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Assessing the Knowledge, Attitudes, and Practices of Sexual and Reproductive Health among Undergraduate Students in Bangladesh

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE UNIVERSITY OF WEST LONDON FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

December 2023

Dedication

Dedicated to my Parent, Teacher, and my Family.

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List of Abbreviation

AFHS	Adolescent Friendly Health Services
AIDS	Acquired Immune Deficiency Syndrome
ARHS	Adolescent Reproductive Health Strategy
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
DGHS	Director General of Health Services
GOB	Government of Bangladesh
HIV	Human Immune deficiency Virus
ICDDR, B	International Centre for Diarrheal Disease Research, Bangladesh
ICPD	International Conference on Population and Development
KAP	Knowledge Attitude and Practice
MoHFW	Ministry of Health and Family Welfare
NIPORT	National Institute of Population Research and Training
NGO	Non-Government Organization
SDG	Sustainable Development Goal
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health Right
STI	Sexually Transmitted Infections
UN	United Nations
UNAIDS	United Nations Program on HIV/AIDS
UNESCO	United Nations Education, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
VAW	Violence Against Women
WB	World Bank
WHO	World Health Organization

Abstract

Lack of knowledge, inappropriate attitudes and poor behavioural practices associated to sexual and reproductive health can lead to negative consequences that can affect individuals, families, and communities. Some common effects include but not limited to unintended pregnancy, sexually transmitted infections, unsafe abortion, poor pregnancy outcome, gender-based violence and negative mental health consequences. The state of limited knowledge, negative attitudes, and corresponding behavioural practices regarding sexual and reproductive health issues has been identified by studies conducted in Bangladesh. These findings are applicable across various segments of society, regardless of age, gender, marital status, educational background, or other relevant social factors. The undergraduate university students in Bangladesh are typically in the age range of late adolescence to mid-twenties. This is the time after puberty when individuals experience extensive physical and cognitive transformations, changes in nature of social engagement and become sexually active. The unique characteristics of the different difficulties and susceptibilities faced when dealing with sexual and reproductive health matters as young adults by the undergraduate university students of Bangladesh have not been thoroughly investigated. The objective of this cross-sectional study is to gather information to improve understanding of the existing level of knowledge, health-seeking behaviour, attitudes and typical practices of university students in respect to sexual and reproductive health. Also, considering the recent increase in on-campus sexual harassment incidents in universities of Bangladesh, this study investigated students' experiences of on-campus sexual harassment and associated administrative readiness to address such issue. Information was collected from the undergraduate university students using structured questionnaire using google form. Exponential non-discriminative snowball sampling was adopted to reach out required number of sampling units. The study indicated that parents and siblings communicate about SRH difficulties poorly. A large majority of pre-university students did not have access to the formal SRH programme. Despite socioeconomic origins, pre-university education backgrounds, and university types, the understanding of STI names, symptoms, and transmission methods remained limited. Young undergraduates often date despite religious and social conventions. A large percentage of respondents reported sexual activity in their relationships. Sexual harassment occurred on campus in both private and public universities. Three-fourths of on-campus sexual harassment victims did not report the occurrence, largely because they distrusted university authority. The study attempted to identify sociodemographic variables that affect the university students' SRH knowledge, attitudes, and practices.

Declaration of Authorship

I declare that this thesis was composed solely by myself and that it has not been submitted, in whole or in part, in any previous academic programme for a degree. I would like to state that except where quoted or otherwise indicated by reference or acknowledgement, the research work presented here is entirely my own.

Submitted on: 31 December 2023

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Organization of the thesis

This thesis comprises of nine chapters.

Chapter one *Introduction* – Explores the significance of age-appropriate sexual and reproductive health knowledge in promoting a safer and more wholesome lifestyle. The chapter also provides a concise overview of the endeavour and obstacles in disseminating knowledge related to sexual and reproductive health in the setting of Bangladesh. The chapter discusses the theoretical viewpoints related to the study of SRH difficulties. It also provides a concise overview of the study's objectives, research questions, and expected contributions.

Chapter Two *Literature Review* **-** Elaborately discusses the steps and consideration associated with the literature review. The discussion attempts to explain the rationale for considering the “scoping review” to conduct literature review and discusses current state of the literature regarding the knowledge attitude and practice of sexual and reproductive health of the university students in Bangladesh.

Chapter Three *Research Methodology* **-** discusses the various aspects of the research methodology associated with the project. Consideration of the positivist paradigm for this instance is being explained briefly. A brief demographic profile of the study population is given to help understand the selection data collection and sampling methodology considered for this project.

Chapter Four - The discussion of this chapter attempted to identify the primary source of SRH related information of the university students in Bangladesh during their commencement of university life. It attempts to explore different aspect related to the coverage of formal SRH education curriculum during pre-university stage. Analysis were carried to explore the level of sexual and reproductive health associated knowledge of the participants and to identify the relative impact of different socio-economic determinants (e.g. diverse types of schooling etc.) on the level of SRH knowledge.

Discussion of ***Chapter Five*** attempted to identify the SRH seeking behaviours of the university students. It discussed the student’s requirement, use of reproductive health care services. Discussion also attempted to identify the availability of SRH related service delivery points in their respective institution.

In ***Chapter Six*** discussion evolved to explore the pattern of relationship, degree of intimacy maintained the students. The major aim of this chapter was to determine the attitudes and behaviours of university students about various aspects of sexual and reproductive health (SRH), such as the types and frequency of intimate relationships among university students. Based on available information, the chapter explores the factors that are well recognised for their influence on attitudes, behaviours, and practices in social construction. The conversation also encompassed the sexual and reproductive health behaviours of university students, the resulting implications, and efforts to investigate their circumstances in Bangladesh, utilising the findings of the present study.

Chapter Seven discusses the prevalence of incident of on campus sexual harassment, its nature and students experience with regards to remedial measures taken by the respective university authority. This study focused on the experiences of students with on-campus sexual harassment, the reporting process, the perpetrators, and the challenges faced by victims in reporting such incidents. Due to sensitivity of the topic and resource constraints, the study did not examine off-campus sexual harassment cases.

In ***Chapter Eight*** the findings of the research outcome are being discussed briefly. The discussion of finding in different chapters of the study attempts to explore SRH associated level of knowledge, attitudes and practices of the university students found in this study. It was also emphasized that the results of the study should be interpreted cautiously, taking into account other socio-economic practice and setting that may have influenced outcome variables but were not included in the model.

Chapter Nine This chapter briefly discusses the contribution of the study, limitations, and future research scope

Chapter 1
Introduction

This thesis reports on the findings of an investigation into the sexual and reproductive health knowledge, attitude and practices of undergraduate students in Bangladesh. This study assesses undergraduate students' SRH knowledge, health seeking behaviour, and health care service access challenges, as well as the nature and extent of university students' intimate relationships and the prevalence of on-campus sexual harassment. This chapter introduces the topic by providing background on the field and summarizing the rationale for the current investigation. The chapter ends with a statement of the research objectives and an outline of the thesis structure.

1.1 **Background to the study:**

Sexual and reproductive health (SRH) is a way of thinking about overall health and well-being that focuses on two main aspects: sexual health and reproductive health. Sexual health refers to an individual's physical, mental, and social well-being as it relates to sexuality. Having satisfying and safe sexual experiences, feeling comfortable with your own body, being free from sexually transmitted infections (STIs), and being able to express your respective sexuality freely and safely are considered components of sexual health (WHO, 2018a). While reproductive health is defined as the ability to reproduce and have healthy children, It also includes the freedom to decide if, when, and how many children you want to have. This involves access to family planning services, safe pregnancy and childbirth, and healthy sexual development (WHO, 2002). Thus, SRH is more than just the absence of disease. It's about having the knowledge, resources, and support that individuals need to make informed decisions about their respective sexual and reproductive health. Given that sexually transmitted infections (STIs) are a vital component of sexual and reproductive health, Having a thorough understanding of sexually transmitted diseases (STIs) is essential because they are widespread and can have serious health consequences if not properly treated. Sexual intercourse spreads sexually transmitted infections (STIs), which are communicable diseases. A considerable proportion of patients with sexually transmitted infections (STIs) do not exhibit any symptoms. Undergoing STI testing is imperative, regardless of one's belief in their infection status. An extensive understanding of the symptoms and method of transmission of sexually transmitted infections (STIs) is essential for preventing, detecting early, and treating these disorders. Gaining knowledge also enables informed decision-making regarding the respective choices. Hence, this study evaluated the extent of students' sexual and reproductive health (SRH)

knowledge by gauging their comprehension of symptoms and modes of transmission of sexually transmitted diseases (STIs). In this case, we assessed the students' understanding of SRH by measuring their familiarity with STIs, symptoms, and transmission methods.

Bangladesh is the eighth-most populated country in the world, with nearly 170 million people (BBS, 2022). Despite recent significant improvements in the SRH situation, the country still faces numerous challenges that require attention (Williams et al., 2021). A particularly significant void remains in developing and implementing appropriate SRH programmes to accommodate the requirements of adolescents and young adults. Understanding the level of sexual and reproductive health knowledge, attitudes, and practices among undergraduate students in Bangladesh will allow researchers to understand the effectiveness of formal SRH education at the pre-university stages and will contribute to necessary amendments. This chapter delves into the theoretical and conceptual frameworks related to SRH. The discussion also includes the sociodemographic background, efforts, and challenges in distributing SRH-related knowledge in Bangladesh.

The level of knowledge, attitude, and practices associated with sexual and reproductive health can have a far-reaching and significant impact on individuals, families, and communities. The most common effects include, but are not limited to, unintended pregnancies, sexually transmitted infections (STIs), early sexual debut and inconsistent use of contraceptive measures. The resulting consequences have been identified as the most significant risk factors for disability and death across all regions, with varying degrees of impact (Glasier et al., 2015). Effective dissemination of knowledge about sexual and reproductive health (SRH) achieves this adverse impact (Meena et al., 2015). Age-appropriate, adequate knowledge of SRH is an important predictor of an individual's sexual behaviour and one of the prerequisites to leading a safer and healthier life (Leung *et al.*, 2019). It guarantees protection against sexually transmitted illnesses and the autonomy to make informed decisions about sexual and reproductive health-related issues without facing discrimination, irrespective of varying socioeconomic factors (UN, 1995).

In Bangladesh, the majority of undergraduate university students are typically between the ages of 18 and their mid-twenties, with a few outliers. Undergraduate university students in Bangladesh primarily consist of individuals who are in the later stages of their adolescence and about to enter young adulthood. This is a developmental phase during which individuals

develop physical sexual maturity (UNESCO, 2009). However, it is also the period marked by increased autonomy, social immaturity, risk-taking, and spontaneity, which make them more susceptible to reproduction and sexual health risks (Tomašević et al., 2022). These risks include unplanned or unprotected sex, which may lead to an elevated risk of sexually transmitted infections (STIs), unintended pregnancy, and unsafe abortion (Denno, Hoopes and Chandra-Mouli, 2015). To ensure a smooth transition to adulthood in good sexual health, it is crucial to help young people develop knowledge and acquire skills such as communication, decision – making and negotiation (Kismödi et al., 2017). Knowledge about SRH includes information about anatomy and physiology, puberty, pregnancy, and sexually transmitted infections (STIs), including human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) (WHO, 2018b). It also addresses the relationships and emotions involved in sexual experience. It approaches sexuality as a natural, integral, and positive part of life and covers all aspects of becoming and being a sexual, gendered person (WHO, 1993). It promotes gender equality, self-esteem, and respect for the rights of others (WHO, 2006). Before initiating sexual activity, individuals should receive knowledge and information about SRH that aligns with their developmental level (Deshmukh et al., 2020). Policy makers should develop educational, health, and social initiatives that provide learners with the essential knowledge, abilities, services, and resources to independently safeguard themselves from unwanted and/or dangerous sexual activities, while also upholding the rights of others (UNESCO, 2018b).

1.2 Theoretical and conceptual frameworks of SRH

Addressing issues related to SRH has always been a complicated and delicate affair because of their complex and multifaceted nature (Cordova-Pozo et al., 2018). There are a variety of factors that influence SRH outcomes, including biological, social, cultural, and structural factors. Different theoretical perspectives provide different lenses for understanding these factors, which can help to develop a more nuanced understanding of SRH issues (Price and Hawkins, 2007). Several theoretical perspectives have emerged to explain and understand the progression of SRH issues. Such as

1.2.1 The Health Belief Model emphasises the role of individual beliefs and perceptions in shaping sexual and reproductive health behaviours (Rosenstock, 1974). According to the model, individuals are more likely to engage in positive sexual and reproductive health behaviours if they perceive a threat to their health, believe that the recommended behaviour will be effective, and perceive few barriers to engaging in the behaviour.

1.2.2 Intersectionality theory emphasises the importance of considering the intersecting social identities and experiences that shape health outcomes. This theory recognises that individuals may experience multiple forms of discrimination and oppression based on their race, ethnicity, gender, class, and other factors and emphasises the importance of addressing these intersecting factors in health intervention (Harari and Lee, 2021).

1.2.3 Feminist theory points out the ways in which gender and power intersect to shape health outcomes (Hay et al., 2019). It highlights the importance of addressing gender inequalities and power imbalances in health interventions and recognises the ways in which patriarchal systems and structures can contribute to negative sexual and reproductive health outcomes for women and marginalised groups.

1.2.4 The essentialism perspective emphasises the fixed and inherent nature of biological or psychological characteristics (Gelman, 2004). Essentialism has justified gendered and heteronormative assumptions about sexual and reproductive behaviour in the context of sexual and reproductive health, such as the notion that men are naturally promiscuous or that women are naturally inclined towards childbearing and caregiving (Delamater and Hyde, 1998). According to an essentialist perspective, inherent biological or psychological characteristics determine sexual and reproductive health, not social and cultural factors (Sathyanarayana et al., 2012). This perspective may reinforce gendered stereotypes and inequalities, limiting individuals' ability to make informed choices about their sexual and reproductive health.

However, it is important to note that there are limitations to essentialism in the context of sexual and reproductive health. For example, essentialist assumptions about gender and sexuality may fail to account for the diversity of human experience, including the experiences of LGBTQ+ individuals and people with intersex traits (Moleiro et al., 2015). Additionally, essentialism may overlook the impact of social and cultural factors on sexual and reproductive health outcomes, such as access to healthcare, education, and social support (Soylu et al., 2017).

Essentialism holds that biological factors significantly influence the characteristics of individuals or groups, resulting in a significant similarity across all human cultures and historical periods. A key assumption of essentialism is that “a given truth is a necessary natural part of the individual and object in question” (Gordon and Abbott 2002). An essentialist

approach to sexual and reproductive health posits that individuals inherently possess specific and unchanging attitudes, behaviours, and practices, regardless of when or where they are situated. Essentialism typically relies on a biological determinist theory of identity, which states that a group's biological or genetic makeup shapes its social, political, and economic destiny (Subramaniam, 2014). Hence, while essentialism has played a role in shaping attitudes and beliefs about sexual and reproductive health, it is important to critically examine the limitations of this perspective and consider the ways in which social and cultural factors shape sexual and reproductive health outcomes.

1.2.5 The social constructionism perspective emphasizes the role of social and cultural factors in shaping sexual and reproductive health experiences (Burr and Dick, 2017). According to a social constructionist perspective, norms, values, and power relations, among other broader social and cultural factors, shape attitudes, behaviours, and practices related to sexual and reproductive health, rather than being solely biological or individual phenomena (Ussher, 2017). Social constructionism highlights the ways in which social and cultural factors shape sexual and reproductive health outcomes, experiences, and access to healthcare. For example, social constructionism suggests that gender norms and expectations play a role in shaping sexual and reproductive health outcomes, such as access to contraception and STI testing (Newmann et al., 2021). Additionally, social constructionism highlights how social stigma and discrimination can impact sexual and reproductive health outcomes for marginalised populations, such as LGBTQ+ individuals and people living with HIV (White et al., 2015). It also emphasises the importance of understanding the diverse experiences and perspectives of individuals and communities in shaping sexual and reproductive health outcomes. For example, according to social constructionism, there is no universally accepted way to deal with sexual and reproductive health concerns. Different individuals and groups may have varying interpretations and understandings of these matters (Schalet et al., 2014). In essence, social constructionism underscores the significance of comprehending the wider social and cultural influences that mould sexual and reproductive health outcomes. It emphasises the necessity of addressing these influences in order to promote favourable sexual and reproductive health outcomes for all individuals and communities.

1.2.6 The Social Ecological Model (SEM) views sexual and reproductive health as influenced by multiple levels of influence, including individual factors, interpersonal relationships, community factors, and societal factors (Golden et al., 2012). This model emphasises the

importance of addressing the broader social and structural factors that shape sexual and reproductive health outcomes, such as gender norms, access to healthcare, and social inequality. SEM focuses on the interplay between individual, interpersonal, community, and societal factors influencing SRH outcomes. It provides a comprehensive understanding of the various influences on young adults' SRH, including cultural norms, family dynamics, access to healthcare, and individual knowledge. SEM allows researchers to examine the broader context shaping adolescent SRH and design multi-faceted interventions that address issues at all levels (e.g., educational programmes for youth, community outreach to address stigma, policy advocacy for improved healthcare access). If the researcher wishes to explore the broader picture of how factors interact to influence individuals' SRH knowledge, attitudes, and practices, SEM could be a better choice.

1.2.7 Social Cognitive Theory (SCT) emphasises the role of individual beliefs, attitudes, and self-efficacy in shaping sexual and reproductive health behaviours. The theory suggests that individuals are more likely to engage in positive sexual and reproductive health behaviours if they have a keen sense of self-efficacy and perceive positive outcomes from these behaviours (Bauman *et al.*, 2021). SCT focuses on how individuals learn and adopt sexual behaviours through observation, social cues, and self-efficacy. SCT explains the causal factors influencing individual SRH decisions and behaviours. SCT is particularly useful when researchers want to understand how individuals learn about sex, contraception, and healthy relationships and design interventions to promote positive behaviour change (e.g., promoting positive role models, developing skills to resist peer pressure, and building self-efficacy for making healthy choices).

The analysis of theoretical viewpoints provides insights into the creation of interventions and policies that aim to enhance positive sexual and reproductive health outcomes. By looking at the societal, cultural, political, and structural factors that affect sexual and reproductive health (SRH) outcomes, many theoretical views help us understand how to make health disparities less noticeable and more effectively in a fair and effective way. For example,

- The framework provides a framework for understanding the complexity of sexual and reproductive health issues. Different theoretical perspectives offer different lenses for understanding the social, cultural, and biological factors that influence sexual and reproductive health outcomes (Short et al., 2015). Applying these theoretical frameworks allows researchers and practitioners to gain a more nuanced understanding of the complex interplay of factors that shape sexual and reproductive health outcomes.

- Informs about intervention development: The use of theoretical perspectives can guide treatment development and execution with the goal of improving favorable sexual and reproductive health outcomes (Cassidy et al., 2019). For instance, according to social cognitive theory, treatments should prioritise the development of self-efficacy and positive outcome expectations. On the other hand, the social ecology model highlights the significance of addressing social and structural elements that influence health outcomes (Mimiaga et al., 2009).

- Promote health equity: Different communities may experience sexual and reproductive health outcomes that differ from one another, and theoretical views can be helpful in identifying and addressing these differences. For example, intersectionality theory emphasizes the importance of considering the intersecting factors that affect marginalised groups' health outcomes, whereas feminist theory emphasizes the importance of fostering reproductive autonomy and rights for all individuals (Abrams et al., 2020).

- Contributes to the transformation of social norms: Theoretical views can be important in questioning and altering conventional beliefs and attitudes about sexual and reproductive health. For instance, social constructionism emphasises the impact of social and cultural factors on shaping people's behavioural practices regarding sexual and reproductive health. This viewpoint facilitates the interrogation and contestation of assumptions rooted in heteronormativity or gender, while also promoting more inclusive attitudes and actions. (Spengen, 2014).

Thus, using different theoretical perspectives to guide research and interventions allows researchers to endorse a more holistic and nuanced understanding of sexual and reproductive health issues and work towards promoting positive outcomes for all individuals. However, there isn't a single "most relevant" framework that may be able to capture the sexual and reproductive health issues of young adults. Both the social ecological model (SEM) and social cognitive theory (SCT) offer valuable insights, but from different angles. The goal of this study was to identify, examine, and analyse the university students' knowledge, attitudes, and practices (KAP) regarding SRH issues. Attempts were made to examine the level of knowledge

and existing practices that are being constructed and influenced by the context of the different socioeconomic and academic backgrounds of the university students. The focus of this study was to determine and understand individuals' decision-making processes related to SRH. Such an emphasis on observable behaviours and causality aligns more closely with the positivist paradigm. As a result, social cognitive theory (SCT) was considered more directly relevant to this study to identify the level of knowledge, attitudes, and practices (KAP) related to sexual and reproductive health (SRH) among the university students.

1.3 Importance of understanding SRH in the context of Bangladesh

Sexual and reproductive health (SRH) encompasses the overall physical, mental, and social well-being in relation to the reproductive system and sexuality. Sexual health comprises more than just the absence of reproductive system diseases, problems, or ailments. It also includes the ability to have a fulfilling and safe sexual life that is free from coercion, prejudice, and violence (WHO, 2010). The importance of sound sexual and reproductive health cannot be overstated, as it is crucial for personal well-being, societal advancement, and the attainment of global development objectives. It enables individuals to have greater control and influence, enhances the resilience and cohesion of communities, and creates the conditions for a healthier and more economically successful future. Sound sexual reproductive health and well-being depend on ensuring access to relevant services and rights.

Concerns regarding sexual health are wide-ranging and include sexual and gender identity, sexual expression, relationships, and pleasure. The emergence of HIV and AIDS, the increasing incidence of STIs, and growing public health concerns about gender-based violence and sexual dysfunction have intricately linked sexual health to reproductive health (Shaw et al. 2002). Thus, good SRH is defined as a state of complete physical, mental, and social well-being in all matters relating to the reproductive system. It implies that people can have a satisfying and safe sexual life, the capability to reproduce, and the freedom to decide if, when, and how often to do so (UNFPA, 2013). To maintain one’s SRH, it is important to ensure people’s access to accurate information and the safe, effective, affordable, and acceptable contraception method of their choice is vital to maintain one’s SRH. Furthermore, it is crucial to educate and empower individuals to safeguard themselves against sexually transmitted infections. Also, if they decide to have children, women must have access to services that can help them have a healthy pregnancy, a safe delivery, and a healthy baby.

Policymakers have drawn a clear connection between reproductive health, human rights, and sustainable development (UNFPA, 2013). It is imperative to address the individual SRH needs properly. In general, depriving individuals of their right to make crucial choices about their own bodies and futures can have a recurrent impact on their family's welfare and future generations. The denial of adequately addressing the SRH issues may even exacerbate poverty and gender inequality, especially for women, since they bear children and often carry out the key responsibility of nurturing them (Vlassoff, 2007). Particularly in developing countries, reproductive health problems are a leading cause of ill health and death for women and girls of childbearing age (Tsui et al., 1997). Impoverished women suffer disproportionately from unintended pregnancies, unsafe abortion, maternal death and disability, sexually transmitted infections (STIs), gender-based violence and other associated problems (Stevens et al., 2016). Barriers to SRH information and support often make young people extremely vulnerable (Mkumba *et al.*, 2021). STIs and diseases disproportionately affect young people. Unintended pregnancies expose adolescents and young adults, particularly girls, to risks during childbirth or unsafe abortions, interfering with their ability to go to school or their future life course. Effective dissemination of knowledge about the SRH could prevent such adverse impacts on morbidity due to unsafe sex and lack of access to reproductive health information and services (Glasier et al. 2006).

Bangladesh, as a developing country, faces enormous challenges in ensuring SRH for its citizens. Bangladesh encounters numerous obstacles in guaranteeing optimal sexual and reproductive health for its population (Amin *et al.*, 2020). The issue of limited access to excellent services, particularly in remote and rural locations, continues to persist on a considerable scale. Access to skilled healthcare professionals and comprehensive sexual and reproductive health treatments such as contraception, sexually transmitted infection testing, and safe abortion services (where permitted by law) often remains scarce (Wahed *et al.*, 2017; Khan *et al.*, 2023). A substantial number of adolescents experience risky or unwanted sexual affiliation and do not get prompt or proper care (MOHFW, 2016). Cultural and religious norms, on many occasions, create a strong stigma around discussing sexual health topics (Dimitrov, Jelen and L'Etang, 2022). This discourages open communication and prevents individuals from seeking necessary services (Gourab *et al.*, 2019; Alam *et al.*, 2024). Women often lack control over their reproductive choices due to societal pressures and limited educational and economic opportunities. Child marriage and early childbearing are still prevalent, leading to increased health risks for mothers and babies. Inadequate sex education leaves young people with limited

knowledge about their bodies, safe sex practices, and healthy relationships (Trommlerová, 2020). Due to a lack of knowledge, young people are often not aware of their SRH rights. They often encounter tremendous challenges in making informed life choices. For example, although the legal age for marriage for women in Bangladesh is 18 years, a substantial proportion of marriages still take place before this. It has the highest child marriage prevalence in South Asia and ranks among the 10 countries in the world with the highest levels (UNICEF, 2021). Although university students may possess more knowledge than the general population, research has not adequately explored the specific challenges they encounter in accessing sexual and reproductive health care. Many students may still have limited access to accurate SRH information due to the lack of comprehensive sexual and reproductive health education. Misconceptions and misinformation can persist. University life can involve increased social pressure to engage in risky sexual behaviours. Students may lack the necessary knowledge and skills to safely navigate these situations. University health centres may not always offer specialised SRH services or have staff trained to address young people's specific needs. This can create a barrier to accessing services. Even within universities, cost and the fear of stigma may prevent students from seeking confidential SRH services. A better understanding of the underlying factors will ultimately have a significant impact on reducing these negative outcomes. Gaining a comprehensive understanding of the university students' level of knowledge, attitudes, and behavioural practices regarding sexual and reproductive health (SRH) is crucial for the development and enhancement of SRH services, comprehensive sexuality education, and youth-friendly healthcare initiatives in Bangladesh, with a specific focus on university students.

1.4 Efforts and challenges in dissemination of SRH related knowledge in Bangladesh:

Bangladesh is the eighth-most populated country in the world, with 170 million people (BBS, 2022). Despite recent significant improvements in the SRH situation, the country still faces numerous challenges that require attention (Williams et al., 2021). A particularly significant opportunity remains to develop and implement appropriate SRH programmes to accommodate the needs of adolescents and young adults (Ainul et al., 2017a). Lack or no access to appropriate health care services often complicates the SRH situation, especially in rural areas (Mahmud *et al.*, 2015). Apart from a lack of resources, another biggest challenge in Bangladesh is the predominant social norms, which often unduly dictate or restrict individuals' ability to make informed decisions about their own SRH (Ahmed et al., 2021). For many individuals, especially young adults, such social taboos even pose restrictions on accessing and obtaining

even very basic SRH information and services (e.g., contraception, safe abortion, sexually transmitted infections, and so on) (Munakampe et al. 2018). Deprived of access to reliable information necessary for a safe, productive and fulfilling life, adolescents and young adults often receive confusing and conflicting information about relationships and sex as they make the transition from childhood to adulthood (UNFPA, 2020). This lack of quality, age, and developmentally appropriate sexuality and relationship education may leave children and young people vulnerable to harmful sexual behaviors and sexual exploitation. To mitigate these challenges, there is a growing concern for implementing appropriate SRH education programmes in Bangladesh that encompass the cognitive, emotional, physical and social aspects of SRH issues (Du *et al.*, 2022). The primary goal of the mitigating interventions is to enhance SRH-related knowledge, promote gender equality, foster respectful social and sexual relationships, and enable vulnerable populations to make informed decisions about their own bodies and lives (UNESCO, 2018a).

In Bangladesh, some key initiatives related to SRH education include:

1.4.1 School-based SRH education: In Bangladesh, the government has implemented sexual and reproductive health (SRH) education in the school curriculum, specifically targeting subjects like puberty, reproductive health, and contraception (MoHFW, 2016). Nevertheless, the quality of this education varies depending on the institution and geographical location.

1.4.2 Community-based SRH education initiatives (e.g., Avizan and APON) aim to provide SRH education and services, particularly in rural areas. These initiatives often involve partnerships between local organisations, NGOs, and healthcare providers (USAID, 2016).

1.4.3 Adolescent-friendly health services: The Bangladeshi government has also established adolescent-friendly health services (AFHS) to provide young people with SRH information and services in a safe and supportive environment (Ainul et al. 2017). `

1.4.4 Advocacy and awareness are rising Multiple social organisations and non-governmental organisations (NGOs) in Bangladesh actively participate in lobbying for and raising awareness about sexual and reproductive health (SRH) issues (Raikes et al., 2003). These programmes involve a range of goals, such as promoting gender equality, tackling social stigma and prejudice connected to sexual and reproductive health, and improving access to sexual and reproductive health services (PRB, 2019). While these efforts have implemented programmes

aimed at youth and community engagement to raise knowledge and understanding about sexual and reproductive health (SRH), resulting in some significant achievements, there is still a need for future improvement and expansion. Further efforts are required to guarantee that individuals, regardless of their gender, socio-economic situation, or geographic location, have access to precise information and services pertaining to sexual and reproductive health.

Socioeconomic and educational background have a substantial influence on sexual and reproductive health habits (Psaki et al., 2019). Individuals with low socio-economic status may have restricted availability of healthcare facilities, limited access to information, and scarce resources pertaining to sexual and reproductive health (Davidson et al., 2022). This may ultimately lead to an increased incidence of unwanted births, sexually transmitted infections (STIs), and other reproductive health complications. Individuals with a higher degree of education typically have improved access to information and resources concerning sexual and reproductive health. This results in making more knowledgeable decisions and adopting healthier behaviours and lifestyle choices (Leung et al., 2019).

Students from a variety of socioeconomic and pre-university educational backgrounds merged into the university to begin their tertiary education. Students from disadvantaged socio-economic backgrounds may lack exposure to positive role models or opportunities to accumulate the benefits of education. They may not have access to the same resources as their peers with advantageous backgrounds (Banerjee, 2016). The primary goal of this study is to evaluate undergraduate university students' knowledge, attitudes, and practices related to SRH. The study aims to determine whether different streams of education affect university students' KAP. The study also aims to determine the health-seeking behavior of students, the type of relationships they maintain, and the frequency of sexual harassment they encounter on campus.

1.5 Statement of the Problem

Bangladesh is not a frontrunner in terms of health literacy (Ahsan *et al.*, 2016). Across different segments of society, irrespective of age, gender, marital status, educational back ground and other relevant social denominations, the lack of knowledge, negative attitude and behaviour associated with SRH-related issues have been reiterated in numerous studies. The university students in Bangladesh encounter various challenges and vulnerabilities in addressing SRH health-related concerns. There is a need to understand and address the specific problems they encounter to promote healthier behaviours and improve their SRH outcomes.

The primary factors that contribute to SRH-related concerns include:

1.5.1 ***Limited knowledge and awareness regarding SRH:*** Given that sex education is not widely available in schools and many families do not discuss these topics with their children, it is not surprising that undergraduate university students in Bangladesh lack SRH-associated knowledge. The students may be unaware of the risks of early pregnancy, sexually transmitted infections (STIs), and unplanned pregnancy.

1.5.2 ***Restrictive cultural norms and stigmatizations:*** Traditional cultural norms, societal stigma, and conservative attitudes surrounding SRH often restrict open discussions and access to services. Students may face judgement, discrimination, and reluctance to seek support, leading to a reluctance to address their SRH health needs.

1.5.3 ***Limited access to healthcare services*****:** accessible 'on' and 'off' campus SRH care services for university students have always been challenging. Barriers may include limited availability of services, financial constraints, and a lack of privacy and confidentiality measures.

1.5.4 ***Unsafe sexual practices:*** University students often engage in risky sexual behaviour involving unprotected sex, multiple sexual partners, and inconsistent use of contraceptives. This may be due to a lack of knowledge, a negative attitude or a lack of access to contraception. Unsafe sexual practices may contribute to the increased risk and prevalence of unintended pregnancies, STIs, and other negative health consequences.

Addressing these issues and promoting SRH among university students in Bangladesh requires evidence-based interventions. It is critical to develop targeted strategies to address specific needs, cultural context, and social norms to ensure their overall well-being and promote healthy SRH behaviours. The primary objective of this study is to evaluate the extent of knowledge regarding sexual and reproductive health (SRH) among undergraduate students. Considering the fact that sexually transmitted infections (STIs) are a vital aspect of sexual and reproductive health, It is crucial to possess a comprehensive knowledge of sexually transmitted infections (STIs) due to their high prevalence and potential severe health implications if not promptly addressed. Sexual contact transmits sexually transmitted infections (STIs), which are

contagious illnesses. A significant number of individuals with sexually transmitted infections (STIs) are asymptomatic. Regardless of one's belief in infection, it is crucial to undergo STI testing. A comprehensive awareness of the symptoms and mode of transmission of sexually transmitted infections (STIs) plays a crucial role in the prevention, early detection, and treatment of these conditions. Knowledge acquisition also facilitates educated decision-making regarding individual choices. As a result, this study assessed students' knowledge of sexual and reproductive health (SRH) by measuring their understanding of the symptoms and methods of transmission of sexually transmitted infections (STIs). Furthermore, the study endeavors to pinpoint the health-seeking behaviors associated with SRH and the challenges encountered in obtaining pertinent healthcare services. Examine the type and scope of romantic relationships among university students, and investigate the frequency of sexual harassment incidents on campus. We could use the findings to develop interventions aimed at improving the sexual and reproductive health of undergraduate university students in Bangladesh.

Ideally, a mixed-methods approach could conduct the research, collecting both quantitative and qualitative data (Fetters et al. 2013). The qualitative data would be used to understand the factors that contribute to these problems. The quantitative data would be used to measure students' knowledge, attitude and practices. However, due to the lack of resources, this present study only adopts a quantitative method. The findings of the research would be disseminated to policymakers, educators, and other stakeholders. The findings could be used to develop interventions to improve the SRH of undergraduate university students in Bangladesh.

1.6 Aim of the research

The main goal of the research is to gather information to better understand university students' level of existing knowledge, health-seeking behaviour, attitude towards and usual practice in relation to SRH. Attempts will also be made to explore how these issues related to SRH are influenced by different socio-economic factors, by different streams of pre-university education backgrounds, and by types of universities.

1.7 Research Objectives

The specific research objectives are to:

i. Determine the level of SRH related knowledge of the Undergraduate university students in Bangladesh and identify the primary sources of SRH related information, access to

formal SRH education curriculum during pre-university level of education of different education stream.

ii. Identify the health seeking behaviour of the university students in relation to SRH related issues.

iii. Analyse attitude and usual practice of the university student with respect to different issues of SRH including the nature and extent of intimate relationship maintained by the university students.

iv. Explain the nature and extent of on campus sexual harassment experienced by the university students and the institutional prepared to address the issue.

1.8 Research questions

Following research question, and summary of hypothesis to be evaluated and components of data analysis.

i. What is the level of SRH knowledge and primary source of associated information among the university students? And if different socioeconomic background including different pre university education stream affect in the level of knowledge associated to SRH.

ii. What is the usual source of health care facilities accessed by the university students in relation to SRH?

iii. How different socio-economic factors including different pre university education stream and different type of university effect on the attitude and usual practices associated with the SRH (including extent, pattern of sexual intimacy etc.).

iv. What is the extent of on campus sexual harassment experienced by the university students?

Chapter 2
Literature review

2.1 Introduction

Sexual and reproductive health (SRH) is a state of complete physical, mental, and social well-being in all matters related to the reproductive system at all stages of life (UNFPA, 2018). It is an important predictor of an individual's sexual behaviours and one of the prerequisites for leading a safer and healthier life. The United Nations International Conference on Population and Development (UNICPD) has grouped sexual and reproductive health within a broader sociocultural context that includes gender roles, respect, and protection of human rights (UN, 1994). With more than one million new cases acquired each day, sexually transmitted infections (STIs) remain one of the most common illnesses globally. Each year, there are an estimated 374 million new infections with one of four STIs: chlamydia, gonorrhoea, syphilis and trichomoniasis (WHO, 2018a).

Globally, there are 1.2 billion people between the ages 15 and 24, or around one in every six people worldwide (UN 2019). The overwhelming majority of these young people live in low- and middle-income countries, and over 60% live in Asia and the Pacific (UN, 2019). In Bangladesh, one-third of the population is in the 10- to 24-year-old age group (MOHFW, 2016). This stage of an individual's life is characterised by rapid social, physical and emotional changes (Dube and Sharma, 2012). For many young people, the onset of adolescence and youth brings not only changes to their bodies but also exposes them to new vulnerabilities such as human rights and abuses, particularly in the arenas of sexuality, marriage, and childbearing.

Comprehensive and precise understanding, a positive disposition, wholesome conduct, and secure habits play significant roles in an individual's sexual well-being. Leading a safer and healthier life necessitates this fundamental prerequisite. Unrestricted access to knowledge and information is crucial for individuals to have a healthy and safe sexual and reproductive health. Shtarkshall et al. (2007) argue that it is well accepted that socialisation is an essential aspect of every individual's development. This chapter looked at the procedures and factors involved in conducting a literature review. The chapter aimed to elucidate the justification for utilising a "scoping review" as a method for conducting a literature review. It also examines the existing body of literature on the knowledge, attitude, and practice of sexual and reproductive health among university students in Bangladesh.

2.2 An overview of selection of review process

A literature review establishes "familiarity with" and "understanding of" current research in a particular field before conducting a new investigation (Hart, 2018). Performing a literature review allows researchers to determine the existing research, pinpoint any gaps in the research, and discover disputes and unanswered problems from past studies (Snyder, 2019). As a result, a literature review contributes to recognizing the need for additional research and identifying the relationship between ongoing or proposed works in the context of their contribution to the topic and other relevant works (Alvesson et al., 2011). The expansion of evidence-based practice across different sectors has led to an increasing variety of review types (Grant et al., 2009). Each of these reviews has its own perceived strengths and weaknesses.

Literature reviews play a critical role in summarising and analysing existing research on a particular topic. Several literature review techniques are available for gathering, evaluating, and synthesizing relevant information on sexual and reproductive health (Desrosiers *et al.*, 2020). Some common techniques used in literature reviews related to sexual and reproductive health include the following:

2.2.1 A *systematic literature review* involves a comprehensive and structured search strategy to identify all relevant studies on a specific research question. Predetermined inclusion and exclusion criteria guide systematic reviews, while a standardised approach summarises and synthesises the findings (Bramer et al., 2018). The method aims to minimise bias and provide a rigorous evaluation of the available evidence.

2.2.2 *Meta-analysis* is a statistical technique that combines data from multiple independent studies to generate an overall quantitative estimate of the effect size. This technique is useful when the included studies have similar research questions and methodologies (Mikolajewicz et al. 2019). Meta-analyses can provide more precise estimates of the relationships between variables related to sexual and reproductive health.

2.2.3 *Narrative review* is a more subjective approach where the author provides a descriptive summary and interpretation of the literature without following a structured methodology. This type of review may be useful for exploring emerging trends or controversial topics in sexual and reproductive health (Long et al., 2020). However, it

is important to note that narrative reviews are less rigorous and more prone to bias compared to systematic reviews.

2.2.4 *Rapid reviews* prioritise speed over thoroughness. They quickly find and evaluate material using streamlined methodologies. In a public health crisis, rapid reviews can provide urgent evidence synthesis on sexual and reproductive health topics (Tricco et al., 2015).

2.2.5 *Integrative reviews* aim to synthesise evidence from both quantitative and qualitative research studies. They combine findings from different study designs to provide a comprehensive understanding of a specific aspect of sexual and reproductive health. Integrative reviews can help capture diverse perspectives and contribute to a more holistic understanding of the topic (Dhollande *et al.*, 2021).

2.2.6 *A scoping review* aims to map the existing literature on a specific topic or research question. It involves a broad search to identify relevant studies, but unlike a systematic review, scoping reviews may include various study designs and provide a descriptive summary of the findings. This technique is useful when the goal is to explore the breadth of research on sexual and reproductive health (Pham et al., 2014).

For this study, a scoping review was considered to accumulate evidence from corresponding research. This is a relatively recent approach to evidence synthesis (Munn et al., 2018). Researchers can use scoping reviews to uncover unexplored areas of knowledge, evaluate the scope of existing literature, clarify concepts, or focus on specific research topics. The primary objective of a scoping review is to offer a comprehensive survey of the existing research data without generating a concise summary response to a specific research query. Scoping review is a way of mapping the key concepts that emphasise a research area (Arksey and O'Malley, 2005). Researchers conduct scoping reviews to map a body of literature relevant to time, location (e.g., country or context), source (e.g., peer-reviewed or grey literature), and origin (e.g., healthcare discipline or academic field). Scope reviews for evidence-based practice look at the bigger picture to find research knowledge gaps (Crilly et al., 2010), make important ideas clear (de Chavez et al., 2005), and report on the kinds of evidence that address and guide current practice in a specific field of research (Decaria et al., 2012). Researchers can also conduct

scoping reviews to ascertain the scope, diversity, and character of the research endeavour, as well as the methodology employed (Callary et al., 2015).

2.3 Steps involved in the scoping review process:

A scoping review process involves five distinct stages: (i) identification of the research question; (ii) identification of relevant studies; (iii) study selection; (iv) charting the data; and (v) collating, summarising, and reporting results (Arksey and O'Malley, 2005). This current review considers broad literature sources from a range of relevant databases and attempts to map out key concepts associated with the level of knowledge, attitude and sexual behaviour of university students regarding the sexual and reproductive health of undergraduate university students in Bangladesh.

