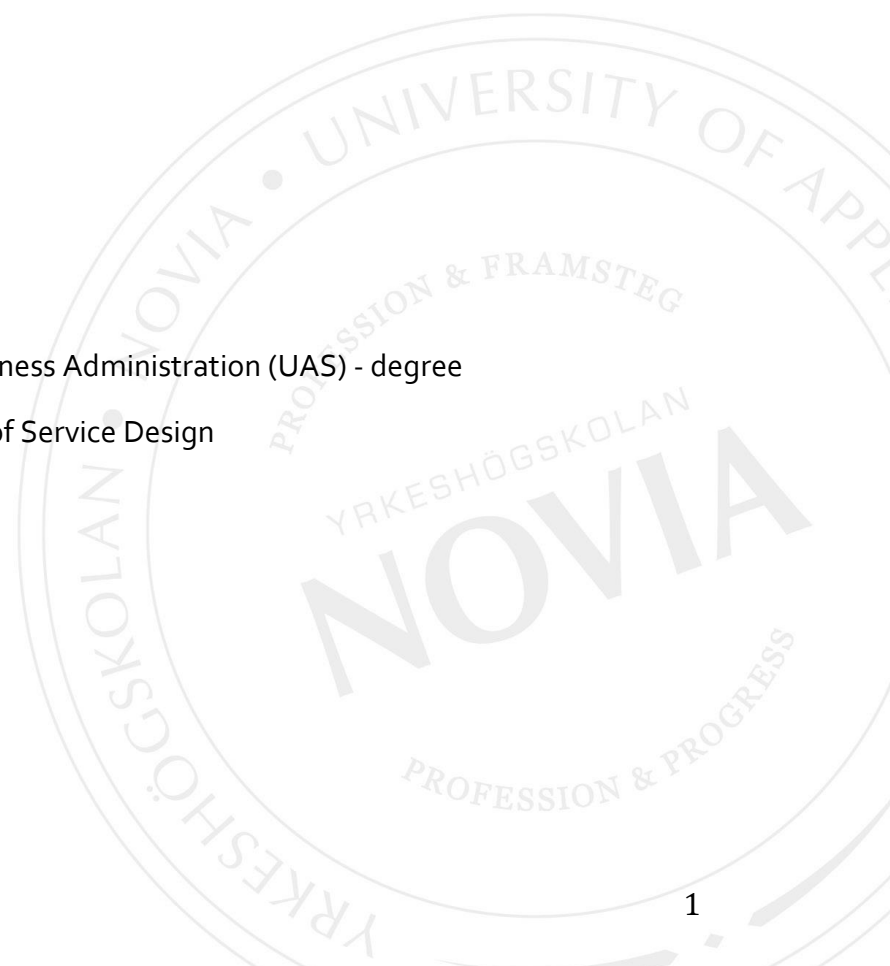


**Revitalizing Public Health,
Application of Service Design Approach to Reduce Tobacco
Consumption among Youth – A Case Study in Cumilla City**

Md Syful Islam

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Author: Md Syful Islam

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Supervisor(s): Reija Anckar

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Appendices

Abstract

The consumption of tobacco among young individuals is a significant and urgent issue in the field of global public health, since it has wide-ranging implications for both individuals and societies. The city of Cumilla, situated in Bangladesh, presents a compelling case for examining novel approaches to address this problem.

This study employed a service design methodology to investigate and execute interventions that prioritized user needs, fostered engagement, and were customized to address the unique requirements of the young community in the local area. The study used a combination of qualitative and quantitative methodologies to evaluate the effects of the implemented services and campaigns on the prevalence of tobacco use among young individuals. This study aimed to decrease tobacco usage among teenagers and empower them to make informed decisions by employing a combination of co-creation workshops, multi-channel awareness campaigns, school-based programmes, and user-friendly cessation support services.

The results indicated that using a service design approach has the potential to act as a successful catalyst for modifying behavior and encouraging the adoption of healthier lifestyles among the youth residing in Cumilla City. This thesis further emphasized the significance of stakeholder collaboration and the enduring sustainability of these endeavors in Cumilla city.

Language: *English*
Cumilla City.

Keywords: *Tobacco consumption, Youth,*

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1 Introduction

In recent years, there has been a noticeable decrease in global tobacco usage, primarily attributed to heightened knowledge of the adverse health consequences linked to smoking and the adoption of more stringent tobacco control policies by governments across the globe. In the context of Bangladesh, the observed trend has exhibited a degree of variability. Despite the government's efforts to address tobacco use through measures such as the introduction of graphic warning labels and increased taxation on tobacco products, the prevalence of tobacco consumption remains considerable within the nation. A substantial segment of the population continues to engage in the utilization of diverse tobacco forms, encompassing cigarettes and smokeless tobacco. The ongoing endeavor to address this phenomenon in Bangladesh faces persistent obstacles, including the formidable influence exerted by the tobacco industry and cultural norms that promote tobacco consumption.

We have seen in many countries, especially in Bangladesh that young people rather than older people are more addicted to smoking. Nicotine in tobacco products can make young individuals addicted to smoking. Nicotine releases brain dopamine, causing happy feelings and transient stress and anxiety reduction, which can lead to dependence. Peer pressure, the image of smoking as a social activity, easy access to tobacco products, and marketing and advertising also encourage juvenile smoking. To combat teenage smoking addiction, education, awareness, and tougher tobacco control measures are needed.

There are number of studies that has been done to find out ways that will be able to significantly reduce the amount of tobacco consumption. Most of them has put an emphasis on increasing tax on tobacco product thus making the price high. But as tobacco consumption is a kind of addiction, only increasing tax is not the solution. Some research has also been done where some other factors are also considered along with tax increment that will help reduce tobacco consumption (Besley & Rosen, 1998). But all the research that I have found

that discussed tobacco consumption in Bangladesh, none discussed the situation of Cumilla in particular.

Recently, Cumilla's tobacco consumption has surged significantly, according to Brac Cumilla Learning Center. In this thesis, I focused on a service design methodology, with a specific focus on the case study of Cumilla City, in order to investigate the complex interaction between social and economic variables that impact the consumption of cigarettes. This research aimed to explore what effect Service design interventions have on reducing the tobacco usage among youth in Cumilla City. By examining these perspectives, the study intended to reveal service design interventions and the result of it. The findings will provide valuable insights for the development of targeted interventions and policies that aim to reduce cigarette consumption and promote healthier lifestyles in Cumilla City.

1.1 Problem area

This study centered on the demographic of young individuals residing in Cumilla City, with a specific emphasis on those between the ages of 15 and 24. The primary concern within this research pertains to the notable issue of elevated tobacco use among this population. The thesis identified a critical concern regarding the imperative nature of addressing and mitigating tobacco consumption among the juvenile population in Cumilla City. The utilisation of tobacco among adolescents not only presents acute health hazards but also substantially augments the probability of enduring addiction and related health complications.

Despite the implementation of multiple anti-smoking initiatives and interventions, The young population in Cumilla City continues to be exposed to and engaged in tobacco consumption. This can be attributed to a range of socio-cultural, economic, and environmental factors. The

difficulty is compounded by the dynamic nature of tobacco products, which includes emerging and attractive alternatives such as electronic cigarettes. In order to address this issue in a comprehensive manner, it has been suggested that a service design methodology be employed. This approach emphasizes the importance of comprehending the distinct requirements and encounters of young individuals, and subsequently of devising customized interventions that effectively connect with the youth. This issue necessitates the implementation of novel and youth-oriented approaches to tackle the enduringly elevated levels of tobacco usage among the urban youth demographic.

1.2 Aims/objectives of research

The aims of the research were

- to develop and execute user-centric interventions aimed at effectively mitigating youth tobacco smoking in Cumilla City
- to evaluate the effects of service design techniques on the prevalence of tobacco use among young individuals, with the ultimate goal of enhancing the general health and well-being of the youth population residing in Cumilla City.

1.3 Commissioner and stakeholders

This thesis establishes an essential connection with the commissioner and key stakeholders, enabling focused and effective interventions in the field of public health. This research plays a crucial role in guiding informed decision-making processes for the stakeholders. It does so by offering evidence-based insights on the effectiveness of a service design strategy. Furthermore, it facilitates strategic planning by facilitating the development and execution of focused public health initiatives that specifically cater to the requirements of the adolescent demographic in Cumilla.

1.3.1 The Ministry of Health and Family welfare(Commissioner)

The Ministry of Health and Family Welfare in Bangladesh plays a pivotal role in the nation's healthcare system, ensuring the well-being of its citizens and addressing public health challenges (Ministry of Health and Family Welfare Bangladesh, n.d). As the primary governmental body responsible for health-related policies and programs, the ministry oversees the development and implementation of healthcare initiatives, including disease prevention, healthcare delivery, and family planning services. Through its comprehensive efforts, the Ministry of Health and Family Welfare strives to improve the overall health of the population and enhance access to quality healthcare services. The ministry's initiatives extend to tobacco control, a crucial aspect of public health, as tobacco-related diseases pose a significant burden on the healthcare system. Efforts to reduce tobacco consumption, particularly among youth, align with their mission to promote a healthier and more prosperous Bangladesh (Ministry of Health and Family Welfare Bangladesh, n.d).

I possess a professional connection within the Ministry of Health and Family Welfare. Sadikur Rahman, who I know from Bangladesh, holds the position of Assistant Officer in the organisation. Sadikur Rahman is actively engaged in efforts aimed at mitigating youth smoking prevalence within the Cumilla region. I was aware that in the event of the successful implementation of the intervention, it would be necessary to have an individual capable of executing the interventions. I initiated contact with him and he subsequently expressed consent to execute these measures subsequent to observing the outcomes. However, an agreement has not yet been reached. Verbal communication encompasses all forms of spoken interaction.

1.3.2 Primary Stakeholders

Primary stakeholders refer to individuals or groups who are directly affected by a company's actions and have a significant interest in its success. The stakeholders of an organisation usually encompass shareholders, employees, and consumers, as their welfare and contentment have a direct impact on the organization's overall performance. For businesses to promote positive connections and achieve sustainable growth, it is essential to actively include major stakeholders.

1.3.2.1 Cumilla City Health Department

The Cumilla City Health Department serves as a crucial local establishment tasked with the responsibility of ensuring the protection and welfare of the inhabitants of Cumilla City, located in Bangladesh (Directorate General of Health Services, n.d). The department in question assumes a pivotal position in public health endeavors, encompassing illness prevention, health promotion, and healthcare provision within the urban setting. The organization is responsible for the supervision and execution of a variety of initiatives, services, and promotional efforts with the objective of enhancing the collective well-being of the community. The endeavors of the Cumilla City Health Department encompass the identification and resolution of health issues specific to the locality, facilitation of cooperation with healthcare establishments, and establishment of partnerships with governmental and non-governmental entities to augment the healthcare infrastructure within the city. In the context of mitigating tobacco use among young individuals, the department could assume a crucial function in the execution and oversight of anti-tobacco endeavors, so guaranteeing the effective safeguarding of the youth population residing in Cumilla City against the detrimental consequences associated with tobacco utilization.

1.3.2.2 National Tobacco Control Cell (NTC)

The National Tobacco Control Cell (NTCC) in Bangladesh is a significant governmental entity that is committed to mitigating the pervasive utilization of tobacco commodities and tackling the corresponding public health predicaments (National tobacco control cell, 2023). The National Tobacco Control Cell (NTCC) is an organization operating under the purview of the Ministry of Health and Family Welfare. It assumes a pivotal position in the execution and regulation of tobacco control policies and endeavors inside the nation (National tobacco control cell, 2023).

Similar to numerous other nations, Bangladesh is confronted with a substantial prevalence of tobacco-associated ailments, including cancer, cardiovascular conditions, and respiratory

problems. The extensive utilization of tobacco items, encompassing cigarettes and smokeless tobacco, has played a significant role in the emergence of a considerable public health predicament. The establishment of the NTCC was a direct response to the aforementioned issues, with the primary objective of devising, coordinating, and executing strategies and policies that would effectively mitigate the consumption of tobacco and the consequential negative impacts it has on society.