2.3.1 Identification of relevant studies

To gain a comprehensive understanding of the pertinent literature, a thorough search was conducted on Google Scholar using specific free text phrases such as "Sexual and reproductive health," "Knowledge," "Attitude," "Practice," "University student," and "Bangladesh." Subsequently, a search method was created to identify pertinent studies by employing a blend of keywords and MeSH phrases. The initial search encompasses the following keywords: "sexual", "reproductive", "knowledge", "perception", "believe", "attitude", "practice", "university students", and "Bangladesh". The individual queries were consolidated using the "OR" Boolean operator to form a specific group. The groups were subsequently merged using the "AND" function to get a citation list.

The initial search using the keywords "University student" and "Bangladesh" did not get the expected results. Therefore, in order to gather a thorough understanding of the current state of knowledge, attitudes, and practices regarding sexual and reproductive health in Bangladeshi society, any terms specifically referring to age groups (such as adolescents, young adults, or university students) were deliberately omitted. Figure 2.1.1 presents a comprehensive overview of the literature search. A separate search was carried to identify literature associated to the theme 'on campus sexual harassment' using the term "sexual", "harassment", "On campus", "Bangladesh". Comprehensive overview of the literature search given in Figure 2.1.2.

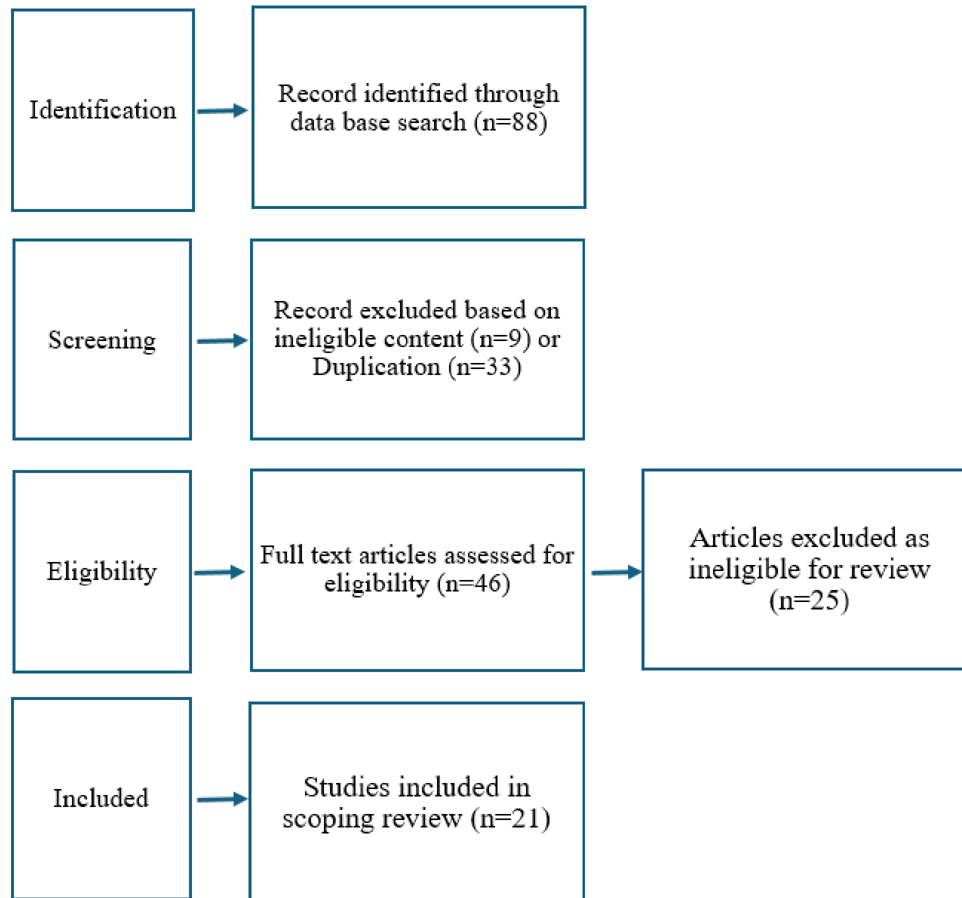

Figure 2.1.1: Scoping review process

The literature search was performed utilising the Elton Bryson Stephens Company (EBSCO) database search engine. EBSCO provides a comprehensive selection of library database resources. It can be accessible via the official university library database search website for registered users. The literature review incorporated five crucial databases recommended by the university librarian: CINAHL Complete, Academic Search Elite, Child Development & Adolescent Studies, MEDLINE, and APA PsycInfo. These databases contain journal citations and abstracts for clinical, biomedical, and social studies literature from around the world. The sources include academic journals, periodicals, news articles, reviews, trade publications, dissertations, books, and government documents. They are published in English. The literature's exact duplicates were eliminated from the findings, and the search was restricted to human studies conducted between the years 1981 and 2022. The search was performed using the University of West London's online library platform. The scoping literature study was undertaken from September 2021 to March 2022.

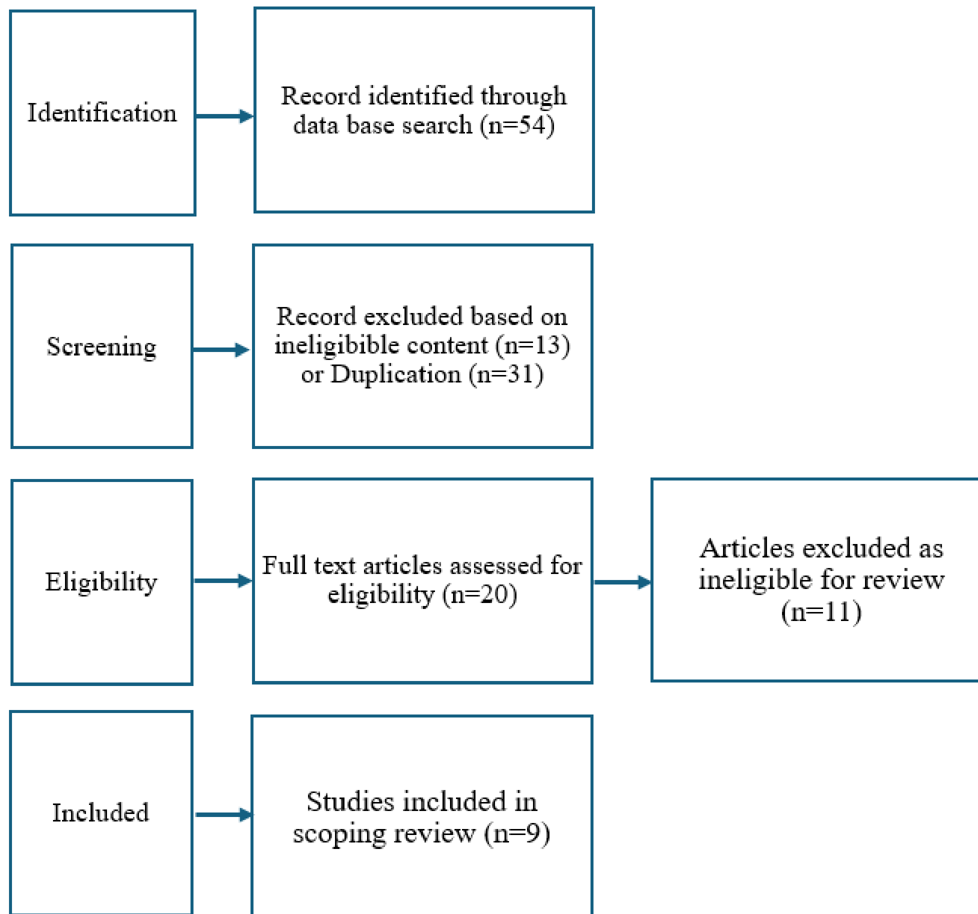

Figure 2.1.2: Scoping review process

2.3.2 Inclusion criteria

The study was primarily focused on Bangladeshi undergraduate university students. We initially considered studies associated with the Knowledge, Attitude, and Practice (KAP) of Sexual Reproductive Health (SRH) of university-level students, regardless of their geographic location. We changed the selection criteria to include studies done in Bangladesh that look at the level of knowledge, attitude, or practices related to sexual and reproductive health, regardless of age or class, because there wasn't any documentary evidence that "university students" and "Bangladesh" were involved. We expanded the selection strategy to include studies conducted in Bangladesh in addition to contemporary studies that focus on university students' knowledge, attitudes, and practices. The types of evidence considered for the review include descriptive, qualitative, and quantitative methodologies, as well as reviews and peer-reviewed studies written and published in English.

2.3.3 Exclusion criteria

We screened the material and excluded articles that did not meet the review's objectives. Materials were excluded if

i. The socio-economic context of the study area or country did not match that of Bangladesh.
ii. The study focused on professionals, service providers, and institutions in sexual and reproductive health care.
iii. The study's primary focus was on family planning, contraception use, and maternal health care.

2.3.4 Study selection

This stage involves reviewing and selecting articles. The researcher screened the titles and abstracts. The researcher regularly consulted with Bangladeshi subject experts and supervisors to review the full-text articles included. The review included the identified eligible studies. Due to keyword and index-based search queries, the researcher manually searched and extracted but excluded articles. We used the reference management software RefWorks (Cite Them Right, Harvard) to organise and store the literature, removing all duplicates.

2.3.5 Charting the data:

The data were extracted and presented in a tabular format for analysis. The chart contains details such as the author(s), year of publication, nation, research design, purpose of the study, sample size and study setting, main findings, value, and contribution. Please refer to Appendix Table 6.1 and Appendix Table 6.2 for further information.

2.3.6 Objective of the literature review

The review's goal is to examine the existing literature on undergraduate university students' knowledge, attitude, and practice in Bangladesh. The primary goal was to investigate what is already known about the level of knowledge, attitude, and practice (KAP) associated with undergraduate university students' sexual and reproductive health (SRH) in Bangladesh. However, due to a lack of papers focusing on university students, we modified the search to include 'any research' on SRH-KAP in Bangladesh, regardless of any specific age group, racial or gender, or socio-economic subclass.

2.3.7 Characteristics of resulting papers:

Out of 21 papers selected for the purpose, six were qualitative, ten were quantitative, and five were based on the mixed method. The topics covered in this paper are broad in scope. These paper go through discussion to explore: the level of knowledge, attitudes, and practices (KAP)

of SRH among the students and adolescents (Zakaria et al., 2019; Gani et al. 2014) and impact of parental knowledge on the SRH – KAP of the young adults (Bosch, Inge and Ginneken, 2008); assessing the social and sexual vulnerability in the absence of proper sex education program (Cash et al., 2001; Rob et al., 2006b); SRH associated awareness (Akther et al., 2020); impact of social norms in shaping SRH – KAP (Ahmmed, Chowdhury and Helal, 2022) and its implication on gender role (Jesmin and Cready, 2014; Bishwajit et al., 2017); Access and use of SRH service and information services (Kabir et al., 2014) and so on. However, we found that none of the papers exclusively addressed the level of knowledge, existing attitudes, and practices among university students in Bangladesh.

2.4 Evidences from the selected papers

Irrespective of age, gender, marital status, and social orientation the status of sexual and reproductive health (SRH) remains a significant area of concern in Bangladesh. Particularly adolescents and young adults encounter tremendous challenged in making informed life choices. The resultant findings are discussed in accordance with the objective of the study in the following segments.

2.4.1 Level of the SRH knowledge among the university students in Bangladesh:

The role of knowledge is reflected through behaviours or practice. Inadequate knowledge leads to the practice of unsafe sex (Gani et al. 2014). In the absence of appropriate age specific SRH related knowledge young people are exposed to risky sexual behaviours such as premarital and often unprepared sexual intercourse, use of sex workers and / or multiple partners, lack or no use of preventive measures during sexual intercourse and so on. Such association make them more prone to unintended pregnancy, unsafe abortion, and sexually transmitted infections including HIV (Bott *et al.*, 2003). The burden of poor sexual and reproductive health not only impacts on the health and well-being of young people, but also has profound impact on their education, economic participation, and poverty. These negative consequences extend to young people's families and future generations and can perpetuate a cycle of poor health and disadvantage. The adverse impact on morbidity due to unsafe sex could be avoided through effective dissemination of knowledge of the SRH (Glasier *et al.*, 2006)

Traditionally sexual and reproductive health (SRH) is a cultural taboo in Bangladesh (Nahar et al., 1999). Discussion on sexuality and sexually transmitted diseases are not a usual phenomenon in social spaces in the country. Such social norm contributes to disseminate

misconception in the society. The family structure is still strong. Parental supervision and controls play a key role in the lives of adolescents. Parents often think that they should serve as role models for their children. However, that role often excludes providing information regarding sexual and reproductive health (SRH) related information due to conservative norms and often due to serious lack of knowledge among parents on the issue (Rob *et al.*, 2006a). Although communication with parents is recognised as one of the prime sources of information for adolescents regarding SRH (Zakaria *et al.*, 2019) - in general, parents do not usually feel comfortable discussing SRH issues with their children (Bhuiya *et al.*, 2004). Thus, there exists lack of communication between parents and their children with this regard. Studie also indicates the lack of appropriate and adequate SRH related knowledge among parents and elders often caused 'misconception' to be carried over to next generation adolescent and young adults (Thongmixay *et al.*, 2019a).

Young people's formal (in school or healthcare settings) and interpersonal (with parents or care givers, friends, and sexual partners) communication about SRH (Koenig *et al.*, 2020) contributes to positive behaviours and outcomes. Apart from that ensuring access and utilization of associated service (Hall et al. 2012), promoting awareness and use of contraceptive measures (Melaku *et al.*, 2014) also significantly linked with the SRH wellbeing of the youth. Although the importance of sexual health is widely recognized, in many societies' education require to promote SRH remains a sensitive and sometimes controversial issue (Luker, 1998). Underlying the social conflicts that surround SRH education programs are - disagreements about the role of government in family life and sex education (Nathanson, 1991); parental control of the content of sex education (Wight and Abraham, 2000); core values to be included in sex education, such as gender equality and personal responsibility; and fundamentally, what constitutes appropriate adolescent sexual behaviours (Bay-Cheng, 2003).

In Bangladesh, because of cultural impediments - parents often restricts themselves from having discussion relevant to SRH and believe that school would be a better place for SRH education. A substantial portion of parents also had reservations about educating their children on these matters and often consider any curriculum for sex education as a medium for promoting premarital sex (Rob *et al.*, 2006b). To avoid controversy, ideas about STIs including HIV/AIDS have been included in an 'elementary' form in textbook. These curriculum of pre – university education gives idea that HIV/AIDS can occur if anyone uses a syringe used by an HIV-infected person or uses untested blood, or when an infected mother bears a child. But the

most important messages, such as components of risky sexual behaviours, consequences of unsafe sexual practice often left out of discussions. Even the existent content delivery in school education continues to remain inefficient, and teachers often skip the chapters, or ask students to study them at home (MOHFW, 2016). This leads young people to get information on sexuality from hidden, insufficient, and deceptive resources.

In terms of health literacy, Bangladesh is not a frontrunner (Ahsan *et al.*, 2016). Limited prior knowledge regarding physiological changes and reproductive health issues among the adolescents and young peoples are reported in many studies (Bhuiya *et al.*, 2004). Study shows adolescent and young adults are not adequately informed about considerably basic physiological features like menarche[1] and spermarche[2] (Bosch et al. 2008). Such lack awareness and persistent misconceptions about the fertile period, reproduction, STIs and HIV implies a less than optimal mental wellbeing in reproductive life (Williams *et al.*, 2022). Age and education, either of young women or their mothers, residence and mass media use are important predictors of girls' knowledge about sexual and reproductive health (Uddin and Choudhury, 2008). Nonetheless, urban-rural factors are more important than socioeconomic factors in influencing knowledge and misconceptions about STIs and HIV (Gani et al. 2014). No study was found to be associated assessing exclusively the level of knowledge of the university level student of Bangladesh.

2.4.2 Nature of sexual behaviour and associated risk of the undergraduate university students in Bangladesh:

The World Health Organization (WHO) defines adolescent people as those between the age of 10 to 19 years (WHO, 2018). Undergraduate students in Asian countries are typically young adults in their late teens or early twenties (UNESCO, 2014). In Bangladesh, with some exception, undergraduate university students comprise of individuals who usually fall in the age group between 18 to 24 years. Thus, in Bangladesh, undergraduate university students are at their later stages of adolescence to mid-twenties.

Sexual activity starts in this age group. Adolescent and young adults are the most sexually active group of the population (UNAIDS, 2022). Young people aged 15–24 experienced the

[1] The first menstruation of girls.
[2] Indicated by the first self-reported ejaculation of boys as proximity.

highest rates of sexually transmitted infections of any age group in 2015 globally (UNFPA, 2015). Pregnancy and childbirth are among the main contributors to disease and disability among adolescents and young adults: early childbearing is linked with higher maternal mortality and morbidity rates and increased risk of induced, mostly illegal, and unsafe abortions (Blanc et al. 2013; Ganchimeg et al., 2014). Such health hazards have also become prevalent among youth in higher academic institutions due to their exposure to range of risky sexual behaviour (Kejela and Kejela, 2015)

This is the time when individuals experience rapid physical, cognitive and psychosocial growth following puberty and become sexually active (UNFPA, 2011). This is a phase of life when they go through life changing transformations that include but not limited to both physical and mental alterations as well as a change in their role of social engagement. Study suggests irrespective of sexual engagement and orientation - by the time individuals are old enough to commence their university life, most are already sexually active (Mosher et al. 2005). University's diverse student population, relative independence, reduced or lack of parental supervision oversight and / or in some instances presence of alcohol and substance uses often present an opportunity for students to explore their sexuality and self-identity (Wetherill et al. 2010).

Globally, young people of aged between 15 to 35 years are considered most susceptible group to risky sexual behaviour (Olasode, 2007; Dadi, 2014). Any sexual activity that increases the risk of acquiring sexually transmitted infections (STI) and unwanted pregnancy is classified as risky sexual behaviour (RSB) (Eaton *et al.*, 2010). It is one of the major public health concerns around the world (Brener et al. 2013). State of low income, social and job insecurity, frustration, poor academic performances, lack of awareness about sexual and reproductive health issues and harmful traditional practices may provoke RSBs (Muche *et al.*, 2017). The RSBs include but not limited to having multiple sexual partners, no or inconsistent use of condom, sexual intercourse with commercial sex workers and sexual intercourse under the influence of substances uses (Caldeira et al. 2009). In the absence of appropriate preventive measures such RSBs may result in higher risk of acquiring HIV, other STIs and unwanted pregnancy (Bountress et al. 2017).

University students often undermine consequences of RSBs despite being aware of the risk of HIV and STIs and associated preventive measures. Irrespective of socio-economic

development and cultural background, RSBs among the university students are quite evident (Gillman et al. 2018). They are viewed as being at higher risks to acquire HIV infection or STI and they are categorized under the most at-risk population due to their engagement in RSB and their sense of non-vulnerability (Jibril et al. 2020). Some of relatively frequent observed sexual behaviours among the university students who are sexually active includes – having premarital sexual relation (Kann *et al.*, 2014) maintaining sexual relation with multiple partners (CDC, 2019), having sexual relation under the influence of substance (Brown et al. 2016), having intercourse without using condoms (Ren et al. 2021) or inconsistent or no use of contraceptive measures (Khawcharoenporn et. al., 2015) and getting involved or experiencing coercive sexual encounter (Palmer *et al.*, 2010).

Negative views on the use of protective measure (Shiferaw *et al.*, 2014), feeling of invincibility (Adefuye *et al.*, 2009), trust based on appearance or relationship quality and desire to live for the moment (Duncan et al. 2002) are identified as some of the main reasons for not practicing safer sex among the university students. Other than these, factors such as childhood abuse (physical and sexual) (Schilder et al. 2014), poor mental health (Sikkema *et al.*, 2011), consumption of substances (Leigh et al. 1993), partner violence and / or sexual coercion (Pengpid et al. 2020) are also found to be significantly associated with risky sexual behaviours of the university students.

Increasing access to media, urbanization and globalization preceded these young individuals to grow up and live in an era of fast changing, diverse socio cultural and economic contexts. They experience, share important challenges and opportunities related to their sexual and reproductive health. The young adults often find themselves in conflicts with the traditional, conservative socio – cultural attitudes towards various aspects of SRH issues. These factors contribute to significant barriers that restricts young people's access to information and services that are essential to make a healthy transition into adulthood.

In many societies, onset of sexual activity is associated mostly with marriage (Glèlè Ahanhanzo *et al.*, 2018). However, an increasing number are initiating sex before marriage (Tilahun and Ayele, 2013). Exposure to pornographic content, consumption of substances, level of education, family structure, peer influence, beliefs and values regarding sexuality are observed to be associated with the initiation of pre-marital sexual intercourse (Parkes et al. 2013). The incident of sexual harassment, coerced sex and sexual violence also causes critical concern for many countries irrespective of socio economic and cultural differences (Barbara et al. 2022).

Equipped with insufficient knowledge and life-skills needed to negotiate safe and consensual relationships to avoid unsafe sex and its consequences - young people often find themselves in disadvantageous situation. They also contend with considerable barriers in accessing services and commodities due to conservative social norms and restrictive attitude towards SRH issues (Speizer et al. 2003).

Incident of child marriage, adolescent pregnancy, domestic violence, sexual exploitation often restricts the adolescents as well as young adults from having appropriate opportunities to enhance their overall health during their process of growing up (MOHFW, 2016). In Bangladesh, a substantial proportion of marriage still take place before the legal age of marriage for women being 18 years in Bangladesh (WHO, 2015). The rate of child marriage is still among the world's highest, with a median age of 16.1 years at first marriage among women (Presler-Marshall, 2017). Bangladesh experiences the highest rate of adolescent fertility. There are 113 live births per one thousand women aged 15–19 years. 31% of married adolescents aged 15–19 are already mothers or pregnant with their first child and nearly 70% give birth at 20 years old (BBS, 2020). Apart from this, range of abuse including verbal bullying and assault, physical aggression, sexual exploitation, and intimate partner violence has also been emerging as major social concern in recent days(BBS, 2013).

However, unlike many countries, national-level data describing sexual activity of young people, particularly unmarried young people and young adolescents are limited in Bangladesh (UNFPA, 2015). Socio cultural customs of Bangladesh initiates self-imposed restriction on public discussion about the attitude, practice and behaviour associated with SRH (Arafat *et al.*, 2018). Hence contributing to scarcity of research in Bangladesh concerning sexual behaviour, attitudes towards sexual and reproductive health practices of the young adults including university students as well. In Bangladesh, sexual and reproductive health knowledge and practices among university students are not well documented. Thus, one of the themes of the current project is to explore the fundamental relationship practices and sexual behaviour of the university students of Bangladesh and identify the factors associated with such practice.

2.4.3 Accessing the SRH related services and sources of information among the university students:

Despite making some remarkable development over last few decades in health care support services, there remains considerable gaps and unmet need to ensure an all-inclusive sexual and

reproductive health care. In Bangladesh, the primary focus of the existing reproductive and health care programmes establishment is tailored mostly as part of family planning program mostly designed to provide SRH information and services to married couples (Anik *et al.*, 2019; Azim *et al.*, 2022). No national-level data exists to measure the SRH needs of the adolescents and young adults. Social norms also cause increased obstacles in securing information services for unmarried young people. Considering the fact, young adults make up a considerable and still growing segment of the population, their sexual and reproductive health deserves critical attention in the streamlining of effective SRH information and service delivery infrastructure.

Young people in Bangladesh lack sexual and reproductive health (SRH) information and services. Health of young people often compromised due to the sexual and reproductive health (SRH) burden. putting them at risk for unintended pregnancy, unsafe abortion, and maternal mortality. For example: more than four out of five adolescents ages 15 to 19 have never been married, two out of five mothers under age 25 in Bangladesh reported that their last pregnancy was unintended (Islam *et al.*, 2017). Ensuring proper utilisations of sexual and reproductive health (SRH) services among young people is vital in reducing sexual and reproductive health problems. Access to youth friendly health services is vital for ensuring sexual and reproductive health (SRH) and well-being of young adults. Young people, including those who are sexually active, have difficulty finding information services. Even if they can find accurate information, for many of them access to the services needed to act on that knowledge and protect their health is often not approachable (UNESCO, 2018). According to Thongmixay et al. (2019b), this is because there is a shortage of acceptable service locations or a lack of financial and social autonomy, both of which hinder their access. According to Newton-Levinson et al. (2016), in order to meet the sexual and reproductive health (SRH) requirements of adolescents and young adults, it is necessary to ensure that they are aware of and able to access SRH information and services in a manner that is voluntary, comfortable, confidential, and free from the fear of being discriminated against. Inadequate understanding about contraception and how to acquire health care, an increased risk of sexual violence, and a lack of independence in determining whether to have children or whether to use contraceptives are some of the additional reasons why many adolescent women in underdeveloped countries are particularly vulnerable. The purpose of this study was to evaluate the experiences, views, and utilisation of sexual and reproductive health services among undergraduate university students.

2.4.4 On campus sexual harassment in the context of Bangladesh

Sexual harassment of university students is a pervasive issue, with significant impact on the victims. It often goes unreported due to normalization and fear of consequences. This is evident in the case of Dhaka University, where female students face daily harassment (Abraham, 1996; Khan, 2018). The term "sexual harassment," coined in the early 1970s, became commonly used by the 1980s (Hill and Silva, 2005). Sexual harassment (SH) is defined as "any physical, verbal or nonverbal conduct of a sexual nature and other conduct based on sex affecting the dignity of women and men, which is unwelcomed, unreasonable, and offensive to the recipient"(ILO, 2000). Sexual harassment can be physical, psychological, verbal, and non-verbal and can include conduct such as: sexual violence and assault, including rape; unwelcome requests for sexual favours and dates; unwelcome touching; leaning over; cornering; stalking; making sexually lewd comments or unwelcome communications of a sexual nature, including displaying or sharing sexually lewd pictures and pornographic material (CEDAW,1992). Sexual harassment can be a 'one-off' or 'repeated behaviour'. It violets a person's dignity and creates an intimidating, hostile, degrading, humiliating or offensive environment for the victim (Pilinger et al. 2019). Although women are most reported victims, anyone may be subject to sexual harassment **at** any time and any place (UN Women, 2019). The sense of vulnerability and incapacity to react to the traumatic experience of sexual harassment affects the self-esteem of the victim (Kalra and Bhugra, 2013). Sexual harassment impacts individuals, groups, and entire organizations in profound ways.

Universities serve as a central point for sharing knowledge and are required to possess and maintain a high standard of human rights and mutual respect. Sexual harassment can occur within the confines of a physical space, contrary to popular belief. Sexual harassment encountered by students in academic institutions is a common and widespread occurrence. (Klein and Martin, 2021). It has long been and unfortunate part of the educational experience, affecting students 'emotional wellbeing and their ability to succeed academically. In some instances, the incidences of on campus sexual harassment have been identified at the epidemic levels (Abbott, 1984). During recent #MeToo movement, thousands of students have spoken out their experiences of on campus sexual harassment (Hardy, 2018). In many occasions the experience of sexual harassment happens even before commencing university education (Cantor, Townsend and Hanyu, 2015). The types of sexual harassment reported by the students includes but not limited to – inappropriate comments, jokes, remarks about body and appearances (Krebs *et al.*, 2016), unwanted sexual photos and video content (Rospenda et al.,

2000; Yoon et al., 2010). Students experiences sexual harassment by their peers (Kelley et al. 2000), faculty members or in some cases administrative staffs (Wood et al. 2018). On campus sexual harassment takes place mostly at relatively isolated areas of campus, classrooms or labs, dormitory, and so on (Clodfelter et al. 2010).

Despite significantly high prevalence of on campus sexual harassment most incidents of sexual harassments goes unreported (UN Women, 2019). The victims and bystanders of on campus SHs refrain themselves from lodging official complaint due to fear of retaliation by the perpetrators (Foster et al. 2018), to avoid scrutiny and stigmatisation (Bondestam et al. 2020). The victims often suppressed their voices or remained silent against sexual harassment from fear of academics troubles, administrative hassles and unresponsiveness, lack of transparency, troubles, and often due to doubts about the incapacity of the authority to respond and act in due diligence (Foster et al. 2018). Social stigma refers to the negative perception, inferiority, and relative incapability collectively harmonized by society to people of a particular group (Herek, 2009). Fear of social stigmatization and shame also contribute to suppressing emotions and remaining silent against SH (Tyson, 2019;Karla et al. 2013).

In the context of Bangladesh, in general - work place sexual harassment and abuse is being identified reported in several studies (ActionAid, 2019; ANNI, 2019). Recent study based on articles published on newspapers on violence against women, rape and sexual harassment indicated increasing trends in such incidents (ASK, 2020) The statistics presented in the mentioned report are based only on reported case of rape and sexual harassment. Experts anticipates the actual numbers of rape and sexual harassment are to be much higher, as most cases have never been reported due to stigma, shame, distrust on and ineffectiveness of the law and justice system (Islam, 2020). However no national level data is found related to on campus sexual harassment. Research in Bangladesh has highlighted the prevalence of sexual harassment among female students, with a focus on rural areas (Alam, 2010; Parvej, 2020; Khan, 2018). The perpetrators are often male, and the harassment can have significant negative impacts on the victims' mental and physical health (Klein, 2019). However, there is a need for more specific studies on the nature and extent of on-campus sexual harassment experienced by students in Bangladesh.

The Supreme Court of Bangladesh issued an 11-point directive in 2009 to address and eliminate sexual harassment in educational institutions and businesses. As per the instruction, every

university is required to establish sexual harassment committees in order to implement effective measures for the prevention of sexual harassment. Universities were requested to implement awareness campaigns regarding sexual harassment, which including organising seminars and discussions on the topic (Banarjee, 2020). Despite the establishment of sexual harassment prevention committees in a fair number of public and private universities, the majority of these institutions in the country display apathy and a lack of genuine dedication towards preventing, monitoring, and resolving complaints of sexual harassment from students and staff. The University Grants Commission (UGC) relies on media reports to stay updated on occurrences of sexual harassment, as universities frequently fail to promptly report such incidents (Abdullah, 2022). University students often lack awareness of the presence of such committees (Farhat, 2022). In addition, there is a little amount of research on sexual harassment in the academic field, namely within the higher education sector (Rezvi et al., 2021). Therefore, the study aims to investigate the prevalence of sexual harassment among university students in Bangladesh and assess the strategies implemented by universities to address this issue.

2.5 Chapter summary

Bangladesh is not a frontrunner in terms of health literacy (Ahsan et al. 2016). Across different segments of the society irrespective of age, gender, marital status, educational background and other relevant social denomination - the lack of knowledge, negative attitude and behaviour associated with SRH related issues have been reiterated in numerous studies (Zakaria et al. 2020; Ainul et al., 2017). Traditional cultural norms, societal stigma and conservative attitudes surrounding SRH often restricts open discussions and access to services. Students may face judgement, discrimination, and reluctance to seek support, leading to a reluctance to address their SRH health needs (Nahar et al. 1999). Sex education is not widely available in schools and many families do not discuss these topics with their children (Rob et al. 2006). Hence the lack of SRH associated knowledge among the undergraduate university students in Bangladesh quite expected. The students may be unaware of the risks of early pregnancy, sexually transmitted infections (STIs) and unplanned pregnancy. Ensuring accessible ‘on’ and ‘off’ campus SRH care services for the university students have always been challenging. Barriers may include limited availability of services, financial constraints, lack of privacy and confidentiality measures. University students are often engaged with risky sexual behaviour involving unprotected sex, multiple sexual partners, and inconsistent use of contraceptive. This may be due to a lack of knowledge, negative attitude, or lack of access to contraception. Unsafe

sexual practices may contribute to the increase of risk and prevalence of unintended pregnancies, STIs, and other negative health consequences.

As a young adult the university student in Bangladesh have numerous challenges and vulnerabilities when it comes to addressing sexual and reproductive health (SRH) concerns. To promote healthier behaviours and enhance their sexual and reproductive health outcomes, it is necessary to comprehend and tackle the specific issues individuals face. To effectively tackle the problems and encourage sexual and reproductive health (SRH) among university students in Bangladesh, it is crucial to implement interventions that are supported by solid evidence. Developing focused methods that address unique requirements, cultural context, and social norms is essential for ensuring overall well-being and promoting healthy sexual and reproductive health practices. It is crucial to evaluate the level of understanding regarding sexual and reproductive health (SRH) among undergraduate students. This includes identifying their health-seeking behaviour and the challenges they face in accessing related healthcare services. Additionally, it is important to examine the nature and extent of intimate relationships among university students. Lastly, efforts should be made to investigate the prevalence of sexual harassment on campus. The discoveries could be utilised to create interventions aimed at enhancing the sexual and reproductive well-being of undergraduate university students in Bangladesh.

Chapter 3
Research Methodology

3.1 Introduction

The present chapter describes the different aspects of the project's research methodology. In this case, the positivist paradigm is explained briefly. A brief description of demographic profile of the study population is given to help understand the selection, data collection and sampling methodology considered for this project. The discussion also includes the inclusion and exclusion criteria of the sampling units and the ethical considerations associated with this research project.

3.2 Specifying the research paradigm

A research paradigm is a set of commonly held beliefs and assumptions within a research community about ontological, epistemological, and methodological concerns. Such a paradigm constitutes a mental model that influences and structures how the members of a research community perceive their field of study. In his influential book "The Structure of Scientific Revolutions," American philosopher Thomas Kuhn defined the term "paradigm" as a conceptual framework for thinking (Kivunja et al., 2017). The term "paradigm" is employed by scholars to refer to a researcher's viewpoint while approaching a specific research subject (Mackenzie et al., 2006). A research paradigm encompasses the viewpoint, thinking process, or specific school of thought that guides the understanding and interpretation of research findings (Lather, 1986; Lincoln et al., 2000). The conceptual framework is a tool used by researchers to assess the methodological components of their research project. It helps identify the research methodologies to be utilised and how the data will be analysed (Denzin et al., 2013).

Positivism, social constructionism, critical and postmodernism are the four predominant paradigms that guide researchers in conducting the quantitative research. Each of these paradigms is based on certain set of assumptions. The positivist paradigm attempts to interpret based on facts or measurable entities (Fadhel, 2017). To provide explanations and predictions based on measurable outcomes - the positivist paradigm relies on deductive logic, offers operational definitions, formulation and testing of hypotheses, develop mathematical equations, calculations, extrapolations, and expressions (Morgan, 2007; Kivunja et al., 2017).

The social constructionism paradigm is founded on the notion that social context and interaction establish realities (Burr, 1995). This theory posits that the generation of knowledge and reality is inherently intertwined with the social context in which it originates. Reality is commonly perceived as being multi-faceted and intricate. The interpretation and interaction of persons within their social context can vary. One phenomenon can be subject to different interpretations. The social constructionism paradigm utilises research methodologies to investigate and comprehend the ways in which individuals interpret and engage with their social surroundings. The primary focus of this paradigm is on interpersonal connections and acquiring knowledge through active engagement in social environments (communities) (Berger et al., 2011).

The core emphasis of the critical paradigm is on power imbalance, inequality and seeks to change them (Calhoun *et al.*, 2012). It speculates that social sciences can never be objective or value free. Critical paradigm operates from the perspective that research investigation should be conducted with the express goal of social change in mind. In critical paradigm, researchers might commence with the understanding that systems are biased against certain marginalized group of entities. Research projects are then carried out to foster positive change in the research participants and the systems being studied as well as collect important data to undertake remedial measures required for social changes. The post modernism paradigm assumes there are no universally true explanations. Truth is always bound within historical and cultural context (Best et al., 1991). It challenges inherent problems associated with all other paradigms.

Sexual and reproductive health is an integral part of overall health, well-being, and quality of life. Both social constructionism and positivism are found to be pertinent in the discussion of issues related to sexual and reproductive health (Delamater and Hyde, 1998). SRH involves a wide range of health issues that are again influenced by numerous interrelated socio-economic and demographic features. Individual’s knowledge about sexual and reproductive health is recognized as an important predictor that shapes sexual attitude and practice and one of the prerequisites to leading a safer and healthier life. Social constructionist theory asserts - sexual behaviour is constructed through the environment in which the individual exists (Giles, 2006). The paradigm is well-suited to understanding how social norms, cultural beliefs, and power dynamics influence people's experiences and decisions regarding sex and reproduction (Taiwo, Oyekenu and Hussaini, 2023). Social constructionism allows for a deeper understanding of the social impacts on behaviour and helps in identifying and addressing cultural biases. For

instance, social constructionism can help researchers understand how ideas about masculinity and femininity shape sexual behaviours or how cultural taboos can affect access to contraception (Marecek, Crawford, and Popp, 2004). On contrary, Positivism is highly effective in collecting data on large scale, enabling the identification of risk factors, and establishing causal linkages (Park, Konge and Artino, 2020a, 2020b). For instance, positivist research methodologies might be employed to examine the efficacy of various sexual and reproductive health interventions or to ascertain the factors that contribute to elevated rates of adolescent pregnancy (Alukagberie *et al.*, 2023; Seidu *et al.*, 2023). The positivist paradigm of exploring social reality is based on the idea that one can best gain an understanding of human behaviour through observation and reason. Stated differently, only objective, observable facts can be the basis for science. According to the positivist paradigm true knowledge is based on experience of senses and can be obtained by observation and experiment. Positivist thinkers lean strongly on determinism, empiricism, parsimony, and generality (Schutt, 2006).

Understanding the impact of social factors in shaping up the knowledge, attitudes and behaviours of the university students was not the objective of the study. Instead, the objective of this study was to determine the existing level of knowledge, perceptions, and dominant practices of the study population. Hence to measure the association with the social factors with the level of knowledge, attitude and practices, the research paradigm of positivism had been considered for the project. Positivist paradigm systematizes the knowledge generation process with the help of quantification, which is essential to enhance precision in the description of parameters and the discernment of the relationship among them (Henning et al., 2004). Hence the project adopted positivist paradigm and used quantitative data analysis to answer the research questions.

3.3 The influence of components research paradigm in the study design

Paradigm comprises four elements - ontology, epistemology, methodology and axiology (Lincon et al., 1985). Intelligible understanding of these elements is essential as these comprise the basic assumptions, beliefs, norms, and values that each paradigm holds (Kivunja et al., 2017). By careful consideration of the components of the research paradigm, sexual and reproductive health research can be conducted with rigor, respect, and a focus on improving the well-being of individuals and societies. Here's how the components of paradigm came into play in the specific context of this study –

Ontology - as an integral part of a research paradigm, focuses on the essential nature of existence and the criteria for considering something as knowledge within that existence (Guraya *et al.*, 2023). Within the context of a research paradigm centred on sexual and reproductive health (SRH), ontology refers to the underlying assumptions about the nature of reality that researchers use when studying the issue. The chosen ontological perspective has a considerable influence on the development of research questions, the methodology used, and the interpretation of results in a particular study (Markham *et al.*, 2010; Plourde *et al.*, 2016). In this case, ontology examines the formation of knowledge, attitudes, and behaviours related to sexual and reproductive health (SRH). It enables researchers to investigate whether an individual's biology is primarily responsible for shaping them, or if it is influenced by societal influences such as cultural standards, religious views, and access to education. Researchers may investigate the interplay of these components in order to generate a wide range of experiences. This study was predicated on the premise that quantitative measures can yield useful insights in discerning the degree of knowledge, attitudes, and behavioural practices pertaining to sexual and reproductive health among university students, as well as the impact of various social factors.

Epistemology discusses methods to be considered to reliably assess peoples' understanding about SRH (Kivunja and Kuyini, 2017). Researchers must decide whether to use surveys to accurately capture level of knowledge, attitudes and practice associated to SRH or to adopt qualitative methods like interviews (Busetto, Wick and Gumbinger, 2020; Sharma *et al.*, 2023). Researchers might choose a combination of methods based on the specific focus of the study (Aspers and Corte, 2019; Ivanova *et al.*, 2019). Adopting mixed method often considered to be ideal for comprehensive understanding of the sexual and reproductive health related level of knowledge, attitudes, and practices of the target population (Wasti *et al.*, 2022; Seidu *et al.*, 2023). Qualitative methods shed focus on understanding the "why" and "how" behind the attitudes and experiences of sexual and reproductive health practices of the target population. In contrast, quantitative methods evaluate the prevalence and extent of knowledge, attitudes, and practices linked to sexual and reproductive health among the target population by focusing on the "what" and "how much". It also identifies the potential influence of socio-demographic parameters. Considering the objective of this study and the logistic constraints, survey was considered as tools to capture the desired outcome.

Methodology bridges the gap between the theoretical underpinnings and the practical application of research (Iwelunmor *et al.*, 2021). It involves translating the research questions and overall research design into concrete steps. In the context of sexual and reproductive Health (SRH) research, methodology is the specific set of tools and practices that researchers adopt to investigate a question. It acts as a crucial component within the broader framework of a research paradigm. Once a paradigm is chosen, the researcher selects specific methods to gather and analyse data aligned with the chosen paradigm (Brown and Dueñas, 2020a; Naeem *et al.*, 2023). For example, positivist research paradigm that emphasizes objectivity and quantifiable data, aligns best with quantitative methods of data collection such as structured questionnaire. Employing questionnaires with closed-ended questions (multiple choice, Likert scale) allows researchers to gather large amounts of data on specific variables from a broad population(Reed *et al.*, 2021). It is worth mentioning that while quantitative approaches are suitable for positivist research, other paradigms in SRH research may include qualitative methods (such as interviews and focus groups) to acquire a more profound knowledge of experiences and social situations (Teherani *et al.*, 2015). This study was aimed to gather data on assess knowledge, attitudes, and behaviours related to SRH of the undergraduate university students. Considering the personal nature of study, anonymous structured questionnaire was employed to collect data. Qualitative approaches such as focus groups and interviews were not utilised as data collection tools mostly due to limited resources and to avoid issues arising from Covid-19 restrictions.