1.3.2.3 Educational Institutions

Educational institutions undoubtedly bear a significant stake in the thesis project entitled "Revitalizing Public Health: Application of Service Design Approach to Reduce Tobacco Consumption among Youth – A Case Study in Cumilla City." Educational institutions, in their capacity as primary caregivers for the youth demographic, play a pivotal role in influencing the behaviors and decision-making of students, particularly with regard to their attitudes towards tobacco consumption. Educational institutions within Cumilla City play a crucial role as collaborative allies in the endeavor to mitigate tobacco usage among the younger demographic. These platforms play a vital role in facilitating the execution of educational initiatives, raising awareness, and implementing preventive measures. Through active engagement in this endeavor, educational establishments have the potential to make a valuable contribution towards the establishment of a healthy and tobacco-free setting for their student body. This, in turn, can promote overall well-being and academic achievement, while simultaneously addressing a significant public health issue. The active participation of primary stakeholders is crucial for attaining the project's goals and guaranteeing its long-term viability within the community.

1.3.3 Secondary stakeholder

1.3.3.1 Non-Governmental Organizations

Cumilla City, akin to several urban regions globally, derives advantages from the existence of a multitude of non-governmental organisations (NGOs) that actively contribute to diverse facets of community development and overall welfare. The non-governmental organisations (NGOs) operating in Cumilla City are engaged in addressing a diverse array of concerns,

encompassing areas such as healthcare, education, social welfare, and economic empowerment, among various other domains.

An exemplary illustration is the establishment of "BRAC Cumilla," which is a subsidiary of BRAC, originally recognized as the Bangladesh Rural Advancement Committee. BRAC, an internationally renowned non-governmental organization (NGO), holds a prominent position due to its extensive scale and significant impact. The Cumilla branch of BRAC actively engages in several initiatives pertaining to education, healthcare, poverty reduction, and the empowerment of women. BRAC Cumilla works to enhance the living circumstances and expand opportunities for the inhabitants of the city, with a specific focus on marginalized communities (Brac Learning center Cumilla, 2023).

1.3.3.1 Media

Media outlets and organizations play a substantial role as secondary stakeholders in the research project entitled "Revitalizing Public Health: Application of Service Design Approach to Reduce Tobacco Consumption among Youth – A Case Study in Cumilla City." Although media does not have a direct impact on the day-to-day activities of young individuals, it plays a significant role as a potent agent of persuasion and communication (Freeman, 2012). Various forms of media, including local newspapers, radio stations, television channels, and digital platforms, has the capability to enhance the reach of the project's message, provide knowledge on the hazards associated with tobacco smoking, and facilitate the promotion of awareness campaigns. The contribution of these individuals in illuminating matters pertaining to tobacco, presenting instances of triumph, and disseminating instructional material is of immense value. Furthermore, the involvement of media outlets can play a crucial role in expanding the reach of anti-tobacco activities and galvanizing community support. The media plays a crucial role in supporting the overarching objective of reducing tobacco consumption among young in Cumilla City by serving as a forum for public health advocacy and the transmission of information. The participation of secondary stakeholders contributes to the expansion and effectiveness of the project in terms of increasing awareness and promoting changes in behavior.

1.3.3.2 Healthcare Providers

Healthcare providers play a crucial role as secondary stakeholders in the research project entitled "Revitalizing Public Health: Application of Service Design Approach to Reduce Tobacco Consumption among Youth – A Case Study in Cumilla City." Although their main function is to provide medical treatment for ailments, they also hold significant importance within the wider scope of public health and tobacco control. Healthcare professionals, encompassing medical practitioners, nursing personnel, and counseling experts, frequently serve as the initial interface for adolescents who are seeking assistance in nicotine cessation or addressing health concerns associated with tobacco use. The knowledge and guidance they possess are of great worth in the realm of educating young individuals about the health hazards linked to tobacco consumption, as well as offering assistance in the process of quitting tobacco. In addition, healthcare providers have the opportunity to engage in collaborative efforts with the project in order to incorporate anti-tobacco interventions within their professional settings. This collaboration aims to enhance the accessibility of services and assistance for young individuals. Healthcare practitioners play a crucial role in the collective objective of diminishing tobacco usage among young individuals in Cumilla City, fostering healthier ways of living, and protecting public health through their active engagement in tobacco control initiatives. The inclusion of secondary stakeholders enhances the project's capacity to achieve success and generate beneficial outcomes for the well-being of the community.

1.3.4 The stakeholder map

The utilisation of a stakeholder map holds significant significance within the realm of research, as it functions as a strategic instrument for the identification, analysis, and involvement of diverse persons and groups who possess a vested interest in a given project or study. Through the process of visualising the landscape of stakeholders, researchers are able to enhance their understanding of the influence, requirements, and expectations of these individuals or groups. This, in turn, enables the development of customised engagement strategies. According to Fereday and Oster (2010), this phenomenon has a role in enhancing communication, collaboration, and decision-making within the research process. Furthermore, the utilisation of a stakeholder map serves to mitigate risks and allocate

resources effectively, thereby maintaining the alignment of the research with its objectives and the interests of the individuals or groups it affects (Johnson, 2013). In general, the stakeholder map is a crucial tool for improving the clarity, efficiency, and final achievement of research initiatives.

The stakeholder map for this research project is given below,

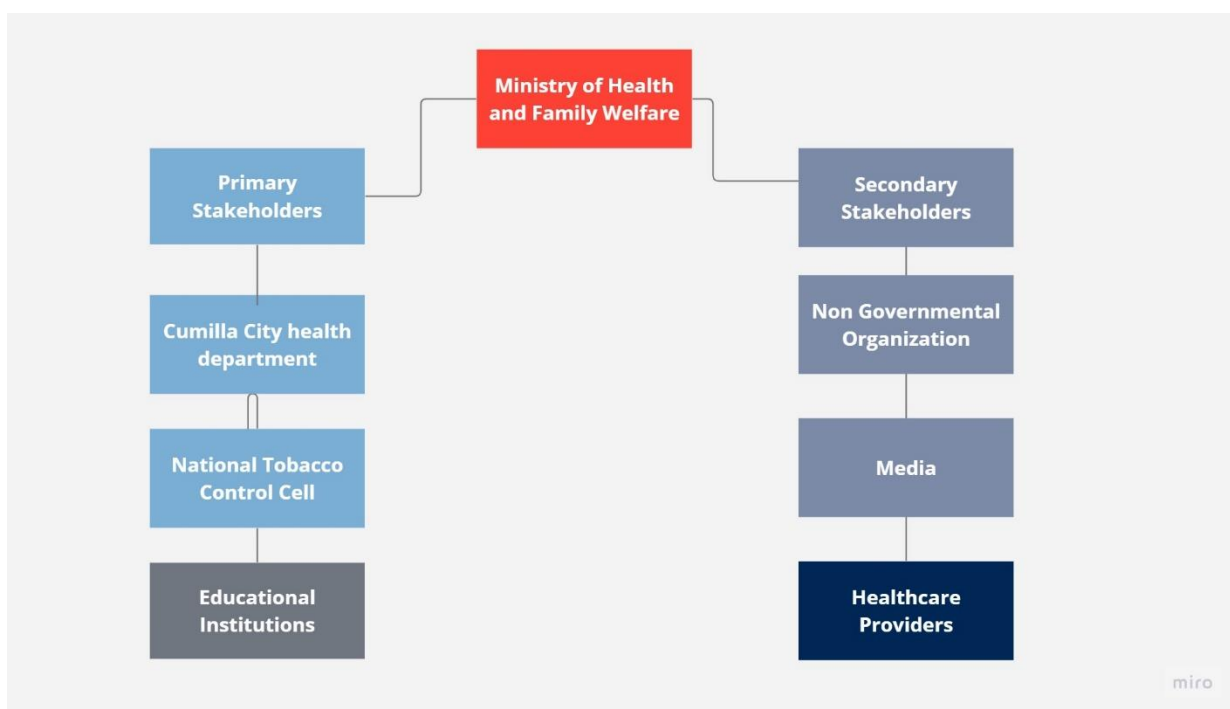


Figure 1: Stakeholder Map

Primary and Secondary stakeholders is shown in the figure 1.

1.4 Research Question

The research question of this thesis is What is the influence of service design interventions on the prevalence of tobacco consumption among young individuals in the city of Cumilla?

The motivation for this initiative arises from the acknowledgment of the urgent necessity to tackle the increasing problem of young tobacco smoking within a particular geographical area. The research intends to investigate the specific factors that influence tobacco usage in the city of Cumilla. The selection of a service design approach demonstrates a dedication to inventive and comprehensive techniques for public health initiatives. Service design recognises the intricate nature of behavioural patterns and places a strong emphasis on solutions that prioritise the needs and preferences of the user. Examining the effects of service design interventions on the prevalence of tobacco use among young individuals in Cumilla has the potential to provide valuable insights for implementing focused and efficient public health strategies. This research question is in line with the overarching objective of rejuvenating public health. It aims to offer valuable insights that can assist policymakers, healthcare practitioners, and community organisations in creating targeted interventions to reduce young tobacco consumption in Cumilla.

1.5 Frame of Reference

The convergence of public health, service design, and youth-centered interventions is the frame of reference for the topic of this research. In this case, the main objective is to address a critical public health issue: the high rate of young tobacco use. The concepts of service design are discussed in this topic, with a focus on the value of user-centered, economical, and successful interventions. The youth are the target demographic; they are an important but vulnerable group that requires specialized strategies that recognize and cater to their particular needs and influencers. The utilization of a case study methodology in Cumilla City offers a practical framework for examining the obstacles and prospects associated with tobacco control endeavors. Through an examination of the prevalence of tobacco use, the factors that influence this behaviour, and the results of different treatments, this study aimed to provide important information for the creation of successful public health initiatives. In order to revitalise public health, interdisciplinary collaboration, policy advocacy, community involvement, and the monitoring and evaluation of interventions are essential components of this frame of reference. These elements highlight the complex and ever-changing nature of

public health challenges and the significance of comprehensive solutions.



Figure 2: Frame of Reference

2 Theoretical Background

Service design, a dynamic and essential field, has gained significant popularity in recent years as organizations increasingly acknowledge the significance of providing excellent user experiences. Service design is based on design thinking ideas and focuses on taking a comprehensive and user-centered approach to develop and improve services. The primary objective is to comprehend and fulfil the varied requirements of users throughout their complete journey. Stickdorn, Lawrence, Hormess, and Schneider (2018) emphasize the importance of transcending conventional product-focused thinking in their influential book "This is Service Design Doing." They advocate for a transition towards designing services that are not only efficient but also deeply connected with the emotions and experiences of the users.

Research is a fundamental element in service design, as it guides the iterative and user-centered approach of the methodology. According to Zeithaml et al. (2019) in their book "Services Marketing: Integrating Customer Focus Across the Firm," they argue that employing thorough research methodologies like as interviews, surveys, and observations is essential for collecting both qualitative and quantitative data. The preliminary research

phase is essential for acquiring profound understanding of client expectations, behaviours, and challenges, which serves as the basis for later design choices. Service design encompasses more than just physical components, taking into account the intangible qualities of a service, including customer emotions and interactions, to ensure a full and meaningful user experience.

Stickdorn and Schneider (2020) emphasise that service design is characterised by interdisciplinary collaboration, as discussed in their book "This is Service Design Methods." The collaborative attitude fosters the integration of professionals from diverse professions, who contribute their distinct viewpoints and expertise. The authors recommend using iterative procedures that entail ongoing generation of ideas, creation of prototypes, and testing. This approach allows for improvements to be made based on feedback from users in real-time. The iterative nature of services guarantees their evolution in response to evolving customer needs, market dynamics, and emerging trends. In the field of technology, Mager (2022) highlights in "Service Design for Business: A Practical Guide to Optimising the Customer Experience" the crucial importance of service design in developing smooth and user-friendly digital interfaces that meet the changing expectations of users. This is consistent with the overall shift in the technology sector towards creating user experiences that are not just practical but also emotionally impactful.