Axiology is the element within the research paradigm that concerns the values and ethics of research, and it plays a crucial role in sexual and reproductive health (SRH) studies. Axiology aware researchers to be mindful about the power dynamics to ensure equity and empowerment of the participants (Biedenbach and Jacobsson, 2016). Axiology emphasizes obtaining informed consent from participants. This means participants freely choose to participate after fully understanding the research process, potential risks, and benefits, and how their data will be used. Protecting the privacy and confidentiality of participant data is paramount. Researchers must take steps to anonymize data and ensure it cannot be traced back to individuals. By carefully considering axiology within the research paradigm, sexual and reproductive health research can be conducted ethically, responsibly, and with a focus on promoting the well-being of individuals and societies (Shirmohammadi *et al.*, 2018; Brown and Dueñas, 2020b). It ensures the participants that the research contributes to positive change and avoids causing harm to participants or the communities involved. Anonymous structured questionnaire survey was adopted considering the delicate nature of the topics to efficiently

apprehend the influence societal factors on the students. Informed consent sheet was included along with the questionnaire to clearly describe the research process, potential risks, and benefits, and how their data will be used. The survey was entirely anonymous and necessary measures were taken to protect participants privacy and confidentiality. The participants were able to decide freely about their participation in the survey.

3.4 The impact of Covid-19 pandemic on study

The presence of the pandemic COVID-19 during the early stage of the project greatly influences the decision of planning different steps of the execution phase. This researcher had to decide on different execution stages bearing in mind the plausible obstacles and uncertainty raised due to Covid 19 pandemic. Preventive measures such as lockdowns, travel restrictions and social distancing adopted due to pandemic. Access and mobility restriction made it difficult for this researcher to approach target communities or recruit participants from different universities across the country. Lower participation rates in the study were also anticipated due to fear of contracting COVID-19 in healthcare settings or during in-person data collection. The initial consideration to adopt mixed methodology, incorporating qualitative research through focus group discussions or face-to-face interviews, was abundant due to such restriction. To address these challenges, in this research remote data collection using online questionnaire was considered as most appropriate.

3.5 Understanding the socio demographic profile of the target population:

The socio economic and educational background have significant impact on sexual and reproductive health practices. Individuals from low socio-economic back grounds may have limited access to healthcare facilities, information and resources related to sexual and reproductive health. Which may eventually result in higher rates of unintended pregnancies, sexually transmitted infections (STIs) and other reproductive health problems. Individuals with higher level of education tend to have better access to information and resources related to sexual and reproductive health, leading to more informed decisions and healthier practices and life choice.

The pre university education in Bangladesh is delivered in / comprises of three different stages (Chowdhury et al., 2018) :

- Primary schooling (up to grade eight)

- Secondary schooling (comprises of grade nine and ten)
- Higher secondary (comprises of grade 11 and 12)

Bangladesh's present system of education is characterized by co-existence of following three separate streams running parallel to each other (Rahman *et al.*, 2010)

- Bengali medium – Bengali medium education is the most prevalent form of education in Bangladesh. The curriculum is designed and taught in Bengali,
- English Medium – In recent decades English-medium schools are growing in popularity particularly in large cities of the country. These schools follow mostly the curriculum of Edexcel and Cambridge of UK.
- Madrasahs or religious schooling - Madrasahs or religious schooling offer separate curriculum from mainstream schools and colleges. It focuses mainly on Islamic studies, Arabic language, and religious education.

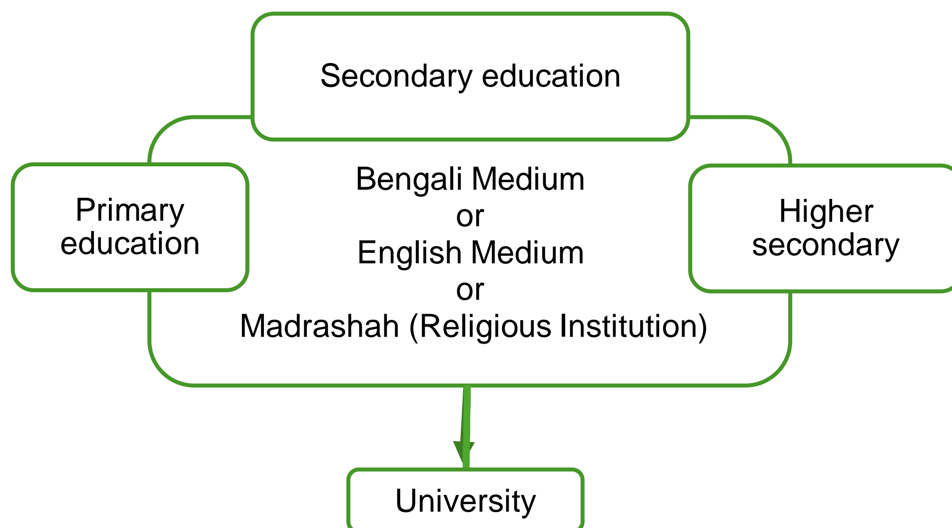

Figure 3.1: Diversity in pre university education of Bangladesh

In addition, to the variation in curriculum, there might be significant differences in the socio-demographic backgrounds of pupils attending different streams of schooling (Kalam Azad, 2018). Bengali medium schools are usually state-run or low-cost private schools and are typically attended by students from lower to middle income families. These schools tend to have fewer resources that may negatively impact the quality of education provided. English medium schools tend to be more expensive (Kader and Salam, 2018). English medium schools are particularly gaining popularity among financially well-off parents of middle to higher income families. These schools tend to have more resources and usually deliver better quality

education. Madrasahs are typically attended by students from lower – income families, who may not have access to other forms of education. Although the quality of education provided in madrasahs can vary as well with some offering a good standard of education; majority of them usually are struggling to provide quality education due to acute lack of resources (Karim, 2018). Having spent most of their time in the classroom - educational institute often significantly influence students' health care practices that are crucial to help them lead a quality life (Pulimeno et al., 2020). In addition to the influence of educational institutions, the social norms, attitudes, behavioural practices, and access to logistical support based on the socioeconomic class of students from different pre-university background can potentially have a substantial influence on shaping their social and moral beliefs, learning, and lifestyle practices during their university life. Therefore, the inclusion of pre-university educational background serves as a substitute variable to symbolise the collective impact of the students' socio-economic background and the calibre of education they obtained at their pre-university academic institutions.

According to list published on the website of the University Grants commission, the regulatory body of the universities of Bangladesh - there are 46 public universities and 107 private universities in Bangladesh approved by the government of Bangladesh (UGC, 2020). A total of nearly nine hundred thousand students' studies in this universities (World Bank, 2019). Typically, most undergraduate students in Bangladesh begin their studies at the age of 18 after completing their secondary education. In recent years, there has been an increase in the number mature students due to numerous reasons, e.g. to work or often to start a family. There after it is safe to anticipate that - with some exceptions, in Bangladesh undergraduate level university students comprise of the people aged between 18 to mid-twenties. According to WHO - 'Adolescents' is defines as individuals in the 10-19 years age group and 'Youth' as the 15–24-year age group. While 'Young People' covers the age range 10-24 years (WHO, 2006a). Thus, undergraduate university students in Bangladesh comprises mostly of the people who are at the later stages of their adolescent period and about to commence experiencing young adulthood.

3.6 Selection of data collection methodology

Selecting an appropriate data collection methodology is essential to ensure that the data collected is reliable, valid, and appropriate for the research questions being asked. Factors considered when selecting a data collection methodology includes but not limited to

- *Research questions* – The research questions often guide the selection of the data collection methodology. For example, focus group discussion or interview may be the best options if the aim of the research question is to understand the attitudes and perceptions of individuals (Nyumba et al., 2018) On contrary surveys or secondary data analysis may be preferred if the aim is to determine the prevalence of a particular health condition or social practices (Paradis *et al.*, 2016).

- *Population* – Considering the characteristics and composition of population remain vital in the selection of data collection methodology. For instance – to deal with a population with low or no literacy face to face interview may considered to be more effective than self-administered questionnaire (Bowling, 2005).

- *Type of data* – Types of data or information to be collected influence the selection of data collection method. While surveys are better suited better for collecting quantitative data, interviews and focus group discussion are preferred to collect qualitative data (Puhan *et al.*, 2011).

- *Resources* – availability of resources in terms of time, budget, manpower and so on all ways remains as prime concern in deciding the data collection method for any study. For instance, administering face to face interviews may require more time, trained expert interviewer and other resources than administering a web-based survey or telephone survey(Szolnoki and Hoffmann, 2013).

- *Ethics* – The ethical considerations of the research project should be considered when selecting a data collection methodology. Obtaining trust of the participants by assuring their privacy and confidentiality always remain a key integral component in any data collection method. Researcher ought to protect participant(s) from any potential harm or minimize discomfort to participant(s).

- *Availability of existing data:* Secondary data analysis may be more appropriate and cost effective than collecting primary data if government statistics or medical records are available.

Combining different data collection methodologies can also provide a more comprehensive understanding of the research topic. Thus, selection of an appropriate data collection methodology requires dealing with careful conjoined consideration of the issues. As of this research - self-administered questionnaire was appropriate for the purpose of data collection contemplating the following fact –

- The research questions under consideration involved assessing the level of knowledge, attitude towards and practices of the undergraduate university students.

- All the participants were literate. They would be able to read, understand and answer the questions all by themselves without any assistance.

- Information's about to be collected for the research were quantitative in nature.

- SRH is still a cultural taboo in Bangladesh, especially for adolescents and young people, and particularly outside marriage (Nahar et al., 1999; Ainul et al., 2017; Biswas et al., 2022). Discussion of SRH related issues in public sphere is considered very unusual. Even parents do not feel comfortable discussing SRH issues with their adolescent children and schools provide very limited or no information on SRH (Ainul, et al., 2017c). Practically no comprehensive study was found to be associated to meet the research objectives and of the target population.

- Qualitative methodologies, such as focus groups and interviews, were not employed for data gathering primarily due to budget constraints and to mitigate potential complications stemming from Covid-19 associated restrictions.

3.7 The questionnaire

To select components or questions to be included for a sexual and reproductive health survey a researcher must focus on using designated validated instruments, keep in mind the characteristics of the population under study, be aware of resource availability and address the norms of ethical considerations. Several frequently used data collection tools were being consulted / accessed e.g. Demographic and health surveys (DHS) questionnaire, Youth Risk Behaviour Surveillance System (YRBSS) questionnaire, Sexual Behaviour Questionnaire (SBQ), Female Sexual Function Index (FSFI), Male Sexual Health Questionnaire (MSHQ),

WHO recommended Illustrative Questionnaire for Interview – survey with young people (Cleland *et al.,* 2001) - to identify appropriate content in relevance with the study population and research question(s). Necessary modification is done in accordance with the purpose and social context of the proposed studies.

A lot of consideration and thoughts had to be invested into generating questions around sensitive sexual and reproductive health issues and subsequent modifications were done to make them culturally sensitive. For example, since, asking direct question of having sexual relationship can be inappropriate respondents were asked 'Have you ever been in any romantic relationship?' if yes then 'Were you physically intimate in that relationship' instead of directly asking 'Did you have sex with your partner/lover?'

The questionnaire consists of the following sections.

- ***About the survey*** mentions the where about of the principal researcher, along with supervisor(s).

- ***Objective of the survey*** – describing the objective of the survey.

- ***Participant information sheet* –** clearly describes / addresses information related to
    - who is invited to participate?
    - What tasks will the participants asked to do?
    - Do the participants have to participate?
    - What if the participants change his / her mind?
    - Will there be any financial benefit to participant?
    - How will the data be handled that participants provide?
    - How does this research ensure safety of the participant?

- ***Informed consent sheet* –** for participant's consent.

- ***Section One*** – Includes socio demographic questions. Collect information on age, gender, religion, educational background and so on.

- ***Section Two*** – includes questions related to

- source of sexual and reproductive health related information,
- access to formal SRH education curriculum.
- assess the knowledge of SRH of the participants associated to symptoms and spread of STIs.
- Attempts to identify university student's view on various relationship issues.

- ***Section Three*** – Ask questions about access to sexual and reproductive health services, utilization of services, and satisfaction with services. Also includes question(s) related to availability and use of on campus SRH services.

- ***Section Four*** – includes questions associated with
  - existence of relationship
  - pattern of relationship maintained.
  - level of intimacy experienced.
  - plausible risk associated of unwanted pregnancy, STI and so on.

- ***Section Five*** – includes questions related to incident of
  - on campus sexual harassment (if any) experienced or witnessed by the students.
  - types of the sexual harassments experienced or witnessed by the students.
  - frequency of the sexual harassments experienced or witnessed by the students.
  - institutional responses in dealing the issue.

- ***Thank you*** note to appreciate students' patience and cordial participation.

3.8 Data quality control

Before the data to be collected, the questionnaire was shared with the subject experts back in Bangladesh, and with the supervisors for their opinions and recommendations. Necessary amendments (e.g. removing unclear questions, arranging the sequence of the questions, avoiding use of ambiguous terms and so on) were made in accordance with the given recommendations. The data was collected using the google form. To test the accessibility of the google link, smooth surfing within different module / segment of the questionnaire and to learn about the participants version of opinion regarding the sensitive contents – the questionnaire was distributed among limited number of students for pretesting. Required

troubleshooting were carried out to accordingly. Once the link has been shared among the students for final participation – by default the data were directly stored in excel file linked with the google form. Progress of the data collection were monitored regularly. To ensure the quality of data the stored information's are monitored on regular basis to check to completeness.

3.9 Selection of sampling design

The initiative collected data through a standardised questionnaire sent to undergraduate students currently enrolled at several universities, utilising Google Forms. Given the constraints of random sampling methods, non-probability sampling was deemed appropriate for selecting sample units. Random sampling methods depend on the use of sample frames. Keeping an up-to-date sample frame can be difficult for various reasons. Individuals who are chosen at random may exhibit reluctance to engage in a survey or interview, resulting in decreased response rates and the possibility of data that is skewed or influenced by bias. In addition, the randomly selected sample units may be dispersed across a wide geographic area, making it challenging to access them. In contrast, non-probability sampling encompasses a range of techniques in which researchers select individuals based on their subjective assessment or convenience, rather than by random selection. It prioritises specific attributes or convenience, rather than providing an equal opportunity for every individual in a population to be chosen. Due to the personal nature and social stigma surrounding the study, the non-probability sampling method was deemed the most appropriate for reaching the target demographic. Common types of non-probability sampling methods include convenience sampling, snowball sampling, quota sampling, and purposive sampling.

Snowball sampling techniques was considered to reach the required number of participants. Snowball sampling or chain-referral sampling is a non - probability sampling scheme. Researchers (Kirchherr et al., 2018) usually adopt snowball sampling in situation -

- If there is no or difficult to generate a complete list of sampling units of the target population (e.g., list of child labour, homeless people etc.).
- If substantial challenges involved if contacting members of the target population (e.g., victims of rare diseases).
- If the members of the target population are not inclined to participate due to a social stigma attached to them (hate-crime, rape or sexual abuse victims, sexuality, etc.)

- or if the respondents are cautious about the secretiveness about their identity (e.g. government officials, member of cult or are religious extremists or hackers etc.)

For this instance, from administrative point of view - generating a comprehensive updated list of all undergraduate students in all the universities in Bangladesh would not be possible. Also considering the sensitive nature of the research topic low rate is anticipated to be significantly higher in case study elements are selected using random sampling method. Hence exponential non-discriminative snowball sampling is adopted to reach out the participants instead of any random sampling techniques.

Exponential non-discriminative snowball sampling is a recruitment technique used in research where the target population is hard to reach or hidden. It's useful for studying sensitive topics where social stigma might prevent open participation. Initially, the link of the questionnaire was distributed to the faculty members of different universities. Prior to that, the faculty members will be clearly briefed about the rationale, objective, sensitive nature, and confidentiality terms of the project. As initial seed, designated faculty members shared the questionnaire among respective students who were willing to voluntarily participate in the study. In the next stage, initial participants were asked to share the questionnaire among their social network who also meet the criteria. Each new participant was encouraged to refer others in their network, creating a snowball effect where the sample size grows exponentially. The process was expected to reach out individuals who might not participate through traditional methods due to social stigma. Participants were more likely to trust someone they know within their network, leading to more open and honest response. The process was expected to eliminate the scope of any personal bias of the principal researcher and reduce the non-response significantly as the questionnaire was shared among respondents who were approachable and open for voluntary participation.

Attempts was made to reach out and collect information from all major public (for instance, University of Dhaka, Bangladesh University of Engineering and Technology, University of Chittagong, University of Rajshahi, Shahjalal University of Science and Technology and Khulna University) and private universities (for instance, North South University, BRAC University, Independent University, East West University, Daffodil University, University of Liberal Arts Bangladesh and so on of Bangladesh. Such selection of institutions is expected to

ensure representation of wide range of students from all social status, all educational stream, and all corners of Bangladesh.

3.10 Sample size determination

The sample size for the study was determined based on the Fisher, Laing, Stoekel, and Townsend's formula (Fisher *et al.*, 1991), which requires minimum 384 cases for above 10,000 population to capture adequate power of the statistical tests in general. The questionnaire was disseminated among faculty members of different universities, enabling them to gather data over a period of two months. The process of data collection was not discontinued even after securing the designated number of responses primarily to evade any confusion with the faculty members who were responsible for data collection. It also ensured accumulate substantial representation from each sub class (e.g. different pre-university education stream, types of university etc.) to address any plausible inconsistencies related to missing values or errors in the collected data. Total of 1520 responses were collected during the assigned two months period.

3.11 Variables considered for the study

The objective of the research was to collect data to gain a deeper comprehension of university students' current knowledge level, behaviour in seeking healthcare, attitudes, and typical practices about sexual and reproductive health (SRH). Efforts were also be undertaken to investigate the influence of various socio-economic conditions, diverse pre-university education backgrounds, and types of universities on the concerns related to sexual and reproductive health. Logistic regression analysis was performed to determine whether there exists any significant association between different socio-economic characteristics with SRH knowledge and to examine the influence of selected independent variables (e.g. age, sex, religion, students previous and present education particulars etc.) on dependent variables associated with the different objectives of the study. The details of independent and dependent variables associated with different objectives are given in appendix 7.1 and 7.2.

3.12 Overview of statistical methods used in this study

This cross-sectional study was based on structured questionnaire. Data collections were conducted via google form. By default, the responses were stored in excel file linked with the google form. Data collected in the excel form later converted into IBM-SPSS (Version 28.0).

Data analysis was performed using IBM-SPSS (Version 28.0). Following statistical instruments and measurements were used for the analysis -

i. ***Graphs and charts*** are vital tools for visually representing data obtained in sexual and reproductive health (SRH) studies. They help researchers communicate complex findings to a wider audience, including policymakers, healthcare professionals, and the public. For this instance, bar chart, histogram and pie diagram were used to obtain clear and impactful visuals.

ii. ***Frequency and percentage distribution*** were essentially used for analysing responses with categories (e.g., ever used contraception - yes/no). They show how many participants fall into each category. This helps understand, for example, the percentage of people who have ever been pregnant.

iii. ***Descriptive statistics (measures of central tendency and dispersion)*** play vital role in laying the groundwork for understanding sexual and reproductive health (SRH) within a population. They offer a clear picture of the sexual health experiences and behaviours, allowing researchers to identify trends and potential areas for improvement. Measures of central tendency (e.g. Mean, median and mode) were calculated to determine the most representative value of the variable concern. While Measures of variation (e.g. standard deviation) were used to compare the spread of the measurement. Descriptive statistics can be used to compare experiences between subgroups based on factors like age, gender, socioeconomic status, or location.

iv. ***Chi – square test*** was performed to determine possible association between the different sociodemographic variables and the dependent variable. All tests were two sided. A $p\ value\ 0.05$ was considered statistically significant. The p-value below 0.05 suggests a significant association between the variables. Phi (if both the variables have two categories) and Cramer's V (if at least one of the variables have more than two categories,) coefficient were used to measure the strength of association between the dependent variables and the independent variables under study. The value of phi (φ) lies between $-1 \leq \varphi \leq 1$. Values closer to ± 1 indicates stronger association while $\varphi = 0$ suggests no association between the variable. The value of Cramer's V lies between 0 and 1 (inclusive, $0 \leq V \leq 1$). Higher values of indicating stronger association.

v. ***Test for multicollinearity*** – were carried out as a precautionary measure to ensure the robustness and reliability of logistic regression analysis. Exposure to risky sexual behaviour can be resulted due to numerous interactive and overlapping factors (Pringle *et al.*, 2017). The interpretability as well as stability of predictive model often compromised due to the presence of multicollinearity (Kim, 2019). Multicollinearity exists whenever an independent variable is highly correlated with one or more of the other independent variables in a multiple regression equation and often regarded as problem because it undermines the statistical significance of an independent variables (Yoo *et al.*, 2014; Vatcheva *et al.*, 2016).

   The variance inflation factors (VIF) - a statistical measure, was used to assess multicollinearity in a regression analysis. It quantifies how much variance of the estimated coefficients is increased due to multicollinearity. Specifically, VIF measures the degree to which an independent variable can be predicted by another independent variables in the regression model (Marcoulides and Raykov, 2019). VIF is used to identify which independent variables in a regression model are highly correlated with other variables. It quantifies the extent to which each variable can be explained by the other variables in the model (Gregorich *et al.*, 2021). VIF is stated in numbers. Conventionally a VIF less than 5 indicates a low correlation between the two predictor variables under study. A value between 5 and 10 indicated a moderate correlation, while VIF values larger than 10 are a sign for high, not tolerable correlation of model predictors (Daoud, 2018).

vi. ***Logistic regression analysis*** is a statistical technique often used in sexual and reproductive health (SRH) studies. It's particularly helpful because it deals with situations where the outcome variable is categorical (yes/no or falls into distinct groups), as is common in SRH research. Unlike linear regression which models continuous outcomes, logistic regression focuses on outcomes that fall into distinct categories (Schober and Vetter, 2021). Logistic regression is a powerful tool for identifying risk factors, evaluating intervention, and understanding disparities. The independent variables in logistic regression analysis are the factors that are presumed to be associated with the outcome variable. The independent variables can be demographic (age, gender, marital status, education level, religion, ethnicity), socioeconomic (income, employment status, etc.) or behavioural (sexual activity, use of contraception etc.). The outcome variable in a logistic regression is a dichotomous variable, meaning that it can have only two possible outcomes e.g. 'yes' and 'no'.

The ***adjusted odds ratios (aORs)*** derived from the logistic regression model has the capability to provide coefficients that can reflect both the magnitude and direction of the association between the predictor variable and the dichotomous outcome variable. The aORs are calculated after considering the effect of other independent variables considered in the model. This implies that the adjusted odds ratio for a given independent variable is not biased by the effects of other independent variables that are included in the model (Burgess et al., 2013). An OR greater than 1 indicates an increased odds of the outcome for that category compared to the baseline category. An OR less than 1 indicates a decreased odds of the outcome for that category compared to the baseline category. aOR is useful if the research question is to assess the association between an independent variable and an outcome variable while tasking in to account the effects of another independent variable. The logistic regression model would estimate the odds of being at risk based on the predictor variables. The model coefficients indicate the strength and direction of the relationship between the predictor variable and dependent variable.

In statistics, a significant value at $\alpha = 0.05$ (also known as a p-value) means that there is a 5% chance that the observed relationship between the two variables is due to chance. This is a standard threshold for statistical significance, which means that the relationship is meaningful and not due to random chance. In other word a P-value of 0.05 means that the observed data would be obtained only 5% of the time if the null hypothesis were true (Goodman, 2008)). In the context of logistic regression, a significant value of 0.05 means that the predictor variable is meaningful. This means that there is a 5% chance that the observed relationship is due to chance, but the probability is low enough to conclude that the relationship real (Goodman, 2008; Dahiru, 2011). Thus, a significant value at 0.05 means that the predictor variable is statistically significant and its relationship with the outcome variable is meaningful. Logistic regression helps researchers understand the complex interplay between various factors and sexual and reproductive health outcomes, ultimately informing interventions and improving sexual and reproductive health for all. Effective targeted measures can be amended if the factors associated with the dichotomous dependent variables under study.

3.13 Inclusion and exclusion criteria

- 3.13.1 Inclusion criteria:

  Individuals to be included in the study should meet the following criteria.

- currently enrolled in undergraduate programme of either in public university or in private university.
- Have Email address and have concept of operating internet browser, familiar with the use of google form.
- Able to read and understand English.
- Have internet connection.

▪ 3.13.2 Exclusion criteria:

Individuals to be excluded from the study if.

- Students currently studying at pre university institution.
- Students studying undergraduate courses in any college under National University curriculum.
- Students do not have internet access.

3.14 Ethical Consideration

Data collection for this study was carried out through Google form. Prior to commencing their participation in the study, each student was required to read and confirm their agreement to the 'consent form'. The permission form contained a comprehensive explanation of the study's goal, design, objectives, outcome, and privacy policy. The participants were informed that participation was entirely voluntary and that refusal to participate or withdraw from the trial at any time was allowed, without penalty or loss of benefits. The participants were assured that the data would be evaluated for the purpose of developing the researcher's PhD study while ensuring the participants' privacy and confidentiality. To ensure privacy and confidentiality the questionnaire did not contain any questions that could potentially disclose the identity of the responder. The study solely recorded replies based on case numbers. The principal investigator would securely store the data in a password-protected device. The findings of this study would be disseminated through seminar and published in academic journals. However, the confidentiality of the participants will be strictly maintained, and their identities will not be disclosed in any manner.

The participants were also informed that University of West London (UWL) ethics committee had approved this study and assigned the Reference ID: UWL/REC/CNMH-01061. The researcher would follow the Research Ethics Guidelines as outlined by the UWL. All information would be handled according to the Data Protection Act 1998, and the General Data

Protection Regulation 2018 of the UK. In addition to principal investigator, supervisor and authorized people from the University of West London would looked at the data to monitor to make sure the safety, rights, and other ethical issues related to the research guidance of the UWL.

Obtaining ethical approval from host country institutions were a huge challenge. The Ethical Review Committee (ERC) of Bangladesh Medical Research Council (BMRC) serves as regulatory body of the country for the review of the proposed research proposal involving human subjects to be conducted in Bangladesh. It takes a longer time to get the approval of the proposed studies due to lacks of workforces and bureaucratic complexities. Also there is no annual calendar plan for holding an ethics committee meeting. In Bangladesh, most of the universities do not have internal review board / ethics review committee. These institutions follow their own respective departmental or academic committee approval (Islam and Hossain, 2020). This survey was focused on university students who were 18 years of age or older and was not limited to any specific university. Therefore, obtaining ethical permission from a particular university was unnecessary. Hence for this study, the faculty members who were approached to carry out the survey were given the responsibility to notify appropriate departmental or university academic body and obtaining consent if necessary before commencing the survey.

3.15 Chapter Summary

The discussion of this chapter evolved around different aspects of the research approach employed in the study. Efforts attempted to rationalize the consideration of positivist paradigm for the study. Discussion provided a concise overview of the demographic characteristics of the study population. Essential succinct discussion for comprehending the variables under study, selection process of sample unit, data collection methods, sample methodology, statistical methods used and ethical consideration adopted for this were also discussed.

Chapter 4
Effect of socioeconomic determinants on undergraduate students' sexual and reproductive health related knowledge in Bangladesh

4.1 Introduction

Sexual and reproductive health (SRH) refers to the state of physical, emotional, mental and social wellbeing in relation to sexuality and the reproductive system (WHO, 2018b). It involves the ability to enjoy a safe, satisfying life free from coercion, discrimination, and violence. It also encompasses the right to make informed decisions about reproductive health and access to reproductive health services (UNFPA, 2015). SRH covers a broad range of issues, including but not limited to contraception and family planning, menstruation and menstrual hygiene, prevention and treatment of sexually transmitted infections (STIs), pregnancy and childbirth, infertility, gender-based violence and sexual abuse, and so on (Black *et al.*, 2016). SRH is an essential part of public health that considerably influences the general wellbeing and quality of life (UN, 2019).

Globally, unsafe sex has contributed to one of the most important risk factors for disability and death throughout all the regions in different magnitudes (Glasier et al., 2015). According to the World Health Organisation, globally, about *287,000 women* died during and following pregnancy and childbirth in 2020 (WHO, 2023). Moreover, approximately 73 million induced abortions occur globally annually, with an estimated 21.6 million deemed unsafe. Six out of 10 (60%) of all unintended pregnancies and 3 out of 10 (30%) of all pregnancies end in induced abortion (Bearak *et al.*, 2020). Apart from that, millions more suffer from sexually transmitted infections (STIs) and other reproductive health issues.

The developing countries of Africa (Ajayi *et al.*, 2021) and Asia (Soleymani *et al.*, 2015) experience significant adverse socioeconomic consequences due to SRH-related burdens. In the Asia-Pacific region, SRH issues are particularly prevalent. The region accounts for over half of the world's maternal deaths and one-third of the global unmet need for family planning. In addition, rates of HIV and other STIs are high in many countries in the region, particularly among key populations such as men who have sex with men and sex workers (UNFPA, 2022).

Irrespective of age, gender, marital status, and social orientation, the status of sexual and reproductive health (SRH) remains a significant area of concern in Bangladesh (Zakaria *et al.*,

2020). Here, adolescents and young adults encounter tremendous challenges in making informed life choices. Adolescents and young adults have limited and often restricted access to information and service delivery points linked to sexual and reproductive health (SRH) (MoHFW, 2016). The absence of access to sexual and reproductive health (SRH) information and services renders individuals vulnerable to occurrences of child marriage, adolescent pregnancy, domestic abuse, and sexual exploitation (Power et al., 2023). The rate of child marriage in Bangladesh is still among the highest in the world, and it also has the highest rate of adolescent fertility (WHO, 2018b). There are 113 live births per 1,000 women aged 15–19 years; 31% of married adolescents aged 15–19 have already become mothers or pregnant with their first child; and nearly 70% give birth at 20 years old (BBS, 2020). Apart from this, a range of forms of abuse, including verbal bullying and assault, physical aggression, sexual exploitation, and intimate partner violence, have also emerged as major social concerns in recent days (BBS, 2013). Effective dissemination of SRH-related knowledge can mitigate this adverse impact (Meena et al., 2015). By implementing comprehensive and evidence-based SRH education and services, individuals can make informed choices about their health and well-being, contribute to their families and communities, and lead fulfilling and productive lives (UNESCO, 2018b).

This chapter discusses the importance of appropriately disseminating SRH-related information among adolescents and young adults, identifies the primary sources of such information for Bangladeshi young adults, and examines their limitations. The discussion also attempted to identify the socio-economic determinants of undergraduate university students' level of SRH-related knowledge in Bangladesh.

4.2 Importance of disseminating appropriate sexual and reproductive health related knowledge for adolescent and young adults:

Ensuring comprehensive sexual and reproductive health (SRH) information is crucial for promoting healthy sexual behaviour and preventing negative sexual health outcomes in individuals (Leekuan *et al.*, 2022). Effective dissemination of age-appropriate SRH-related knowledge could play a significant role in improving the following aspects for young adults:

4.2.1 Understanding sexual and reproductive health: SRH education helps individuals understand the physical, emotional, and social aspects of sexual health (DeLacy *et al.*, 2019). Such understanding helps young adults make informed decisions about their sexual behaviour

and consider steps to protect themselves from negative health outcomes such as sexually transmitted infections (STIs), unintended pregnancy, and sexual violence (CDC, 2016).

4.2.2 Promoting Healthy Relationships: Learning about healthy relationships and consent from an early age helps individuals establish positive and respectful relationships as they grow older (Kågesten et al., 2021). This can help prevent intimate partner violence and promote healthier sexual relationships.

4.2.3 Reducing stigma: age-specific SRH information can contribute to reducing stigma and discrimination related to sexual orientation, gender identity, and sexual behaviour (Hussein and Ferguson, 2019). This can help promote acceptance and understanding of diverse sexual and gender identities, particularly among young adults.

4.2.4 Preventing negative health outcomes: Access to comprehensive SRH information helps to lead to better health outcomes and ensure quality life for individuals by preventing negative health outcomes such as STIs, unintended pregnancy, and unsafe abortions (Sully et al. 2020)
.

4.2.5 Empowering individuals: Comprehensive SRH education empowers people to take control of their own sexual health and make informed decisions about their bodies and relationships. This can lead to increased confidence and self-esteem and a better sense of agency over one's own life for young adults (WHO, 2018c).

Thus, in short, appropriate dissemination of knowledge and education about SRH is crucial. It empowers individuals to make informed decisions about their sexual and reproductive lives. Lack of knowledge and access to SRH services can lead to unintended pregnancies, unsafe abortions, STIs, and other negative outcomes, which may eventually initiate social and economic disadvantages for adolescents and young adults and even contribute to promoting gender inequality and social injustice.

4.3 Level of sexual and reproductive health knowledge in Bangladesh

The level of sexual and reproductive health knowledge in Bangladesh varies across different groups of people and regions. Generally, there are still gaps in knowledge and access to sexual and reproductive health services in Bangladesh. Only 36.8% of adolescent girls and 27.5% of adolescent boys in Bangladesh have comprehensive knowledge about sexual and reproductive

health (Williams et al., 2021b). A study (BBS, 2020) shows that only 61% of married women in Bangladesh use any form of contraception. This indicates that there is still a significant proportion of women who lack knowledge about contraception and/or face barriers to accessing it. Despite Bangladesh's significant progress in reducing maternal and child mortality rates in recent years, there are still gaps in knowledge and access to maternal and child health services. For instance, the BDHS reports that only 51% of women receive antenatal care from a skilled provider, and a skilled birth attendant attends only 43% of births (NIPORT, 2017). Different studies (Hossain et al., 2014; Zakaria et al., 2020) have also identified the low level of knowledge about sexually transmitted infections (STIs) and HIV/AIDS among young people in Bangladesh. Overall, while there have been improvements in sexual and reproductive health outcomes in Bangladesh, there is still a need for increased knowledge and access to services in order to improve health outcomes and reduce health disparities.

4.4 Sources of sexual and reproductive health related knowledge of Bangladeshi youth

The main sources of sexual and reproductive health-related knowledge for Bangladeshi youth include family members and friends, school-based programmes, health care providers, NGOs and community-based organisations, and mass media (Kabir *et al.*, 2014). Family members and friends can be a valuable source of sexual and reproductive health-related knowledge, particularly for issues related to relationships and cultural norms (Rosengard et al., 2012). However, they may lack accurate and up-to-date information on contraception, STIs, and other SRH-related issues. Additionally, some families may stigmatize or taboo discussions about sexual and reproductive health, limiting young people's access to information (Nahar et al., 1999; Das et al., 2016). A school-based programme can provide comprehensive sexual and reproductive health education to young people (Ainul et al., 2017). However, a study (Faizul *et al.*, 2018) shows that the quality and scope of these programmes can vary widely. In some cases, sexual and reproductive health education may be limited or non-existent, particularly in rural areas or in schools with limited resources. Furthermore, cultural norms and societal attitudes toward sexuality and sexual health may limit the effectiveness of these programs. Health care providers, such as doctors, nurses, and community health workers, can also serve as sources of sexual and reproductive health-related knowledge for young people (Bloch and Sowers, 1985). They may offer counselling and information on topics such as contraception, STIs, and safe sex practices. However, in Bangladesh, close-to-community SRH service delivery points might not be available in many parts of the country (Mahmud *et al.*, 2015b). There are numerous non-governmental organisations (NGOs) and community-based

organisations (CBOs) in Bangladesh that work to improve sexual and reproductive health outcomes for young people (Aktar *et al.*, 2022). These organisations may provide education, counselling, and resources on a range of topics related to sexual and reproductive health. The mass media can be an effective way to disseminate sexual and reproductive health-related information to a large audience (Oronje *et al.*, 2011). However, the accuracy and quality of this information may vary, and young people may not have access to mass media platforms or may not have the critical thinking skills to evaluate the information presented (Lim *et al.*, 2014).

In summary, issues associated with SRH are responsible for a significant global health burden, particularly in low- and middle-income countries. Among other regions, these issues are quite prevalent in countries in the Asia-Pacific region, including Bangladesh. To improve SRH outcomes, Bangladesh must address the underlying social, economic, and cultural factors that contribute to these issues. Relentless efforts are required to implement, ensure, and improve access to high-quality SRH health care services. The present study aims to identify the primary source of SRH-related information, the level of knowledge, and the perception about SRH-related issues, as there has been no comprehensive study exclusively focusing on undergraduate university students in Bangladesh.

4.5 Socio – demographic characteristics of the respondent:

A cross-sectional survey among undergraduate university students in Bangladesh served as the basis for the current study. The survey collected a total of 1521 responses. Among the valid responses, 812 (53.56%) were male, and 704 (46.43%) deidentified themselves as female. The respondent's mean age was 21.72 (SD). Of the collected responses, 86.86% were Muslim, and the others were Buddhist (3.89%), Christian (4.22%), and Hindu (5.01%). According to the survey, 55.58% are currently studying at a public university, and the rest are studying at a private university. According to pre-university educational background, 54.71% were from Bengali medium, 31.71% were from English medium, and 13.58% were from madrasah background, respectively. While mentioning parents' educational qualifications, 72.79% of students indicated their father to be a graduate or above; the percentage is 39.36% for the mother. The summary of the collected socio demographic characteristics is given in the following Table 4.1.

Table 4.1: Socio Demographic characteristics of respondents of the undergraduate university students participating in the survey				
Name of the variables	Categories	Frequency	Percentage	
Gender	Male	812	53.56	
	Female	704	46.43	
		1516^n		
Age	Age ≤ 20	509	33.75	
	Age > 20	999	66.25	
		1508^n		
Religion	Buddhism	59	3.89	
	Christianity	64	4.22	
	Hinduism	76	5.01	
	Islam	1316	86.86	
		1515^n		
Types of university	Private university	673	44.42	
	Public university	842	55.58	
		1515^n		
Types of schooling	Bengali medium	830	54.71	
	English medium	481	31.71	
	Madrashah	206	13.58	
		1517^n		
Current year of study	First year	324	21.49	
	Second year	515	34.17	
	Third year	322	21.36	
	Fourt year	307	20.37	
	Fifth year	39	2.58	
		1507^n		
Parental educational qualification	Father		Mother	
	Frequency	Percentage	Frequency	Percentage
Below graduation	412	27.21	918	60.63
Graduate and above	1102	72.79	596	39.36
	1514^n		1514^n	
Institutional funding	Secondary level		Higher secondary level	
Government	507	33.42	435	28.68
Others	1010	66.58	1082	71.32
	1517^n		1517^n	
Co-education status	Secondary level		Higher secondary level	
Co-education institution	856	56.43	1018	67.11
Non co-education institution	661	43.57	498	32.83
	1517^n		1516^n	

n = Number of valid responses

4.6 Primary sources of information for the undergraduate university students

Obtaining reliable and authentic SRH information sources is crucial for accuracy, safety, better health outcomes, empowerment, and advocacy. It is important to seek out credible sources of information from reputable organisations and individuals to make informed decisions about

sexual and reproductive health, as decisions made based on incorrect or inaccurate information can have serious consequences.

4.6.1 Communication with parent

Families have a crucial role in facilitating sexual and reproductive health education, communication, and support. To promote healthy outcomes for all members, families can contribute by offering information, communication, and support, exemplifying healthy habits, and lobbying for policies and programmes that support sexual and reproductive health. Parents have a significant impact on shaping the sexual and reproductive health behaviours of young adults. (Evans, 2011).

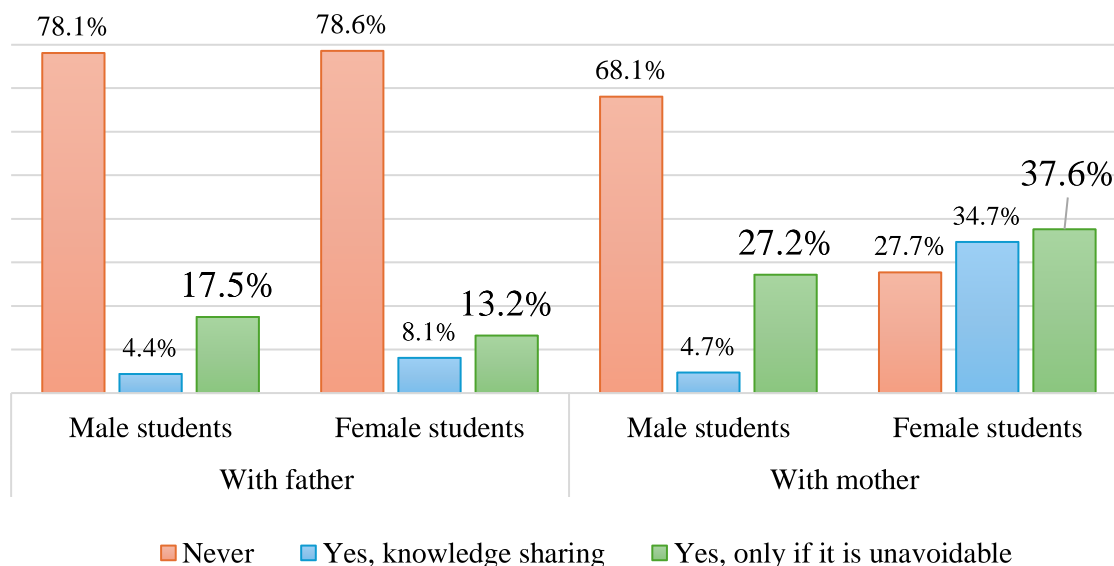

Figure 4.1: Level of communication with parent

This study aimed to determine patterns or preferred methods of communication among family members on sexual and reproductive health (SRH) issues. Among university students, the father was the least preferred choice for discussing SRH-related matters between the parents. 78.1% of male students and 78.6% of female students reported that they do not engage in any conversations with their fathers regarding any sexual and reproductive health (SRH) matters. However, an additional 68.1% of the male respondents also reported never having any form of communication with their mothers. Female pupils exhibited a greater inclination to engage in communication with any parent. Regardless of gender, a significant percentage of communication is firmly confined to situations where it is necessary. (Figure 4.1).