The versatility of service design is seen in a wide range of industries, showcasing its capacity to adapt to different contexts and challenges. Edvardsson et al. (2019) contend that incorporating patients in service innovation within the healthcare sector can greatly enhance patient experiences through the optimisation of processes and communication channels. Smith and Johnson (2021) explore the utilisation of service design in the financial sector to enhance the customer experience. Their book, "Service Design for Business: A Practical Guide to Optimising the Customer Experience," highlights the growing trend of financial institutions adopting service design principles to revamp the customer journey. This approach emphasises the importance of personalised experiences and digital advancements. These examples highlight the importance of service design as a strategic tool for organisations seeking to improve customer happiness and maintain competitiveness in fast-changing markets.

Service design has advantages that go beyond only satisfying customers, as it also includes improved operational efficiency and innovation. According to Bitner et al. (2020) in their book "Services Marketing: Integrating Customer Focus Across the Firm," organisations that

implement service design principles see enhancements in their service delivery processes, resulting in cost-effectiveness and more efficient operations. Furthermore, adopting a service design mindset cultivates an environment that promotes creativity and forward-thinking within organisations. This mindset encourages the questioning of established norms and the relentless pursuit of enhancement. Service design enables organisations to effectively respond to evolving market demands and developing trends in a dynamic business environment.

Service design is a leading current corporate strategy that provides a revolutionary method for developing user-centric and innovative services. This discipline, based on contemporary sources, is characterised by its comprehensive and cooperative approach, which guarantees that organisations not only fulfil but beyond user expectations. This fosters a culture of ongoing enhancement and innovation, enabling organisations to establish a strong position for long-term success in today's competitive environment.

2.1 Overview of Cumilla City

Cumilla City, situated in the Chittagong Division of Bangladesh, is renowned for its heterogeneous population and vibrant metropolitan landscape. In the year 2021, the city's population surpassed 500,000 individuals, positioning it as one of the densely populated urban areas inside the nation. The demographic composition of the area has a pronounced inclination towards a younger population, wherein a substantial proportion of individuals are below the age of 30. This pattern is consistent with prevailing demographic patterns observed in the country of Bangladesh. The urban centre has a notable degree of ethnic diversity, accommodating a multitude of distinct ethnicities within its geographical confines, yet with the Bengali community maintaining its position as the prevailing ethnic group. Islam is the predominant religion in matters of faith, with smaller religious minority groups such as Hindus, Buddhists, and others also present. Bengali, the designated official language of the People's Republic of Bangladesh, serves as the predominant means of communication among its populace. The educational environment of Cumilla City is enhanced by the presence of esteemed institutions like Cumilla University, which serves as a magnet for students hailing from many geographical areas. From an economic standpoint, the city experiences prosperity through a combination of agricultural activities, trade, commerce, and small and medium-sized enterprises (SMEs). Notably, the production of rice and jute plays a substantial role in

this economic landscape. The ongoing process of urbanisation in Cumilla City has resulted in its emergence as a significant economic and cultural centre within the Chittagong Division. This development has necessitated the establishment of healthcare facilities to cater to the expanding population of the city and its environs.

2.2 Public Health and Tobacco Consumption

Public health is a dynamic, interdisciplinary field that protects and improves community health. It includes illness prevention, health promotion, healthcare policy, and environmental health. Public health specialists identify and solve health inequities, establish disease prevention and control measures, promote healthy behaviours, provide excellent healthcare, and design public health policy. Public health focuses on prevention, education, and population-level interventions to improve society's health and help people live healthier lives. Public health assumes a crucial role in tackling the worldwide issue of tobacco consumption, which represents a significant public health matter with extensive ramifications. According to the World Health Organization (WHO), tobacco smoking is responsible for over 8 million deaths each year, making it the greatest cause of preventable mortality globally (WHO, 2021). The harmful health effects of tobacco usage are well-documented and include an increased risk of many diseases, such as cancer, cardiovascular diseases, and respiratory problems (CDC, 2021). Public health efforts to limit tobacco use comprise a range of evidence-based strategies, including anti-smoking campaigns, tobacco pricing legislation, smoking cessation programs, and the establishment of smoke-free environments (CDC, 2021). These programmes are intended at limiting the prevalence of tobacco use, protecting vulnerable people, and ultimately enhancing the overall health and well-being of communities.

2.3 Habit Formation Theory

Habit formation theory, as advanced by Wood and Neal (2007), posits that behaviors become habitual through a process of cue-response-reinforcement. In the context of youth tobacco consumption, it explains how repeated exposure to smoking cues, such as stress or social situations, leads to the development of habitual smoking behaviors. The psychology notion

of habit formation theory describes how repeated behaviors build habits. It usually has a cue, routine, and reward loop. The cue is a trigger or setting that starts the behavior, the routine is the activity, and the reward is satisfaction. As this cycle repeats, the brain builds neural pathways, making the behavior automatic and less intentional. Understanding cues and rewards to form good habits or break bad ones is crucial to habit formation theory, which can help you develop and change your behavior.

2.4 Cognitive behavioral Theory

Cognitive-behavioral theory, which integrates cognitive and behavioral elements, is relevant in understanding addiction and habitual behavior. It emphasizes that individuals with addictive behaviors often have maladaptive thought patterns and use substances, like tobacco, as a way to cope with negative emotions (Beck, 1967). Cognitive Behavioral Theory (CBT) is a proven psychotherapy technique that examines how ideas, emotions, and behaviors interact. It says ideas and beliefs affect feelings and actions. CBT helps clients discover and replace harmful thought patterns with healthier, more constructive ones. Doing so helps people manage their emotions and actions, improving mental health and addressing psychological issues including anxiety, depression, and stress. CBT is commonly used in psychology and therapy to assist people overcome emotional and psychological issues due to its evidence-based approaches.

2.5 The addiction Cycle

The addiction cycle, as conceptualized by Koob and Le Moal (2008), identifies key stages of addiction, including binge/intoxication, withdrawal/negative affect, and preoccupation/anticipation. Understanding this cycle is crucial in comprehending the mechanisms that perpetuate youth tobacco consumption. The addiction cycle is a series of addictive behaviors and ideas. It usually involves three stages: initial use or exposure, reliance or yearning, and loss of control or negative repercussions from prolonged usage. Addiction frequently starts with a stimulus like stress or social pressure. The cycle of addiction is reinforced by pleasurable feelings or brief relief from triggers, making it hard to quit. Addiction can damage health, relationships, and well-being. Intervention, support, and psychological and physical treatments are needed to break this cycle.

2.6 Health Belief model

The Health Belief Model (HBM) is a well-known theoretical framework in health psychology and public health that looks at people's beliefs and perceptions in an effort to explain and forecast health-related behaviours. The Health Belief Model (HBM), which Rosenstock developed in the 1950s, asserts that a person's decision to take preventive or health-promoting actions is influenced by a number of factors, such as perceived risk of illness, perceived seriousness of the threat, perceived advantages of action, and perceived costs or barriers related to the action. Moreover, prompts to action, including educational initiatives or medical professionals' counsel, can bring about a shift in behaviour. A wide range of health-related behaviours, such as cancer screening, immunisation, and quitting smoking, have been studied using the Health Belief Model (HBM), which provides insights into the factors that influence people's decisions to accept or reject health-promoting behaviours (Rosenstock, 1974). It is still a useful paradigm for planning and assessing medical interventions meant to enhance public health outcomes. The Health Belief Model (HBM) is a useful theoretical framework that may be applied to develop service interventions with the goal of enhancing health and well-being.

2.7 The diffusion of Innovation Theory

Everett M. Rogers' Diffusion of Innovation Theory offers useful insights into the dissemination of novel anti-tobacco programmes and interventions within youth and community settings. According to this theoretical framework, the implementation of novel practises, specifically pertaining to anti-tobacco initiatives, adheres to a discernible pattern that encompasses distinct cohorts of adopters. These cohorts include innovators, early adopters, early majority, late majority, and laggards. Gaining a comprehensive understanding of the diffusion process can assist public health practitioners in optimising their anti-tobacco initiatives by strategically targeting distinct parts of the community for enhanced effectiveness. For instance, the segment of young individuals who are quick to embrace new ideas and technologies may exhibit a higher level of openness towards innovative anti-smoking applications or awareness campaigns led by their peers. Conversely, the majority of individuals who follow this initial group may display a more favourable response to educational initiatives centred within schools. In order to optimise the dissemination and acceptance of anti-tobacco programmes, public health endeavours can enhance their effectiveness by strategically synchronising the timing, messaging, and delivery methods with the distinct attributes of each group of adopters (Rogers, 2003). This approach ultimately leads to a reduction in tobacco consumption rates.

2.7 Previous Research and Interventions

Upon examination of extant research and treatments targeting the reduction of tobacco use among young individuals, it becomes evident that the subject matter is characterised by a complex and diverse terrain, encompassing both accomplishments and obstacles. Several treatments, including anti-smoking campaigns, tobacco pricing legislation, and school-based preventive programmes, have demonstrated efficacy in decreasing rates of youth smoking (Thomas et al., 2015). According to the World Bank (2019), the implementation of comprehensive tobacco control strategies, such as smoke-free regulations and the utilisation of graphic warning labels, has yielded favourable outcomes.

Nevertheless, there are ongoing difficulties that need to be addressed, one of which is the dynamic nature of tobacco products, including e-cigarettes, that present novel hazards to young individuals. Furthermore, the utilisation of tobacco among young individuals is still influenced by social and peer influences, as well as the strategic marketing strategies employed by the tobacco industry (US Department of Health and Human Services, 2012).

The lessons derived from these endeavours highlight the significance of employing evidence-based approaches, ensuring the consistent implementation of rules, and developing customised treatments that take into account the distinct requirements and susceptibilities of young populations. The efficacy of these interventions relies on the implementation of a holistic strategy that integrates education, legislative measures, and community involvement in order to efficiently address the issue of tobacco use among young individuals.

2.8 Service Design Principals

The principles of service design contain a collection of fundamental concepts and methodologies that provide guidance for the development and enhancement of services, with the aim of improving user experiences and achieving specified objectives. The ideas encompassed in this framework consist of a user-centric methodology, which places significant emphasis on empathy and comprehension of user requirements. Additionally, the principle of co-creation is advocated, wherein users actively participate in the design process to guarantee their viewpoints are duly acknowledged and incorporated. Iteration and prototyping play a vital role in facilitating the ongoing enhancement of services through the incorporation of feedback obtained from real-world experiences. Moreover, service design places significant emphasis on adopting a comprehensive perspective, taking into account all facets of a service, encompassing touchpoints, processes, and systems, in order to guarantee a smooth and cohesive user experience. Collaboration, encompassing intra-team cooperation as well as interdisciplinary collaboration, plays a pivotal role in the development of efficient services that effectively tackle intricate difficulties and bring benefits to both users and service providers.

3. Literature Review

3.1. Global Youth tobacco consumption problem

The issue of tobacco smoking among the worldwide youth population is a matter of great importance in the field of public health, as widely evidenced by the World Health Organisation (WHO, 2021). The phenomenon under consideration is distinguished by the

prevalent consumption of tobacco products among individuals who have not yet reached the age of 18, resulting in a multitude of significant health, economic, and societal consequences. The intake of tobacco among young individuals has been found to be associated with heightened probabilities of addiction, a range of chronic ailments, and untimely mortality. The World Health Organisation (WHO) emphasises that despite the implementation of various anti-smoking programmes, young individuals continue to be susceptible to the aggressive marketing tactics deployed by the tobacco industry. The issue is further compounded by elements such as social influence from peers, little understanding regarding the potential health hazards, and the convenient availability of tobacco merchandise. The imperative to tackle this matter is of utmost importance in enhancing the enduring physical and mental welfare of young individuals worldwide. This necessitates the implementation of a comprehensive strategy encompassing educational initiatives, regulatory measures, and efficacious interventions in public health.