4.6.2 Communication between siblings

Siblings can play an effective and important role as a source of SRH-related information. Siblings who have already received SRH education can share their knowledge and experience with their younger siblings. They can provide accurate information about sexual development, contraception, and sexually transmitted infections (STIs) (Rosengard et al., 2012). They can be a source of emotional support for one another as they navigate their SRH (Ashcraft and Murray, 2017). They can create a safe and non-judgmental space where they can discuss sensitive topics and ask questions. Older siblings can set a positive example by exercising themselves and advising about safe and healthy SRH practices, including contraception use, the importance of getting regular check-ups, communicating openly and honestly with partners, and so on.

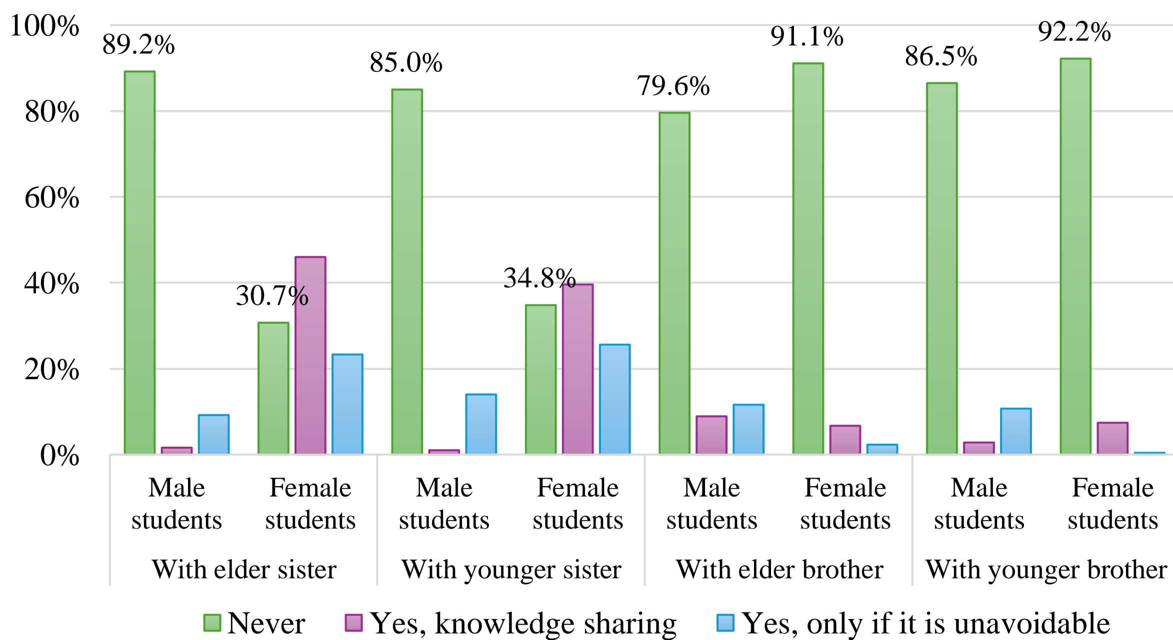

Figure 4.2: Level of communication between siblings

The survey revealed a clear lack of communication between siblings, although female students demonstrated "knowledge sharing" with either their elder (46%) or younger (39.6%) sister. In this aspect, the male students fall significantly behind. However, intergender communication regarding SRH remains very low as of this survey (Figure 4.2), illustrating existing social norms associated with respect, hierarchy, and gender norms.

4.6.3 Other sources of SRH related information

Apart from family, university students may have access to a variety of sources for SRH information. In response to the question to identify the initial source of information regarding physical changes during puberty, students identified books, newspapers, magazines, etc.

(21.3%), friends (16.9%), the internet (15.4%), and teachers (12%) as their main sources of SRH information (Table 4.2).

Table 4.2: Initial sources of SRH related information (*, #)

	Total	Types of university		Pre university education institution		
		Private	Public	Bengali medium	English medium	Madrashah
Academic curriculum	82 (5.4)	36 (5.3)	46 (5.5)	56 (6.9)	26 (5.2)	0 (0)
Teacher	183 (12)	79 (11.7)	104 (12.4)	108 (13.3)	42 (8.4)	33 (16)
Books / Newspaper/ Magazine	324 (21.3)	74 (11)	248 (29.5)	190 (23.4)	121 (24.2)	13 (6.3)
Internet	234 (15.4)	177 (26.3)	57 (6.8)	71 (8.7)	111 (22.2)	52 (25.2)
Mother	242 (15.9)	93 (13.8)	149 (17.7)	102 (12.6)	106 (21.2)	34 (16.5)
Siblings	134 (8.8)	55 (8.2)	79 (9.4)	65 (8)	28 (5.6)	41 (19.9)
Friends	257 (16.9)	139 (20.7)	118 (14)	176 (21.7)	48 (9.6)	33 (16)

*: Frequency (Percentage) and #: Displays only categories with percentage greater than 5%.

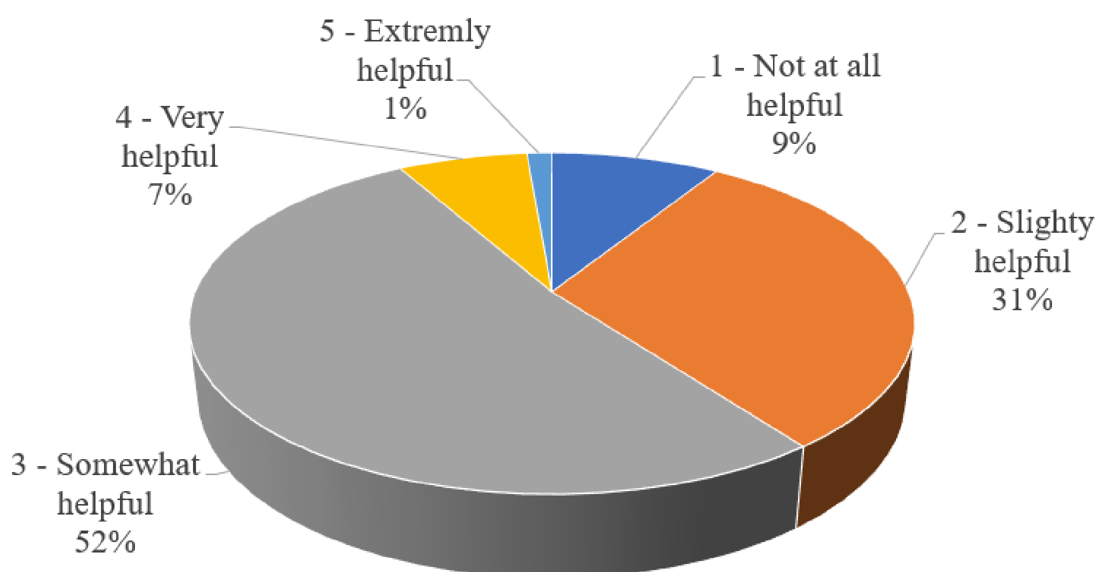

Figure 4.3: Percentage distribution of level of satisfaction about informally received SRH related information

According to the responses, the contribution of academic curriculum as a source of SRH information is quite low (5.4%), while students from madrasah education during the pre-

university stage remain at the bottom (0%). However, the informal sources of SRH-related information often fail to meet the students' needs. According to the collected information, on a scale of 1 (not at all helpful) to 5 (extremely helpful), the average score of "level of satisfaction" is 2.55 (Figure 4.3)..

4.7 SRH education at the pre university stage – current status and content coverage:

Sexual and reproductive health education is an important aspect of the overall education curriculum, especially at the pre-university stage. In Bangladesh, the Ministry of Education has developed a comprehensive SRH education curriculum for students at the secondary and higher secondary levels (ARROW, 2016). The SRH curriculum in Bangladesh covers a wide range of topics related to sexual and reproductive health, including puberty, sexual and gender identity, contraception, sexually transmitted infections (STIs), pregnancy, childbirth, and postpartum care (Clarke, 2010). The curriculum also emphasises the importance of consent, healthy relationships and preventing sexual violence (Sultan et al., 2018). The ministry of education has implemented the SRH education curriculum through various channels, including classroom instruction, textbooks, and teacher training. In addition, various NGOs and international organisations are also working to promote SRH education in Bangladesh through advocacy and awareness campaigns. The overall goal of Bangladesh's SRH education curriculum is to equip young people with the knowledge and skills they need to make informed decisions about their sexual and reproductive health, and to foster positive attitudes and behaviours related to sexuality and gender (Zakaria et al., 2020).

However, despite all such efforts and interventions, the implementation of comprehensive SRH education always remains a challenge in Bangladesh. Traditional social and cultural norms in Bangladesh are conservative and restrict discussions about sexuality, reproductive health, and gender issues (WHO, 2003). These norms make it difficult to initiate conversations about SRH education. Bangladesh is an Islamic country, and some religious groups and political parties have a conservative outlook towards sexuality education. They often view it as a threat to religious values and oppose its implementation (Bott et al., 2003).

Despite Bangladesh's commitment to sexual and reproductive health and rights, the government's commitment to comprehensive sexuality education is limited. The government has yet to adopt a comprehensive sexual education policy, and the integration of the curriculum into the formal education system is inadequate (Du et al., 2022b). Bangladeshi teachers lack

the necessary training to teach comprehensive sexual education. They often feel uncomfortable and lack the necessary skills to address sensitive topics related to sexuality and reproductive health (Begum, 2002).

4.7.1 Current status of attending formal SRH education.

Based on this study, 53.3% of the participants indicated that they had received sexual and reproductive health (SRH) instruction at various points during their pre-university schooling. 39.8% of female and 52.7% of male respondents did not receive any formal SRH lessons during their pre-university education (Figure 4.4). 66% of students with a madrasah education background reported not attending formal SRH education during their pre-university years. For the students with Bengali- and English-medium academic backgrounds, these percentages are 49.8% and 33.3%, respectively (Figure 4.5). Most (24%) of the respondents received their lessons at the higher secondary level (years 11 and 12) (Figure 4.6).

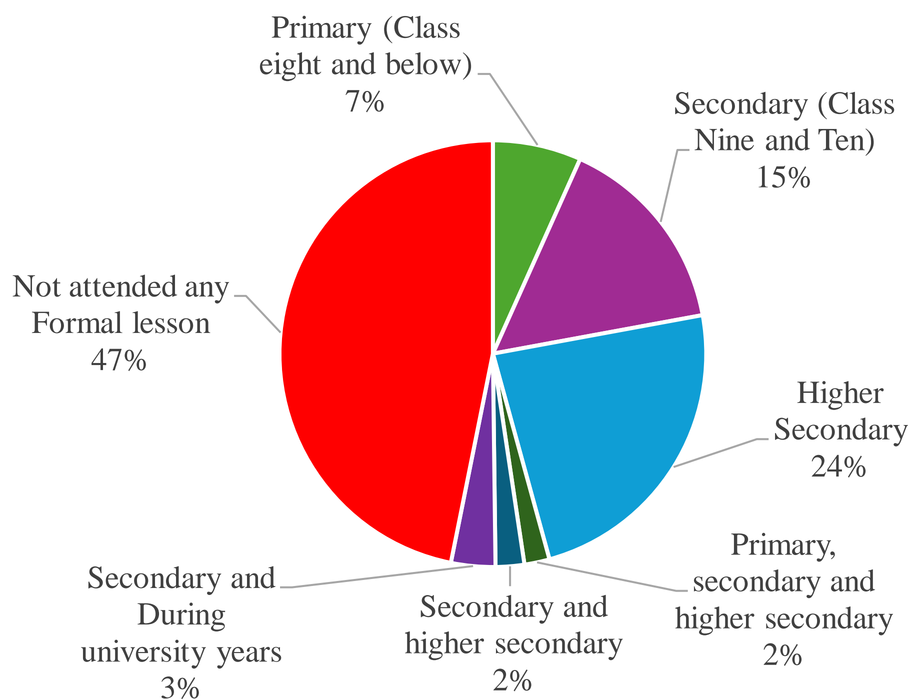

Figure 4.6: Percentage distribution of deliberation formal SRH lessons by academic year (n=1520)

4.7.2 Content discussed in formal SRH education.

Adolescents and young adults in Bangladesh often receive SRH education. The curriculum also includes information on social and cultural norms that affect SRH, such as early marriage and the stigma associated with discussing SRH issues. The Bangladeshi government, in

collaboration with various NGOs and international organisations, has launched several initiatives to improve access to SRH education and services for young people in the country. However, challenges such as cultural and religious barriers, stigma and discrimination, lack of parental involvement, lack of trained teachers, and other resource constraints, etc. often cause substantial challenges in the way of proper implementation of school-based SRH education (Ainul, 2017). Our survey results demonstrated puberty-related information (95.4%) and sexually transmitted infections (76.1%) were the most discussed topics among those who received formal SRH education. However, this percentage comprises only 50.7% and 40.5%, respectively, of all respondents (Figure 4.7). The other topics discussed during formal SRH lessons included protection from unwanted sex and unintended pregnancy (33.7%), family planning and contraceptive measures (24.1%), and sexual behaviour with partner (13.6%).

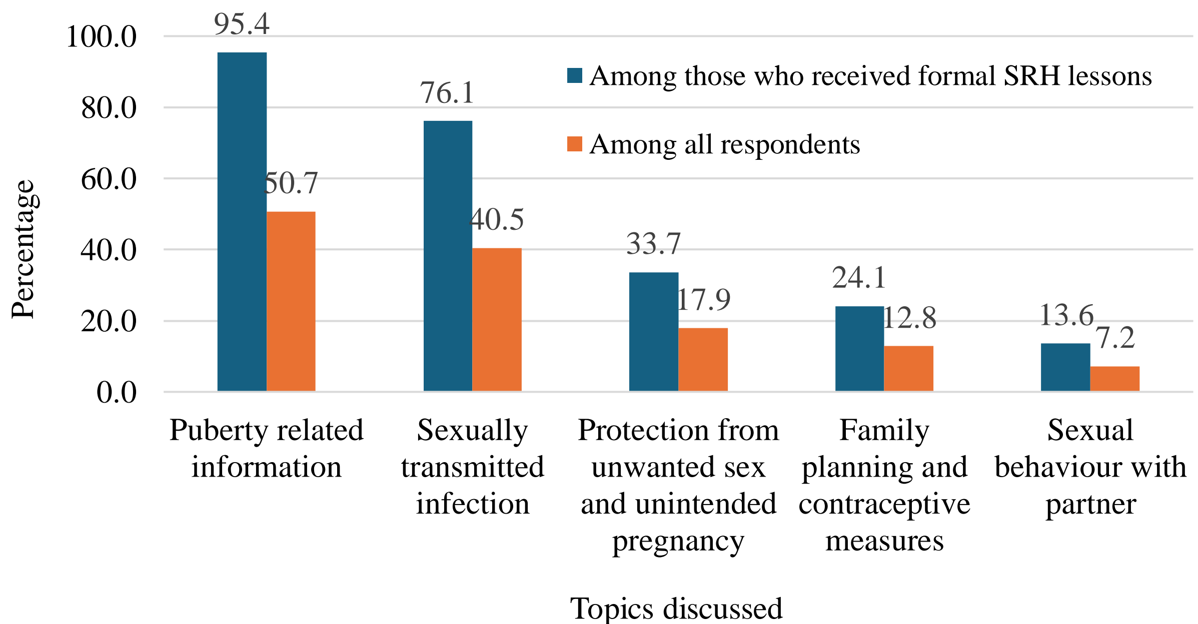

Figure 4.7: Percentage distribution of lessons discussed in formal SRH education
(*n*=1520= all respondents, m=808= students received formal SRH lessons)

4.7.3 Methods of discussion and student's contentment of formal SRH education

Irrespective of the socio-economic context, ensuring quality SRH education has always been challenging (Ndayishimiye *et al.*, 2020). Of all the responses, only 6.1% of respondents mentioned that "teachers discussed elaborately" the topics related to SRH (Table 4.3). Only 41% of the respondents who attended formal SRH lessons expressed satisfaction about the information taught during the lesson (Figure 4.8).

Table 4.3: Frequency (%) distribution of methods of delivering formal SRH lesson

Methods of delivering lesson	Frequency	Percentage
Did not attend any formal lesson	700	47.0
Student read the relevant chapter(s) all by themselves.	350	23.6
Teacher mentioned the topics and / or made some brief discussion	344	23.2
Teacher discussed elaborately.	90	6.1

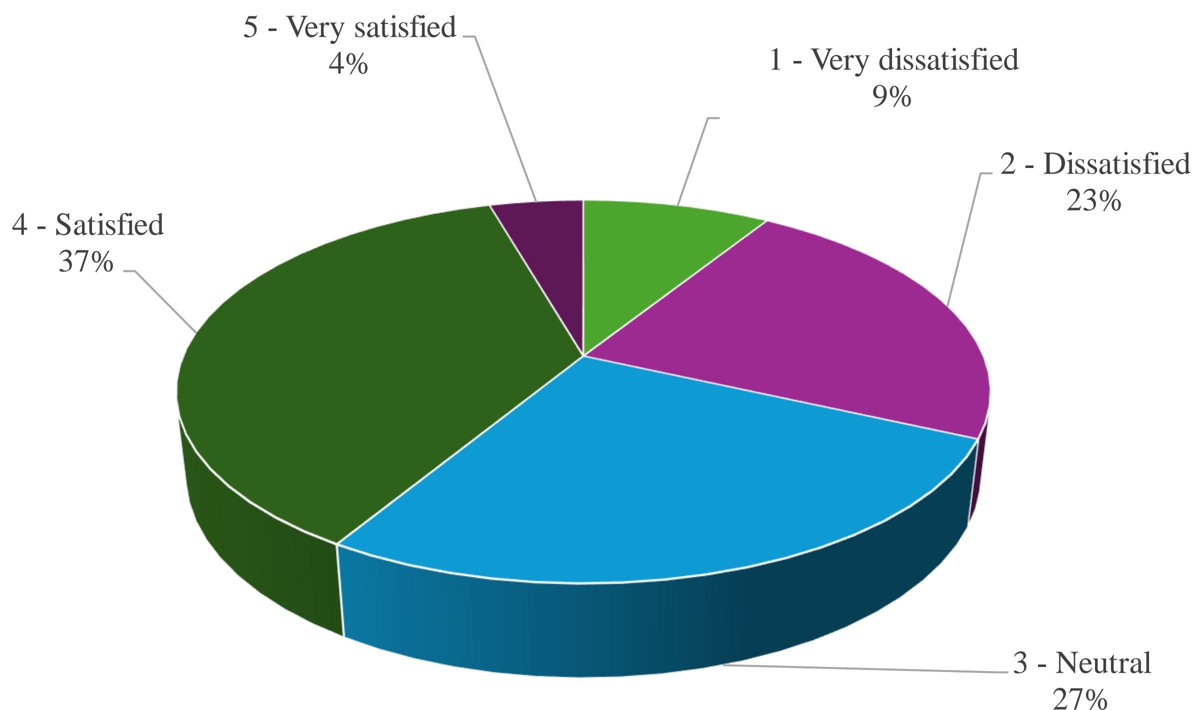

Figure 4.8: Percentage distribution of students' contentment about of formal SRH education

4.8 Level of knowledge about sexually transmitted infections (STIs):

STIs can pass from one person to another through vaginal, oral, and anal sex. In some cases, intimate physical contact, like heavy petting, can also cause the spread of STIs. Some STIs can even pass from mother to baby during pregnancy and through breastfeeding. STIs don't always produce symptoms, or they may only produce mild symptoms. Therefore, it is possible to have an infection and not know it. Hence, having a clear perception of the possible routes to spread

the STIs, symptoms, and method of transmission of different STIs is vital to safeguarding against the STIs. In this survey, students' level of knowledge about STIs was assessed by asking them whether they 'knew routes that can spread STIs', 'had heard the name of STIs', 'knew the symptoms of STIs', and 'knew methods of transmission of the STIs'.

4.8.1 Students' perception about routes that can spread sexually transmitted diseases -

The responses clearly demonstrate a lack of knowledge about the routes that can spread sexually transmitted infections. Many students answered 'No, I don't know' in response to whether vaginal (22.7%), anal (42.9%), or oral (41.8%) intercourse are possible routes of STIs. While STIs do not spread through casual contact such as shaking hands, sharing clothes, or sharing a toilet seat, some identified hand shaking, deep kissing, and toilet sharing as possible routes to spread STIs. The respondents identified vaginal intercourse (77.1%), anal intercourse (56.9%), oral intercourse (58.0%), and genital contact (53.5%) as routes through which STIs can spread. Some STIs, such as syphilis, cross the placenta and infect the baby in the womb (Genç et al., 2000) . Other STIs, such as gonorrhoea, chlamydia, hepatitis B, and genital herpes, can be transmitted from the mother to the baby as the baby passes through the birth canal (Mullick et al., 2005). HIV can cross the placenta during pregnancy and infect the baby during delivery (Spector, 2001). Only 18.6% of students mentioned that STIs can spread 'from a pregnant or breast-feeding mother to her baby' (Figure 4.9).

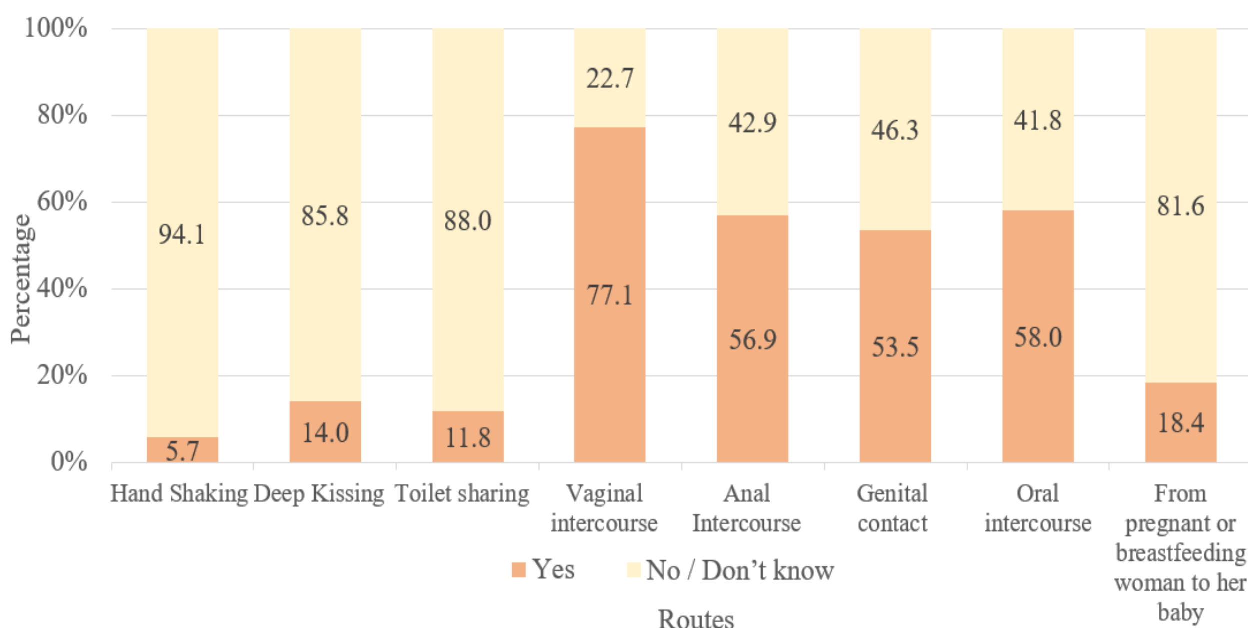

Figure 4.9: Percentage distribution of knowledge about routes can spread sexually transmitted diseases

Table 4.4 (A, B, C): Percentage distribution of level of knowledge of STIs among the university students by academic background.

	Bengali medium (n=830)	English Medium (n=481)	Madrasah (n=206)
Table 4.4 (A): Percentage distribution of familiarity of STDs among the university students.			
Hepatitis	**51.0**	34.9	18.0
HIV - AIDS	**88.3**	**99.8**	**100.0**
Gonorrhoea	**55.8**	**85.0**	**89.8**
Syphilis	**44.8**	**88.8**	**77.7**
Herpes	31.3	**54.1**	6.3
Chlamydia	26.5	**64.0**	35.0
Genital warts	14.9	30.6	13.6
Table 4.4 (B): Percentage distribution of knowledge about symptoms of STDs among the university students.			
Hepatitis	22.8	13.9	18.0
HIV - AIDS	**52.9**	**62.8**	**79.1**
Gonorrhoea	19.4	**41.8**	**49.0**
Syphilis	23.1	19.3	26.7
Herpes	7.5	19.3	0.0
Chlamydia	10.1	10.6	0.0
Genital warts	6.5	4.6	0.0
Table 4.4 (C): Percentage distribution of knowledge about spread of STDs among the university students.			
Hepatitis	16.7	11.9	13.1
HIV - AIDS	**57.8**	**78.6**	**68.9**
Gonorrhoea	14.9	**38.7**	**40.3**
Syphilis	13.9	**44.3**	17.0
Herpes	4.8	12.7	0.0
Chlamydia	0.5	1.7	0.0
Genital warts	0.2	1.9	0.0

4.8.2 Students' knowledge about sexually transmitted infections

Evidently, irrespective of educational background, HIV/AIDS is the most recognised STI among the students, along with gonorrhoea and syphilis. Particularly among students with

Bengali and madrasah academic backgrounds, we found Herpes, Chlamydia, and genital warts to be relatively less known STIs (Table 4.4(A)). Sexual activity can transmit multiple variants of hepatitis. Unvaccinated adults who have multiple sex partners, along with sex partners of people with chronic hepatitis B infection, are at increased risk for such transmission (Inoue et al., 2016). Only a relatively lower fraction of English medium (34.9%) and Madrasah (18%) background students identified hepatitis as an STI.

Knowing about STI symptoms and transmission methods empowers individuals to take control of their sexual health, seek appropriate care, prevent transmission, reduce complications, and promote overall wellbeing (Eng et al., 1997). Regular testing, especially for individuals who are sexually active or engage in high-risk behaviours, is crucial even in the absence of noticeable symptoms (Workowski et al., 2021). Understanding the symptoms of STIs enables individuals to seek medical attention and undergo testing during the initial stages. Early detection enables individuals to initiate appropriate treatment procedures, enhance the likelihood of cure, and prevent long-term health issues (Hackett, 2014). Aside from that, being aware of the symptoms helps to take the necessary measures and prevent transmission of the STIs. Understanding the symptoms and method of transmission of STIs contributes to raising awareness and promoting education about sexual health. Increased awareness eventually helps to reduce the spread of misinformation and encourages regular testing and safe sexual practices (Nguyen et al., 2019).

Our survey demonstrated that – irrespective of the pre-university education backgrounds the knowledge associated to symptom and transmission of the STIs of the undergraduate university students is generally low. According to the responses, HIV – AIDS is the most familiar STI of which symptoms (79.1%) and method of transmission (78.6%) are known to the students having varying pre-university education back ground. Apart from few exceptions, the percentage of students knowing the symptoms (Table 4.4(B) and method of transmission (Table 4.4(C)) of different STIs falls quite low. Particularly the percentages are the least for the students having Bengali medium and madrasah back ground for most of the STIs.

4.9 Identifying the factors influencing the STI associated knowledge of the undergraduate students of Bangladesh:

We performed a logistic regression analysis to identify the factors associated with the level of STI-related knowledge. To assess the STI-related knowledge, three dependent variables were

defined, namely, ‘whether the name of STIs was known to the student’, ‘whether the students knew the symptoms of the STIs', and ‘whether the students knew the modes of spread of STIs’. We calculated the fourth model, 'Overall level of knowledge about STIs', based on the student's knowledge of at least four STI names, three distinct STI symptoms, and the mode of transmission of at least two STIs. Appendix 7 provides the details of the independent and dependent variables.

Model I assesses the influence of predictor variables on whether or not the selected STDs are known to the university students (Table 4.5; Model I). The logistic regression analysis shows that students from rural or semi-urban areas (aOR_I = 0.88; 95% CI: 0.623–0.97), Bengali medium (aOR_I =0.90; 95% CI: 0.612–0.94), and Madrasah (aOR_I =0.81; 95% CI: 0.469–0.899) backgrounds are less likely to know more than four STDs than students from other backgrounds. Girls are also less likely to know more than four STDs than boys. On the other hand, relatively aged students (aOR_I = 1.06; 95% CI: 0.58 – 1.9), students with parents having graduated or higher degrees, students from co-educational academic institutions (aOR_I = 1.28; 95% CI: 0.759–1.49), and those having formal SRH education during the pre-university stage (aOR_I = 1.22; 95% CI: 1.13 – 1.87) are more likely to be familiar with the names of at least four STDs.

Model II and Model III assess the influence of predictor variables on students' knowledge about symptoms and how STDs may spread, respectively. Students in pre-university programmes from Bengali medium schools (aOR_{II}=0.83 and aOR_{III}=0.918), rural or semi-urban schools (aOR_{II}=0.83 and aOR_{III}=0.88), and Madrasah schools (aOR_{II}=0.74 and aOR_{III}=0.88) knew less about the signs and ways of spreading at least two STDs than students in the reference groups. However, students with access to formal SRH education at the pre-university level are more likely to have knowledge of STD symptoms and modes of transmission (Table 4.5; Models II and III).

Model IV evaluates university students' overall SRH knowledge. The results show that female students (aOR = 0.87; 95% CI: 0.673–1.134), students at schools in rural and semi-urban areas (aOR = 0.93; 95% CI: 0.876–1.1305), Bengali medium students (aOR = 0.90; 95% CI = 0.655–1.238), and Madrasah students (aOR = 0.88; 95% CI: 0.53–1.637) are less likely to know the names, symptoms, and ways that STDs are spread compared to the other groups. On the contrary, mature-aged students (aOR = 1.18; 95% CI: 1.08 – 1.457), students from co-education

Table 4.5: Logistic regression analysis of the socio demographic characteristics and the familiarity with STIs (Model I), knowledge of - symptoms (Model II), modes of transmission (Model III) and overall knowledge of selected STIs

Independent variable	Category	Model I aOR_i (95% $C.I. of$ a	Model II aOR_i (95% $C.I. of$ aO	Model III aOR_i (95% $C.I. of$ aO	Model IV OR_i (95% $C.I. of$ OR
Gender	Male#				
	Female	0.95 (0.736, 1.232)	0.98 (0.637, 1.111)	0.96 (0.855, 1.498)	0.874 (0.673, 1.134)
Age	<23#				
	≥ 23	1.06 (0.58, 1.9)	1.14 (0.827, 1.831)	1.039 (0.783, 1.378)	1.18* (1.08, 1.457)
Religion	Islam#				
	Buddhism	0.556 (0.311, 0.995)	1.247 (0.667, 2.329)	1.386 (0.742, 2.589)	0.859 (0.462, 1.598)
	Christianity	1.062 (0.579, 1.947)	0.873 (0.462, 1.651)	1.728 (0.94, 3.177)	1.22 (0.679, 2.193)
	Hinduism	0.842 (0.502, 1.413)	1.243 (0.722, 2.140)	1.083 (0.620, 1.892)	1.019 (0.605, 1.718)
Location of pre university academic institution	Urban#				
	Rural and Semi-urban	0.88 (0.623, 0.97)*	0.838 (0.589, 0.95)*	0.88 (0.649, 1.02)	0.937 (0.673, 1.305)
Academic qualification of father	Less than graduate#				
	Graduate or over	1.05 (0.779, 1.422)	1.123 (0.813, 1.552)	1.267 (0.911, 1.762)	0.98 (0.69, 2.024)
Academic qualification of mother	Less than graduate#				
	Graduate or over	1.02 (0.72, 1.41)	0.889 (0.656, 1.204)	0.898 (0.667, 1.215)	1.07 (0.597, 1.051)
Medium of instruction during preuniversity education.	English medium#				
	Bengali medium	0.90 (0.612, 0.94)*	0.837 (0.795, 1.09)	0.918 (0.617, 0.986)*	0.901 (0.655, 1.238)
	Madrasah	0.81 (0.469, 0.899)*	0.745 (0.409, 0.978)*	0.88 (0.716, 0.93)*	0.882 (0.5, 1.555)
Types of University	Public university#				
	Private university	0.99 (0.777, 1.279)	1.148 (0.894, 1.535)	0.965 (0.735, 1.267)	1.082 (0.841, 1.392)
Co- education status during at pre-university stage	Non co-education#				
	Co-education	1.28 (0.759, 1.49)	1.19 (0.577, 1.275)	1.13 (0.69, 1.349)	1.297* (1.137, 1.793)
Excess to formal SRH Education at pre university stage	No#				
	Yes	1.22 (1.13, 1.87)*	1.21 (1.08, 1.69)*	1.31 (1.26, 1.57)*	1.392* (1.17, 1.879)

#:Reference group; *: Sig at $\alpha = 0.05$

institutions during the pre-university stage (aOR = 1.297; 95% CI: 1.137 – 1.793), students having access to formal SRH education at the pre-university stage (aOR = 1.392; 95 % CI: 1.17 – 1.879) and students of private universities (aOR = 1.082; 95% CI: 0.841 – 1.392) are more likely to be familiar with the name, symptom and modes of transmission of the STDs as compared to the respective reference categories.

Model IV evaluates university students' overall SRH knowledge. The results show that female students (aOR = 0.87; 95% CI: 0.673–1.134), students at schools in rural and semi-urban areas (aOR = 0.93; 95% CI: 0.876–1.1305), Bengali medium students (aOR = 0.90; 95% CI = 0.655–1.238), and Madrasah students (aOR = 0.88; 95% CI: 0.53–1.637) are less likely to know the names, symptoms, and ways that STDs are spread compared to the other groups._On the contrary, mature-aged students (aOR = 1.18; 95% CI: 1.08 – 1.457), students from co-education institutions during the pre-university stage (aOR = 1.297; 95% CI: 1.137 – 1.793), students having access to formal SRH education at the pre-university stage (aOR = 1.392; 95 % CI: 1.17 – 1.879) and students of private universities (aOR = 1.082; 95% CI: 0.841 – 1.392) are more likely to be familiar with the name, symptom and modes of transmission of the STDs as compared to the respective reference categories.

4.10 Interpretation of result

It is crucial to have an upfront relationship among family members (e.g., parents and siblings) that allows individuals to share SRH-related information (Wamoyi *et al.*, 2010). Sharing information with family members helps raise awareness about reproductive health issues, including contraception, STIs, menstrual health issues, pregnancy and so on. It creates a safe space for individuals to seek advice, share concerns and address any misconceptions, if there are any. It enables individuals to understand their rights, options and access to healthcare services, ultimately leading to better health outcomes (Akers *et al.*, 2010). However, social norms frequently obstruct these discussions.

This study has shown that undergraduate university students' SRH-associated communication with parents is quite limited. Irrespective of gender, a major proportion of communication with parents is limited strictly to "only if it is unavoidable." We found that female students were more communicative, especially with their mothers. 78.1% of male and 78.6% of female students stated that they did not discuss any SRH-related issues with their father. However, 68.1% of the male respondents also never had any communication with their mothers.

According to this survey, the lack of communication between the siblings is quite evident. Male students significantly lag behind in this aspect, despite female students "sharing knowledge" with either their elder (46%) or younger (39.6%) sisters. However, intergender communication regarding SRH remains very low, according to this survey. Other major sources of SRH-related information for the students, besides family members, include books, newspapers, magazines, and the internet.

The level of satisfaction with informal SRH information depends on the recipients' quality, relevance, trustworthiness, and fulfilment of individual needs, as well as the supportive environment in which the information is shared. The mean score for 'level of satisfaction' is 2.55 on a scale of 1 (not at all helpful) to 5 (extremely helpful), according to the responses of this study.

About 52.7% of male students and 39.8% of female students indicated that they did not receive any official sexual and reproductive health education during their pre-university education. Approximately 66% of the madrasah students reported not receiving any official sexual and reproductive health (SRH) education throughout their pre-university years. Ensuring the quality of sexual and reproductive health education delivered poses a significant problem. Merely 6.1% of the overall replies said that the 'teacher thoroughly explained the subject matter'. Only 41% of the participants in structured sexual and reproductive health (SRH) sessions expressed satisfaction with the information they received during the lesson.

Even though most of the respondents mentioned having heard the names of HIV/AIDS, gonorrhoea, syphilis, and herpes, the proportion of students "knowing the symptom" and "modes of transmission" of the STDs was much lower. Students from academic institutions located in rural and semi-urban areas, Bengali medium and madrasah demonstrated a lower level of 'knowledge of symptoms of the STDs' and 'modes of transmission of the STDs' as compared to students from urban and English medium backgrounds at the pre-university education stage.

The lack of SRH-related communication among the family members is a result of social customs that will not change overnight. Given the socio-economic impediments, implementing a comprehensive SRH education curriculum at the pre-university stage also faces significant challenges. We conducted the survey for this study online. Students with internet access participated in the survey. As of 2023, there were 66.94 million internet users in Bangladesh.

The internet penetration rate[3] in Bangladesh is 38.9% of the total population, and it is increasing (Kemp, 2023). Bangladesh is home to 44.70 million social media users, which comprises 26.0 percent of the total population. The proportion of such users is much higher among young adults. Hence, one possible complementary measure could be to reach out to young adults (including undergraduate university students) via online SRH-associated materials such as textbooks, eBooks, websites, videos, podcasts and other online resources. Such initiatives can be beneficial not only to students but also to individuals, irrespective of age, gender and marital status, who may be uncomfortable having discussions. Online SRH content can be affordable, safe, and convenient, particularly for people living in hard-to-reach remote regions and underserved areas.

4.11 Chapter summary

This chapter seeks to determine the main source of SRH information, knowledge, and perception. Sharing SRH knowledge requires open communication between parents and siblings. Sharing reproductive health information with family members promotes contraception, STIs, menstrual health, pregnancy, etc. Safe spaces allow people to express questions, voice concerns, and clarify misconceptions. It educates people about their rights, options, and healthcare, which promotes health. Social norms often impede such talk. According to this study, undergraduate university students rarely discuss SRH with parents. Regardless of gender, communication with parents typically occurs only when it is unavoidable. Inter-gender SRH communication is low. Other than family, students learned SRH from books, newspapers, periodicals, and the internet. Quality, relevance, trustworthiness, user demands, and a supportive atmosphere all contribute to informal SRH information satisfaction. A mean score of 2.55 (SD±0.76) was observed for 'level of satisfaction', ranging from 1 (not helpful) to 5 (extremely helpful).

For a large percentage of pre-university students, SRH education was unavailable. A higher percentage of madrasah students reported no pre-university SRH instruction. SRH education quality is hard to guarantee in pre-university educational institutions. Only a small percentage of pupils who received formal SRH instruction were satisfied. Many students had heard of HIV/AIDS, gonorrhoea, syphilis, and herpes, but few knew the symptoms and transmission

[3] The Internet penetration rate corresponds to the percentage of the total population of a given country or region that uses the Internet

methods. Pre-university, rural and semi-urban, Bengali medium, and madrasah students exhibited less "knowledge of STD symptoms" and "modes of transmission" than urban and English medium students.

Chapter 5
Access, limitation, and factors shaping the sexual and reproductive health seeking behaviour of the undergraduate students of Bangladesh

5.1 Introduction

Adolescence and youth are stages characterised by significant physiological, cognitive, and affective maturation. Furthermore, alongside these physiological alterations, there are also modifications in social roles, obligations, and expectations (Telzer *et al.*, 2018) . The distinctive susceptibilities associated with this phase in the life trajectory can expose young individuals to heightened chances of experiencing unintended pregnancy, sexually transmitted infections (STIs), HIV, and sexual violence (Doku, 2012; Mcharo et al., 2021; Seal et al., 1996). A significant number of adolescents engage in sexual activity, and in certain contexts, it is prevalent for females to initiate childbearing during this stage of life. Pregnancy and childbirth-related problems are the primary causes of mortality among adolescent girls in low-income nations (Morris et al., 2015; Akazili et al., 2020). During this era, experiences and needs related to sexual and reproductive health (SRH) undergo significant changes. Unfortunately, young people often face difficulties in accessing suitable SRH services and information. This is due to a dearth of appropriate infrastructure required to deliver non-judgmental and youth-friendly SRH care (Ninsiima et al., 2021a; Jacobs et al., 2023). Access to suitable sexual and reproductive health care that caters to the needs of young people is frequently much more restricted for young individuals residing in areas with poor resources. Adolescents frequently encounter negative attitudes and discrimination while trying to get sexual and reproductive health (SRH) services, primarily due to widespread societal disapproval of teenage sexuality and sex before marriage. This stigma acts as an additional barrier, making it even more difficult for young people to obtain the SRH services they need (Decker *et al.*, 2021; Leekuan *et al.*, 2022).