3.2 Tobacco Consumption in Bangladesh

The issue of tobacco consumption in Bangladesh has been a persistent public health concern, carrying substantial social, economic, and health ramifications. There are multiple variables that lead to the extensive utilization of tobacco in Bangladesh such as Cultural norms, affordability, lack of awareness, marketing and advertising, smokeless tobacco and many more. Tobacco is utilized in diverse ways and patterns within the context of Bangladesh. Various forms of tobacco exist, such as smoked tobacco and smokeless tobacco. The primary tobacco smoking products encompass manufactured cigarettes and bidi. Various forms of tobacco consumption are also accessible, including water pipes (hookahs), traditional pipes, cigars, electronic cigarettes, shisha, and hand-rolled cigarettes, among others. According to the findings of the Global Adult Tobacco Survey (GATS) conducted in Bangladesh in 2017, it was revealed that a total of 19.2 million people, which accounts for 18.0% of the population, now engage in tobacco consumption. The survey further indicated that 36.2% of males and 0.8% of women are smokers. Within the population of individuals who engage in smoking, a significant majority, specifically 77.1%, partake in the consumption of manufactured

cigarettes. Additionally, 29.0% of smokers prefer bidis, while a smaller percentage of 0.5% opt for water pipes, commonly referred to as hookahs. Furthermore, a mere 0.4% of smokers choose hand-rolled cigarettes, and an even smaller proportion of 0.3% indulge in cigars, cheroots, or cigarillos. A negligible 0.2% of smokers opt for tobacco in a pipe, and an equivalent percentage of 0.2% employ alternative methods of tobacco consumption (as depicted in Figure 1). Multiple studies have documented an association between tobacco smoking and factors such as male gender, middle age, lower educational attainment, poorer occupational status, and disadvantaged economic circumstances. However, other studies have also found a favorable correlation between tobacco smoking in teenagers and factors such as peer smoking, greater academic grades, and increased pocket money.

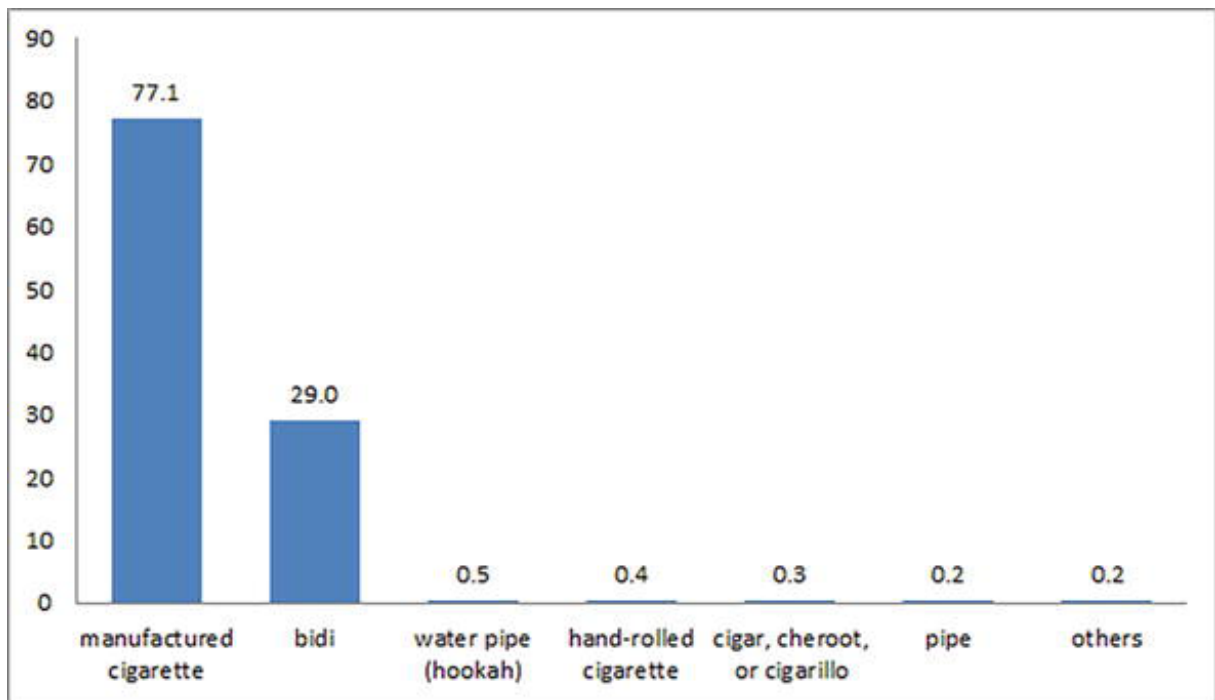


Figure 3: Prevalence of tobacco consumption in Bangladesh. (GATS)

3.3 Tobacco Consumption of Youth of Bangladesh

Bangladeshi teens and young adults who smoke are a big public health problem because it can have long-lasting effects on their health and social lives. The Global Youth Tobacco Survey (GYTS) says that the high rate of tobacco use among 13–15-year-olds in Bangladesh

is a reason for concern. According to the GYTS statistics, a lot of young people in Bangladesh try tobacco products or actually use them. Teenagers and young adults in Bangladesh can smoke cigarettes and use smokeless tobacco products like gutka, zarda, and paan that are mixed with tobacco. Young people are especially likely to use smokeless tobacco. A lot of young people start smoking early, often before they turn 18. Starting drugs early makes it more likely that you will become addicted and have health problems in the future. A big reason why young people smoke is because of peer pressure and other social factors. It's possible that young people are more likely to start smoking in order to fit in with their friends. In Bangladesh, tobacco goods are often marketed and sold to young people. Tobacco goods are more appealing to this group because they are cheap and easy to get. To stop young people in Bangladesh from smoking, stricter rules, educational programs, and policies like putting big health warnings on tobacco packages are all being considered. To protect the health and well-being of the country's youth and lessen the effects of tobacco-related problems in the future, however, we need to stay alert and come up with complete plans.

3.4 Tobacco Consumption of Youth of Cumilla

Tobacco use, including smoking cigarettes and using smokeless products, is still a major public health problem in Cumilla City. It is the main cause of diseases among the youths of Cumilla, like lung cancer, heart disease, and breathing problems. In the youth of Cumilla, teenage years are the most common time for people to start using tobacco products and keep using them. Thirteen is the age when almost nine out of ten people who smoke every day start. Among the youth of cumilla, flavoring tobacco are the most favorites. In 2021, 80.2% of primary school students and 74.6% of high school students who had used tobacco in the last 30 days said they had used a flavored tobacco product. In 2023, 90.3% of Primary school students and 87.1% of high school students who had used an e-cigarette in the last 30 days said they had used a flavored one. Tobacco use is being cut down through public awareness programs, higher taxes, and strict rules on marketing and selling tobacco. Quitting smoking is a smart move for your health that can improve your quality of life and health in big ways.

3.5 Consequences of Smoking

The act of smoking is associated with a plethora of adverse health outcomes, hence serving as a significant contributor to both avoidable illnesses and untimely mortality. The act of smoking is widely recognised as a prominent factor contributing to the development of numerous forms of cancer, such as those affecting the lungs, oral cavity, pharynx, oesophagus, pancreas, urinary bladder, kidneys, and cervix. The chemical constituents present in tobacco smoke have the potential to induce DNA damage, hence contributing to the initiation and progression of cancer (American Cancer Society, 2022). The act of smoking is well recognised as the predominant factor contributing to the development of chronic obstructive pulmonary disease (COPD), encompassing chronic bronchitis and emphysema. Moreover, it substantially elevates the likelihood of acquiring pulmonary infections (American Lung Association, 2022). Also, The act of smoking constitutes a significant risk factor for the development of heart disease, stroke, and blood vessel disease. It can lead to the narrowing and hardening of arteries, increasing the risk of heart attacks and strokes. Moreover, Smoking also causes respiratory problems (National heart lungs and blood institute, 2022) and reduced fertility, premature aging, oral health problems and many more.

3.6 Service design Approach

Service design is a method that places the user at the center, aiming to create services that are relevant and desirable for both users and suppliers. This entails understanding the needs of both users and providers, designing service procedures and interactions, and assessing the resulting outcomes (Stickdorn et al., 2020). Service design is a paradigm that prioritises problem-solving and innovation, with a particular focus on a user-centered approach to the creation and enhancement of services. The approach is informed by concepts and approaches that prioritise the comprehension of users' requirements, preferences, and experiences. This enables the creation of services that are not only utilitarian, but also imbued with significance and enjoyment. Empathy is regarded as a fundamental element in service design, encompassing the acquisition of profound insights into users' viewpoints through various methodologies such as interviews, observations, and trip mapping. Furthermore, the concept of service design emphasises the need of fostering cooperation and co-creation between

service providers and consumers throughout the design process. This approach aims to ensure that the resulting solutions effectively address the practical requirements of the actual world (Stickdorn & Schneider, 2010). The concept of prototyping and iteration is an integral part of service design, as it involves the testing and refinement of ideas and concepts through quick experimentation. This approach enables continual improvement in the design process (Kimbell, 2011). The iterative technique described here is consistent with the widely adopted agile methodology employed in the development of products and services. Through the use of these principles and approaches, service design facilitates the identification of areas of dissatisfaction within organisational services, the exploration of potential avenues for innovation, and ultimately the provision of enhanced user experiences (Meroni, 2007). It is possible to make anti-smoking programs much more effective by using a service design method to get young people in Cumilla City to smoke less. Using service design to reduce youth tobacco use in Cumilla City will help address this public health concern. The city will take initiatives to young people's needs and preferences by taking a holistic and user-centric approach. The service design approach will raise awareness of tobacco's harmful effects, reduced accessibility, and provided essential resources for youth to quit smoking through engaging and informative campaigns, user-friendly cessation support services, and educational programs in schools and communities. This method will decrease young tobacco use and promoted a healthier, more knowledgeable generation, improving the community's well-being over time. This research will be integrated with a need statement (a clear articulation of the problem), which will be further developed and informed by a creative exploration following the double diamond framework. This will result in the development and implementation of solutions and interventions.

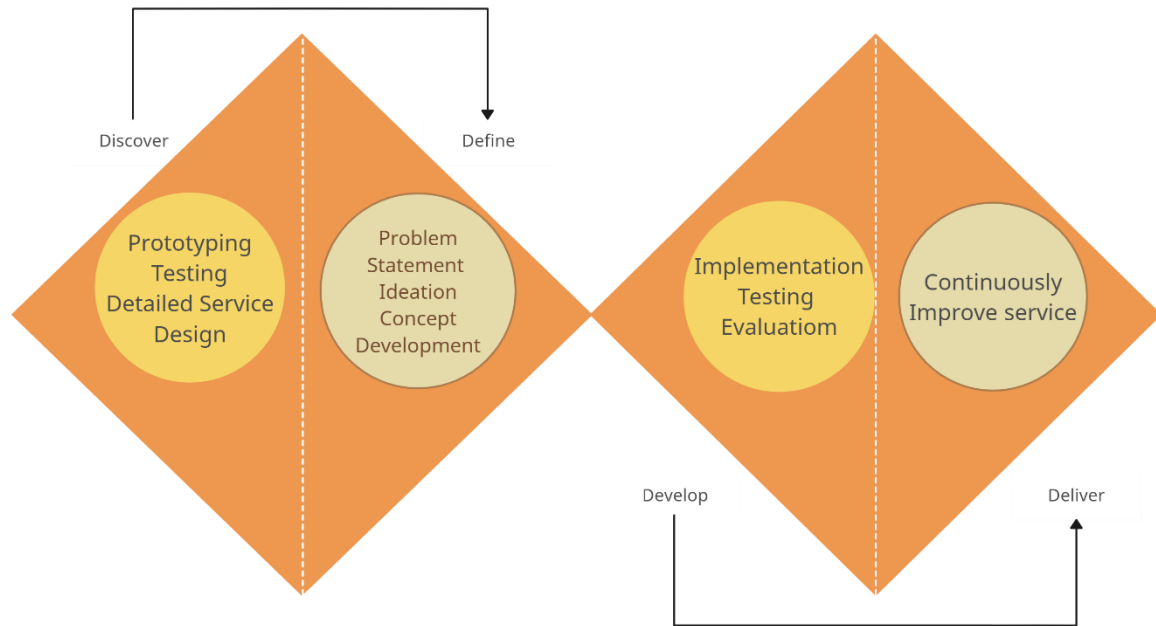


Figure 4: Double Diamond process and method

The service design process will be focused on the utilization of the Double Diamond technique, with the primary objective of addressing the research inquiries. The process consists of four primary stages, namely discovery, definition, development, and delivery.