Understanding the specific social setting, SRH educational facilities, availability of private, comfortable, and easy-to-reach service delivery points, and technological support (such as online platforms, health apps, etc.) are all important parts of coming up with effective ways to get students to seek sexual and reproductive health care (Gonsalves et al., 2015; Kesterton et al., 2010; Kouanda et al., 2022). Establishing a nurturing and impartial atmosphere is essential for motivating students to actively pursue the information and resources necessary for their sexual and reproductive health. When university students are looking for SRH services, it is

crucial for them to consider elements such as confidentiality, accessibility, and the precise range of services provided (Cislaghi et al., 2018; Elias et al., 2003; Kesterton et al., 2010; Abdurahman et al., 2022). Moreover, acquiring knowledge about the specific rules and regulations pertaining to sexual health services in a certain area will assist students in making well-informed decisions regarding the appropriate locations to access healthcare. Promoting transparent dialogue and diminishing social taboos surrounding sexual health might foster a more accommodating atmosphere for students in search of sexual and reproductive health services (Ashcraft et al., 2017; Boekeloo, 2014; Burdette et al., 2015).

The significance of addressing the sexual and reproductive health needs of young individuals is especially evident in low- and middle-income nations, which comprise 90% of the global youth population (Germain et al., 2015; Mkumba et al., 2021b). Although there has been an increase in attempts to address the sexual and reproductive health (SRH) issues of adolescents and teenagers in recent decades, many countries are still struggling to include or prioritise SRH programmes for this demographic, considering it a relatively new area of intervention (Adefuye et al., 2009; Morris et al., 2015; Speizer et al., 2003). Although there are difficulties, adolescence is a crucial period to establish a foundation for lifelong good health. Addressing the health requirements of young individuals is essential for attaining the Sustainable Development Goals. Gathering additional evidence on the current state of young people's sexual and reproductive health needs, experiences, and preferences is necessary to address them effectively.

This chapter discusses the challenges young adults in Bangladesh face when accessing SRH services. The chapter's primary goal is to identify the health-seeking behavior of undergraduate university students in Bangladesh in relation to SRH-related issues. The study attempts to find an answer to the research question regarding university students' access to health care facilities in relation to SRH. It also tries to determine whether on-campus SRH health care facilities are available.

5.2 Challenges for young adults in accessing sexual and reproductive health services in Bangladesh and associated consequences

Ensuring proper utilisation of SRH care services among young people is vital to reducing and ensuring the SRH well-being of young adults. Irrespective of their developmental stage, young people, including those who are sexually active, have difficulty finding information services.

Even if they can find accurate information, access to the services that protect their health is often difficult for many of them (UNESCO, 2018b). This is due to the absence of appropriate service locations, a lack of financial and social autonomy, or a fear of exposure that restricts their access. Meeting the SRH needs of adolescents and youths requires ensuring that they are aware and able to access SRH information and services voluntarily, comfortably, confidentially, and without fear of discrimination. Adolescents often lack sufficient knowledge about contraception and how to access health services. Addressing the SRH needs of young people remains a challenge for most developing countries (Godia *et al.*, 2013). Despite some remarkable developments over the last few decades in health care support services, there remain considerable gaps and an unmet need to ensure all-inclusive sexual and reproductive health care. Accessing sexual and reproductive services is often not as efficient as is required, particularly for young adults like undergraduate university students in Bangladesh. Following are some key factors that influence access to SRH services:

5.2.1 Lack of information and awareness: Bangladesh does not excel in terms of health literacy (Ahsan et al., 2016). Several studies have indicated a lack of prior information on physiological changes and reproductive health issues among adolescents and young individuals (Bhuiya et al., 2007; Khan et al., 2020; Ahmed et al., 2021; Biswas et al., 2022). A significant number of youths in Bangladesh lack sufficient access to comprehensive knowledge regarding their sexual and reproductive health rights (SRHR) due to a prevailing social and cultural taboo, resulting in a widespread atmosphere of silence. Considering the fact that comprehensive sex education is not widely available during pre-university stages and many families do not discuss SRH-related topics with their children, the lack of SRH-associated knowledge among the young adults of Bangladesh is quite prevalent (Zakaria *et al.*, 2020; Lameiras-Fernández *et al.*, 2021). A study shows adolescent and young adults were not adequately informed even about very basic physiological features like menarche[4] and spermarche[5] (Bosch et al., 2008; Zakaria et al., 2020). They are unaware of the risks of early pregnancy, sexually transmitted infections (STIs), and unplanned pregnancy (Ainul et al., 2017). Such a lack of information and resulting

[4]The first menstruation of girls.

[5] Indicated by the first self-reported ejaculation of boys as proximity.

unawareness often hinders their ability to make informed decisions about their health and well-being over time.

5.2.2 Traditional cultural norms, societal stigma and conservative attitudes surrounding SRH often restrict young adults, like undergraduate students, from having open discussions with their families, friends, or healthcare providers and access to services (Pulerwitz *et al.*, 2019; Newmann *et al.*, 2021). Young adults may face judgement, discrimination, and reluctance to seek support, leading to a reluctance to address their SRH health needs (Agha *et al.*, 2021).

5.2.3 Financial constraints can have a significant impact on SRH-seeking behaviour. The affordability of SRH services is a significant challenge, especially for adolescents and young adults from low-income backgrounds (Newton-Levinson et al., 2016). The cost of contraceptives, STI tests and consultation may be prohibitive for many young adults, making it difficult for them to access these services (Lewis *et al.*, 2021). People who are unable to afford sexual and reproductive health services may be less likely to seek care, even if they need it. Lack of affordability due to financial constraints may result in negative consequences like unwanted pregnancies, the contracting and spread of sexually transmitted diseases, and mental health problems (such as anxiety and depression) (Yazdkhasti *et al.*, 2015). The high cost of contraception and associated health products is a major barrier to SRH in Bangladesh. This is especially true for women and girls in rural and marginalised communities, who often have limited access to affordable healthcare. Click or tap here to enter text. (Ahmmed et al., 2022). The cost of SRH-associated measures (e.g., contraception, hygiene products, etc.) can be prohibitive for many people in Bangladesh. For example, the cost of a year's supply of oral contraceptives can range from $10 to $50, which is a significant amount for many people (Routh *et al.*, 2004; Azim *et al.*, 2022). In recent days, the prices of birth control products such as condoms and contraceptive pills have increased by more than 50 percent in Bangladesh, raising concerns that the hike may drive the population of the densely populated country and impact the health of its women (Azim *et al.*, 2022; Masum, 2023). The cost of other contraception methods, such as injectables and implants, can even be higher (Simmons et al., 1991; Anik et al., 2019).

5.2.4 Stigmatised accessibility and limited availability of SRH services remain two of the key obstacles to ensuring user-friendly SRH services. In Bangladesh, the primary focus of the existing reproductive and health care programme establishment is tailored mostly as part of a

family planning programme designed to provide SRH information and services to married couples (Mahmud et al., 2015a). No national-level data exists to measure the SRH needs of adolescents and young adults (Williams *et al.*, 2021b). As a result, we often fail to adequately address the needs of young adults, especially those who are single. Apart from that, accessing SRH services can be difficult for young adults due to a lack or no access to appropriate health care services in many parts of the country, especially in rural or remote areas (Mahmud *et al.*, 2015a). According to Hasan et al. (2020), the number of healthcare facilities offering adolescent-friendly SRH services may be limited and typically concentrated in urban areas. Limited transportation options and long journeys to reach these services can further hinder access.

5.2.5 Lack of confidentiality and privacy concerns pose barriers to accessing SRH services. Fears of confidentiality breaches, particularly in small communities such as rural and suburban areas, may discourage young people from seeking services. Fear of breaching confidential SRH information for families and communities can deter young people from seeking care (Patton *et al.*, 2016; Agha *et al.*, 2021).

5.2.6 Providers' judgmental attitudes towards adolescent sexuality can create discomfort and restrict open communication (Gausman *et al.*, 2021). Lack of friendly and non-judgmental interactions with healthcare providers may discourage young people from seeking SRH services (Malarcher, 2010; Baigry *et al.*, 2023)

5.2.7 Legal and policy barriers also impede access to SRH services for adolescents. In Bangladesh, parental consent is typically required for medical procedures, including contraceptive services (Rob et al., 2006a; Bearak et al., 2020; Williams et al., 2021b). This requirement can act as a barrier for young adults who may be hesitant to involve their parents due to cultural norms or strained relationships.

5.3 Health seeking behaviour of the undergraduate university students in Bangladesh:

The discussions in the following section evolve, attempting to explore the students' SRH-related health-seeking behaviours and associated issues, such as the types of facilities they access, the services they use, their level of satisfaction at SRH centres, the reasons they don't use SRH care services, institutional preparedness to assist with SRH issues, and so on.

5.3.1 Features of using SRH care services and facility

Among all the valid responses (n = 1516), 56.6% of students indicated that they 'felt the need' to visit a SRH facility or doctor for services, consultation, or information on SRH-related issues (e.g., contraception, pregnancy, abortion, sexually transmitted infection, etc.) during the last 12 months (at the time of the survey). However, only 38.3% of students actually made the 'visit in person.' The question about whether the students 'felt the need' and 'visited in person' was asked. The proportion of ‘feel the need’ and ‘visited in person’ is relatively higher among the female students. A higher proportion of male students (20.1%) did not ‘visit in person’ even if they ‘felt the need’ as compared to female students (16.3%) (Figure 5.1).

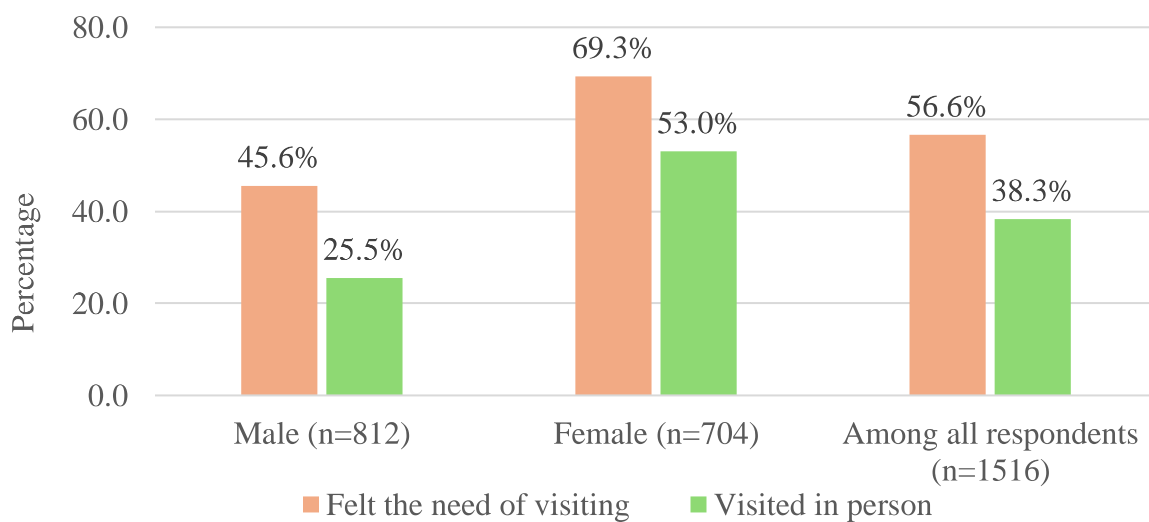

Figure 5.1: Percentage distribution of "felt the need" vs "visited in person" to SRH services by sex and among all respondents

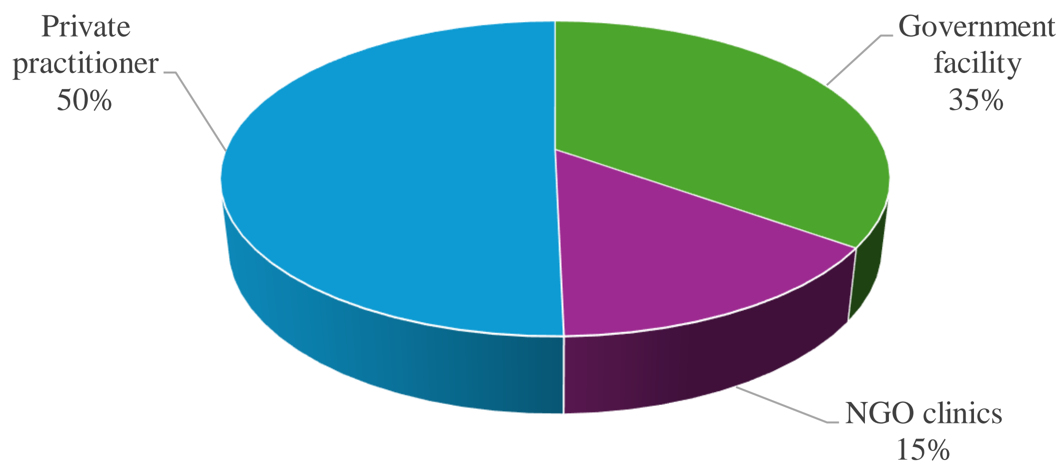

Figure 5.2: Types of facilities visited (n=580) for SRH services by the undergraduate students

Private practitioners were the most preferred option (50%) along with government facilities (35%) and NGO clinics (15%) among the students who visited (n = 580) SRH centres to receive service or consultation on SRH-related issues (Figure 5.2). 73% of the respondents reported that the SRH centre they visited addressed their requirements, while 13% received advice to visit other SRH centres (Figure 5.3).

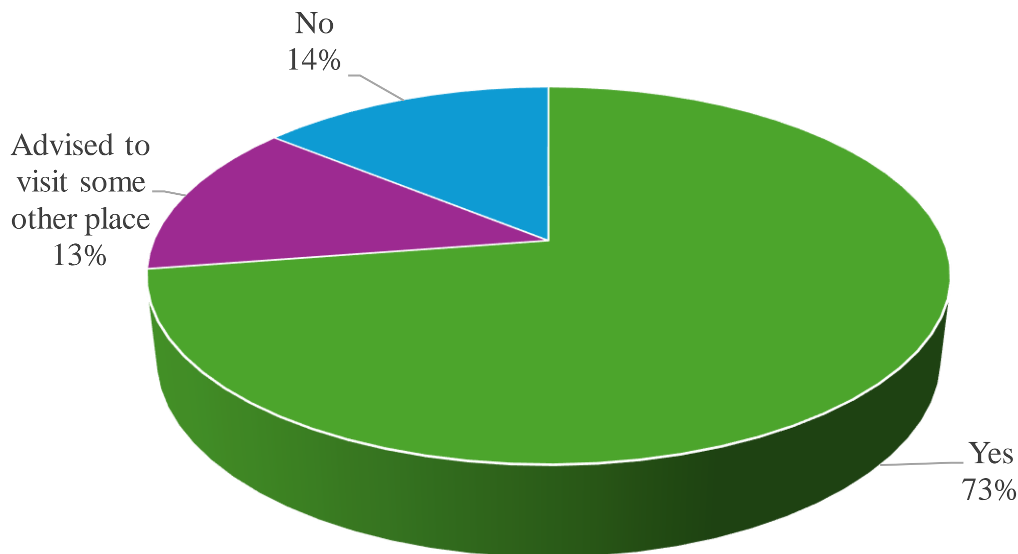

Figure 5.3: Service delivery status at the center visited by the undergraduate students

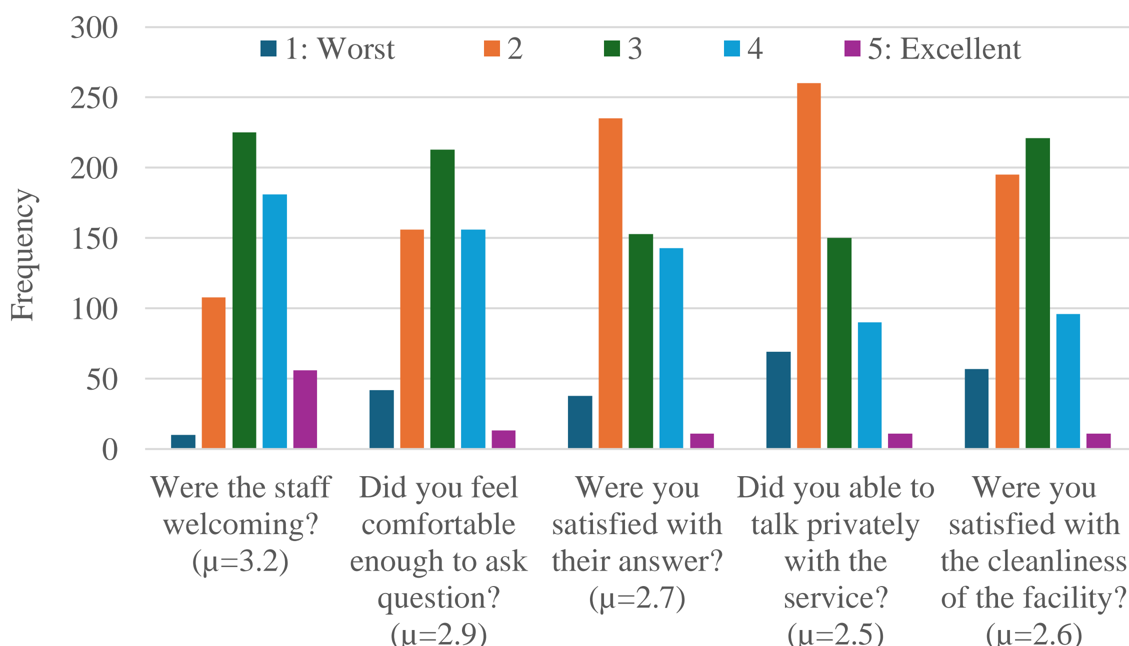

Figure 5.4: Frequency distribution and mean of satisfaction level of the SRH service attendees

User satisfaction is the key to the success of any service delivery profession. Students were asked to grade their level of satisfaction with the different features (e.g., professional greetings., hygiene, level of privacy and so on) of the SRH service they received at the centres they visited. The overall mean score was 2.82 (on a scale of 1 to 5; 1 being the worst and 5 being excellent), with individual means associated with different features varying between 2.5 and 3.2 (Figure 5.4), which signifies the scope of much-needed improvement in service delivery at the SRH service centre.

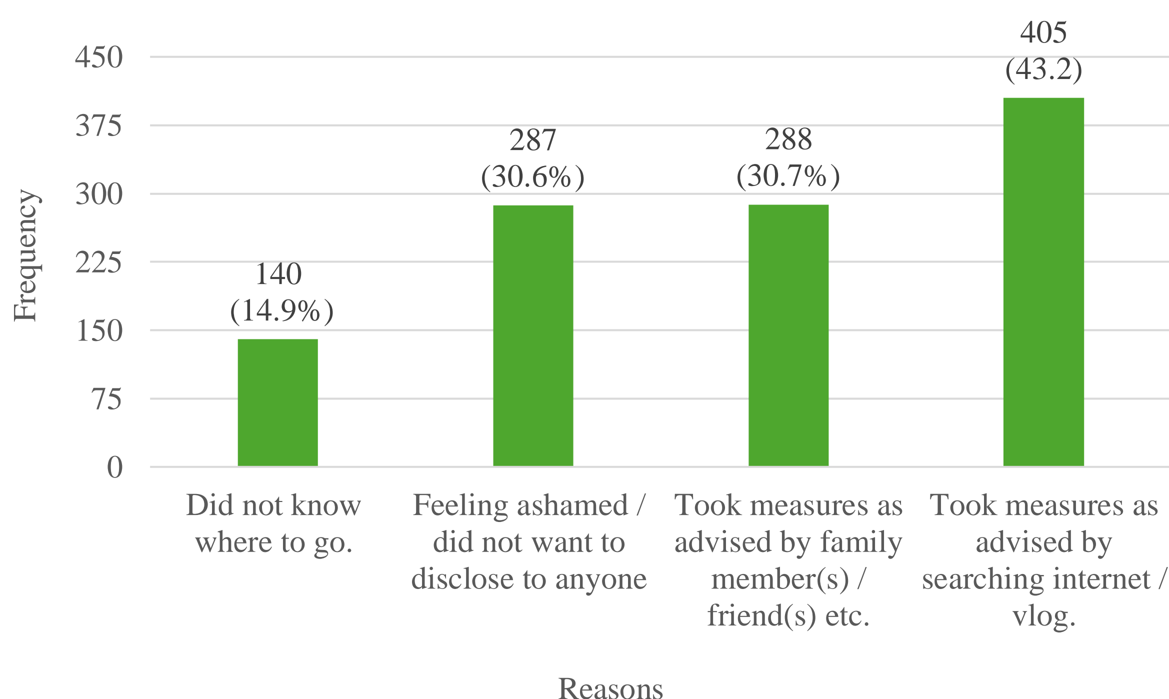

Figure 5.5: Reasons for not visiting SRH service delivery points by the undergraduate students

Table 5.1 Reasons for not visiting SRH services by sex, pre-university education back ground and type of university

Reasons	Sex		Pre university education			Type of university	
	Male	Female	Bengali Medium	English Medium	Madrasah	Private	Public
Did not know where to go.	37 (6.1%)	104 (31.4%)	99 (14.9%)	30 (14.3%)	11 (16.6%)	36 (9.0%)	104 (19.2%)
Feeling ashamed / did not want to disclose to anyone	180 (29.7%)	107 (32.3%)	178 (26.8%)	58 (27.7%)	**51 (77.2%)**	102 (25.7%)	185 (34.2%)
Took measures as advised by family member(s) / friend(s) etc.	132 (21.8%)	**156 (47.1%)**	170 (25.6%)	**96 (45.9%)**	22 (33.3%)	143 (36.1%)	145 (26.8%)
Took measures as advised by searching internet / vlog.	**289 (47.7%)**	116 (35.0%)	**318 (48.0%)**	77 (36.4%)	10 (15.1%)	**211 (53.2%)**	**194 (35.9)**

*: ***Bold number***s show highest proportion in respective category.

5.3.2 Reasons for not visiting / using SRH care services and facility:

Participant students cited internet/vlog searches (43.2%), family/friend advice (30.7%), shame (30.6%), and lack of knowledge (14.9%) as the main reasons for not seeking SRH services (Figure 5.5). Table 5.1 shows the reasons for not visiting the SRH centres practiced among varying categories of sex, pre-university education background and types of university.

5.3.3 Availability and uses of on campus SRH service and counselling service:

On campus, sexual and reproductive services play a crucial role in promoting the SRH and wellbeing of students (Leekuan et al., 2022). On - campus SR services can be useful in providing access to a wide range of health resources related to sexual health, including information, counselling, testing and treatment for STIs, contraceptive options and general reproductive health care (Higgins et al., 2011; Leon-Larios et al., 2017; Thongmixay et al., 2019). Having these services conveniently located on campus ensures that students can seek out care and services conveniently and without delay (Benevides et al., 2019). The assurance of maintaining confidentiality encourages students to access the SRH care they require without fear of judgement or breach of confidentiality. Apart from providing treatment, on-campus SRH centres can also concentrate on counselling about sexual health and reproductive issues (Kirby, 2002; Coyle et al., 2013). They can offer resources on safe sex practices, contraception options, pregnancy planning, STI detection and prevention. Hence, we can effectively reduce unplanned pregnancies and the spread of STIs. Many on-campus SRH services also extend support for survivors of sexual assault. This includes access to emergency contraception, counselling, and referrals to appropriate resources for further assistance. These services make a significant difference in helping survivors recover from traumatic experiences. Thus, on-campus SRH services are vital in ensuring that students have the necessary resources and support to make informed decisions about their SRH choices.

This study finds that 79% of respondents in all the valid responses mentioned not having an on-campus SRH service and/or counselling unit. This percentage is relatively higher among public university students (86.2%) as compared to private university students (70.0%). (Figure 5.6). Of the 318 students who had on-campus SRH services and/or counselling units, 17.0% visited the facility, and 14% stated that they would visit the facility if needed (Figure 5.7). 56% of those users expressed satisfaction with the service they received at the on-campus SRH service and/or counselling centre. 24% expressed dissatisfaction with the service they received, while 20% reported receiving no service at all (Figure 5.8). Conversely, 32% of respondents

reported not visiting the facility, and 37% indicated they would not visit even if necessary (Figure 5.7). Concern about privacy was the most important reason for not using the on-campus SRH service and/or counselling unit (Figure 5.9).

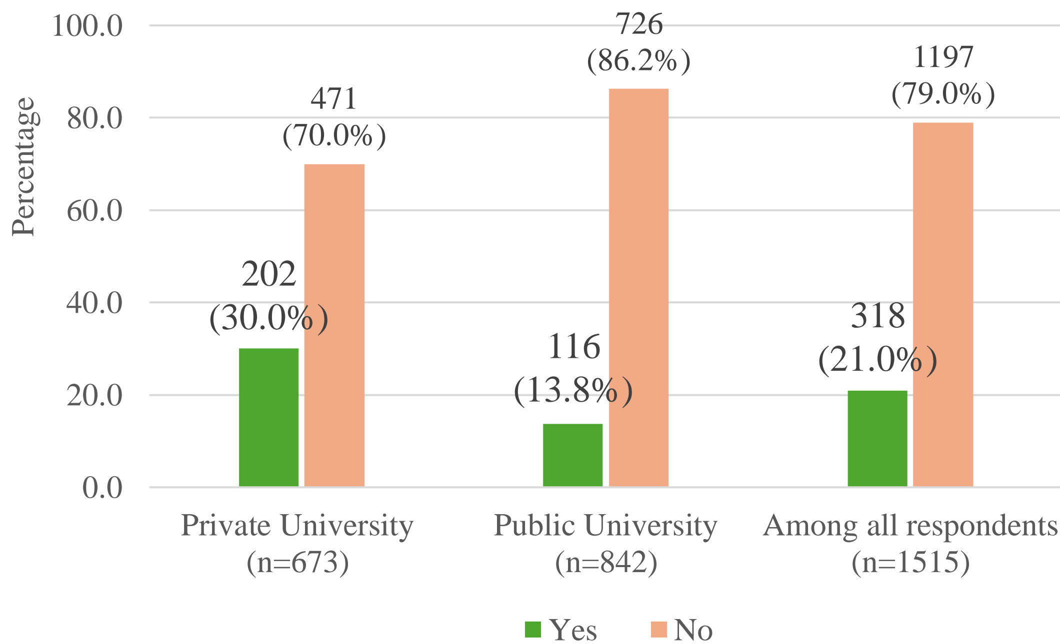

Figure 5.6: Availability of on-campus SRH service delivery /counselling unit by types of university

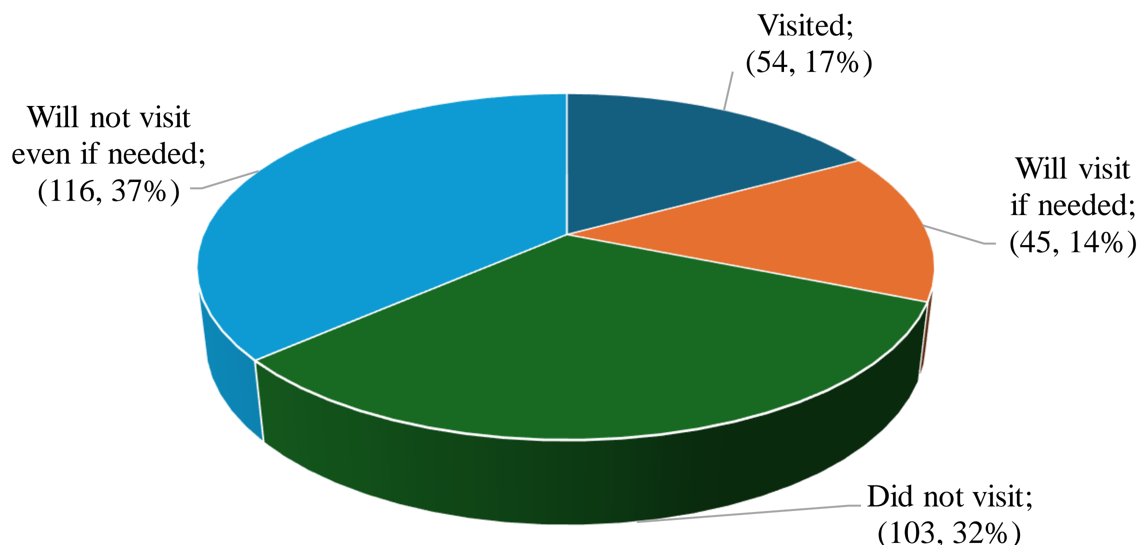

Figure 5.7: Accessing and use of on-campus SRH facilities by undergraduate students

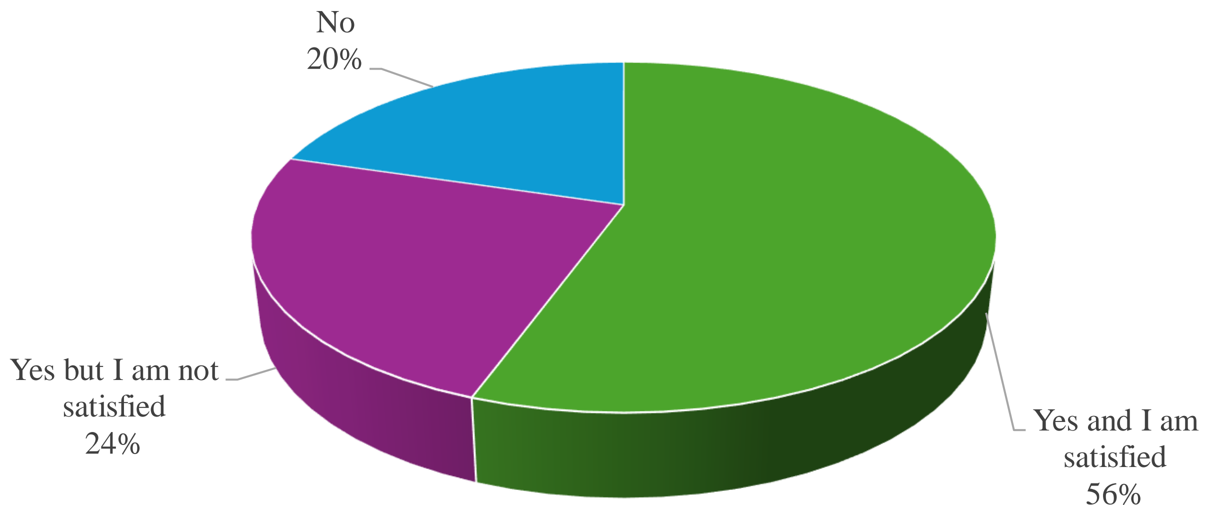

Figure 5.8: Service delivery and satisfaction level of the on-campus SRH service and counselling unit user

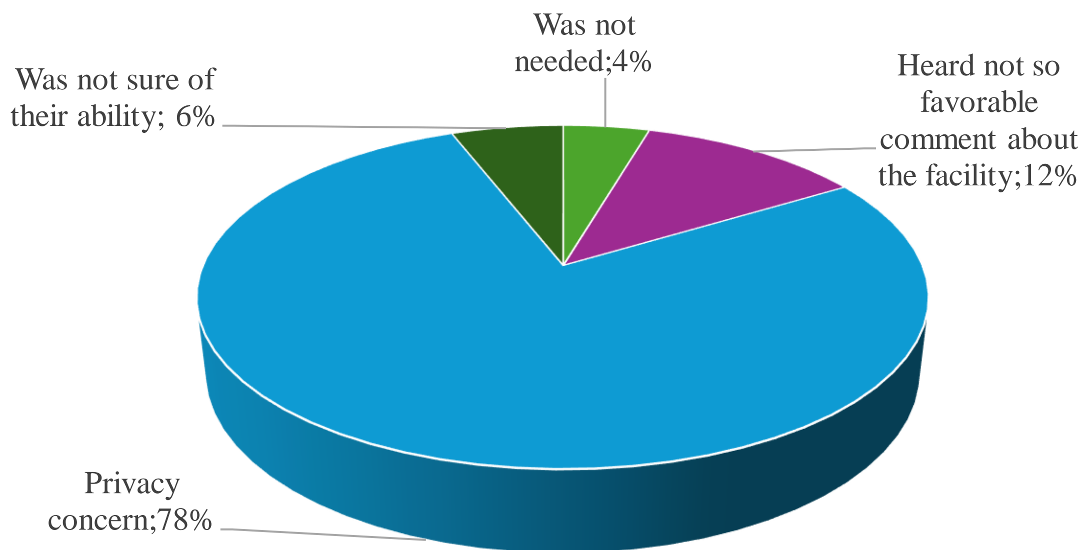

Figure 5.9: Reasons for not using on-campus SRH service facility

5.4 Factors influencing the SRH health seeking behaviour:

Ensuring and seeking effective sexual and reproductive health care services is a challenging concern that requires both societal and individual preparedness. There are numerous conjoined factors that can influence the likelihood of people seeking and accessing SRH services. Such as:

i. *Availability of SRH services*, including contraception, STI testing and treatment, and mental counselling for every individual, irrespective of age, gender, and socio-

economic status. When a society has limited or restrictive access to SRH services, people are less likely to seek them.

ii. *A supportive social environment* with regards to SRH is crucial to having an upfront relationship among family members (e.g., parents and siblings), relatives, friends, family, religious leaders, and so on. People should feel comfortable talking about SRH issues and sharing information within family members helps raise awareness about reproductive health issues, including contraception, STIs, menstrual health issues, and pregnancy. It creates a safe space for individuals to seek advice, share concerns, address any misconceptions if there are any, and resort to social support if required.

iii. *Cultural acceptance* is crucial in properly addressing the issues related to SRH. Issues associated to SRH should be accepted as integral part of life and should not be stigmatized for seeking SRH services. This includes challenging negative, derogatory, irrational social practices involving SRH issues and promoting positive messages.

iv. *Accurate knowledge about SRH issues* instils confidence in people's realization and understanding of their needs. Well-informed individuals are more likely to feel confident having meaningful upfront conversations with their partners, friends and family members about SRH. This also contributes to seeking out SRH services.

v. *Having effective communication and advocacy skills* is vital to feeling confident in making informed decisions. Individuals who can communicate and advocate for their SRH requirements are more likely to seek out SRH services and get the care they need.

vi. *Developing confidence* makes people feel empowered to take control of their SRH affairs. They are more likely to seek out the services they need, such as contraception, STI testing and treatment, and mental health counselling. They are also more likely to feel comfortable setting boundaries, saying no to any unapproved sexual advancement, or protesting sexual harassment.

5.5 Identifying the factors influencing the health seeking behaviour of the undergraduate students of Bangladesh:

Logistic regression analysis was carried out to identify the factors that influence the health-seeking behaviour of the university students. The model is capable of providing coefficients

Table 5.2: Logistics regression analysis of the socio demographic characteristics and visit to SRH care service and counselling

Independent variable	Category	aOR (95% $C.I. of\ OR$)
Gender	Male#	
	Female	3.304 (2.375, 4.591) *
Age	<23#	
	≥ 23	1.424 (1.016, 1.995) *
Religion	Islam#	
	Buddhism	0.86 (0.67, 1.515)
	Christianity	0.89 (0.70, 1.507)
	Hinduism	0.079 (0.35, 0.18) *
Academic qualification of father	Less than graduate#	
	Graduate or over	4.788 (2.993, 7.661) *
Academic qualification of mother	Less than graduate#	
	Graduate or over	0.97 (0.410, 1.868)
Medium of instruction during preuniversity education.	English medium#	
	Bengali medium	1.35 (0.598, 2.02)
	Madrasah	0.171 (0.081, 0.364) *
Location of pre university academic institution	Urban#	
	Rural and Semi-urban	0.51 (0.29, 0.87) *
Types of University	Public university#	
	Private university	0.75 (0.413, 1.801)
Co- education status during at pre-university stage	Non-co-education#	
	Co-education	1.102 (0.670, 1.813)
Access to formal SRH Education at pre university stage	No#	
	Yes	1.582 (1.112, 2.25) *
Student is having information of STIs, (knows name of at least four STDs, symptom and modes of transmission of at least three STDs), contraception etc.	No#	
	Yes	1.89 (1.316, 2.453) *

#: Reference group; *: Sig at $\alpha = 0.05$

that reflect both the magnitude and direction of the association between the predictor variable and the utilization of the SRH facility. In this instance, the outcome variable was whether a student had visited SRH services or counselling centres in the 12 months prior to the survey. The factors presumptively associated with the outcome variable constitute the independent variables in the logistic regression analysis. Appendix 7 provides a detailed description of the independent and dependent variables considered for the model Appendix 7.

The logistic regression model represented in Table 5.2 shows the potential influence of predictor variables (or identifying the factors that has influence) on student's use to SRH service or attending counselling during the last 12 months prior to the survey. The logistic regression analysis suggests - female students (aOR=3.304*; 95% CI: 2.375 – 4.591), relatively aged $(age \geq 023)$ students (aOR=1.424*; 95% CI: 1.016 - 1.995), Students with father having graduate or higher degree (aOR=4.788*, 95% CI: 2.993 – 7.661), student from Bengali medium institutions (aOR =1.35; 95% CI: 0.598 – 2.02) and from co-education institution (aOR =1.102, 95% CI: 0.670, 1.813), having access to formal SRH education pre-university level (aOR =1.582*, 95% CI: 1.112, 2.25) and having knowledge of STIs, contraception etc. (aOR =1.89*, 95% CI: 1.316, 2.453) are more likely to make visit to take SRH service and counselling as compared to respective reference category. On contrary, students with religious back ground other than Islam, pre university academic institution located at rural and semi urban area (aOR = 0.51*; 95% CI: 0.29 – 0.87) and of private university (aOR = 0.75; 95% CI: 0.413 – 1.80) are less likely to make visit to take SRH service and counselling as compared to respective reference category.

5.6 Chapter Summary

This chapter discusses Bangladeshi young adults' SRH service access problems. The chapter aims to identify Bangladeshi undergraduate university students' SRH-related health seeking behaviour. The study seeks to solve the question of where university students get SRH care. SRH's on-campus health care facility is also investigated. According to this study, 38.3% of undergraduate university students visited SRH services, compared to 56.6% who 'felt the need' to visit. This depicts the general tendency to ignore, neglect, or reluctance to seek professional SRH support. Male undergraduate students receive fewer professional SRH services and consultation (25.5%) than female students (53.0%). Later in life, people may still avoid professional SRH services. According to several studies, Bangladeshi men had discomfort when talking about reproductive health and sexually transmitted diseases with healthcare

practitioners, and consequently avoided sharing their reproductive health concerns (Shahjahan et al., 2006; Bishwajit et al., 2017).

Government, non-governmental, privately owned, and community-based organisations provide SRH services in Bangladesh (BBS, 2019; Williams et al., 2021). Depending on area, other providers may exist. Most students (50%) who participated in the survey and accessed SRH health services preferred private practitioners. Private providers offer more privacy and convenience than government or NGO services, but they may be too expensive for many (Akazili et al., 2020). All users scored a mean of 2.82 on a 1–5 scale (1 being worst and 5 being great). Thus, there remain scope to improve quality services in these sectors.

Professional help is needed for SRH. Family, friends, and the internet can help, but students were most likely to avoid SRH services by following guidance (30.7%) and searching online (43.2%). Additionally, too much information might confuse and hinder choice (Henderson et al., 2013; Bacchus, 2019). On-campus SRH facilities increased SRH education, contraceptive use, and STI testing (Newton-Levinson et al., 2016; Wachamo, 2020; Abdurahman, 2022). These facilities assist students' access SRH services, reduce stigma, and improve attitudes. 79.0% of respondents claimed their institutions lacked SRH counselling/delivery units. Students avoided campus SRH centres despite their availability. Students with on-campus SRH facilities answered, 'they did not' (32%) and 'will not visit even it needed' (37%). Privacy concerns (78%), the major reason for not visiting SRH on campus.

The logistic regression model used to determine if predictor variables affected students' usage of SRH services or counselling in the year prior to the survey. Logistic regression analysis reveals female students, relatively aged (age$\geq$ 23), students with a graduate or higher degree, Bengali medium students, co-education students, and access to formal SRH education pre-university level. Compared to the reference category, students with non-Islamic backgrounds, pre-university academic institutions in rural and semi-urban areas, and private universities are less likely to seek SRH services and counselling.

Chapter 6
Attitude towards existing relationship practices of the undergraduate university students in Bangladesh

6.1 Introduction

University students' attitudes towards existing relationship practices can vary widely based on cultural, societal, personal, and generational factors (Bender et al., 2010). Traditional views on relationships, which value commitments and long-term relationships, inspire some university students (Meier et al., 2009; Stanley et al., 2010; Maguele et al., 2020). Their preference aligns with conservative cultural norms and expectations surrounding dating, engagement and marriage. Many university students often embrace a more open-minded approach to relationship practices. This may lead them to associate with nontraditional relationship structures such as open relationships, polyamory, and consensual non-monogamy. Students who are less focused on long-term commitments and instead prioritise experiences and exploration might engage in casual dating and hookups (Knox et al., 1981; Kuperberg et al., 2016; Ugur, 2016). The ever-expanding access and influence of technology and dependence on online dating apps and social media have initiated an additional dimension in the relationship practices of university students in recent days (Alexopoulos et al., 2020). Long-distance relationships might be common among university students, as they often come from diverse geographic backgrounds (Kuske, 2020).

With some exceptions, undergraduate university students in Bangladesh typically fall between the ages of 18 and 24. According to the WHO, 'adolescents' are defined as individuals in the 10–19 year age group and 'youth' as the 15–24 year age group. While 'Young People' covers the age range of 10–24 years (WHO, 2006a), the undergraduate university students in Bangladesh comprise mostly individuals who are in the later stages of their adolescence to mid-twenties and about to commence experiencing young adulthood. This is the time when individuals experience rapid physical, cognitive and psychosocial growth following puberty and become sexually active (UNFPA, 2011). At this stage, they undergo life-changing transformations that involve both physical and mental alterations, as well as changes in their role in social engagement. The study suggests that, irrespective of sexual engagement and orientation, by the time individuals are old enough to commence their university life, most are already sexually active (Mosher et al., 2005). The university's diverse student population, relative independence, reduced or absent parental supervision oversight, and, in certain cases,

the presence of alcohol and substance use, often provide students with opportunities to explore their sexuality and self-identity (Wetherill et al., 2010).

Bangladesh is among the few nations with limited national-level data describing the sexual behaviour of young people, particularly young adolescents and unmarried individuals (MoHFW, 2016). The lack of data on university students' relationship practices in Bangladesh can have a number of repercussions, including an impact on our understanding of society's dynamics and an impediment to the formulation of well-informed policies. Such a lack of data also increases the possibility that certain issues (such as the interpretation of social trends, health and wellbeing concerns, increased susceptibility to social problems, and so on) go unaddressed. The collection of precise and exhaustive data on the relationship practices of Bangladeshi university students should be a top priority for researchers, politicians, and educational institutions. This is an extremely important matter. These statistics can aid in the development of evidence-based policies, support services, and educational programmes that specifically address the unique needs and challenges encountered by this community. The socio-cultural customs of Bangladesh often led young adults, including university students, to initiate self-imposed restrictions on public discussion about the attitude, practice and behaviour associated with SRH (Arafat et al., 2018). Such social construction resulted in a scarcity of research on attitudes towards different aspects of sexual behaviour and SRH practices.

The primary objective of this chapter was to identify the attitude towards and practices of university students with respect to different issues of SRH, including the nature and extent of intimate relationships maintained by university students. Drawing on existing evidence, the chapter delves into the factors commonly acknowledged for their role in shaping attitudes, behaviours, and practices in social construction. The discussion also covered university students' sexual and reproductive health practices, their associated consequences, and attempts to explore their situation in Bangladesh, drawing on the findings of the current study.

6.2 Factors shaping up the attitude towards and practices associated with sexual and reproductive health:

A range of factors have inspired and shaped the attitudes and practices of individuals and society towards various aspects of sexual and reproductive (SRH)-related issues over time (Candeias et al., 2021). Cultural, socioeconomic (including religious and political views, etc.) and educational differences—about sexuality, gender roles, family structures, and moral

values—are often deeply ingrained in society and can influence decisions regarding sexual and reproductive activity such as contraception use, abortion, access to reproductive health care, etc. (Brown et al., 1995). Access to age-specific, comprehensive SRH education and information services is crucial in shaping attitudes and practices. Information empowers individuals to make informed decisions, promote gender equality, and encourage responsible sexual behaviour (Leung et al., 2019). Lack of accurate information or inadequate education can lead to misconceptions, stigma and risky behaviours (Thongmixay et al., 2019b). Financial constraints often restrict individuals' access to SRH information and services. Economic empowerment and the social support system can positively influence SRH outcomes (Ninsiima et al., 2021). Societal gender norms and power dynamics significantly influence SRH attitudes, practices, individuals' autonomy, and decision-making power, particularly for women and marginalised groups (Schaaf et al., 2022). Challenging and transforming these restrictive norms are critical for promoting positive SRH practices. Enabling effective legal frameworks that protect reproductive rights, ensuring access to comprehensive healthcare services, and promoting gender equality can positively shape SRH-related attitudes and practices (Ferguson et al., 2022). Conversely, restrictive laws, lack of access, and criminalization can lead to stigma, unsafe practices, and limited healthcare options (Stangl et al., 2019). Peer support and positive social norms can contribute to improved sexual and reproductive health outcomes (Pulerwitz et al., 2019). Lack of access, stigma, or discrimination in healthcare settings can hinder positive outcomes (Corley et al., 2022). Access to confidential, non-judgmental, and affordable SRH services, including contraception, prenatal care, sexually transmitted infection testing and treatment, and safe abortion, has a significant impact on attitudes and practices related to SRH.

Gaps in adequately addressing SRH take an enormous toll on individuals, communities, and economies around the world. Closing these gaps requires a holistic approach that encompasses the right of all individuals to make decisions about their bodies, free of stigma, discrimination, and coercion, and to have access to essential SRH services (Starrs et al., 2018). The aforementioned factors interact with and influence each other, resulting in a complex web of influences on individuals' SRH attitudes and practices within a society. If society places more emphasis on ensuring individual rights, gender equality, and access to comprehensive age-specific SRH education and services, it will display more liberal attitudes towards sexuality, embrace diverse sexual orientations, and embrace safer SRH practices (Munakampe et al., 2018). Conversely, traditional cultural norms, conservative social values, and a lack of political and administrative willingness hinder the implementation of SRH education and restrict access

to information and services related to SRH. This, in turn, leads to a limited knowledge and understanding of SRH issues such as contraception, STIs, and reproductive rights. This could intensify hazardous behaviours, such as initiating sexual activity too early, engaging in unprotected sex, and other related SRH risks.

6.3 Sexual and reproductive health practices of the university students and associated consequence

Globally, young people aged between 15 and 35 years are considered the most susceptible group to risky sexual behaviour (Dadi, 2014). More specifically, young individuals in the age group of 16–24 years are at greater risk of contracting STIs compared to older adults due to RSBs (Olasode, 2007). Risky sexual behaviour (RSB) is defined as any sexual activity that increases the risk of acquiring sexually transmitted infections (STIs) and unwanted pregnancy (Eaton et al., 2010). It is one of the major public health concerns around the world (Brener et al., 2013). The RSBs include, but are not limited to, having multiple sexual partners, no or inconsistent use of condoms, sexual intercourse with commercial sex workers, sexual intercourse under the influence of substance use, and so on (Kawaguchi et al., 1997; Caldeira et al., 2009; Perera et al., 2018). In the absence of appropriate preventive measures, such RSBs may result in a higher risk of acquiring HIV, other STIs and unwanted pregnancy (Workowski et al., 2010; Boekeloo, 2014; Bountress et al., 2017). Studies show states of low income, social and job insecurity, frustration, poor academic performances, a lack of awareness about sexual and reproductive health issues, and harmful traditional practices may trigger RSBs among many (Baron et al., 1988; Doku, 2012; Muche et al., 2017; Nyblade et al., 2017; Afriyie et al., 2019).

University students often undermine the consequences of RSBs despite being aware of the risk of HIV and STIs and associated preventive measures. Irrespective of socio-economic development and cultural background, RSBs among university students are quite evident (Mavhandu-Mudzusi et al., 2016; Gillman et al., 2018; Tekletsadik et al., 2021; Lungu et al., 2022). Several studies have identified university students as vulnerable to higher risks of HIV infection or STI, categorizing them as the most at-risk population due to their engagement in RSB and their perceived non-vulnerability (Jibril et al., 2020; Mcharo et al., 2021; Lungu et al., 2022).

Some of the relatively frequent observed sexual behaviours among university students who are sexually active include having premarital sexual relations (Kann et al., 2014), maintaining sexual relations with multiple partners (CDC, 2019), having sexual relations under the influence of substances (Brown et al., 2016), having intercourse without using condoms (Ren et al., 2021), using contraceptive measures inconsistently or not at all (Khawcharoenporn et al., 2015), participating in or experiencing coercive sexual encounters (Palmer et al., 2010), and so forth. Some of the main reasons for university students not practicing safer sex include negative views on the use of protective measures (Shiferaw et al., 2014), a feeling of invincibility (Adefuye et al., 2009), trust based on appearance or relationship quality, and a desire to live in the moment (Duncan et al., 2002). Other factors that significantly contribute to the risky sexual behaviours of university students include childhood abuse (both physical and sexual), poor mental health (Sikkema et al., 2011), substance consumption (Leigh et al., 1993), partner violence, and/or sexual coercion (Pengpid et al., 2020).

6.4 Existing relationship features, attitudes and SRH practices of the undergraduate university students in Bangladesh

In this chapter, we had Bangladeshi undergraduate university students associated with SRH answer questions regarding various facets of their relationships in order to gain a better understanding of the behaviours that they currently engage in. Beginning with a description of their current relationship status, the subsequent conversation will attempt to delve into various aspects of relationships, including the length of time they have been together, the degree of communication that exists between them, the various aspects of physical intimacy (such as sexual intercourse), the preventative measures that are taken during sexual intimacy, and a variety of other topics. Description of the students' general habits was accomplished through the use of descriptive analysis, which included the distribution of percentages and the representation of data graphically.

6.4.1 Relationship status of the undergraduate university students

At the time of the survey, only 29% of respondents had yet to get involved in any relationship. The rest indicated either “currently in relationship (38%)” or “previously had relationship (33%)” (Figure 6.1). “Not finding an appropriate person” was mentioned as their main reason by the students who did not ever have any relationship (Table 6.1). The majority of the respondents (47.3%) mentioned starting their first relationship during university days (Figure 6.2). 46.2% of respondents who are currently in relationships identified themselves as couples

and expected that their relationship might lead to marriage (Table 6.2). The duration of most of the current relationship was between six months and one year (44.4%) (Table 6.3).

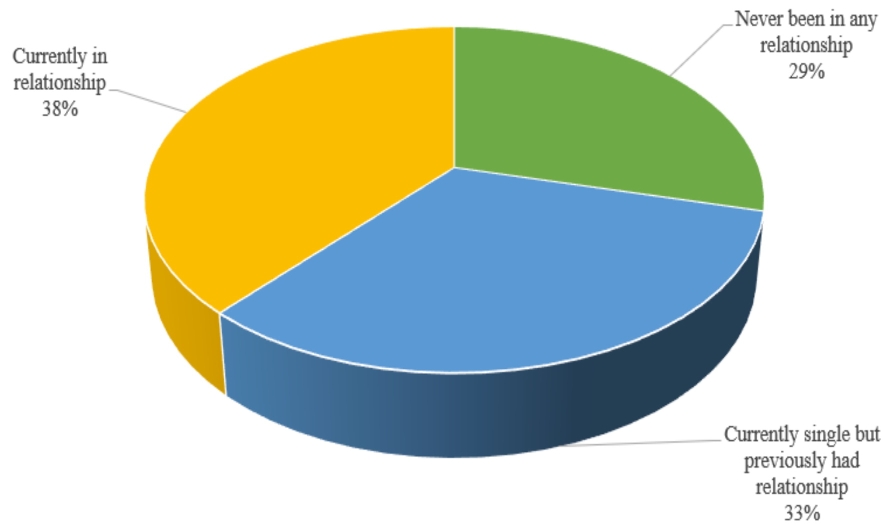

Figure 6.1: Relationship status of the undergraduate university studetns in Bangladesh

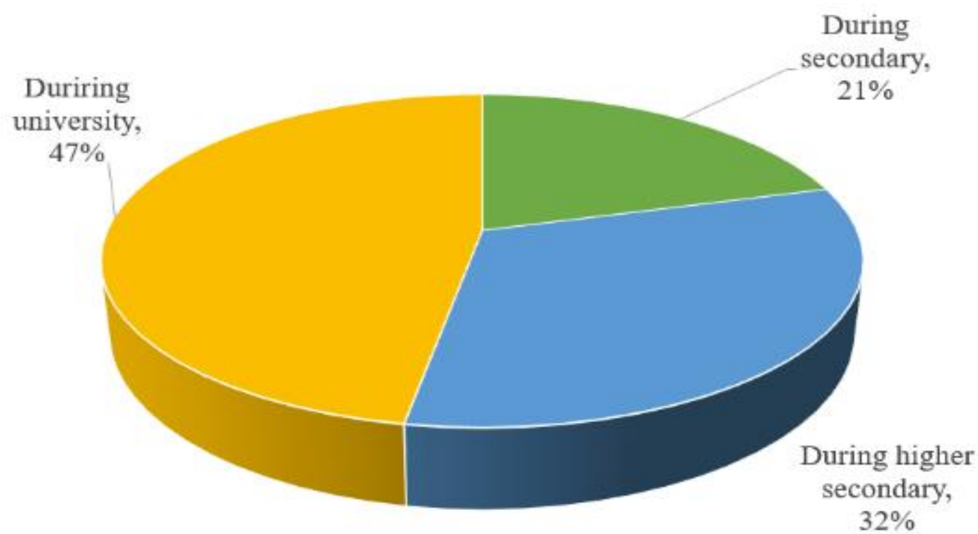

Figure 6.2: Percentage distribution of student at stage of their first relationship

Table 6.1: Reasons for not having relationship of the undergraduate university students of Bangladesh

Reasons	Frequency	Percentage
Never felt the need of	43	9.8
Religious restriction	47	10.7
Family restriction	82	18.6
Did not find appropriate person	269	61.0
Total	441	100

Table 6.2: Relationship status of currently engaged[#] undergraduate university students of Bangladesh

Reasons	Frequency	Percentage
Friend	194	33.2
Couple / Might lead to marriage	270	46.2
Engaged officially	78	13.3
Married	43	7.4
Total	585[#]	100

Table 6.3: Duration of relationship of currently engaged* undergraduate university students of Bangladesh

Duration of relationship	Frequency	Percentage
Less than six months	135	23.1
Between six months to one year	260	44.4
Between one year to two years	136	23.2
More than two years	54	9.2
Total	585[#]	100

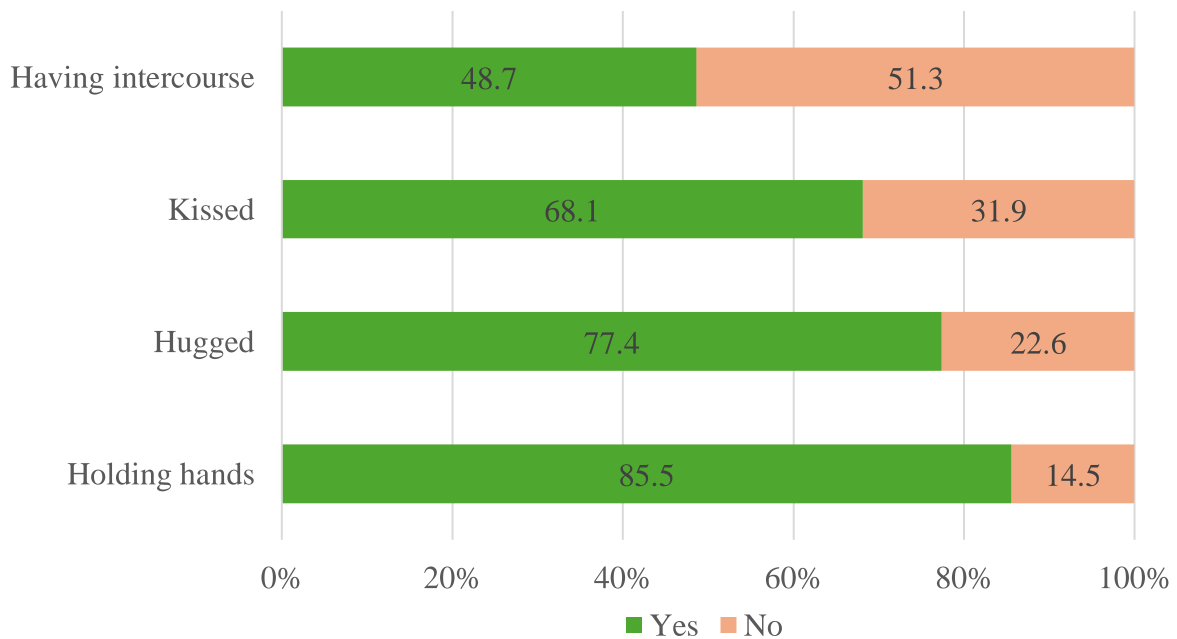

Figure 6.3: Percentage distribution of level of physical intimacy of the under graduate university students in Bangladesh

6.4.2 Features of intimacy maintained by the undergraduate university students

The nature of physical intimacy maintained by university students varies greatly depending on the individual student, relationship status, societal belief and cultural background (Meyer et al., 1994). It is important to recognise that physical intimacy is a personal choice, and individuals may engage in a range of activities based on their comfort level and mutual consent. (Higgins *et al.*, 2011). Some of the most commonly practiced expressions of affection and physical interaction include hand holding, hugging, kissing, cuddling and having sexual intercourse (Gulledge et al., 2003). To reveal the nature of physical intimacy, students were asked whether they have held hands, hugged, kissed or had intercourse in their relationship (previous and current). As of this study, holding hands, hugging, kissing and having intercourse were the most common physical interactions mentioned by the undergraduate university students. Holding hands (85.5%) is the most usual form of intimacy mentioned by the respondents, followed by hugging (77.4%) and kissing (68.1%). 48.7% of students responded to having intercourse in their relationship. (Figure 6.3).

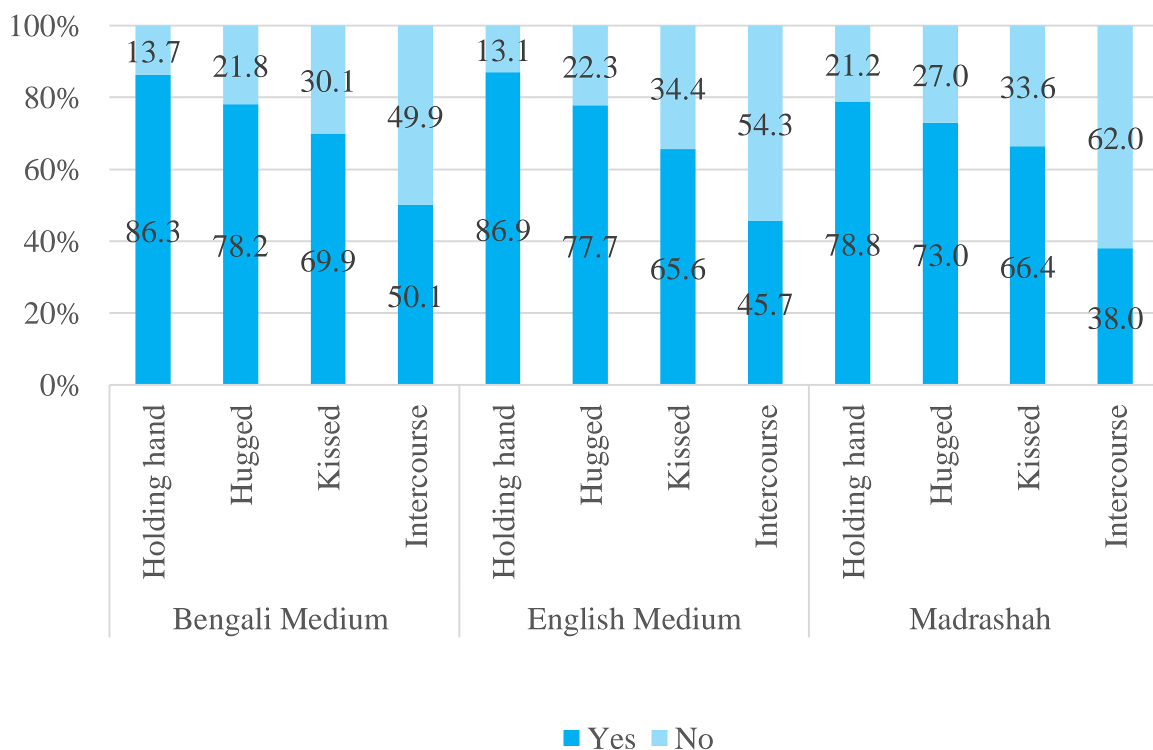

Figure 6.4.1: Percentage distribution of the physical intimacy by pre-university education back ground

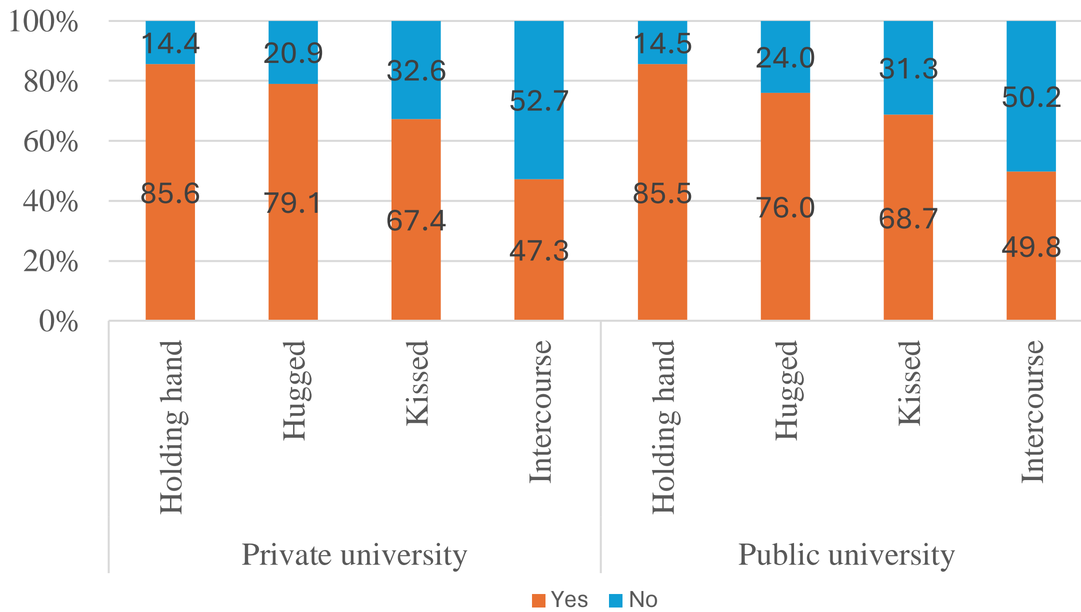

Figure 6.4.2: Percentage distribution of physical intimacy by types of university

However, with some minor exceptions, the prevalence of different indicators associated with physical intimacy remains relatively analogous, irrespective of different pre-university educational backgrounds (Figure 6.4.1) and different types of universities (Figure 6.4.2).

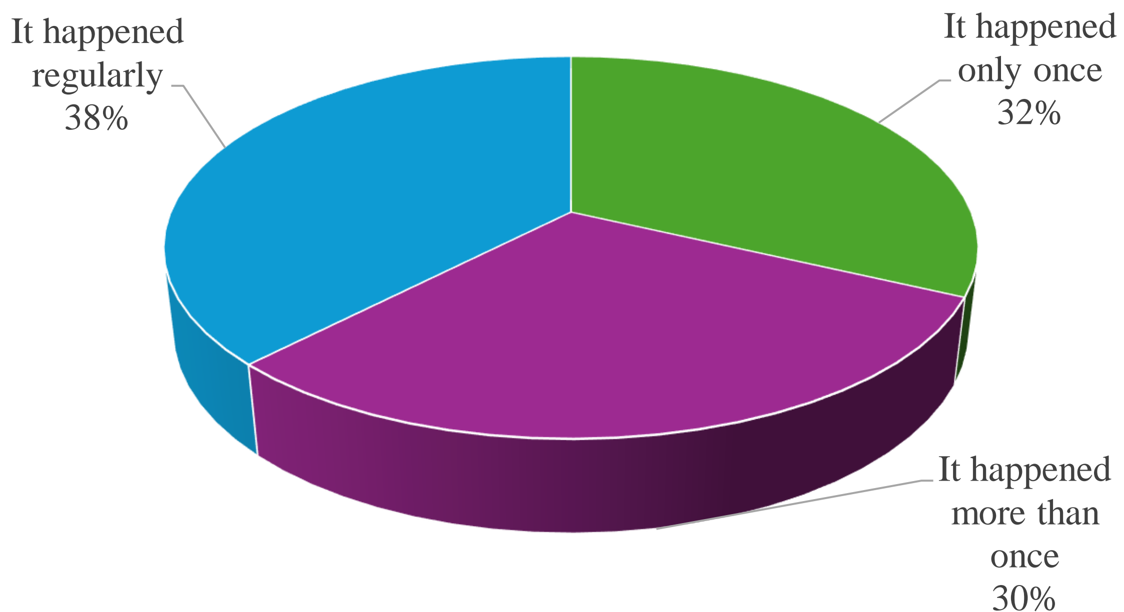

Figure 6.5: Percentage distribution of frequency of sexual intercourse of the undergraduate university students in Bangladesh

6.4.3 Features of preparedness of the students relating sexual intercourse

38% of respondents who ever had sexual intercourse[6] mentioned having sexual intercourse regularly (Figure 6.5). However, not all the incidents of sexual intercourse that took place were consensual. While answering about their incident of first intercourse, only 29.9% of respondents mentioned having had their first ever intercourse consensually (Table 6.4). Irrespective of gender, the rest of the incident of intercourse involved force or persuasion from either one of the sides involved (Figure 6.6).

Table 6.4: Frequency (%) distribution of how the event of "first" intercourse occurred?

How the first intercourse occurred?	Frequency	Percentage
I forced my partner to have intercourse	50	9.5
I was forced by my partner to have intercourse	92	17.5
I persuaded my counterpart to have intercourse	118	22.5
My partner persuaded me to have intercourse	108	20.6
It was mutually consensual	157	29.9
Total	525	100

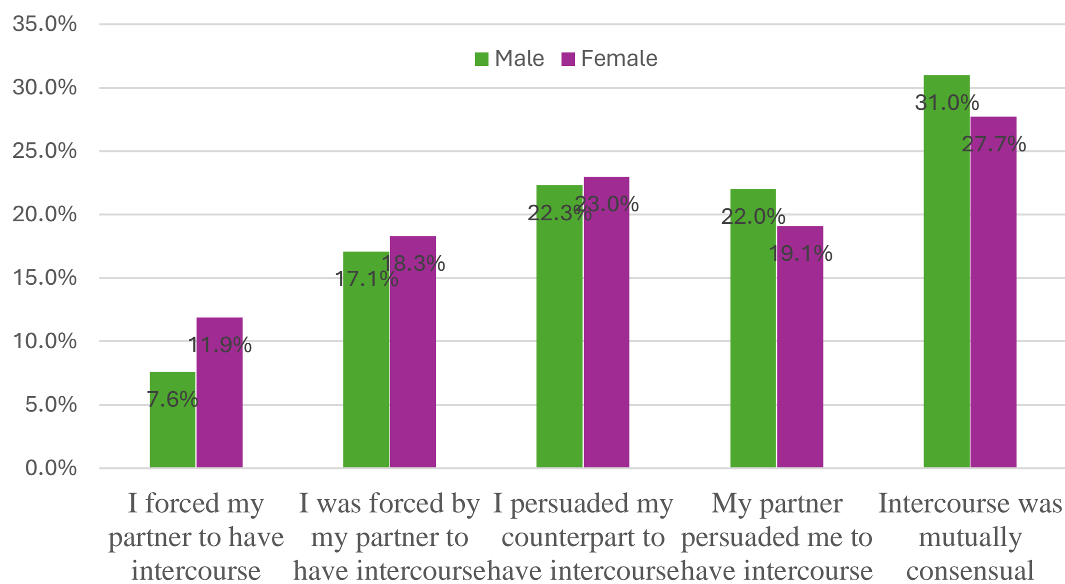

Figure 6.6: Percentage distribution of describing the event of 'First Intercourse'

[6] Number of undergraduate students ever had sexual intercourse = 525.

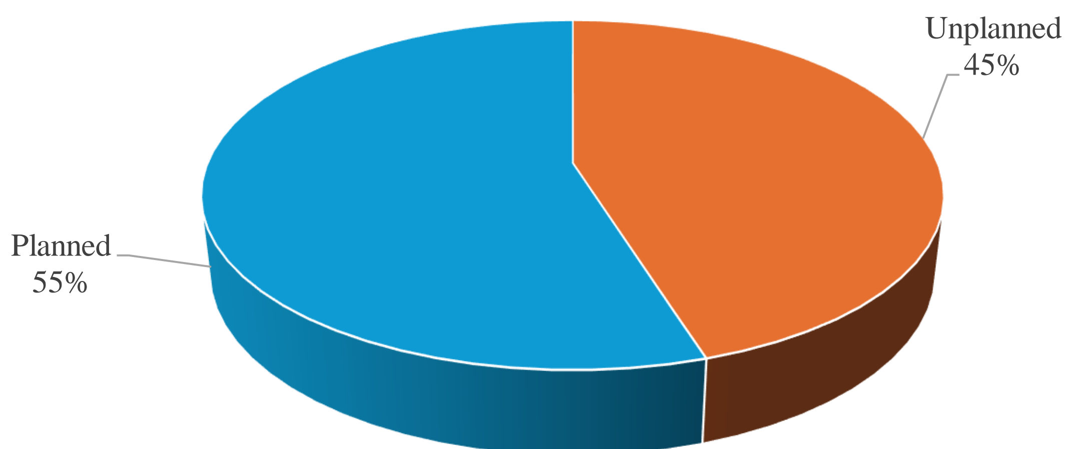

Figure 6.7: Percentage distribution of preparedness during the sexual intercourse

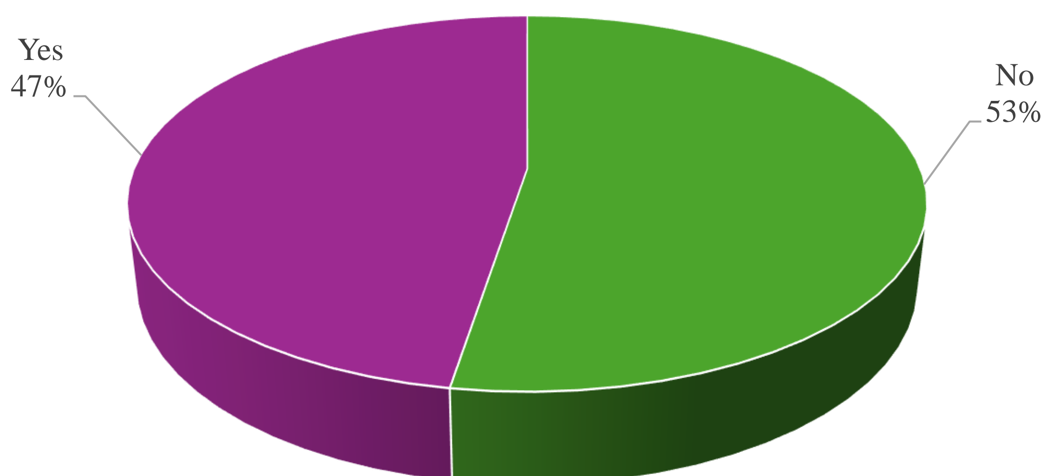

Figure 6.8: Percentage distribution of consideration of preventive measures during the event of first intercourse

45% of respondents who ever had sexual intercourse described their first incident of sexual intercourse as unplanned (Figure 6.7), and 52.6% mentioned that during that particular moment they (or their partner) were unaware of any risk associated with STIs or unintended pregnancy and did not take any measures to prevent pregnancy or sexually transmitted diseases (Figure 6.8). We asked respondents who had ever had sexual intercourse (in a current relationship) if they had ever experienced an unplanned pregnancy-related incident. 13.1% of respondents who

are currently in relationships and have had sexual intercourse said they experienced unplanned pregnancy-related incidents. According to the given responses, the majority of these unplanned pregnancy-related incidents occurred outside of the students' marital relationship (Table 6.5).

Table 6.5: Frequency (%)[#] distribution of experiencing unplanned pregnancy related incident by current relationship status

Current relationship status	Frequency	Percentage
Friend	11	33.3
Couple / Might lead to marriage	17	51.5
Engaged officially	4	12.1
Married	1	6.7
Total	33	100

#: Percentages among students currently in relation and experienced unplanned pregnancy related incident.

6.4.4 University students' preferences on behavioural practices associated with SRH:

In sociology, collective perception refers to how members of a society similarly interpret experience and information. It can also include a shared perspective on a specific topic, as well as how that shared perspective shapes their perception of information related to that topic (Manstead, 2018). Unlike any other segment of society, university students may have varying views and perceptions on SRH issues and practices. The study shows personal experiences, family and cultural background, media and social interactions all have contributed to shaping up the views and practices of university students (Challa et al., 2018; Mbarushimana et al., 2022). It is important to note that there is no one "right" perception of SRH. Some students may adopt relatively flexible and approachable views on SRH, believing that it is important to have access to accurate information and services. Many may hold views and practices that are restrictive (Ballard et al., 2016; Hoopes et al., 2016; Jesmin et al., 2016).

To assess behavioural responses associated with SRH, we asked students a series of questions about their views and/or preferences regarding the use of contraception, multiple sexual partners, coercive sexual encounters, premarital or extramarital sexual encounters, and so on (Table 6.6). Responses exhibited an overall collective pattern in reference to different aspects of physical and sexual interaction that are neither restrictive nor flexible towards any specific

direction (5 out of 8 responses fall between 51.4% and 57.0%). Frequently, the collective responses associated with behavioural practices and expectations were somewhat contradictory. For example, 56.7% of students approved of ‘unmarried boys and girls having sexual intercourse’. 57.0% of students favoured the idea that "everyone must remain virgin until marriage." Apart from that, the endorsement of certain behavioural practices may have a significant negative impact on both individuals and society as a whole. For example, 52.69% of students agreed that ‘it is right to force a partner to have intercourse’. Such a favourable attitude toward having forceful intercourse may eventually result in uncomfortable and undesirable relationship outcomes.

Table 6.6: Percentage distribution of students’ preferences of SRH related behavior

SRH behaviour	Agree		Disagree	
	Frequency	Percentage	Frequency	Percentage
It is all right for unmarried boys and girls to kiss, hug and touch each other.	1112	73.2	408	26.8
Everyone has to maintain virginity until s/he gets married.	866	57.0	654	43.0
There is nothing wrong with unmarried boys and girls having sexual intercourse.	862	56.7	658	43.3
A person should always use condom if s/he is not sure of the STD status of his partner.	826	54.3	694	45.7
It is right to force partner to have intercourse.	804	52.9	716	47.1
I don’t care if the person I am going to get married had prior relation	781	51.4	739	48.6
Everyone should get tested for STDs before marriage.	731	48.0	789	52.0
Having multiple relation is acceptable.	702	46.2	818	53.8

We also inquired about the students' perspectives on preventive measures to protect against sexually transmitted infections (STIs). The students were asked seven questions to evaluate their knowledge and awareness of the preventive measures against sexually transmitted infections (STIs). We discovered that the students' level of awareness did not closely correspond to the preventive measures associated with sexual and reproductive health. Approximately 45% to 55% of the replies received express agreement with positive sentiments towards different preventive actions, while the remaining responses either disagree or are uninformed of the notion (Figure 6.9). Such a lack of awareness associated with SRH-related

preventive measures can have a number of negative consequences for individuals, communities and society as a whole (Budhwani et al., 2018; Sidamo et al., 2021; Chidwick et al., 2022). It is important to note that the consequences of such disagreement or lack of awareness associated with SRH-related preventive measures can be especially severe for marginalised populations, such as young adults, people living in poverty, and ethnic minorities (Mmari et al., 2014; Ismail et al., 2015; Khanna et al., 2022).

Figure 6.9: Percentage distribution associated with general perception and preveventive measures of STDs

6.5 Identifying factors associated with risky sexual behaviour of the university students of Bangladesh:

Chi – square test was performed to determine possible association between the different sociodemographic variables and the dependent variable. Phi (if both the variables have two categories) and Cramer's V (if at least one of the variables have more than two categories) coefficient were used to measure the strength of association between the dependent variables and the independent variables under study. Exposure to risky sexual behaviour can be resulted due to numerous interactive and overlapping factors (Pringle *et al.*, 2017). The interpretability as well as stability of predictive model often compromised due to the presence of multicollinearity (Kim, 2019). Multicollinearity exists whenever an independent variable is highly correlated with one or more of the other independent variables in a multiple regression equation and often regarded as problem because it undermines the statistical significance of an independent variables (Yoo *et al.*, 2014; Vatcheva *et al.*, 2016). The variance inflation factors (VIF) - a statistical measure, was used to assess multicollinearity in a regression analysis[7]. Logistic regression analysis was carried out to identify the factors associated with the risky sexual behaviour of the undergraduate student of Bangladesh. Logistic regression is a statistical method commonly used in health care research to analyse the relationship between one or more predictor variables and a binary outcome variable (Schober and Vetter, 2021). The operational definition of the risky sexual behaviour along with the description of variables considered for the logistic regression model is discussed below:

6.5.1 Operational definition of risky sexual behaviour

Risky sexual behaviour is defined as sexual engagements that increase the risk of contracting STIs, unintended pregnancy, or experiencing emotional and psychological distress (Tadesse et al., 2015; Wakasa et al., 2021). According to studies, risky sexual behaviour includes participating in unprotected sexual activities (e.g., no or inconsistent use of preventive measures) (Yi *et al.*, 2018; Zhou *et al.*, 2022); having multiple sexual partners (N and A, 2015; Dendup *et al.*, 2023; Jing *et al.*, 2023); having sexual engagement that can cause injury; having sexual interactions with individuals whose STI&D-related information is either not known or

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[7] Detail discussion of *Chi – square test and test of multicollinearity is included in section* 3.12 Overview of statistical methods used in this study section of Chapter three: Research methodology.

who has STI or HIV (Moges *et al.*, 2020); having sexual engagement under the influence of substances (Calsyn et al., 2010; Das et al., 2023); and so on.

Table 6.7: SRH behavior and preventive measures against STI considered for generating individual's at-risk score

Characteristics	Score assigned
One may have been exposed to an STD if s/he had sex (vaginal, anal or oral) without using condom with someone has an STD or HIV.	0 if agreed 1 otherwise
A person should get tested if s/he have ever had sex (vaginal, anal or oral) without using condom with someone has an STD or HIV Or whose status is not known.	0 if agreed 1 otherwise
One may have been exposed to an STD if s/he have ever had multiple sex partners.	0 if agreed 1 otherwise
A person should get tested if s/he ever had unprotected sex with a person who has ever injected drugs.	0 if agreed 1 otherwise
Using a latex fe/male condom during sex lower risk form becoming infected with a disease spread during sex	0 if agreed 1 otherwise
People who have a STD may not have any visible symptom	0 if agreed 1 otherwise
Sometimes it is right to force partner to have intercourse if s/he loves his / her partner	1 if agreed 0 otherwise
It is possible to have more than one sexually transmitted disease at the same time.	0 if agreed 1 otherwise
Having multiple relation is acceptable	1 if agreed 0 otherwise
There is nothing wrong with unmarried boys and girls having sexual intercourse.	1 if agreed 0 otherwise

6.5.2 Independent variables considered to be associated with the risky sexual behaviour.

Numerous interactive and overlapping socio economic factors (e.g. age, sex, place of resident etc.) (Darteh et al., 2020; Geremew et al., 2020), religious and cultural beliefs (Shaw and El-Bassel, 2014; Burdette, Hill and Myers, 2015), level of interaction with family members, sibling and friends (Sieving et al., 2006; Wang et al., 2009; Almy et al., 2015; Pasqualini et al.,

2021), peer and media influence, assess to SRH education (Guan, 2021; Jahanfar et al., 2022), lack of clear perception associated with safe sexual engagements (Seal et al., 1996; Chanakira et al., 2014; Fino et al., 2021) can all be instrumental in shaping up individual's risky sexual behaviour.

In this study, determining the factors associated with risky sexual behaviour, the socio-economic factors (e.g. age, gender, educational background, parental educational qualification etc.), environmental and contextual factors (e.g. location of the pre-university education institute, access to SRH education programs during pre-university stage etc.), health care factors (SRH seeking behaviour, level of knowledge related to STIs etc.) were included in the model as independent variables.

6.5.3 Dependent variable

It is imperative to take into account the information related to the nature of sexual engagement (e.g multiple sexual partners etc.) and reproductive health practices (consistent use of preventive measures etc.). Considering the social taboo, to avoid higher proportion of missing responses - this study did not ask the participants any questions related to their sexual and relationship practices. As an alternative, questions were asked to know students' preference and perception associated to the SRH behaviour and preventive measures against STIs (as indicated / discussed in Table 6.6 and Figure 6.9).

Table 6.8: Percentage distribution of RSB risk score of the respondents

Risk score	Risk level	Percentage
0	Not at risk	16.1
1 - 4	At moderate risk	32.8
5 and above	At high risk	51.1

A scale was generated to measure / assess individuals at risk based on the responses of dichotomous options given in Table 6.7. Respondent's preference and perception favourable to recognise practice of SRH wellbeing were evaluated with point 0 (indicating null risk or not at risk) and 1 (indicating potentially at risk) otherwise. Individual respondent was considered potentially at risk - if s/he have favourable attitude towards practice and preferences that are conventionally regarded as risky sexual behaviour. The respondents who preferred - having multiple sexual partners, inconsistent or no use of protective measure against unsafe sex, forced

sexual interaction, premarital sexual initiation and demonstrated lack of knowledge of preventing STI's were identified as potentially at risk. Higher accumulated score (out of maximum 10) represents greater at risk for individual respondent to get involve with risky sexual engagement and vice versa. Apparently according to the responses obtained, 83.9% students were found to be exposed to at least one or more preference(s) and perception(s) that if not addressed can eventually lead to potentially risky sexual behaviour and practice (Table 6.8). For this instance, the dependent variable was defined as 'exposed to potential risky sexual behaviour and practices. The different level of the dependent variables was classified based on the respondent's accumulated risk score; namely - 'not at risk' ($\text{if Risk score} = 0$), 'at moderate risk' ($\text{if } 1 \leq \text{Risk score} < 5$) and 'at high risk' ($\text{if Risk score} \geq 5$). Complete list of independent and dependent variables is given in Appendix 7.1 and 7.2.