3.7 Service Design and Public health challenges

Service design provides a significant framework for tackling public health concerns through its focus on user-centered, iterative, and collaborative techniques. Within the realm of public health, service design places emphasis on comprehending the needs, behaviours, and experiences of individuals and communities. This information is utilised to create interventions and healthcare services that are customised to meet their distinct requirements (Sangiorgi & Prendiville, 2017). The adoption of a user-centered approach in public health programmes guarantees enhanced effectiveness and responsiveness to the specific needs and preferences of the target population.

Furthermore, service design encompasses a cyclical methodology that facilitates ongoing enhancement and adjustment in response to practical input and changing conditions. The iterative character of interventions in public health is of utmost importance, since it often necessitates modifications and enhancements in order to attain the most favourable outcomes (Merz, 2017).

Collaboration constitutes an additional fundamental element within the realm of service design in the field of public health. The initiative promotes the facilitation of interdisciplinary

cooperation among healthcare practitioners, designers, policymakers, and, notably, the communities directly impacted by the issue. The utilisation of a collaborative approach enables the joint development of solutions that take into account a diverse array of viewpoints, leading to the implementation of public health programmes that are both more comprehensive and efficacious (Nesta, 2018).

Through the utilization of service design principles, public health practitioners have the capacity to generate interventions and healthcare services that are not solely grounded in empirical data, but also possess the ability to address the distinctive requirements of communities, exhibit adaptability in the face of evolving conditions, and are formulated in close partnership with relevant stakeholders.

The prioritization of user-centered design in public health interventions is crucial, as it places utmost significance on incorporating the requirements, preferences, and experiences of the target population in the forefront of programme development. The authors Oliveira et al. (2020) highlight the significance of this strategy in not only improving the efficacy of interventions, but also promoting a feeling of ownership and active participation among the targeted recipients. Through active community engagement in the design process, public health efforts can effectively address the unique concerns and behaviors of the population, resulting in more customized and influential solutions. The values of empathy and inclusion are integral to user-centered design, since they ensure that public health interventions are effective in reaching and benefiting the varied populations they are intended to serve (Oliveira et al., 2020).

4 Methodology

This chapter encompasses a comprehensive account of the methodology employed in conducting the research. The study encompassed a range of methodologies and approaches for gathering data. Additionally, the study provided a concise overview of the research design, the characteristics and origin of the data, the target population, the methods employed for data collection and tool validation, the processes followed for data collection, the sampling techniques employed, and the approaches used for data analysis and interpretation.

4.1 Design and Method of the study

The present study employed a research strategy that combined descriptive, qualitative and quantitative methodologies.

The descriptive study design is a research methodology that aims to offer a comprehensive and precise depiction of a phenomenon or a particular subject. The primary objective of this research methodology is to address inquiries pertaining to the "what," "who," "where," and "how" aspects. It is frequently employed to ascertain the fundamental attributes of a population or the attributes associated with a certain variable. This approach is especially advantageous when researchers aim to enhance their comprehension of a given circumstance, discern trends, or depict the predominance of a specific behavior or condition. Descriptive research does not seek to prove causal linkages; instead, it provides a static representation of a specific scenario. Descriptive research commonly use several methodologies such as surveys, observations, content analysis, and case studies. The research design employed in this study is quantitative in nature.

Quantitative research design is a methodical and organized approach to study that centers on the collection and analysis of numerical data. The utilization of quantitative methods is frequently employed in order to quantify the associations between variables, conduct hypothesis testing, and extrapolate research findings to broader populations. Quantitative research is distinguished by its dependence on statistical analysis and the utilization of objective, quantifiable data. Academic researchers employ specialized data collecting equipment, such as surveys, experiments, or content analysis, to systematically acquire data that can be subjected to statistical analysis, enabling the derivation of findings and the formulation of predictions. Quantitative research exhibits a high degree of replicability, thereby establishing a foundation for formulating evidence-based judgments and recommendations. The utilization of quantitative data analysis holds significant importance in disciplines such as economics, psychology, and the natural sciences, as it enables the careful examination of numerical data to derive relevant insights.

Bell, Bryman, and Harley (2019) define qualitative research as verbal data gathering and interpretation that emphasises social dynamics. Thus, this study method vividly depicts events and patterns changing throughout time, demonstrating fluidity and transformation.

In essence, the primary objective of descriptive research design is to furnish an intricate portrayal of a particular phenomenon, whereas quantitative research design endeavors to quantify and scrutinize numerical data in order to create correlations and draw general conclusions. Also, qualitative research is all about verbal data gathering. These research methodologies include distinct advantages and disadvantages, and their selection is contingent upon the research aims and the inherent characteristics of the research inquiries being examined.

4.2 Population & Sample

The research is conducted among Youth students residing in Cumilla City. The study's population consisted of students enrolled in grades 5, 8, 9, and 10 and 12 at three secondary schools and one higher secondary school located in Cumilla City. The secondary schools are, Ibne Tamiya School, Cumilla Shikkha Board Model School and Ispahani Public school, Cumilla Board High Schhol The higher secondary school selected for the research was Central college of cumilla. The schools were selected by purposive sampling method. A total of 330 students were enrolled across three secondary schools and higher secondary school. The primary data were obtained from a sample of 6 participants by the administration of a questionnaire. A simple random selection procedure was employed to choose 5 youth students from each school, resulting in a total sample size of 30/30.

4.3 Study area

The study focused on the selection of Cumilla City in Cumilla District. The study focuses on the demographic of youth students Ibne Tamiya School, Cumilla Shikkha Board Model School and Ispahani Public school, Cumilla Board High School and Cumilla Central College.

4.4 Data Collection tools and techniques

The data was collected using a combination of a questionnaire and an interview schedule. In order to achieve the aims of the study, the researchers utilized various research tools. The trial was conducted with a sample size of 6 pupils from schools and college selected from Cumilla City. In addition to this, the questionnaire was presented to the supervisor and other

specialists. Following feedback from the trail-test supervisor and other specialists, the tools underwent a process of revision, restructuring, and finalization.

4.5 Data Collection Procedure

The interviews were taken online. The researcher also studied the relevant documents and data about the tobacco users among youth students in secondary level school and higher secondary level school. The questionnaire was sent online administrated selected students. Copies of questionnaire were distributed to all the selected respondents from each school. A careful approach to administer the tools, the researcher was involved herself in the data collection process with assistance of school teachers from the respective school. 30 of total of 330 students were enumerated for the purpose of this study.

4.6 Methodology for Analyzing and Interpreting Data

The raw data from the student-filled surveys was thoroughly reviewed during the data processing phase. After preliminary data cleaning, the relevant statistics were compiled into a master chart. Tables and figures were used in the analysis and interpretation of the data. Finally, a conclusion was reached and necessary suggestions were made.

4.7 Survey Summary of the Youth of Cumilla City

4.7.1 Demographic Information

"In Cumilla City, the population of youth represents a diversified and vital component of the community. This population mostly comprises of individuals aged between 15 and 24, attending various educational institutions, including schools and colleges. Cumilla City, located in the southern area of Bangladesh, presents a rich cultural tapestry with a mix of urban and suburban populations. Within this group, gender balance plays a crucial role, with an almost equal distribution of male and female youngsters. Moreover, the city's population encompasses individuals from varied socioeconomic backgrounds, underlining the need for specialized public health interventions to address the numerous difficulties connected to tobacco usage among the youth in this vibrant and culturally diverse city" (Cumilla District administration, n.d)

Age and sex of respondents: We have actually collected information from 3 schools and 1 college of Cumilla City. The age group we had selected was from 13-24 as this age group

represents the youth. Survey questionnaire has been sent to almost 30 students. The age group of these students are,

Table 1: Age and sex of the Students

Age	Male	Female	Percentage	Total
15-17	12	3	50%	15
18-21	8	1	30%	9
21-24	5	1	20%	6
Total	25	5	100%	30

Education Status: Education makes the different in the way of thinking of a different in the way of thinking of a person. Furthermore, it also facilitates the use of more efficient approaches. It empowers the people to be healthy and to live healthy life. Education plays vital responsibilities on awareness of the disease to avoid them in time.

Table 2: Education Status of the youths

Class	Male	Female	Percent	Total
5-8	8	1	30%	9
9	12	3	50%	15
10	5	1	20%	6
Total	25	5	100	30

According to Table 2, the data indicates that the largest proportion of students, specifically 50% percent, were enrolled in class 9. Additionally, 30% percent of students were studying

in class 5 to 8, while 20% percent were attending class 10. This finding reveals a predominance of male students.

Main Source of Income: In contrast to the manner in which funds were acquired. Ensuring the happiness of our family and achieving success in life were seen highly significant. while there are many sources of money is separate into two sorts for family Medicaid reasons; earned and unearned major income sources plays vital roles on awareness against the disease to prevent them in time. Main income source of family sampled 35 students have been

The data is shown in the table below,

Table 3: Main source of income of the family.

Main source of Income	Number of Students	Percentage	Total
Agriculture	6	20%	6
Business	12	40%	12
Service	3	10%	3
Others	9	30%	9
Total	30	100%	30

Figure no.1 shows that among 165 pupils 32.7 percent income source of family were business and minimum were 12.7 service. Similarly 26.7 percent were agricultural and 27.9 were other source of income of the respondent's household. It is seen that most of respondents parents were involved in business. They generate good income.

Types of Family: Family denotes a group of individuals live together with each other. There are two forms of family such as joint and nuclear. It plays crucial part to up grade the living

quality of people as well as helpful for healthy living. Thus, this investigation is done to figure out the types family members.

Table 4: Types of Family

Types of Family	Number	Percent
Joint	17	56.66%
Nuclear	13	43.33%
Total	30	100%

According to the table no.3 reveals that 56.66 percent students claimed that they were joint family member and 43.33 percent respondents were nuclear family members. According to table it noticed that most of the respondents have joint family.

4.7.2 Forms of Tobacco Use

Tobacco is a plant farmed for its leaves which are smoked, chewed and smelled for a number of uses. Knowledge is the primary level of knowing the thing, objects, event and everything happening in the universe. It is storage of information; knowledge about tobacco is highly vital for human being. Such knowledge can be gained by book, theatre, usage of tobacco are worried about various disease breathing. It grows slowly forms of tobacco usage of sample pupils were studied on following techniques.

Use of Tobacco: Tobacco usage is the leading cause of preventable illness. It causes many different malignancies including cancers of the throat, mouth, nasal cavity etc. usage of tobacco was the routine for enjoyment most of the population, it grows swiftly and in some it grows slowly. Table no.4 reveals that 70% percent students used tobacco and 30% students were not using tobacco in any way. By studying the table, it is observed that most of the respondents use tobacco.

Table 5: Use of Tobacco in any form

Use of Tobacco	Number	Percent
Yes	21	70%
No	9	30%
Total	30	100%

Forms of Tobacco Use: The prevalence of tobacco use among young individuals is a widespread global issue. Similar to the impact on adults, it presents a significant health risk to young individuals. The vast majority of children and teenagers engage in tobacco usage. The findings are displayed in the table.

Table 6: Forms of Tobacco use among youth of Cumilla

Types of Tobacco	Male Students	Female Students	Total	Percent
Cigarettes	16	0	16	53.33
Bidi	4	0	4	13.33
Pan Masal and Guthka (A form of Tobacco)	3	2	5	16.67
Vape	2	3	5	16.67
Total	25	5	30	100%

According to Table, it can be observed that 53.33 percent of the respondents consume Cigarettes Pan Masala and gutkha has been used by 16.67 percent of youth, while 13.33 percent of the respondents consume Biri. In a similar vein, it was found that 16.67 percent of the respondents currently engage in vape use.