6.6 Results

Statistically, there were significant associations between exposure to potentially risky sexual behaviour and practices and various factors. These factors include gender (χ_1^2=6.181, p=0.013), age (χ_1^2=5.161, p=0.023), location of pre-university academic institution (χ_1^2=5.079, p=0.024), access to formal sexual and reproductive health (SRH) education at the pre-university stage (χ_1^2=5.8295, p=0.0157), having basic information about sexually transmitted infections (STIs) (χ_1^2=4.43, p=0.035), and having accessed or visited SRH services or attended counselling within the last 12 months of the survey (χ_1^2=4.715, p=0.029). Nevertheless, the Phi / Cramer's V statistic indicated a significant correlation (Kakudji et al., 2020) between the variables stated above (Table 6.9, Column V), with a level of association ranging from moderate to strong. The variance inflation factor (VIF) was computed for each independent variable under consideration for inclusion in the regression model in order to assess the existence of multicollinearity. The VIF values were calculated to be within the range of 1.008 to 2.559, as shown in Table 6.9, Column VI. This indicates a relatively low and acceptable amount of correlation among the independent variables being studied (Johnston et al., 2018; Kim, 2019b). Therefore, regardless of the strength of the relationship and the level of significance, all independent variables were included in the logistic regression model to understand the relative strength and direction of exposure to risky sexual behaviour and practices among different categories of independent variables, compared to their respective reference group.

Table 6.9: χ^2 test of association between the variables under study and variation inflation factors (VIF)

Independent variable	Category	χ^2 (df)	$p - value$	φ / Cramer's V	VIF
I	II	III	IV	V	VI
Gender	Male# Female	6.183 (1)	0.013*	0.336	1.359
Age	<23# ≥ 23	5.167 (1)	0.023*	0.205	1.338
Religion	Islam# Buddhism Christianity Hinduism	5.25 (3)	0.154	0.183##	1.254
Location of pre university academic institution	Urban# Rural and Semi-urban	5.079 (1)	0.0243*	0.401	2.110
Academic qualification of father	Less than graduate# Graduate or over	1.094 (1)	0.295	0.102	1.614
Academic qualification of mother	Less than graduate# Graduate or over	1.131 (1)	0.287	0.037	1.472
Medium of instruction during preuniversity education.	English medium# Bengali medium Madrashah	1.873 (2)	0.392	0.003##	2.559
Types of University	Public university# Private university	0.113 (1)	0.736	0.009	1.269
Co- education status during at pre-university stage	Non co-education# Co-education	0.140 (1)	0.708	0.010	2.150
Access to formal SRH Education at pre university stage	No# Yes	5.829 (1)	0.0159*	0.481	1.182
Student's had basic information of STIs	No# Yes	4.43 (1)	0.035*	0.510	1.008
Student's had access and / or visited to SRH services or counselling during last 12 months of the survey.	No# Yes	4.715 (1)	0.0298*	0.532	1.739

#: Reference category; *: Sig at $\alpha = 0.05$; ## : Cramer's V statistic

Table 6.10: Logistics regression analysis of the socio demographic characteristics and exposed to potentially risky sexual preferences and perception

Independent variable	**Category**	OR (95% $C.I. of OR$)
Gender	Male#	
	Female	0.602* (0.411, 0.810)
Age	<23#	
	≥ 23	0.635* (0.447, 0.901)
Religion	Islam#	
	Buddhism	1.212 (0.544, 2.703)
	Christianity	1.117 (0.357, 1.373)
	Hinduism	1.428 (1.202, 2.79)
Location of pre university academic institution	Urban#	
	Rural and Semi-urban	0.801* (0.596, 0.989)
Academic qualification of father	Less than graduate#	
	Graduate or over	1.075 (0.979, 2.136)
Academic qualification of mother	Less than graduate#	
	Graduate or over	0.966 (0.672, 1.390)
Medium of instruction during preuniversity education.	English medium#	
	Bengali medium	0.566 (0.261, 1.185)
	Madrashah	0.771 (0.424, 1.404)
Types of University	Public university#	
	Private university	1.219 (0.880, 1.687)
Co- education status during at pre-university stage	Non co-education#	
	Co-education	1.189 (0.753, 1.876)
Access to formal SRH Education at pre university stage	No#	
	Yes	0.941 (0.785, 1.368)
Student's had basic information of STIs, Contraception etc.	No#	
	Yes	0.872*(0.693, 0.989)
Student's had access and / or visited to SRH services or counselling during last 12 months of the survey.	No#	
	Yes	0.879 (0.589, 0.987)

#: Reference group; *: Sig at $\alpha = 0.05$

The logistic regression model assesses the influence of predictor variables on the exposure of university students to potentially risky sexual preferences and perceptions (Table 6.10). The logistic regression analysis suggests that female students (OR = 0.602; 95% CI: 0.411, 0.810), relatively matured aged students (OR = 0.635; CI: 0.447–0.901), students of academic institutions from rural or semi-urban areas (OR = 0.801; 95% CI: 0.596–0.989), Bengali medium (OR = 0.566; 95% CI: 0.0.261, 1.185), and Madrasah (OR = 0.771; 95% CI: 0.424–1.404) background at the pre- 0.901), students of risky sexual preference(s) and perception(s) as compared to other respective reference categories. Other than these, access to formal SRH education at the pre-university stage (OR = 0.941; CI: 0.785–1.368), having basic information about STDs (OR = 0.872; CI: 0.693–0.0989), and access to and/or visits to SRH services or counselling (OR = 0.897; CI: 0.589–0.987) also contributed to lowering the exposure to risky sexual preference(s) and perception(s). On the contrary, according to the logistic regression model, students from co-educational academic institutions at the pre-university stage (OR = 1.189; CI: 0753, 1.876) and from private universities (OR = 1.219; CI: 0.880–1.687) are expected to be at higher risk for their choice of risky sexual preference(s) and perception(s) as compared to their respective reference categories. Parent's academic qualification does not yield any comprehensive impact on the odds of risk score in either direction (Table 6.10). However, such an inferior impact may be relevant due to the less frequent parent-student interaction identified in the previous chapter.

Other than these - access to formal SRH education at the pre university stage, having basic information of STIs and access and / or visit to SRH services or counselling also contributed in lowering the exposure to risky sexual preference(s) and perception(s). On contrary, students from - co-education academic institution at the pre university stage and from private university expected to be at risk for their choice of risky sexual preference(s) and perception(s) as compared to respective reference category. The parent's educational background has no discernible effect on the risk score's probabilities in either way. As mentioned in the preceding chapter, the less frequent parent-student interaction may account for this lower influence.

Multiple logistic regression analysis was carried out to identify the influence of predictor variables on exposer to varying level of potentially risky sexual preference(s) and perception (s) of the university students. The results shown in Table 6.11 provide information comparing each risk group outcome / dependent variable ('at moderate risk' and 'at high risk') against the baseline or reference category (i.e. not at risk) of the dependent variable. The reference

category for the dependent variable is the category that serves as the benchmark against which the other categories are compared. Similarly, the reference category for the independent variable is the category against which the other categories is compared. The calculated adjusted odds ratios (aORs) for each category of the independent variable relative to the reference category is given in column III and IV. OR represents the likelihood / odds of the respondents to have exposure which may lead to choose of either moderate (Column II) or high (Column IV) risky sexual preference(s) and perception(s) as compared to other respective reference category.

The multinomial logistic regression suggests - female students (OR = 0.791; 95% CI: 0.368 - 0.896), relatively matured ($Age \geq 23$) students (aOR = 0.705; CI: 0.527 - 0.957), students of academic institution from - rural or semi urban area (aOR = 0.97; 95% CI: 0.608 - 1.547), Bengali medium (aOR = 0.803; 95% CI: 0.418, 1.543) and Madrasah (aOR =0.565; 95% CI: 0.246, 1.298) background at pre university stage are less likely to have exposure which may lead to choice of moderate risky sexual preference(s) and perception(s) as compared to other respective reference category. Other than these - access to formal SRH education at the pre university stage (aOR = 0.793; CI: 0.586 - 1.496), having basic information of STIs (aOR = 0.802; CI: 0.657 – 0.989) and access and / or visit to SRH services or counselling (aOR = 0.686; CI: 0.589 – 1.06) also contributed in lowering the exposure to risky sexual preference(s) and perception(s). On contrary as of the multinomial logistic regression model, students from - co-education academic institution at the pre university stage (aOR = 1.232; CI: 0.744 – 2.039) and from private university (aOR = 1.52; CI: 1.06 – 2.039) are more likely to be at moderate risk for their choice of risky sexual preference(s) and perception(s) as compared to respective reference category. Parent’s academic qualification does not yield any comprehensive impact on the adjusted odds of risk score in either direction (Table 6.11). However, such inferior impact may be relevant due to not so frequent parent-students interaction as identified in the previous chapter. Along with some insignificant variation the aORs given on Column IV produced almost identical results to have exposure which may lead to choice of highly risky sexual preference(s) and perception(s) as compared to other respective reference category.

6.7 Chapter Summary

Bangladesh's undergraduate university students are mostly in their late teens and early 20s, preparing to enter young adulthood. During this period, they undergo mental, physical, and social transformations. Research shows that most university students are sexually active,

6.11: Multinomial logistics regression analysis of the socio demographic characteristics and exposed to potentially risky sexual preferences and perception as compared

Independent variable	Category	Referent group	
		At moderate risk OR (95% $C.I. of\ OR$)	At high risk OR (95% $C.I. of\ OR$)
I	II	III	IV
Gender	Male#		
	Female	0.791* (0.368, 0.896)	0.853* (0.476, 0.982)
Age	<23#		
	≥ 23	0.705 * (0.527, 0.957)	1.004 (0.706, 1.428)
Religion	Islam#		
	Buddhism	1.509 (0.575, 3.959)	2.083 (0.853, 2.703)
	Christianity	1.241 (0.542, 2.841)	0.994 (0.451, 2.189)
	Hinduism	1.32 (0.355, 1.746)	1.26 (0.686, 2.36)
Location of pre university academic institution	Urban#		
	Rural and Semi-urban	0.97 (0.608, 1.547)	0.875 (0.564, 1.357)
Academic qualification of father	Less than graduate#		
	Graduate or over	1.06 (0.675, 1.359)	0.967 (0.57, 1.31)
Academic qualification of mother	Less than graduate#		
	Graduate or over	0.982 (0.717, 1.386)	0.997 (0.679, 1.46)
Medium of instruction during preuniversity education.	English medium#		
	Bengali medium	0.803 (0.418. 1.543)	0.751 (0.402 1.400)
	Madrashah	0.565 (0.246, 1.298)	0.555 (0.251, 1.224)
Types of University	Public university#		
	Private university	1.52 (1.06, 2.18)	1.16 (0.834, 1.642)
Co- education status during at pre-university stage	Non co-education#		
	Co-education	1.232 (0.744, 2.039)	1.165 (0.722, 1.882)
Access to formal SRH Education at pre university stage	No#		
	Yes	0.793 (0.586, 1.496)	0.987 (0.772, 1.531)
Student's had basic information of STIs, Contraception etc.	No#		
	Yes	0.802* (0.657, 0.959)	0.855 (0.609, 1.19)
Student's had access and / or visited to SRH services or counselling during last 12 months of the survey.	No#		
	Yes	0.686* (0.573, 0.926)	0.861* (0.562, 0.949)

#:Reference group; *: Sig at $\alpha = 0.05$

regardless of orientation or engagement. University students can explore their sexuality and self-identity due to the diverse student body, relative independence, diminished or absence of parental supervision, and/or alcohol and substance usage. Bangladesh has few national statistics on youth sexual conduct, especially beyond marriage, compared to many other countries. Bangladesh's sociocultural customs often prevent young adults, including university students, from engaging in public conversations about sexual and reproductive health mindsets,

behaviours, and practices. This societal construction leads to a paucity of research on sexual behaviour and SRH attitudes.

This chapter examined how university students behave, feel, and handle SRH issues, especially personal relationships. Based on current findings, the chapter addresses the social construction aspects that shape attitudes, actions, and practices. The debate examines risky sexual behaviour and practices, drawing on the findings of the current study. Due to social taboos, this study did not ask participants about their relationship or sexual behaviour, thereby reducing the number of missing responses. We also asked students about their preferences and impressions of SRH behaviour and STI preventive techniques.

38% of participants have a relationship, and 33% have been in one. Among 29% of respondents who never had a relationship, ‘not finding an acceptable person (61.0%)’, ‘family constraints (18.6%)’, and ‘religious limits (10.7%)’ were the top reasons. 9.8% of respondents said they never felt the urge to get engaged. Most respondents (47%) started dating during university. Kisses (68.1%), embraces (77.4%), and holding hands (85.5%) are the most common forms of physical closeness, coupled with "intercourse" (48.7%). Physical intimacy measures are similar across pre-university and university backgrounds, with a few exceptions. 38% of those who had sex said they did it often. Not every sexual activity was consenting. Only 29.9% of respondents reported a mutually consenting first sexual experience. Regardless of gender, they used coercion, or force, throughout the sexual interaction.

A significant percentage of these sexual encounters (45%) were unplanned, and 52.6% of respondents said neither partner was aware of the possibility of STIs or an unplanned pregnancy at that time and had not taken any preventative measures. 13.1% of respondents who had sexual intercourse reported experiencing incidents involving unwanted pregnancies. According to comments, most unwanted pregnancies occurred outside of marriages. The responses to SRH-related behavioural reactions (e.g., use of contraception, many sexual partners, coercive sexual encounters, premarital or extramarital encounters) revealed a general collective pattern that is neither restrictive nor flexible in any direction regarding various aspects of physical and sexual interaction.

The replies showed that students' awareness did not assist SRH prevention. Between 45% and 55% of respondents agreed with preventative measures, while the rest disapproved or were unaware. Lack of preventive awareness can harm individuals, groups, and society. Sexual

relationships that increase the risk of STIs, unwanted pregnancies, or psychological anguish are examples of risky sexual conduct. Research shows that risky sexual behaviour includes having multiple sexual partners, engaging in potentially harmful sexual behaviour, having sexual interactions with people whose STI and/or HIV status is unknown, and engaging in potentially dangerous sexual behaviour while under the influence of drugs. A variety of interrelated and overlapping socioeconomic factors, including age, sex, place of residence, religious and cultural beliefs, interaction level with family, siblings, and friends, peer and media influence, SRH education assessment, and unclear perceptions of safe sexual engagements, can influence risky sexual behaviour.

We used logistic regression to identify characteristics that could potentially influence the SRH preferences and perceptions of university students. The model included socioeconomic, environmental, contextual, and health care factors as independent variables, including age, gender, educational background, parental educational qualification, location of the pre-university education institute, access to SRH education programmes during pre-university, and STI knowledge. This study did not ask participants directly about their personal sexual and relationship practices due to privacy concerns, social taboos or to reduce missing responses. We also asked students about their preferences and impressions of SRH behaviour and STI&D prevention. We created a scale to assess risk variables by examining binary choices based on SRH preferences and perceptions. For responses related to dangerous sexual behaviour, they were given 1 point and considered potentially at risk. Thus, the respondent's preferred behaviours were potentially risky: having several sexual partners; utilising preventative measures inconsistently or not at all; coerced sex; premarital sexual initiation; and STI ignorance. Thus, a greater cumulative score (out of 10) suggests a higher likelihood of harmful sexual conduct, and vice versa. "Exposure to potentially risky sexual behaviour and acts" was the dependent variable. Table 6.8 shows that people with an accumulated risk score of zero or higher were not at risk, whereas those with a zero or higher were potentially at risk.

83.9% of students have been exposed to preferences and/or beliefs that, if not addressed, may lead to harmful sexual behaviour and practices. Logistic regression analysis suggests that female, mature (Age≥23), rural/semi-urban, Bengali medium, and madrasah students are less likely to have exposure to risky sexual preferences and perceptions compared to other reference categories. In addition to these factors, we found that pre-university SRH education, basic STI knowledge, and access to SRH services or counselling significantly reduced hazardous sexual

preferences and perceptions. Compared to the reference category, pre-university co-education students and private university students were projected to be at risk for dangerous sexual preferences and perceptions. Parental education does not affect risk score probability. As noted in the previous chapter, less parent-student interaction may explain this lower influence.

Chapter 7
Prevalence of on campus sexual harassment in Bangladesh and status of preparedness of university authority to address the issue

7.1 Introduction

First used in the early 1970s, the word "sexual harassment" gained widespread usage by the 1980s. This was due to feminist researchers' and activists' attempts to tackle and define the issue, which led to the term's recognition and appearance in public discourse (Hill et al., 2005; Scholarworks et al., 2007). Sexual harassment (SH) is defined as "any physical, verbal or nonverbal conduct of a sexual nature and other conduct based on sex affecting the dignity of women and men that is unwelcome, unreasonable, and offensive to the recipient(ILO, 2000). Sexual harassment can manifest in various forms, including physical, psychological, verbal, and non-verbal. It encompasses actions such as sexual violence and assault, including rape; unwelcome requests for sexual favours and dates; unwelcome touching; leaning over; cornering; stalking; making sexually lewd comments or unwelcome communications of a sexual nature, including displaying or sharing sexually lewd pictures and pornographic material (CEDAW, 1992). Sexual harassment can be a 'one-off' or 'repeated behaviour'. It violates a person's dignity and creates an intimidating, hostile, degrading, humiliating or offensive environment for the victim (Pilinger et al., 2019). Although women are the most reported victims, anyone may be subject to sexual harassment at any time and any place (UN Women, 2019). The sense of vulnerability and incapacity to react to the traumatic experience of sexual harassment affects the self-esteem of the victim (Kalra and Bhugra, 2013). Sexual harassment impacts individuals, groups, and entire organisations in profound ways.

7.2 Sexual harassment in the university –

The following segment discusses the different aspects of sexual harassment, starting with the different types of SHs experienced by the students, their subsequent effects on emotional and physical well-being, academic performances, and repercussions:

7.2.1 Types, victim and perpetrators:

Sexual harassment can manifest in several ways, including as unwelcome sexual advances, remarks, or actions that incite hostility or fear. Sexual harassment has long been an unfortunate part of the educational experience, affecting students' emotional wellbeing and their ability to succeed academically. Some studies have identified the incidence of on-campus sexual

harassment at epidemic levels (Abbott, 1984). During the recent #MeToo movement, thousands of students have spoken out about their experiences of on-campus sexual harassment (Hardy, 2018). On many occasions, the experience of sexual harassment happens even before commencing university education (Cantor, Townsend and Hanyu, 2015). The types of sexual harassment reported by the students include, but are not limited to, inappropriate comments, jokes, remarks about body and appearances (Krebs et al., 2016), unwanted sexual photos and video content (Rospenda et al., 2000; Yoon et al., 2010).

Universities act as hubs for disseminating knowledge and are expected to have and uphold good practices of human rights and mutual respect (Gready et al., 2023). However, the reality is that academic institutions are not always immune to sexual harassment (SH). In higher education, sexual harassment is a serious and widespread problem (Wood et al., 2021). Globally, higher education systems are experiencing an epidemic of sexual harassment (Bondestam and Lundqvist, 2020). Staff members, instructors, and students can all become victims of sexual harassment (Young et al., 2021). Regardless of gender, anyone can commit a crime, and anyone can be a victim. Sexual harassment experienced by students of academic institutions is not an unfamiliar and isolated incident (Klein and Martin, 2021). Individual students may experience sexual harassment by their peers (Kelley et al., 2000), faculty members or, in some cases, administrative staff (Wood et al., 2018). Though there are numerous documented incidents involving female victims, sexual harassment can equally affect male victims (Kalra et al., 2013). Although sexual harassment takes place mostly in relatively isolated areas of campus, such as classrooms, labs, and dormitories (Clodfelter et al., 2010), it can happen anywhere. It may occur in both private and public settings.

It is critical to remember that harassment can occur in a variety of relationship combinations, including student-to-student and faculty-to-student, and that both victims and offenders can be of any gender (Hales, 2022; Shannon, 2022). In order to address and prevent sexual harassment in universities, it is important to put in place clear policies, raise awareness, offer support services, and cultivate an environment of accountability and respect among academic staff members.

7.2.2 Consequences of sexual harassment experienced by students

It may have a negative impact on faculty, staff, and the entire campus community. In particular, university students are susceptible to significant and long-lasting consequences from sexual

harassment, which can affect their whole school experience, academic performance, and physical and mental health. Various studies have documented a range of negative consequences associated with sexual harassment. Some of the typical consequences of sexual harassment include, but are not limited to, the following:

7.2.2.1 Effect on emotional and physical well-being:

Researchers found that incidents of SH were associated with an increasing risk of both mental and somatic health issues among the students (Kessler, 1995; Dworkin et al., 2017; Fedina et al., 2018). Sexual harassment frequently causes emotional distress due to feelings of powerlessness, dread, worry, and sadness. The psychological effects of SH can lead to physical health problems like headaches, stomach troubles, and sleep disruptions. Other than this, intimacy anxiety, sexual dysfunction, and trouble establishing wholesome relationships are some of the notable difficulties experienced by SH victims (Aroustamian, 2020). In some severe instances, victims of sexual harassment may even suffer from post-traumatic stress disorder (PTSD). The mental anguish may cause individuals to consider suicide or self-harm (Abbey et al., 2004; Chivers-Wilson, 2006).

7.2.2.2 Academic repercussions:

Research also shows that students who experience sexual harassment perform worse academically. Victims of SH often find it difficult to focus on their academics and may experience a decrease in their grades and overall academic performance (Peterson et al., 2011; Molstad, Weinhardt and Jones, 2023). They are more likely to participate in dangerous behaviours like drug and alcohol abuse, taking risks with their sexuality, and sexual dysfunction (Abbey et al., 2004; Gidycz et al., 008). SH victims may steer clear of instructors, classes, or campus areas associated with harassment, which could have a negative impact on their academic experience (Turchik et al., 2014).

7.2.2.3 Social disengagement and seclusion:

Victims of SH often retreat from gatherings, clubs, or social activities (Rubin et al., 2009) . Such disengagement might cause them to feel alone and alienated from their peers. According to Rubin, Coplan, and Bowker (2009), harassment can strain friendships, family ties, and romantic relationships.

7.2.3.4 Effect on aspirations for a career:

Being harassed can cause a student to lose confidence, which may influence their decisions and aspirations for their future careers. A study found that students who had experienced staff-to-student sexual misconduct reported avoiding going to certain parts of campus and felt unable to fulfil work roles at their institution (Schneider, 1987; Chi Cantalupo et al., 2018; Aktar and Jahan, 2020). If the victims come forward, fear of retaliation by the sex offender also often affects their decision to pursue opportunities or career pathways (Ahrens, 2006). Concerned authorities should be proactive in combating sexual harassment by offering victims resources, counselling, and support services. Developing a respectful environment, putting in place transparent reporting procedures, and acting promptly and appropriately against those who harass university students are all essential measures in preventing and treating the effects of sexual harassment.

7.3 Challenges of addressing the issues of on campus sexual harassment:

Despite the significantly high prevalence of on-campus sexual harassment, most incidents go unreported (UN Women, 2019). The victims and bystanders of on-campus SHs refrain themselves from lodging official complaints due to fear of retaliation by the perpetrators (Foster et al., 2018) and to avoid scrutiny (Bondestam et al., 2020). Often, victims suppress their voices or remain silent against sexual harassment due to fear of academic difficulties, administrative hassles, unresponsiveness, lack of transparency, and doubts about the authority's ability to respond and act with due diligence (Foster et al., 2018). Social stigma refers to the negative perception, inferiority, and relative incapability that society collectively harmonises towards people of a particular group (Herek, 2009). Fear of social stigmatisation and shame also contribute to suppressing emotions and remaining silent against SH (Tyson, 2019; Karla et al., 2013). It is critical to understand the effect of sexual harassment on people, irrespective of gender and socioeconomic background. Transparent policies, easy-to-access reporting procedures, and support services should all be part of an inclusive and secure environment that is available to all students at universities and colleges. To address and prevent sexual harassment, a thorough and proactive strategy involving education, awareness-raising, and cultural shifts is necessary.

7.4 On campus sexual harassment in the context of Bangladesh

In the context of Bangladesh in general, workplace sexual harassment and abuse are being identified and reported in several studies (ActionAid, 2019; ANNI, 2019). A recent study based

on articles published in newspapers on violence against women, rape, and sexual harassment found that there were increasing trends in such incidents (ASK, 2020). The statistics presented in the aforementioned report are based solely on reported cases of rape and sexual harassment. Experts anticipate that the actual numbers of rape and sexual harassment are much higher, as most cases have never been reported due to stigma, shame, distrust, and the ineffectiveness of the law and justice system (Islam, 2020).

In 2009, the Supreme Court of Bangladesh issued an 11-point directive aimed at preventing sexual harassment at educational institutions and workplaces. According to the directive, each university must form sexual harassment committees to take effective measures to prevent sexual harassment. Universities were asked to undertake awareness-raising programmes on sexual harassment, including holding seminars and discussions on the subject (Banarjee, 2020). Although a fair share of public and private universities have established sexual harassment prevention committees following the directives, most public and private universities in the country are indifferent to the prevention, monitoring, and resolution of sexual harassment complaints from students and staff. As a result, the ongoing lack of awareness about the existence of SH committees and their achievements is rarely heard among the respective student communities. Such unawareness and trust issues are regarded as key negative contributors to effectively curbing on-campus sexual harassment. Studies show that many students even withdraw complaints during the investigation. Committee members also lack the expertise to handle the nature of the offense, its subsequent impacts, and investigate sensitive subjects using circumstantial evidence.

Even the University Grants Commission (UGC) relies on media reports to stay informed on the matter, as universities fail to report incidents of sexual harassment on a regular and timely basis (Abdullah, 2022). In many instances, university students are unaware of the existence of such committees (Farhat, 2022). Apart from that, studies on sexual harassment in the academic sector, particularly in the higher education sector, are relatively scarce (Rezvi et al., 2021). As a result, one of the project's themes is to investigate the extent of sexual harassment experienced by university students in Bangladesh and identify the measures taken by universities to mitigate the harassment issues.

7.5 Evidence of Sexual harassment as obtained from the Survey:

The following segment's discussion aims to shed light on the prevalence of sexual harassment among participating undergraduate university students. The discussion also aims to delve into the key aspects of sexual harassment perpetrators and the experiences of students who report such incidents. However, as advised by the stakeholders (participating university faculty members and students' participants) at the pretesting stages, considering the sensitive nature of the issue and limited resources, this questionnaire did not include any questions associated with physical as well as psychological consequences of such events. The survey solely focused on on-campus sexual harassment experiences, excluding any inquiries about potential off-campus sexual harassment.

Figure 7.1: Percentage distribution of whether student were aware (heard or read) about sexual harassment prior to the survey

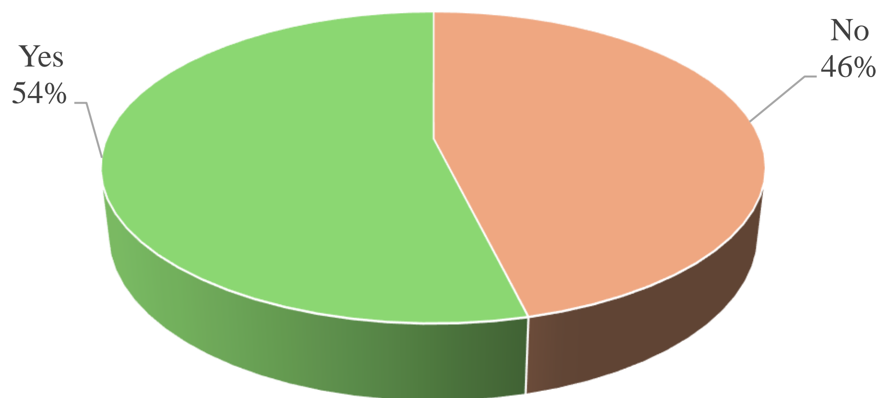

Table 7.1: Percentage distribution of source from where undergraduate students heard or read about sexual harassment prior to the survey

Source	Frequency	Percentage
Parents	120	14.7
Family members (Siblings, Cousins etc.)	144	17.6
Friends or fellow students	188	23.0
Newspaper / online news portal/ television	275	33.6
Social media (Facebook etc.)	349	42.7

$: Total percentage exceeds 100% due to multiple responses

7.5.1 Prevalence and awareness of sexual harassment

About 54% of respondents (818 out of 1520 respondents) stated that they were already aware of the term sexual harassment even before this survey (Figure 7.1). Table 7.1 mentions mass media (newspapers, online news portals, and television, 33.6%) and social media (facebook, etc., 42.7%) as two major primary sources of information about sexual harassment. During their time at the institution, 44% (673 out of 1520 respondents) of the students who took part in the study said they had encountered sexual harassment on campus (Figure 7.2).

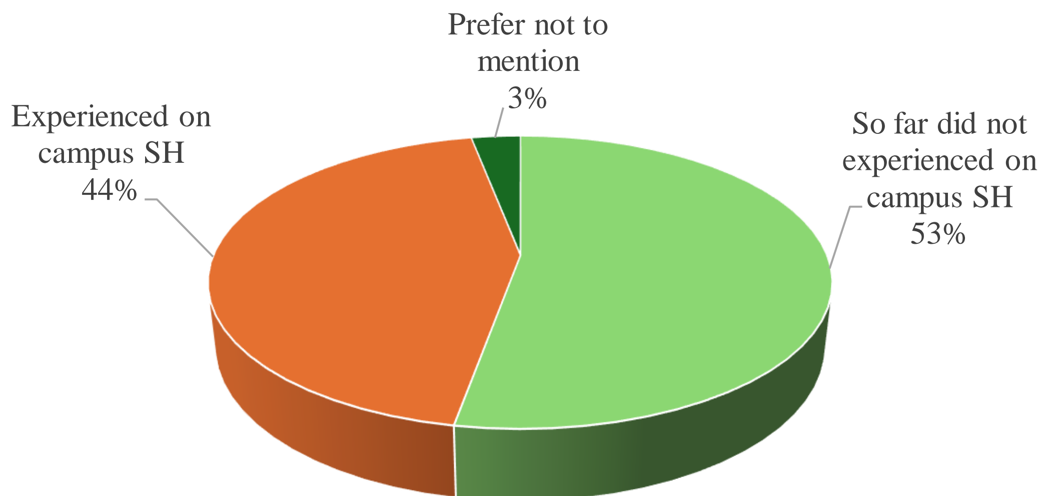

Figure 7.2: Prevalance of on campus sexual harassment experienced by the undergraduate university students

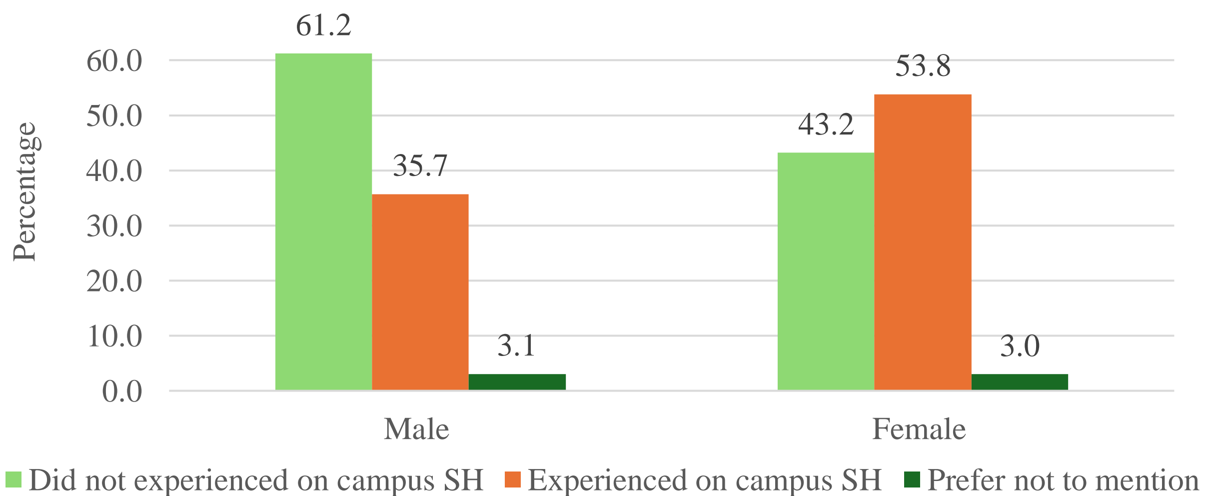

Figure 7.3: Percentage of on campus sexual harassment experience by sex

Figure 7.3 reveals that female students (53.8%) were significantly more susceptible to sexual harassment (SH) compared to their male counterparts (35.7%). Also, the prevalence of SH is almost identical in both public and private universities (Table 7.2). According to the responses, students were sexually harassed, mostly by fellow students (78.6%). Students also identified

faculty members and teaching staff (26.59%) and administrative staff (15.0%) as perpetrators (Table 7.3).

Table 7.2: Prevalence of on campus sexual harassment experience by type of university

On campus sexual harassment experience status	Type of university			
	Public university		Private university	
	Frequency	Percentage	Frequency	Percentage
Did not experience SH	443	52.61	362	53.39
Experienced SH	**372**	**44.18**	**301**	**44.39**
Prefer not to mention	27	3.21	15	2.23
Total	842	100	678	100

Table 7.3: Percentage of offenders involved with sexual harassment as reported by the SH victims*

Accused perpetrator	Frequency	Percentage$
Student	525	78.00
Faculty / Teaching staff	179	26.59
Administrative staff	101	15.00
Prefer not to mention	31	4.6

$: Total percentage exceed 100 due to multiple responses.

Table 7.4: Percentage distribution of experiencing on campus sexual harassment by the undergraduate university students in Bangladesh

Number of times on campus sexual harassment experienced by respondents	Frequency	% among on campus sexual harassment victim (n_{SH})	% among all (n=1520) respondent
Only once	362	53.8%	23.8%
Two to three times	202	30.0%	13.3%
Four to five times	78	11.6%	5.1%
Quite often	31	4.6%	2.0%
Total	673		

Table 7.5: Percentage distribution of frequently encountered on campus sexual harassment by the undergraduate university		
Types of on campus sexual harassment experienced by the undergraduate students	Frequency	% among on campus sexual harassment victim$
Unwanted touched, grabbed or pinched	276	41.0
Sexual comment, jokes, gestures or looks	147	21.8
Had sexual rumors spread about you	129	19.2
Received text / picture of sexual nature	106	15.8
Flashed or mooned	87	12.9
Cornered, or blocked from moving; or followed too closely in a sexual way	86	12.8

$: Total percentage exceeds 100% due to multiple responses.

7.5.2 Types of sexual harassment

46.2% of students who ever became victims of on-campus SH mentioned encountering such an unpleasant situation more than once, which comprises 20.4% of all respondents (Table 7.4). Unwanted touching, grabbing or pinching (41.01%) was the most commonly mentioned form of sexual harassment, together with sexual comments, jokes, gestures or looks (21.8%), the spreading of sexual rumours (19.2%), and receiving a test or picture of sexual nature (15.8%) (Table 7.5).

7.5.3 Reason for not reporting the incident of sexual harassment

An overwhelming 72% of respondents among victims of on-campus sexual harassment did not report the respective incident to the concerned authority (Figure 7.4). 57.6% of students who reported the SH incidents to the university authorities expressed their dissatisfaction regarding the authority's responses to the issue (Table 7.6). ‘Not having trust in the university authority’ was the most frequently mentioned reason (34.6%) for not reporting the incident of on-campus

SH, along with 'not knowing where to complain (25.9%)', 'fear of retaliation' from the perpetrator (24.1%), and to avoid embarrassment (15.4%) (Table 7.7).

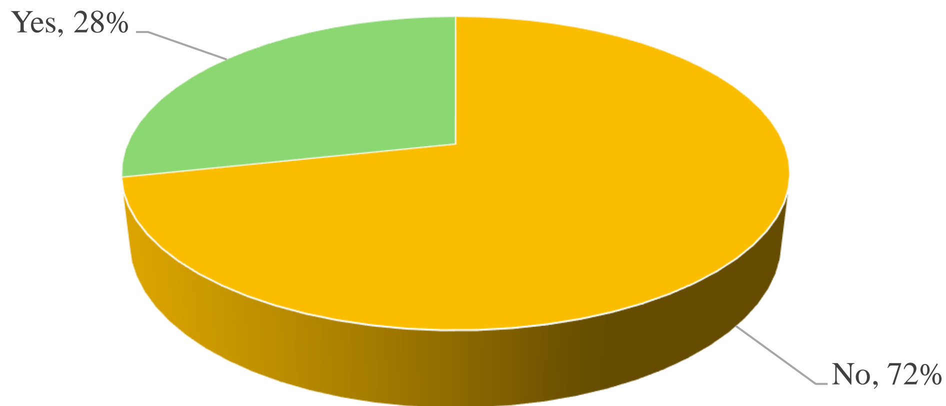

Figure 7.4: Percentage distribution of reporting of incident by the victim of on campus sexual harasment

Table 7.6: Percentage distribution of authority's response to SH report

Satisfaction level	Frequency	Percentage
Yes, but I am not satisfied with the action taken by the authority	110	57.6
Yes, I am satisfied with the action taken by the authority	54	28.3
No action was taken	25	13.1
	191(n_r)	100

n_r: Number of students reported the SH incident to university authority.

Table 7.7: Percentage distribution of the reason for not reporting the SH incident to the university authority

Reasons	Frequency	Percentage
Do not trust the authority	167	34.6
Did not know where to complain	125	25.9
Fear of retaliation	116	24.1
To avoid embarrassment	74	15.4
Total	482	100

7.6 Identifying factors makes students vulnerable to on campus sexual harassment:

Regardless of colour, gender, religion, or socioeconomic background, no one wants to experience sexual harassment. However, people are sexually harassed. SH can happen anywhere, even in the safest part of your home, workplace, or school. The challenge in addressing sexual harassment lies in pinpointing its causes. Note that several components interact differently depending on the environment. Contributing factors may include cultural and societal influences, power imbalance, lack of awareness, access to information, influence and interaction with social media and technology, gender inequality, inadequate policies and enforcement, lack of support services, fear of retaliation, etc. This study examines sociodemographic characteristics that make Bangladeshi undergraduates prone to campus sexual harassment.

Our chi-square test examined the connection between sociodemographic variables and the dependent variable. All tests were two-sided. The significance threshold was 0.05. A p-value below 0.05 indicates a significant relationship between the variables. We utilised two multivariate logistic regression models to identify factors that may make undergrads vulnerable to campus sexual harassment and why they may not report it. In the model, we included socioeconomic variables such as age, gender, educational background, parental educational status, and environmental factors. The study examined contextual factors such as the location of the pre-university education institute, the availability of SRH education programmes, and health care factors like SRH seeking behaviour and STI knowledge. Experiencing on-campus sexual harassment and reporting it to authorities were the dependent variables.. The description of the independent and dependent variable considered for the logistic regression model is given in appendix 7.1 and 7.2.

The chi-square test examined the relationship between two category variables. Comparing the observed frequencies in a contingency table to the expected frequencies of the corresponding category determines whether the two categorical variables are significantly associated. We found statistically significant associations between students' experiences of on-campus sexual harassment with gender ($\chi^2 = 4.153$, $p = 0.0415$), the location of the pre-university academic institution ($\chi^2 = 3.658, p = 0.0466$), and their access to mass and social media ($\chi^2 = 5.39, p = 0.020$). Conversely, we discovered a significant association between the students' failure to report sexual harassment with their gender ($\chi^2 = 8.32, p = 0.003$), the

Table 7.8: χ^2 test of association between the variables under study

Independent variable	Category	Dependent variable(s)			
		Student experienced on campus sexual harassment (Yes, No)		Student reported the sexual harassment incident to university authority (Yes, No)	
		χ^2 (df)	$p-value$	χ^2 (df)	$p-value$
Gender	Male# Female	4.153 (1)	0.0415*	8.32 (1)	0.003*
Age	<23# ≥ 23	2.777 (1)	0.0956	3.19	0.074
Religion	Islam# Buddhism Christianity Hinduism	3.626 (3)	0.304	4.87 (3)	0.181
Academic qualification of father	Less than graduate# Graduate or over	0.172 (1)	0.678	3.19 (1)	0.074
Academic qualification of mother	Less than graduate# Graduate or over	2.86 (1)	0.908	3.37 (1)	0.066
Location of pre university academic institution	Urban# Rural and Semi-urban	3.658 (1)	0.046*	5.76 (1)	0.016*
Medium of instruction during preuniversity education.	English medium# Bengali medium Madrashah	4.893 (2)	0.086	7.62 (2)	0.022*
Types of University	Public university# Private university	0.008 (1)	0.928	4.378 (1)	0.036*
Co- education status during at pre-university stage	Non co-education# Co-education	0.193 (1)	0.660	0.298 (1)	0.585
Access to formal SRH Education at pre university stage	Yes# No	2.67 (1)	0.102	5.635 (1)	0.017*
Student have access to mass and social media	Yes# No	5.39 (1)	0.020*	6.16 (1)	0.013*

#: Reference category; *: Sig at $\alpha = 0.05$

location of their pre-university academic institution ($\chi^2 = 5.76, p = 0.016$), their medium of instruction during pre-university education ($\chi^2 = 7.62,\ p = 0.022$), the types of universities they attended ($\chi^2 = 4.378,\ p = 0.036$), and their access to mass and social media ($\chi^2 = 6.16$, $p = 0.013$). However, these measures only show association and do not quantify the strength or direction of the association. So, all the independent variables were put into the logistic regression model to see how strong and which way the different categories of the independent variables were compared to the reference categories when it came to the student's experience of sexual harassment on campus and reporting of the incident.