4.7.3 Motivation of Using tobacco

To find out the pain points of using tobacco in this early age, we have asked the youth about what motivates you to use tobacco product. The findings was really interesting. Most of them have answered that peer pressure is the sole reason they are into tobacco now. The results of this questions is given below in a table,

Table 7: Motivation of Using Tobacco

Motivation	Male Students	Female Students	Percentage	Total
Peer Pressure	12	2	46.66%	14
Stress Relief	3	0	10%	3
Curiosity	2	2	13.33%	4
Socializing	4	1	16.66%	5
Advertisement	2	0	6.66%	2
Family Influence	3	0	10%	3
Total	25	5	100%	30

According to the table, it can be easily understand that peer pressure is the reason why they use tobacco, almost 46.66% respondents have said that they get influence by their school friends. 10% Youths of Cumilla uses tobacco uses tobacco for relieving and stress and from family influence.

4.7.4 Sources of Information regarding the risk of tobacco use

We also asked the students regarding the sources of information regarding the risks associated with the tobacco use. The answers of the sample students has been shown in the table below,

Table 8: Distribution of Sources of Information regarding the risks of Tobacco use

Sources of Information	Percentage
School/college programs	20%
Government Campaigns	10%
Healthcare Professionals	50%
Social Media	10%
Family and Friends	10%
Others	0%

According to the data of the table, it is clearly evident that Healthcare professionals of cumilla city trying hard to curb the use. Almost 50% of the respondents had been informed by the risks by the healthcare professionals. Almost 20% students informed by the school and colleges and other 30% from government campaigns, social media and family and friends respectively.

4.7.5 Health risk associated with tobacco use

The utilisation of tobacco presents a myriad of significant health hazards that extend far beyond the instant gratification it may afford. One of the most prominent health hazards is the emergence of potentially fatal ailments, encompassing many forms of cancer such as lung, oral, and pharyngeal cancer. The utilisation of tobacco products, both in the form of smoking and smokeless consumption, significantly contributes to the development and exacerbation of cardiovascular diseases, strokes, and respiratory ailments such as chronic obstructive pulmonary disease (COPD). Nicotine addiction, a prevalent outcome of tobacco consumption, results in persistent physiological and psychological reliance, hence posing challenges for persons attempting to cease their usage. Furthermore, the exposure to secondhand smoke has the potential to cause detrimental effects on individuals who do not actively engage in smoking, with a particular emphasis on vulnerable populations such as youngsters and pregnant women. This heightened exposure significantly amplifies their susceptibility to various health complications. In summary, the health hazards linked to tobacco consumption underscore the imperative requirement for comprehensive tobacco control strategies and assistance for individuals seeking to cease tobacco use, with the ultimate goal of enhancing public health outcomes.

The utilisation of tobacco presents a myriad of significant health hazards that surpass the instant gratification it may offer. One of the most prominent health hazards is the emergence of potentially fatal illnesses, encompassing several forms of cancer such as lung, oral, and pharyngeal cancer. The utilisation of smoking and smokeless tobacco products significantly contributes to the development of heart diseases, strokes, and respiratory problems, such as chronic obstructive pulmonary disease (COPD). Nicotine addiction, a prevalent outcome of tobacco consumption, results in persistent physiological and psychological reliance, hence posing challenges for persons attempting to cease their usage. Furthermore, the exposure to secondhand smoke has the potential to cause detrimental effects on individuals who do not actively engage in smoking, with a particular emphasis on vulnerable populations such as youngsters and pregnant women. This heightened exposure significantly amplifies their susceptibility to various health complications. In aggregate, the health hazards linked to tobacco consumption underscore the imperative requirement for all-encompassing tobacco control strategies and assistance for those seeking cessation, with the aim of enhancing public health outcomes. By knowing the health hazards associated with tobacco use. The youth of

cumilla are indulging themselves in tobacco use. We have asked them a question about the health risks and the result are quiet fascinating. The results has been shown in a table below,

Table 9: Distribution of health risks associated with tobacco use

Yes	20%
No	80%
Total	100%

According to the table, 80% students of Cumilla City don't know about the health risks associated with tobacco use. Only 20% are aware of the risks which is quiet unusual.

4.7.6 Availability of Support to quit tobacco

The provision of assistance for tobacco cessation plays a crucial role in enabling individuals to conquer their addiction and improve their overall well-being. This form of assistance not only provides essential direction and resources, but also functions as a catalyst for inspiration and encouragement. The act of quitting smoking is associated with a substantial increase in the probability of achieving effective cessation, resulting in enhanced overall well-being, less healthcare expenditures, and a beneficial influence on the well-being of the general population. Support services play a crucial role in promoting a society free from tobacco use, improving the well-being of individuals, and ultimately preventing loss of life by equipping individuals with the necessary tools and assistance to overcome nicotine addiction. As the availability of support to quit smoke for those who wants to quit smoke, we asked a yes/no question to the students. The result of the question has been given below,

Table 10: Support availability for quitting tobacco

Yes	60%
No	40%

Total	100%
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According to the table, 60% of the students know that there are some sort of support available to quit tobacco in cumilla city. On the other hand, 40% of the students did not know of any sort of support availability regarding quitting tobacco.

4.7 Pain Points of the Youth of Cumilla City

We tried to find out the pain points of using tobacco of the youth of Cumilla. For this reason, we have asked several questions through the questionnaire. By analyzing the answers given by the youth of cumilla city, we have find out several pain points of using Tobacco products this early in their life. One of the primary factors contributing to the challenge of behavior change is the extensive cultural prevalence of tobacco, which is frequently regarded as a symbolic transition into adulthood. This cultural phenomenon poses a significant obstacle to altering tobacco-related behaviors. The issue is further compounded by the accessibility and cost of tobacco products, which are frequently easily obtainable, even by underage individuals. Furthermore, a notable deficiency exists in the realm of efficacious communication tactics that effectively connect with the younger demographic, which is crucial for the purpose of modifying their attitudes and behaviors pertaining to tobacco consumption. The lack of comprehensive support systems, including as counselling and cessation programs specifically designed for the unique requirements of young individuals, is a barrier to achieving long-term tobacco cessation. Moreover, the impact of peer influence and the pervasive presence of tobacco advertising, seamlessly integrated into the digital and social media platforms commonly accessed by young individuals, consistently pose obstacles to the effectiveness of public health campaigns. In addition, the service design approach must effectively manage the intricacies associated with collaborating with several stakeholders, such as local authorities, schools, healthcare providers, and parents. Each of these stakeholders possesses unique priorities and resources, necessitating the implementation of a comprehensive and efficient programme. The difficulty is further exacerbated by the constrained allocation of financial resources and restricted availability of necessary means for implementing preventive health interventions. These efforts are sometimes overshadowed

by more pressing public health emergencies. In order to effectively address these challenges, it is imperative to adopt a comprehensive approach that encompasses both educational and engaging initiatives targeting the youth, as well as implementing structural modifications aimed at diminishing the accessibility and appeal of tobacco use.

4.8 Interview Summary post service design intervention

To collect the baseline tobacco consumption rate of youths of Cumilla City, I have taken interviews post service design intervention. Some interviews of the students have been given below.

Question: What was your tobacco use like before the Cumilla City service design intervention?

Answer: I occasionally smoked with friends before the intervention. It was popular among Cumilla youth. Its health dangers weren't well known.

Question: Has the service design intervention changed tobacco product availability and accessibility in Cumilla City? Please describe them.

Answer: No, tobacco are still available everywhere. It is the responsibility of Government to stop the selling so openly. It is the responsibility of youth to learn the health hazards of tobacco use and quit it.

Question: Were you aware of the new tobacco control measures or services added during the service design intervention? If so, give your thoughts.

Answer: I heard about school based programs and the smoking cessation helpline. I like these activities because they raise risk awareness. But I am unsure how long people will stick to it.

Question: Have you or anyone you know used the service design intervention's support services or resources to stop or reduce tobacco use? Share their or your experiences.

Answer: My friend quit smoking with the helpline. It helped him manage cravings, he added. He quit smoking 1 month ago.

Question: How did the service design intervention affect Cumilla City teenage tobacco use attitudes and behaviours?

Answer: It has somewhat helped. More teens are reconsidering smoking.

Question: Has the intervention changed tobacco-related social norms and peer pressure among your peers? Please clarify.

Answer: Peer pressure has decreased a little bit. But still peer pressure is a thing to watch out for. Some you are respecting non smoking choice.

Question: How effective have the service design intervention's communication and awareness initiatives been in educating youngsters about tobacco risks?

Answer: I think they've done well. People are now somewhat aware of the health hazards of the tobacco use

Question: Is there any difficulty accessing intervention support services or resources? Please describe them.

Answer: Some people may be embarrassed to seek help, although the services are available and well-publicized.

Question: Do you have any recommendations or improvements for Cumilla City's juvenile tobacco reduction efforts?

Answer: There should be more educational programs in schools and universities. I also think tobacco-free zones should be enforced.

Question: How can the community and local organizations maintain the service design intervention's benefits?

Answer: The community may promote smoke-free spaces and tobacco-free businesses. Local organizations can continue to educate and provide quitting resources.

Question: Has the intervention changed your or your peers' views on tobacco use?

Answer: Maybe, it was beneficial for me. But still a lot of youth are taking tobacco daily. But I see it as more damaging now. Many of my friends considering quitting.

5 Results and Findings

5.1 Baseline Tobacco Consumption rate (Pre- Intervention)

The assessment of the baseline tobacco consumption rate among youngsters was conducted prior to the introduction of the service design method in Cumilla City. Based on the data at hand, it can be inferred that the estimated baseline rate stood at about 70%. This figure suggests that a significant proportion, specifically 70%, of the youthful population residing in the urban area disclosed engaging in tobacco consumption, encompassing both smoking and smokeless forms.

5.2 Service design Interventions to reduce smoking in Cumilla City

5.2.1. A youth oriented Awareness Campaign

A youth-oriented awareness campaign has been developed with the objective of diminishing tobacco usage among the energetic youth population residing in Cumilla City. With the overarching theme of "Tobacco-Free Youth, Healthy Future," our campaign specifically focuses on persons within the age range of 15 to 24, acknowledging the significance of this generation in driving constructive transformations within society. The campaign aims to achieve three primary objectives: firstly, to enhance public knowledge on the potential health hazards associated with tobacco usage; secondly, to foster a shift in societal attitudes towards tobacco consumption; and finally, to inspire and enable young individuals to either resist or cease tobacco usage. The primary focus of our key messaging revolves around promoting individual empowerment. We employ words such as "Opt for a tobacco-free life: Prioritise your health and future" to underscore this notion. Additionally, we actively urge young individuals to assert themselves, voice their opinions, and choose a tobacco-free lifestyle by advocating the mantra "Take a stand, express yourself, and embrace a tobacco-free existence!" In order to effectively engage with our target demographic, we have implemented a comprehensive strategy that encompasses all facets. The utilisation of digital media is being employed through the establishment of a campaign website and the maintenance of an active

presence on several social media platforms. The establishment of partnerships with nearby educational institutions facilitates the seamless integration of anti-tobacco education into the existing curriculum, so allowing for the organisation of engaging and participatory workshops. In addition, we are recruiting young ambassadors to disseminate their personal experiences and accomplishments. Furthermore, a specialised mobile application is provided to furnish assistance and encouragement to individuals undertaking the process of tobacco cessation. Our holistic strategy includes community involvement events, peer-to-peer support groups, and impactful graphic marketing materials. The implementation of continuous evaluation and feedback will play a crucial role in analysing the effectiveness of the campaign and maintaining its alignment with the constantly changing requirements of the young in Cumilla City. Collectively, we possess the ability to establish a trajectory towards a future devoid of tobacco usage, thereby promoting improved well-being among the younger generation.

5.2.2. School Based Programs

A school-based programme has been developed with the objective of mitigating tobacco usage among kids residing in Cumilla City. The programme, titled "Youth for a Tobacco-Free Tomorrow," centres around the incorporation of anti-tobacco teaching within the school curriculum and the establishment of an atmosphere that enables students to make well-informed and health-conscious decisions. The programme encompasses several essential elements, namely interactive workshops, seminars, and engaging activities, which serve to educate students about the perils associated with tobacco consumption. By engaging in these activities, children acquire a more profound comprehension of the health hazards linked to tobacco usage and develop crucial life skills to effectively counteract peer pressure. Furthermore, we promote innovative endeavours such as poster competitions and activities that actively engage students in disseminating anti-tobacco messages within their educational institutions. By cultivating a robust anti-tobacco ideology within educational establishments, we are nurturing a generation devoid of tobacco usage and promoting a more salubrious prospect for the young populace of Cumilla City.

5.2.3 Behavioral Nudging and incentive program

A new programme, named "Breathe Easy," has been developed to effectively decrease tobacco smoking among youths residing in Cumilla City. This programme utilizes behavioral nudging techniques and incentives. This programme utilizes the efficacy of positive reinforcement and behavior modification techniques to motivate those who use tobacco to

cease their habit. Participants provided with awards and incentives as a means of motivation and encouragement to achieve predetermined milestones in their pursuit of getting free from tobacco use. The programme encompassed individualized cessation strategies, comprehensive monitoring of success, and a mobile application that provides daily encouragement and assistance. Participants have the opportunity to get various rewards, such as gift cards, access to wellness programmes, and recognition for their accomplishments. Through leveraging the principles of reward psychology and employing subtle prompts to guide individuals towards healthier alternatives, our objective is to provide an enduring and stimulating trajectory towards a tobacco-free existence for the inhabitants of Cumilla City. Collectively, we have the capacity to commemorate the cultivation of healthier lives and the enhancement of overall well-being.

5.2.4 Crisis Support Service and Feedback Mechanism

A specialized Crisis Support Service, named "TobaccoQuit Careline," has been created with the aim of providing assistance to the young population of Cumilla City in their efforts to cease smoking and effectively manage the obstacles they may encounter throughout this process. The "TobaccoQuit Careline" provides prompt and empathetic support during pivotal instances. The availability of our 24/7 helpline ensures that individuals can seek assistance promptly in instances of relapse, moments of temptation, or when counsel is required. Furthermore, we acknowledge the significance of feedback and continuous enhancement. The Feedback Mechanism implemented by our organization provides an avenue for young individuals to express their opinions, suggestions, and experiences pertaining to the programme. This initiative aims to ensure that our services effectively adapt to the changing requirements of the younger demographic. Our objective is to establish a comprehensive and dynamic system in Cumilla City that empowers the youth to overcome problems and effectively quit smoking, thereby promoting a healthy and smoke-free future. This will be achieved through the provision of crisis support and a direct channel of communication for feedback.

5.3 Customer Journey Maps of Service Design Interventions

Customer journey maps are highly helpful instruments employed by businesses to get a more profound comprehension of their customers' experiences throughout their engagements with a particular product or service. Visual representations, commonly generated by integrating qualitative and quantitative data, serve to foster organisational empathy towards consumers and facilitate the identification of pain areas, possibilities, and critical moments in the customer journey. Through the examination of the customer journey, organisations have the ability to identify specific areas that require enhancement, develop marketing strategies that are more impactful, and ultimately augment overall levels of customer happiness and loyalty. Customer journey maps have emerged as a crucial component of customer-centric strategies, facilitating the alignment of business offerings with customer needs and expectations, thereby fostering success in the contemporary competitive market environment, as highlighted in the works of Rosenbaum and Otolara (2016) and Patrício et al. (2018). Customer Journey maps of the youths of cumilla at the time of Service design interventions are given below,

Customer Journey Map of Service Design Interventions

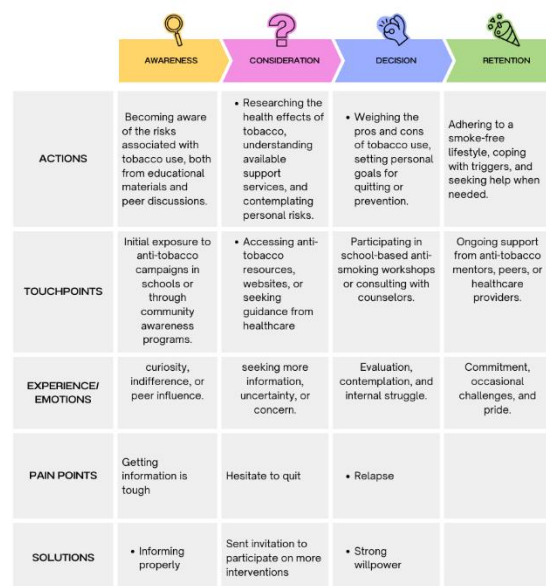


Figure 5: Customer Journey map at the time of Service design interventions

5.4 Service Blueprint of Service design interventions

The service design blueprint is a strategic instrument employed within the domains of service design and public health to visually represent and strategize intricate service ecosystems. The concept under consideration offers a comprehensive portrayal of a service, incorporating both the frontstage, which pertains to the consumer experience, and the backstage, which pertains to the underlying processes and resources. Service blueprints are a valuable tool for comprehending the different touchpoints, user behaviours, service procedures, and interactions involved in a service. They provide a thorough study of the delivery and experience of services. This tool enables the discovery of potential for improvement, ensuring that services are created with a user-centered perspective, ultimately resulting in increased user satisfaction and improved outcomes. Service design blueprints are of significant importance in initiatives such as public health programmes, as they provide a systematic approach to addressing health-related concerns, such as the prevalence of tobacco use among young individuals. (Stickdorn & Schneider, 2011) The title of the book is "This Is Service Design Thinking: Basics – Tools – Cases." According to Wiley. The service blueprint of service design intervention has been given below,

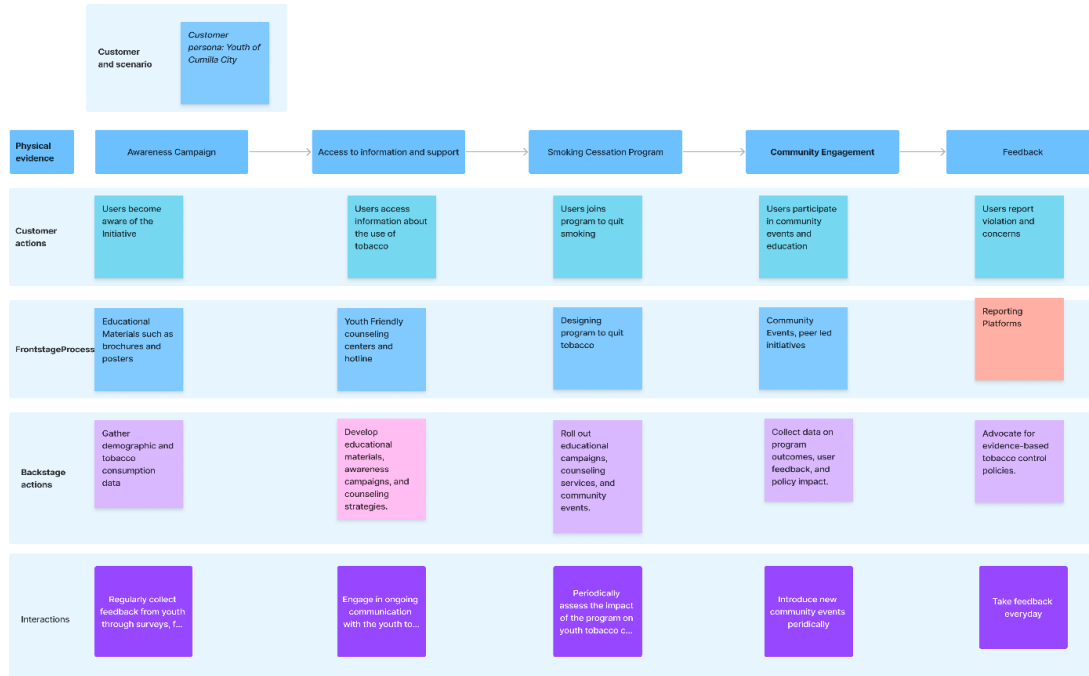


Figure 6: Service Blueprint

5.5 Value Proposition Canvas

The Value Proposition Canvas is a strategic tool devised by Alex Osterwalder with the aim of aligning a product or service with the specific needs and preferences of the client. The concept can be divided into two distinct components: the customer profile, encompassing customer occupations, pains, and benefits, and the value proposition, encompassing products and services, pain relievers, and gain generators. Based on the information provided, an analysis of the Value Proposition Canvas will be presented in relation to Service design intervention to reduce tobacco consumption in cumilla city,

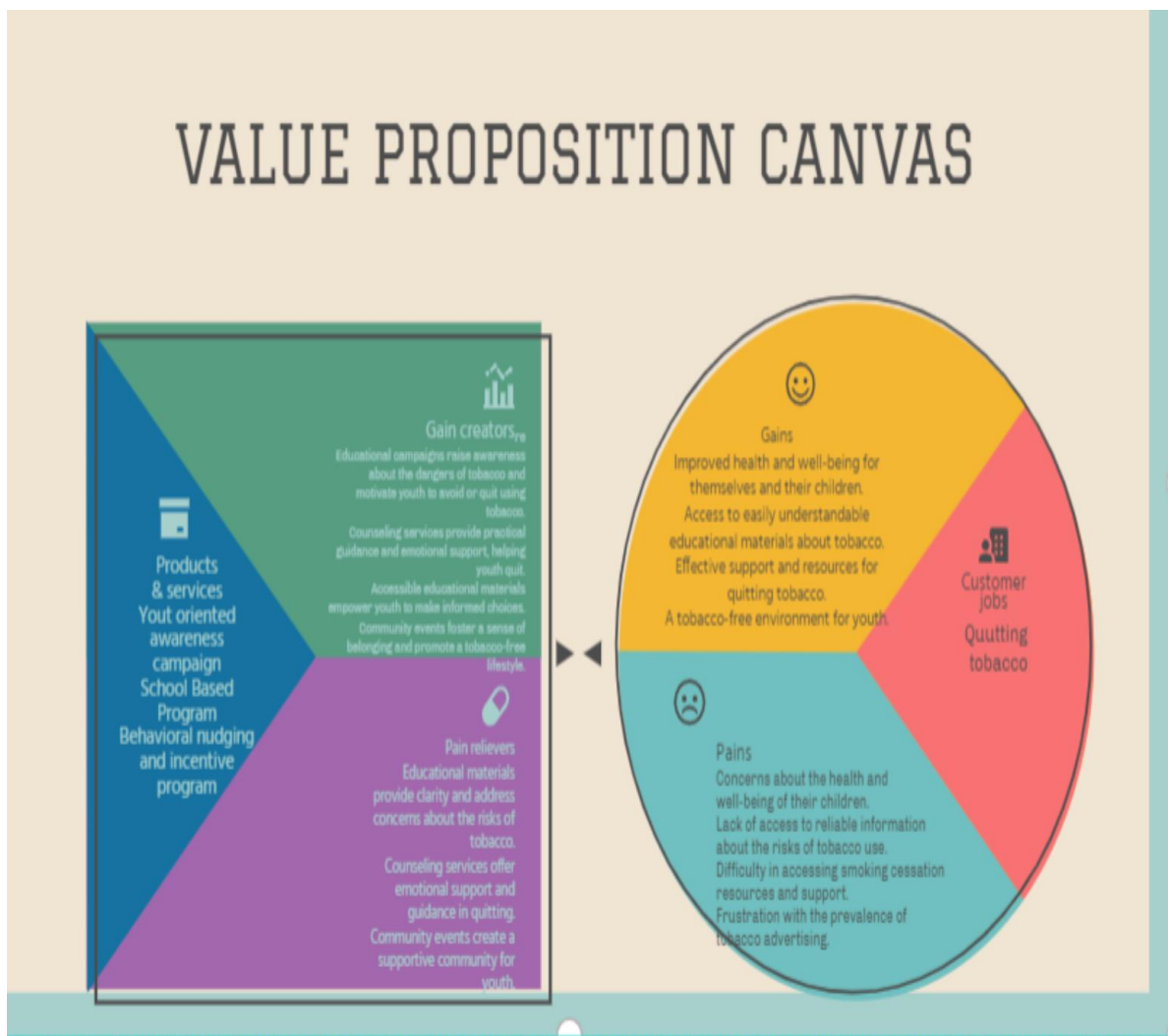


Figure 7: Value Proposition Canvas

5.8 User Persona

From survey and interviews, a persona of the target audience has been developed. It has six parts, Biography, introduction, needs, pain points, technology and personality



Figure 8: User Persona

5.9 Baseline Tobacco consumption rate (Post Intervention)

The baseline tobacco consumption rate among youth has been decreased significantly after the service design interventions. Based on the data on hand, baseline tobacco consumption rate among youth in Cumilla city is 41%, which is a 29% reduction from the pre-intervention. The implementation of service design interventions has exerted a substantial impact on the prevalence of tobacco consumption among the youth population in Cumilla City. The introduction of service design interventions resulted in a significant drop in the prevalence of tobacco consumption among young individuals in Cumilla City. The aforementioned decrease serves as an indication of the efficacy of the implemented strategies in mitigating tobacco consumption. The use of service design interventions has been found to enhance the level of knowledge among young individuals regarding the potential health hazards linked to tobacco consumption. The participants exhibited an enhanced comprehension of the hazards associated with smoking, hence leading to a decrease in its prevalence. The findings of the study indicate that the engagement of young individuals in service design interventions resulted in a notable improvement in their attitudes towards smoke cessation. The individuals exhibited heightened drive to cease smoking and displayed a readiness to actively participate in cessation support programmes. Also, the impact of service design interventions has been observed to have a positive effect on the long-term viability of decreased tobacco consumption. The adoption of a user-centered strategy and the active involvement of stakeholders have been found to increase the probability of achieving long-term impact and sustaining a drop in prevalence. The research findings suggest that the introduction of service design interventions in Cumilla City has resulted in a significant decrease in tobacco smoking among the young population. The implemented interventions, encompassing customised programmes, comprehensive awareness campaigns across many channels, and easily accessible cessation support services, yielded favourable outcomes in terms of prevalence rates, levels of awareness, and attitudes towards tobacco usage. The results emphasise the need of employing a service design methodology to tackle intricate health concerns and encourage healthier behaviours among young individuals residing in urban areas.

6 Discussion

The outcomes and discoveries of the service design interventions in Cumilla City have a significant beneficial effect on decreasing tobacco smoking among the young population. The initial estimate of the baseline tobacco use rate, which was 70%, had a substantial decline to 41% after the intervention, indicating an impressive reduction of 29%. The success can be attributed to the comprehensive strategy, which includes a campaign targeting young people, programmes implemented in schools, behavioural interventions, reward schemes, crisis support services, and feedback systems. The programmes successfully raised awareness about the health risks linked to tobacco and also promoted a positive change in societal attitudes, empowering and strengthening the resilience of young people. The all-encompassing approach, which incorporates digital media, educational collaborations, and peer assistance, fostered a complete and well-rounded involvement with the intended audience. The substantial decrease in tobacco consumption, along with the enduring long-term influence and favourable attitudes towards quitting, highlights the effectiveness of utilising a service design technique to tackle intricate health problems and encourage healthy habits among urban adolescents. This study emphasises the significance of employing user-centered tactics and engaging stakeholders actively to achieve durable and favourable results in public health programmes.

6.1 Implications of Service Design Approach

Within the domain of behavior modification and enhanced health results, service design assumes a crucial function in restructuring the healthcare and wellness sector. The scholarly contributions of Kim and Mauborgne in 2017, particularly their publication "Blue Ocean Shift", place significant emphasis on the significance of employing creative strategies in order to establish novel market domains and facilitate substantial revolutionary advancements. Service design is a comprehensive and user-centric approach that provides the tools to actively involve individuals in their own well-being. By customizing healthcare services, therapies, and support systems to accommodate the distinct requirements and preferences of individuals, this approach enables them to take ownership of their health decisions and

embrace enduring behaviors. This phenomenon not only contributes to enhanced health outcomes but also cultivates a sense of personal responsibility for one's own health. The focus of service design on collaboration, continuous improvement, and adaptability is in line with the ever-changing nature of behavior change. This enables the development of solutions that effectively connect with users and facilitate long-term enhancements in health and well-being.

6.2 Sustainability and Future Recommendation

The maintenance of anti-tobacco initiatives is of utmost importance in the continuous endeavour to combat tobacco consumption. The importance of stakeholder engagement as a key driver in this endeavour is emphasised in the guidelines set forth by the World Health Organisation in 2019. In order to sustain the progress of anti-tobacco endeavours, it is imperative to cultivate collaborations among governmental entities, healthcare establishments, non-governmental organisations, and educational establishments. The utilisation of collaborative endeavours facilitates the consolidation of resources, information, and skills, hence yielding more comprehensive and efficacious initiatives aimed at combating tobacco use. In addition, active involvement with the private sector and media outlets has the potential to amplify the scope and effectiveness of anti-tobacco initiatives. Through collaborative efforts, stakeholders have the capacity to assure the long-term viability of these initiatives, a critical aspect in mitigating the pervasiveness of tobacco use and protecting the well-being of communities.

7 Conclusion

Overall, the extensive service design interventions performed in Cumilla City have proven highly effective in lowering tobacco smoking among the juvenile population. The initial rate of 70% reduced significantly to 41% after the intervention, demonstrating a respectable reduction of 29%. The comprehensive strategy, which included a campaign targeting young people, programmes implemented in schools, behavioural interventions, reward schemes, crisis support services, and feedback systems, all played a role in achieving this favourable result. The programmes not only raised awareness about the health risks linked to tobacco, but also fostered a favourable change in societal attitudes and empowered young persons to resist or quit using tobacco. The customer path maps, service blueprints, and value proposition canvas yielded useful data regarding the efficacy of the interventions. Furthermore, the active participation of individuals with a vested interest and the implementation of a strategy that prioritises the needs of users have played a significant role in achieving lasting effects and fostering favourable attitudes about quitting tobacco. These findings highlight the effectiveness of using a service design technique to tackle complicated health issues and encourage healthier behaviours among urban youth. The efficacy of these treatments sets a precedent for forthcoming public health programmes, underscoring the significance of customised, comprehensive strategies in fostering enduring and favourable modifications in behaviour.

7.1 Summary of the key findings

The study undertaken in Cumilla City centred on the implementation of service design interventions aimed at mitigating tobacco smoking among the younger population. The initial prevalence of tobacco consumption (before to the implementation of any interventions) was estimated to be 70%, indicating a noteworthy concern within the community.

The research incorporated various service design interventions. The initiative known as "Tobacco-Free Youth, Healthy Future" was specifically designed to cater to those between the ages of 15 and 24, with a primary focus on promoting the significance of health and empowerment. The primary objective of the campaign was to enhance public consciousness, alter prevailing perspectives, and motivate individuals to either resist or discontinue the

consumption of tobacco. The programme known as "Youth for a Tobacco-Free Tomorrow" successfully incorporated anti-tobacco instruction into the existing school curricula, while also actively involving students in workshops and activities aimed at addressing and countering the influence of peer pressure. The intervention known as "Breathe Easy" employed positive reinforcement and behaviour modification techniques in order to incentivize those who use tobacco to cease their habit. The participants were provided with awards and incentives as a means of acknowledging their progress in their endeavor to cease their habit. The "TobaccoQuit Careline" offered prompt assistance during crucial instances, while the Feedback Mechanism facilitated the expression of thoughts and experiences by young individuals. The tobacco consumption rate following the intervention decreased to 41%, demonstrating a statistically significant reduction of 29%. The implemented interventions successfully enhanced awareness, altered attitudes, and motivated young individuals to cease or resist tobacco consumption. The research emphasized the need for employing service design as a means to tackle intricate health concerns and foster healthier behaviors within the urban youth population. The research results highlight the effectiveness of a user-centered approach to service design that involves stakeholders in achieving long-term reductions in tobacco smoking among young individuals in Cumilla City.

7.2 Contribution and Limitation

This thesis provides a vital contribution by presenting a novel technique to tackle the widespread problem of tobacco smoking among young individuals. The study investigated the utilisation of service design principles to create interventions that are both effective and focused on the distinctive requirements and viewpoints of the adolescent population, with the explicit aim of decreasing tobacco consumption. The thesis argues for the significance of engaging young individuals in the development and implementation of anti-tobacco campaigns. It supports the use of co-creation and co-design approaches to customize solutions according to the preferences and requirements of this specific age group, thus improving the effectiveness of interventions. Moreover, the thesis undertaken a thorough examination of the specific circumstances and unique difficulties encountered by young people in Cumilla City with regard to tobacco consumption. The localized perspective is extremely important for tailoring interventions to meet the specific needs of this community.

The implementation of a service design approach has the potential to increase the efficacy of anti-tobacco programs by focusing on user experience and pinpointing areas of discontent in existing treatments. This method provides a systematic framework for making enhancements. The thesis's findings have significant implications for tobacco control efforts beyond Cumilla City. The potential scalability of these findings indicates that the service design approach can be modified and implemented in different locations and countries to tackle the problem of youth tobacco consumption on a larger scale.

Although the thesis offers valuable contributions, it is important to evaluate many factors. The generalizability of the findings is confined to Cumilla City, which raises doubts regarding their universal applicability due to the unique characteristics and obstacles connected with juvenile tobacco smoking in other cities and regions. Furthermore, the thesis, although it presents a service design methodology, may not sufficiently tackle the actual challenges involved in implementing these principles in real-life situations. The execution of suggested remedies may face difficulties associated with financial constraints, involvement of interested parties, and backing from governing policies. Moreover, the thesis fails to provide a full examination of the lasting consequences of the service design strategy in reducing juvenile tobacco smoking, which is essential for a comprehensive assessment of its overall effectiveness. Ethical considerations, specifically concerning the rights and privacy of teenagers engaged in the co-design process, necessitate meticulous attention to uphold ethical standards throughout the research and development of interventions. The limited emphasis of the case study on Cumilla City may hinder the thesis's capacity to tackle the complete range of issues related to juvenile tobacco usage in various urban and rural settings. This indicates the necessity for a broader research endeavor.

In summary, the present study's thesis focused on the reduction of tobacco consumption among the young residing in Cumilla City. It employs a service design approach, which proves to be crucial in bringing a novel methodology and actively engaging the youth in the process of designing effective solutions. Nevertheless, it is crucial to take into account many constraints associated with the subject matter, including but not limited to its applicability to a wider population, difficulties in executing the proposed approach, enduring consequences, ethical implications, and the possible requirement for a more comprehensive investigation. It is important to consider these limitations when evaluating and applying the findings.

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9 Appendix

Survey Conducted By	Md Syful Islam
Survey conducted	Online
City Where the survey conducted	Cumilla
Time	Between September and October

Demographic Information:

Age: _____

Gender:

Male

Female

Non-binary

Prefer not to say

Are you a resident of Cumilla City?

Yes

No

Tobacco Consumption Habits:

Have you ever used tobacco products (cigarettes, smokeless tobacco, etc.)?

Yes

No

If yes, at what age did you first start using tobacco products? _____

What type of tobacco products do you currently use? (Select all that apply)

Cigarettes

Smokeless tobacco (e.g., chewing tobacco)

E-cigarettes/vaping

Bidi

Other (please specify): _____

On average, how many tobacco products do you consume in a day?

Awareness and Knowledge:

Are you aware of the health risks associated with tobacco consumption?

Yes

No

Have you received any information or education about the dangers of tobacco use in the past?

Yes

No

How would you rate your knowledge of the health risks associated with tobacco use?

Very knowledgeable

Somewhat knowledgeable

Not knowledgeable at all

Service Design Approach:

Have you ever participated in any public health initiatives or programs aimed at reducing tobacco consumption among youth in Cumilla City?

Yes

No

If yes, please describe your experience with the program(s) and the impact it had on your tobacco consumption habits.

Access and Availability:

Do you find it easy to access tobacco products in Cumilla City?

Yes, very easy

Yes, somewhat easy

No, somewhat difficult

No, very difficult

Are there places in Cumilla City where tobacco products are readily available to minors?

Yes

No

I'm not sure

Suggestions for Improvement:

What measures or strategies do you think could be effective in reducing tobacco consumption among youth in Cumilla City?

Are there specific services or support you believe would be beneficial for individuals trying to quit tobacco use?

General Feedback:

Do you have any additional comments, suggestions, or experiences related to tobacco consumption and public health initiatives in Cumilla City?