The chi-square test examined the relationship between two category variables. Comparing the observed frequencies in a contingency table to the expected frequencies of the corresponding category determines whether the two categorical variables are significantly associated. We found statistically significant associations between students' experiences of on-campus sexual harassment with gender ($\chi^2 = 4.153,\ p = 0.0415$), the location of the pre-university academic institution ($\chi^2 = 3.658, p = 0.0466$), and their access to mass and social media ($\chi^2 = 5.39, p = 0.020$). Conversely, we discovered a significant association between the students' failure to report sexual harassment with their gender ($\chi^2 = 8.32, p = 0.003$), the location of their pre-university academic institution ($\chi^2 = 5.76, p = 0.016$), their medium of instruction during pre-university education ($\chi^2 = 7.62,\ p = 0.022$), the types of universities they attended ($\chi^2 = 4.378,\ p = 0.036$), and their access to mass and social media ($\chi^2 = 6.16$, $p = 0.013$). However, these measures only show association and do not quantify the strength or direction of the association. So, all the independent variables were put into the logistic regression model to see how strong and which way the different categories of the independent variables were compared to the reference categories when it came to the student's experience of sexual harassment on campus and reporting of the incident.

The logistic regression model I attempts to identify the factors that may make the undergraduate students vulnerable to the event of on campus sexual harassment. Irrespective of the significance level the logistic regression model I suggests that the experience of on campus sexual harassment is more prevalent among - female students (aOR = 1.63; 95% CI: 1.16, 1.86), students of academic institution from - rural or semi urban area (aOR = 1.59; 95% CI: 1.23, 3.57), Bengali medium schools (aOR = 1.37; CI: 0.673, 1.69) and coeducation academic institution (aOR = 1.49; 95% CI: .89, 2.024) during pre-university stage. On contrary

private university students (aOR = 0.99, 95% CI: 0.937, 1.19) and students having substantial mass and social media access reported to experience relatively less (aOR = 0.839; 95% CI: 0.655, 0.978) as compared to respective reference group.

Table 7.9: Logistic regression analysis of factors affecting the experience of on campus sexual harassment (Model I) and decision of not reporting the incident to the university authority (Model II)

Independent variable	Category	Model I OR (95% $C.I.of\ OR_i$	Model II OR (95% $C.I.of\ OR_i$
I	II	III	IV
Gender	Male# Female	 1.63 (1.16, 1.86)*	 0.87 (0.579, 0.989)*
Age	<23# ≥ 23	 0.99 (0.673, 1.134)	 1.19 (0.713, 1.139)
Religion	Islam# Buddhism Christianity Hinduism	 1.03 (0.876, 1.29) 0.96 (0.76, 1.47) 1.08 (0.61, 1.18)	 0.89 (0.539, 1.23) 0.973 (0.67, 1.39) 1.14 (0.963, 1.28)
Academic qualification of father	Less than graduate# Graduate or over	 0.987 (0.62, 1.58)	 1.22 (0.679, 2.193)
Academic qualification of mother	Less than graduate# Graduate or over	 1.04 (0.57, 1.619)	 1.019 (0.605, 1.718)
location of pre university academic institution	Urban# Rural and Semi-urban	 1.59 (1.23, 3.57)*	 0.791* (0.491, 968)
Medium of instruction during preuniversity education.	English medium# Bengali medium Madrasah	 1.37 (0.673, 1.69) 0.834 (0.649, 1.487)	 0.937 (0.773, 1.305) 0.87 (0.56, 1.16)
Types of University	Public university# Private university	 0.996 (0.937, 1.19)	 1.13 (0.87, 1.67)
Co- education status during at pre-university stage	Non co-education# Co-education	 1.49 (0.89, 2.024)	 1.28 (0.986, 2.31)
Access to formal SRH Education at pre university stage	Yes No#	1.31 (0.834, 2.46)	1.18 (1.08, 1.29)*
Student have access to mass and social media	Yes No#	0.839 (0.655, 0.978)*	1.57 (1.18, 2.43)*

#: Reference category; *: Sig at $\alpha = 0.05$

The logistic regression model II attempts to identify the factors contributing to not reporting of the incidents of on campus sexual harassment to the authority. Apparently female students (aOR = 0.87 95% CI: 0.579, 0.989), students of academic institution from - rural and semi urban area (aOR = 0.791; 95% CI: a0.491, 0.968), Bengali medium (aOR = 0.937; 95% CI: 0.773, 1.305) and Madrasha (aOR = 0.87, 95% CI: 0.56, 1.16) less likely to report the incident of on campus sexual harassment. The prevalence of reporting is likely to be higher among -

relatively matured students (aOR = 1.19; 95% CI = 0.713, 1.39), private university students (aOR = 1.13; 95% CI: 0.87, 1.67), coeducation academic back ground students (aOR = 1.28; 95% CI: 0.986, 2.31), students having access to formal SRH Education at pre university stage (aOR = 1.18; 95% CI: 1.08, 1.29) and students having access to mass and social media (aOR = 1.57; 95% CI: 1.18, 2.43).

It is crucial, therefore, to interpret the outcomes metaphorically rather than at face value. When interpreting these results, exercise caution and consider various socio-economic practices and circumstances that might have influenced the outcome variables but were not considered in the model.

7.7 Chapter summary

Worldwide, campus sexual harassment is frequent. Studies reveal that sexual harassment and criminal activity can occur among students, staff, and teachers. Numerous international studies have shown that sexual harassment harms students' education, performance, and health. University sexual harassment in Bangladesh makes headlines, but few are prepared. Despite the Supreme Court of Bangladesh and university commission rulings, few universities have implemented sexual harassment prevention measures. Due to the conservative stance of both the victim and the university, there is a scarcity of research on sexual harassment and its reporting. This study focused on the experiences of students with on-campus sexual harassment, the reporting process, the perpetrators, and the challenges faced by victims in reporting such incidents. Due to sensitivity and resource constraints, the study did not examine off-campus sexual harassment cases. This survey found that both male and female students at private and public universities suffered sexual harassment. Female students have more incidents than male students. Students identified fellow students, academic professors, and administrators as abusers. Students described most sexual harassment as sexual comments, jokes, gestures, or glances; sexual rumours; receiving a sexual test or picture; and unwanted touching. Sexual harassment reports to the university were extremely low due to "not having trust in the university authority," "not knowing where to complain," "fear of retaliation" from the perpetrator, and "avoiding disgrace." The logistic regression model demonstrates that pre-university females, rural or semi-urban students, Bengali medium school students, and coeducation students are more likely to experience on-campus sexual harassment. Such occurrences were rarer among private university students and those with mainstream and social media access. This model also identifies reasons for not reporting collegiate sexual harassment

to authorities. Women, rural and semi-urban students, Bengali-medium students, and Madrasha students report less campus sexual harassment. Mature students, private university students, coeducational academic background students, pre-university students with formal SRH education, and mass and social media users report occurrences more often. However, we should view these achievements symbolically and with caution, taking into account other socioeconomic realities.

Chapter 8
Discussion of the results

8.1 Introduction

Sexual health is more than just the absence of sickness, dysfunction, or infirmity. It includes physical, emotional, mental, and social well-being. All people have the right to know and pursue a safe and threat-free sexual life (WHO, 2010). Sexual and reproductive health (SRH) information, attitudes, and practices affect individuals, families, and communities. Unintended pregnancies, STIs, early sexual debut, inconsistent contraception use, and others are common effects. In several places, the effects were one of the biggest risk factors for disability and mortality (Glasier et al., 2015). Effective SRH education could have prevented the negative impact (Meena et al., 2015). SRH knowledge predicts sexual conduct and is essential to living a safer and healthier life (Leung et al., 2019). It guarantees freedom from sexually transmitted illnesses, the right to control and manage pregnancy and reproductive health with full information of contraceptive options, and the ability to control sexuality without age, marital status, wealth, or other discrimination (UN, 1995).

People require correct information and their preferred safe, effective, cheap, and acceptable contraception to sustain SRH. STI prevention requires education and empowerment. Women need help for a safe pregnancy, birth, and baby. Everyone should be able to choose appropriate SRH measures. Youth are often vulnerable due to SRH information and support barriers (Mkumba et al., 2021). Youth are disproportionately affected by STI&Ds. Unintended pregnancies exposed teenagers and young adults to dangers during childbirth or unsafe abortions, affecting their ability to attend school or continue their lives. A developing nation, Bangladesh confronts many obstacles in ensuring SRH for its population. Many teenagers have dangerous or undesirable sexual relationships without prompt or proper care (MOHFW, 2016). Bangladesh is not health literacy leader (Ahsan et al., 2016). Numerous researchers have shown that SRH misinformation, negative attitudes, and conduct are common across all age, gender, marital status, educational backgrounds, and other social groups. Bangladeshi university students face many SRH health issues. To enhance understanding of SRH rerated level of knowledge and promote healthier behaviours, universities must recognise and address students' SRH issues.

This study was carried out to determine undergraduate students' SRH related knowledge, health seeking behaviour and challenges in accessing SRH care services, identify nature and extent of university students' intimate relationships and prevalence of incident of on-campus sexual harassment. The findings of the research outcome are being discussed in the subsequent section of this chapter.

8.2 Existing sources and level of SRH associated knowledge of the undergraduate university students of Bangladesh:

The study attempted to determine the primary source of sexual and reproductive health (SRH) information for university students in Bangladesh prior to their university life. It also investigated several aspects of incorporating formal sexual and reproductive health education into the curriculum before entering university. Analyses were conducted to investigate the participants' level of knowledge regarding sexual and reproductive health, as well as to determine the influence of various socio-economic factors (such as different types of education) on this knowledge level. Some of the salient features of the finding are discussed below. –

8.2.1 Limited communication between the family members

Sexual and reproductive health education, communication, and support are vital for families. Families can improve health for all members by educating, communicating, supporting, modelling healthy behaviours, and lobbying for SRH policies and programmes. Parents strongly influence young people's SRH behaviour (Evans, 2011). This study finds that family communication about SRH is quite limited. Father was the least desired parent for SRH communication among university students. 78.1% of males and 78.6% of female students said they never discussed SRH with their fathers. Additionally, 68.1% of male respondents never spoke to their mothers about sexual health issues. Female students spoke more to their parents. Regardless of gender, the majority of communication only occurs when it is absolutely necessary. The siblings' lack of communication is clear in this survey. Female students shared "knowledge" with elders (46%) or younger (39.6%) sisters, but male pupils lagged. According to this survey, inter-gender SRH communication was very limited. Although this study does not specifically explain the variables that contribute to this phenomenon, it is likely that they include emotions of humiliation, a lack of self-confidence, or societal and cultural norms that discourage discussions about sexual behaviour. (Biswas et al., 2022; Cherie, 2018). In addition to family, university students may gain SRH knowledge from a variety of sources. Students

said they first learned about physical changes throughout puberty via books, newspapers, and magazines (21.3%), peers (16.9%), the internet (15.4%), and teachers (12%). Only 5.4% of respondents cited the formal SRH curriculum at the pre-university stage as a source of information, with students from the Madrashah background ranking lowest at 0%. However, all these sources of informal SRH information don't suit the demands of students. The average satisfaction score was 2.55±0.76 on a scale of 1 (not helpful) to 5 (extremely helpful).

8.2.2 Access to formal SRH curriculum

46.7% of respondents reported no pre-university SRH education. 39.8% of females and 52.7% of male pre-university students reported no official SRH lessons. 66% of pre-university Madrasah students did not take regular SRH courses. 49.8% and 33.3% of Bengali and English-medium academic backgrounds did not have formal SRH education, respectively. Most respondents (24%) attended such sessions during the higher secondary level of education. Numerous studies have also reported limited access to the SRH curriculum (Persson et al., 2021; Zakaria et al., 2020). The government and non-government sectors have also implemented initiatives to address the challenges. The Ministry of Education has implemented the SRH curriculum for students at the pre-university education level through classroom instruction, textbooks, and teacher training. The SRH curriculum covers puberty, sexual and gender identity, contraception, STIs, pregnancy, childbirth, and postpartum care (Ainul et al., 2017). NGOs and international organisations are also promoting SRH education in Bangladesh through lobbying and awareness campaigns. However, implementing a comprehensive SRH education curriculum in Bangladesh has always been challenging because of its conservative culture, which restricts sexuality, reproductive health, and gender-related conversations.

8.2.3 Methods of discussion, content coverage and student's contentment of formal SRH education

Providing quality SRH education has always been challenging, regardless of socioeconomic context. According to this study, Puberty (95.4%) and STIs (76.1%) were mentioned by most of the respondents who had access to formal SRH education classes. Which is in fact only 50.7% and 40.5% of all participants. Formal SRH classes also covered protection against unwanted sex and unexpected pregnancy (33.7%), family planning and contraception (24.1%), and partner sexual conduct (13.6%). Only 6.1% respondents mentioned that the teachers discussed the SRH topics elaborately. 41% of formal SRH lesson attendees are satisfied with the information obtained. Such evidence of limited discussion in formal SRH curriculum is

consistent with prior empirical evidence. Studies showed that teachers skip chapters or assign pupils to study them at home, making content delivery in schools ineffective. Teachers never use or avoid the word "sex" in class. Everyone dislikes thorough sex education due to cultural barriers. Any sex education curriculum may promote premarital sex, which parents find objectionable (Cash *et al.*, 2001; MOHFW, 2016). Challenges such as cultural and religious barriers, stigma and discrimination, lack of parental involvement, lack of trained teachers and other resource constraints etc. often causes substantial challenges in the way of proper implementation of school based SRH education in many countries (Obach *et al.*, 2022; Chavula *et al.*, 2023).

8.2.4 Level of knowledge about sexually transmitted infections:

In this study, researchers asked students if they "have heard the name of STIs," "know transmission routes that can spread STIs," "know the symptoms of STIs," and "know methods of transmission". Evidently, irrespective of educational background, HIV/AIDS is the most familiar STI among the students, along with gonorrhoea and syphilis. Particularly among students with Bengali and Madrasah academic backgrounds, we found that herpes, chlamydia, and genital warts are relatively less known STIs. The low state of knowledge among students regarding the pathways that could spread STIs was quite noticeable. Notably, a significant number of students responded 'no or don't know' when asked if they can contract STIs through vaginal (22.7%), anal (42.9%), or oral (41.8%) intercourse. Some STIs, such as syphilis, infect the baby in the womb through the placenta. Other STIs, such as gonorrhoea, chlamydia, hepatitis B, and genital herpes, can be transmitted from the mother to the baby as the baby passes through the birth canal (Mullick et al., 2005). HIV can cross the placenta during pregnancy and infect the baby during delivery. But only 18.6% of students mentioned that STIs can spread 'from a pregnant or breastfeeding mother to her baby'.

Knowing about STI symptoms and methods of transmission empowers individuals to take control of their sexual health, seek appropriate care, prevent transmission, reduce complications, and promote overall wellbeing (Eng et al., 1997). According to this self-reported survey, undergraduate university students have limited knowledge of STI symptoms and transmission, regardless of pre-university schooling. Students with different pre-university education backgrounds are most familiar with HIV/AIDS, with 79.1% knowing its symptoms and 78.6% knowing its transmission technique. Exceptions aside, the symptoms and

transmission methods of distinct STIs (e.g., gonorrhoea, syphilis, herpes, chlamydia, and genital warts) are known to very few students.

8.2.5 Factors associated with the level of SRH related knowledge

Female students, students from rural and semi-urban academic institutions, Bengali medium students, and students from Madrasahs are less likely to be familiar with the name, symptoms, and modes of transmission of STIs compared to their reference categories. However, students who are relatively mature, attend co-educational institutions during their pre-university education, receive formal SRH education during their pre-university education, and attend private universities are more likely to be familiar with the name, symptoms, and transmission methods of STIs compared to their respective reference categories.

8.3 Identifying the existing SRH seeking practices of the undergraduate university students in Bangladesh and exploring availability of on campus SRH care facility:

To reduce and maintain SRH well-being in young adults, effective use of SRH care services is essential. All young individuals, particularly those who are sexually active, find it challenging to access information services. Even if they discover accurate information, many cannot access the services needed to act on it and preserve their health (UNESCO, 2018). Their access is limited by a lack of appropriate service locations or financial and social autonomy. Most developing countries struggle to ensure that adolescents and teens can access SRH information and services in a voluntary, comfortable, confidential, and discrimination-free manner (Godia et al., 2013). In Bangladesh, over the last few decades, health care support services have improved, but there are still gaps and unmet needs for comprehensive sexual and reproductive health care. Sexual and reproductive services are typically inefficient for young adults, like Bangladeshi undergraduate university students. Young adults, such as Bangladeshi undergraduate university students, frequently face challenges in accessing SRH services. These challenges include a lack of information and awareness, traditional cultural norms, societal stigma and conservative attitudes, financial constraints, restricted accessibility and limited availability of SRH, concerns about confidentiality and privacy, judgmental attitudes from providers, and legal and policy barriers. We asked students to identify their SRH-seeking behavioural practices and the challenges they encounter in getting services. Notable findings are mentioned below:

8.3.1 Male students are less likely to visit SRH facilities even if they 'felt the need to visit'.

According to the responses, there remains a significant gap between the percentages of 'felt the need to visit' (56.6%) and 'visited in person' (38.3%). The proportion of 'felt the need' and 'visit in person' is relatively higher among female respondents (69.3% and 53.0%) as compared to male students (45.6% and 25.5%). Thus, the gap between 'felt the need' and 'visit in person' is higher among male students (20.1%) as compared to students (16.3%).

8.3.2 Preferred SRH service option among the students and the quality of services

- Private practitioners were the most preferred option (50%) along with government facility (35%) and NGO clinics (15%) among the students who visited (n = 580) SRH centres to receive service or consultation on SRH related issues.

- About 73% of the respondent who visited the health centres, mentioned that their requirement was addressed at the SRH centre they visited. Thirteen percent were advised to visit other SRH centre. Customer satisfaction is the key to any service delivery initiative. Students rated their satisfaction with respect to different services received at the SRH facilities they visited. The total mean score was 2.82 (1 being the worst and 5 being outstanding), with specific means associated with different aspects ranging from 2.5 to 3.2. This indicates the requirement for further improvement in SRH-related service delivery.

- According to the response of the participant students - taking remedial measures by searching internet/ vlog etc. (43.2%) or as advised by family members / friends (30.7%), feeling ashamed / not disclose to anyone (30.6%) and not knowing where to go (14.9%) were the prime reasons for not visiting SRH services.

- On campus, sexual and reproductive services play a crucial role in promoting the SRH and wellbeing of students (Leekuan et al., 2022). According to this survey, 79% of all valid responses indicated that there was no on-campus SRH service or counselling unit. This percentage is relatively higher among public university students (86.2%) as compared to private university students (70.0%). Despite the availability of such facilities, 32% of respondents reported that they "did not visit" the facility, and 37% stated that they "would not visit even if they needed to". The primary reason for not using the on-campus SRH service and/or counselling unit, according to 78% of

respondents, was privacy concerns. These percentages reflect the university authorities' lack of preparedness to set up student-accessible SRH service centres in their respective universities.

8.3.3 Factors influencing the SRH health seeking behaviour.

Along with different socio demographic factors numerous conjoined factors (such as availability of SRH services, supportive social environment, cultural acceptance, possessing accurate knowledge, having effective communication and advocacy skills and so on) can influence the likelihood of people seeking and accessing the SRH services. Effective targeted interventions can be developed if the factors associated with health seeking behaviour of the undergraduate students are identified.

The logistic regression model was used to determine if predictor variables affected students' usage of SRH services or counselling in the year prior to the survey. For this instance, Logistic regression analysis reveals that female students, relatively aged $(age \geq 023)$ students, students with father having graduate or higher degree, students from Bengali medium institutions and from co-education institution, having access to formal SRH education pre-university level and having knowledge of STIs, contraception etc. are more likely to make visit to take SRH service and counselling as compared to respective reference category. On contrary, students with non-Islamic backgrounds, pre-university academic institutions in rural and semi-urban areas, and private universities are less likely to seek SRH services and counselling as compared to respective reference category.

8.4 Attitude and usual practice with respect to different issues of SRH and feature of intimate relationship maintained by the university students:

University students' view on relationship behaviours differ by culture, society, personality, and generation (Bender et al., 2010). Some university students are encouraged to value commitments and long-term relationships (Meier et al., 2009; Stanley et al., 2010; Maguele, 2020). They follow conservative dating, engagement, and marriage practices. Many university students are more open-minded in relationships. This may lead people to open, polyamorous, or consensual partnerships.

Most undergraduate university students in Bangladesh are in their late adolescent to mid-20s and poised to enter young adulthood. This is the time after puberty people grow rapidly

physically, cognitively, and psychosocially and become sexually active (UNFPA, 2011). They undergo life-changing physical, mental, and social changes at this stage. Most university students are sexually active, regardless of orientation (Mosher et al., 2005). University's diverse student body, relative freedom, reduced or lack of parental supervision, and alcohol and substance use often allow students to explore their sexuality and self-identity (Wetherill et al., 2010)

The scarcity of national-level data on youth sexual activity, particularly unmarried youth and adolescents in Bangladesh has been mentioned in numerous studies. Bangladeshi socio-cultural customs sometimes lead young adults including university students, to self-restrict public conversation concerning SRH attitude, practice, and behaviour (Arafat et al., 2018). Consequently, there has been limited information about the SRH behaviour, practices, and perceptions and associated risk. The third objective of this project was to identify attitude towards and usual practices and perception of the undergraduate students with respect to different issues of SRH and to explore the nature and extent of intimate relationship maintained by the university students and associated risk.

8.4.1 Relationship status of the undergraduate university students

Despite having religious and / or social conservative norms - being in relationship is a very common feature among the young undergraduate students.71% respondents mentioned either ‘currently in relationship (38%) or ‘previously had relationship (33%). Many of these relationships started even before commencing university studies. 46.2% of respondents who are currently having relationship identified themselves as couple and expect that their relationship might lead to marriage.

8.4.2 Features of intimacy maintained by the undergraduate university students.

University students' physical intimacy varies by student, relationship status, societal belief, and culture (Meyer et al., 1994). This is to be noted that physical closeness is a personal choice and can be done in a variety of ways depending on comfort and consent (Higgins et al., 2011). Hand holding, embracing, kissing, cuddling, and sexual activity are frequent ways to show affection (Gulledge et al., 2003). As of this study, holding hand, hugging, kissing and having intercourse were the most mentioned physical interaction mentioned by the undergraduate university students. Holding hands (85.5%) is the most usual form of intimacy mentioned by the respondents followed by Hug (77.4%) and Kiss (68.1%). 48.7% students responded to have

intercourse in their relationship. However, with some minor exceptions the prevalence of different indicators associated to physical intimacy remains analogous irrespective of different pre-university educational background and different types of university.

8.4.3 Preparedness of the students against STIs or unwanted pregnancy

38% of the students who ever had sexual intercourse mentioned to have it regularly. Irrespective of gender, an over whelming 70.1% of the incident of first sexual intercourse involved force or persuasion from either one of the sides involved. Such low proportion of consensual sexual intercourse reflects lack of emotional preparedness and also leave space for potential incident of sexual violence by intimate partner. A significant proportion (45%) of first incident of sexual intercourse were unplanned and according to responses 52.6% students did not adopt any preventive measures against STIs or unintended pregnancy. 13.1% respondents who ever had sexual intercourse mentioned to experience unplanned pregnancy related incidents. As of the given responses, most of these unplanned pregnancy related incidents happened beyond marital relation of the students.

8.4.4 Preferences of behavioural practices associated with SRH.

The way a society interprets experience and information is called collective perception in sociology. It can also include a shared perspective on an issue and how that perspective affects their interpretation of relevant facts (Manstead, 2018). University students may have different views on SRH concerns and procedures than other groups. Individual experiences, family and cultural background, media, and social contacts have shaped university students' perspectives and practices (Challa et al., 2018; Mbarushimana, 2022). Students may be flexible and approachable about SRH because they value correct information and services or may maintain restrictive beliefs and practices (Ballard et al., 2016; Hoopes et al., 2016; Jesmin, 2016).

To examine SRH-related behavioural responses, in this study students were asked about their beliefs and preferences on contraception, many sexual partners, coerced sexual encounter, pre or adulterous sexual encounter, and so on. Following are some featured responses -

- Physical and sexual interaction responses demonstrated neither restrictive nor flexible towards any specific direction (5 out of 8 replies ranged from 51.4% to 57.0%).

- The collective responses associated to behavioural practices and expectations depicted contradictory attitude of the students. For example - 56.7% of students approved of 'unmarried boys and girls having sexual intercourse'. While 57.0% students preferred to 'everyone has to maintain virginity until s/he gets married'.

- Endorsing certain behaviours can do harm to individuals and society. 52.69% of students supported 'it is right to force partner to have intercourse'. Such a positive view of violent interaction may lead to interpersonal problems.

- Students responded their views on STI prevention. In this study the were asked seven questions to assess their STI prevention knowledge and awareness. Students' awareness was not found to be strongly aligned along in favour of the preventive measures related to SRH. 45% to 55% of given responses get along with perception favourable to various preventive measures and the rest either disagree or do not aware with the concept of preventive measures. Such disagreement or lack of awareness associated to SRH related preventive measures can have number of negative consequences for individuals, communities, and society.

- Logistic regression was used to explore socio economic factors that may influence university students' SRH preferences and perceptions. The model included socioeconomic, environmental, contextual, and health care factors as independent variables, including age, gender, educational background, parental educational qualification, location of the pre-university education institute, access to SRH education programmes during pre-university, and STI knowledge. Analysis suggests that female, mature (Age $\geq$ 23), rural/semi-urban, Bengali medium, and madrasah students are less likely to have exposure to risky sexual orientations and perceptions compared to other reference categories. Other than these, pre-university SRH education, basic STI knowledge, and access to SRH services or counselling reduced risky sexual orientation(s) and perception(s).

8.5 Prevalence, types, and status of reporting the incident of on campus sexual harassment in universities of Bangladesh:

The incident of sexual harassment is common in higher education (Wood et al., 2021). In fact, irrespective of types and quality of the higher education institution the issues related to sexual

harassment in is widespread worldwide and often causes great concern (Bondestam and Lundqvist, 2020). Sexual harassment can affect faculty, staff, and students (Young et al., 2021). Any gender can commit a crime or be a victim. Academic student sexual harassment is common (Klein and Martin, 2021). Students may be sexually harassed by peers, instructors, or administrative personnel (Kelley et al., 2000). Studies in Bangladesh reveal workplace sexual harassment and abuse (ActionAid, 2019; ANNI, 2019). Increasing trends in violence against women, rape, and sexual harassment were found in newspaper articles (ASK, 2020). The study solely includes documented rape and sexual harassment cases. Most rape and sexual harassment instances go unreported due to stigma, shame, distrust, and ineffectiveness of the law and judicial system (Islam, 2020). Experts expect the true number to be higher.

Although several public and private universities have established sexual harassment prevention committees in response to the directives form the highest court, but most are apathetic to preventing, monitoring, and resolving student and staff complaints. Lack of awareness regarding SH committees and their accomplishments is only talked about among student communities. Lack of awareness and trust concerns are said to hinder college sexual harassment prevention. Many students retract complaints during investigations, studies reveal. Committee members lack the skills to study the offence, its effects, and sensitive topics using circumstantial evidence.

In Bangladesh, the study on sexual harassment in the higher education sector is relatively scarce (Rezvi, Prithvi and Hossain, 2021) as compared to many other countries. Even the University Grants Commission (UGC) - the regulatory body of all the universities in Bangladesh need to depend on media reports published in various sources (newspaper etc.) to stay informed on the matter as universities fail to report incidents of sexual harassment regularly in a timely manner (Abdullah, 2022). Thus, one theme of the project is to explore the extent of the sexual harassment experienced by university students of Bangladesh and identify the measures taken by the universities to mitigate the harassment issues. However, advised by the stake holders (participating university faculty and students) during pretesting stage, this questionnaire did not include questions about the psychological and physical effects of such events due to the sensitive nature of the subject and a lack of resources. Also, the survey focused only on-campus sexual harassment and did not inquire about off-campus incidents.

8.5.1 Awareness and prevalence of sexual harassment -

- About 54% (818 out of 1520 respondents) said they knew about sexual harassment before this poll (Figure 7.1). Mass media (33.6%) and social media (42.7%) were the main sources of sexual harassment information.
- 44% (673 out of 1520) of the participants reported experiencing sexual harassment on college. Female students (53.8%) were more vulnerable to SH than male students (35.7%).
- SH prevalence is similar in public and private universities.
- Students reported being sexually harassed by peers (70.6%), faculty (17.5%) and administrative personnel (7.3%).

8.5.2 Nature of sexual harassment

- Unwanted touched / grabbing /pinching (41.01%) was the most mentioned sexual harassment together with sexual comment, jokes, gestures or looks (21.8%), spreading of sexual rumours (19.2%) and receiving test / picture of sexual nature (15.8%).
- 46.2% of students who ever became victim of on campus SH ($n_{SH} = 673$), mentioned to encounter such unpleasant situation more than once; which comprises 20.4% among all respondents|.

8.5.3 Non reporting by the students and lack of preparedness of the university authority.

- An overwhelming 72% respondents among victim of on campus sexual harassment did not report the respective incident to concerned authority.
- 57.6% of students who reported the SH incidents to the university authority, expressed their dissatisfaction regarding authority's responses towards the issue.
- 'Not having trust on the university authority' was the most frequently mentioned reason (34.6%) for not reporting the incident of on campus SH along with 'not knowing where to complain (25.9%)', 'Fear of retaliation' from the perpetrator (24.1%) and to avoid embarrassment (15.4%).

8.5.4 Factors associated with experiencing sexual harassment and not reporting the incident

Gender, location of pre university academic institution and Students' having access to mass and social media were found to be significantly associated with student's experience of on campus sexual harassment. On contrary, this researcher finds not reporting of the sexual

harassment by the students, to be significantly associated with gender, location of pre university academic institution, medium of instruction during pre-university education, types of university and student having access to mass and social media. Logistic regression suggests that the experience of on campus sexual harassment is more prevalent among - female students, students of academic institution from - rural or semi urban area, Bengali medium schools and coeducation academic institution during pre-university stage. On contrary private university students and students having substantial mass and social media access reported to experience less as compared to respective reference group. The factors contributing to not reporting the incidents of on campus sexual harassment to the authority. Female students, students of academic institution from - rural and semi urban area, Bengali medium and less likely to report the incident of on campus sexual harassment. The prevalence of reporting are likely to be higher among - relatively mature students, private university students, coeducation academic back ground students, students having access to formal SRH Education at pre university stage and students having access to mass and social media. However, it is important to consider the results figuratively rather than as appeared. These results required to be interpreted cautiously considering along with other associated socio-economic practice and context in to account which may have influenced the outcome variables but were not included in the model.

8.7 Key findings of the study:

This study assesses undergraduate students' SRH knowledge, health seeking behaviour, and challenges associated to accessing health care services, the nature and extent of university students' intimate relationships and prevalence of on-campus sexual harassment. Some of the key findings are mentioned below

The following are the key findings of the study associated with different objectives -

8.7.1 Key findings of the study associated with the first objective (Discussed in Chapter 4):

a. Significant barrier remains in sharing of SRH (sexual and reproductive health) information within the family members. Communication between family member including parents and siblings remains at a low levels. Regardless of gender, most communication is confined to “only if it is unavoidable” or “need to know” basis. Inter-gender SRH communication among the family is limited, reflecting social taboos

b. Only a minor fraction of undergraduate students had access to formal SRH curriculum during their pre-university stages of education. Persistent obstacle remains in the

execution of sustainable, accessible, effective SRH curriculum at the pre university stages.

c. Both non-formal sources as well as formal SRH curriculum frequently failed to deliver information related to issues like protection against unwanted sex and unexpected pregnancy, family planning and contraception, partner sexual conduct etc.

d. Level of knowledge about different aspect of the STDs such as familiarity to name, symptoms and ways of transmission of STDs remains low irrespective of varying socio-economic background and different pre university education background and types of university.

e. Female students, rural and semi-urban academic institution students, Bengali medium students and Madrasah students are less likely to know the name, symptom, and transmission modes of STIs than the reference categories.

8.7.2 Key findings of the study associated with the second objective (Discussed in Chapter 5):

a. Students were found to be reluctant to visit SRH facility centres to seek professional advice even if they 'felt the need to visit'. Instead they often rely on remedial measures based on internet / vlog or on the advice of friend and family member. The gap between 'felt the need' and 'visit in person' were found to be higher among male students as compared to students.

b. Due to lack of availability of government facility students had to visit relatively expansive private and NGO run SRH health centres. The quality-of-service delivery at the SRH facilities often were not up to the desired standard.

c. Study finds a large proportion universities did not have SRH service or counselling centres. centres. This percentage is relatively higher among the public university students (86.2%) as compared to private university students (70.0%). Even if the universities have SRH service and / or counselling centres students were reluctant to visit such facilities due to mostly privacy concern.

d. According to this study: female students, relatively aged ($age \geq 023$) students, students with father having graduate or higher degree, student from Bengali medium institutions and from co-education institution, having access to formal SRH education pre-university level and having knowledge of STIs, contraception etc. are more likely to make visit to take SRH service and counselling as compared to respective reference category.

8.7.3 <u>Key findings of the study associated with the third objective (Discussed in Chapter 6):</u>

a. Despite having religious and / or social conservative norms - as of this study, holding hand, hugging, kissing and having intercourse were the most mentioned physical interaction mentioned by the undergraduate university students and were quite frequent irrespective of different pre-university educational background and different types of university. The incident of forced sexual inter course were also mentioned by many respondents. Such practice leaves scope of potential intimate partner violence

b. Lack of awareness and ignoring to adopt preventive measures to avoid unintended pregnancy or STIs also features sexual intercourse of many respondents. 48.7% students responded to have intercourse in their relationship. Significant proportion of respondents mentioned not to adopt preventive measures against STIs or unintended pregnancy. Most of the unplanned pregnancy reported happened beyond marital relation of the students.

c. Collective attitude towards physical and sexual interaction responses demonstrated neither restrictive nor flexible towards any specific direction. Students' awareness was not found to be strongly aligned along in favour of the preventive measures related to SRH.

d. Analysis suggests that female students, mature students, students of academic institution from rural/semi-urban areas, students of Bengali medium and madrasah background are less likely to have exposure to risky sexual orientations and perceptions compared to other reference categories.

8.7.4 <u>Key findings of the study associated with the forth objective (Discussed in Chapter 7):</u>

a. Students from both private and public universities experienced incidents of on-campus sexual harassment. A significant proportion of victim of on campus, mentioned to

encounter such unpleasant situation more than once. According to this study female students were reported to be more vulnerable to the incident of sexual harassment.

b. Unwanted touched / grabbing /pinching, sexual comment, jokes, gestures or looks, spreading of sexual rumours and receiving test / picture of sexual nature were the most frequently mentioned sexual harassment experience by the students.

c. Three fourth of the victim of on campus sexual harassment did not report the incident mostly due to not having trust on the university authority. Nearly 60% of those who reported the incident expressed their dissatisfaction about the authority's response.

8.8 Chapter summary

Sexual and reproductive health goes beyond fitness. It covers physical, emotional, mental, and social wellness. Sexual and reproductive health knowledge, attitudes, and practices impact families and communities. Unwanted pregnancies, STIs, early sexual debut, poor contraception, etc. Effective SRH knowledge dissemination could have reduced harm. Bangladesh is a developing nation with low health literacy and several SRH concerns. Teens and young adults often have dangerous sexual relationships without adequate SRH information and counselling. Numerous research show that SRH misunderstandings, negative attitudes, and conduct are common across age, gender, marital status, education, and other social categories. Bangladeshi university students endure SRH issues. These difficulties required to be addressed effectively to improve sexual and reproductive health and promote healthy behaviours. The discussion of finding in different chapters of the study attempts to explore SRH associated level of knowledge, attitudes and practices of the university students. However the results should be interpreted figuratively, not literally. Result should be interpreted cautiously, taking into account other socio-economic practice and setting that may have influenced outcome variables but were not included in the model.

Chapter 9
Conclusion

9.1 Introduction

Lack of age-appropriate sexual and reproductive health knowledge, attitude, and behaviours can have serious consequences for people, families, and communities. Some of the common effects includes but not limited to early sexual debut, unintended pregnancies, STIs, inconsistent contraception use and so on. Irrespective of socio-economic structures, the consequences became one of the biggest risk factors for disability and mortality in all regions across the world. Effective dissemination of sexual and reproductive health (SRH) association could have contributed to preventing the negative and promoting healthy practices essential to live a safer and healthier life. Being a developing country, Bangladesh itself faces enormous challenges to ensure SRH for its citizens. Across different segments of the society irrespective of age, gender, marital status, educational background and other relevant social denomination - the lack of knowledge, negative attitude and behaviour associated with SRH related issues have been reiterated in numerous studies. Particularly significant opportunity remains to develop and implement appropriate SRH programmes to accommodate the requirement of the adolescent and young adults. A substantial number of adolescents experience risky or unwanted sexual affiliation and do not get prompt or proper care. They are often unaware of their SRH rights due to ignorance. Informed life choices are often difficult for them. Apart from lack of resources another biggest challenge in Bangladesh is the predominant social norms that often unduly dictates / restricts individual's ability to make informed decisions about their own SRH. This study assesses undergraduate students' SRH knowledge, health seeking behaviour, and health care service access challenges, as well as the nature and extent of university students' intimate relationships and on-campus sexual harassment. This chapter briefly discusses the contribution of the study, limitations, and future research scope.

9.2 Contribution to the knowledge

Sexual and reproductive health (SRH) knowledge, attitudes, and practices among Bangladeshi university students is important for various reasons. Potential contributions of such research:

9.2.1 Reforming SRH education Programmes:

- Identifying gap: The study can uncover university students' sexual and reproductive health knowledge gaps. This data can be utilised to customise instructional programmes for individual needs and addressing misconceptions.

- Curriculum Development: Findings can help create or improve comprehensive sexual and reproductive health curriculum.

9.2.2 Health Promotion and disease prevention:

- Behaviour Change: Understanding university students' attitudes and practices can help promote beneficial sexual and reproductive health behaviours, reduce hazardous behaviours, and prevent STIs and unwanted pregnancies.
- Access to Services: The study can contribute developing targeted program to create students' awareness and access to sexual and reproductive health services, improving university service delivery.

9.2.3 Diversity and cultural awareness:

- Tailored Interventions: University students comes from diverse socio economic and cultural back grounds. Their experience at the pre university education is also considerably different. Culturally sensitive and acceptable interventions are more likely to succeed when designed with cultural context in mind.
- Diversity: The study can emphasise university students' diverse perspectives and experiences, influencing initiatives that reflect demographic groups' distinct requirements.

9.2.4 Develop Policy:

- Considering the void of implementing the SRH associated education at the pre – university education level these research findings can be utilised to advocate for university and national sexual and reproductive health education and services policy for the university students.
- Institutional Support: The study emphasise the need for policies and support that make sexual and reproductive health discussions safe and inclusive.

9.2.5 Research and knowledge growth:

- Academic Contributions: The study helps researchers and scholars understand Bangladeshi university students' sexual and reproductive health concerns and opportunities.

- Comparative Analysis: The findings can be compared to similar studies in other countries to better understand university sexual and reproductive health variables worldwide.

This study of Bangladeshi university students' sexual and reproductive health knowledge, attitudes, and practices can impact education, health promotion, policy formation, gender equity, and research. It is expected to establish focused interventions for this population and eventually improves sexual and reproductive health outcomes.

9.3 Limitations of the study

This current study is based on quantitative method. The method is instrumental in identifying risk factors, determining prevalence and incident rate, comparing of indicators across different segment of the sampled population, quantifying health service utilizations and for other purposes. Thus, quantitative research in Bangladesh's sexual and reproductive health (SRH) sector helps uncover patterns, trends, and statistical connections. How ever quantitative method often fails to capture the nuanced social and cultural factors influencing SRH. Thus, quantitative measures often limit the depth of understanding compared to qualitative methods. Quantitative instruments struggle to measure SRH characteristics including relationship quality, attitudes, and cultural norms. Hence one major limitation of this research project is not to embed qualitative method in the research design due to logistic constraints (e.g. distance, time and financial limitations).

Considering the diversified social and pre-university education background, qualitative research would allow to explore sexual and reproductive health culture, attitudes, and beliefs. Qualitative methods like in-depth interviews and focus group discussions allow people to explore uncomfortable themes. This is especially crucial when discussing sexual health issues, which may be stigmatised. Such measures contribute to dealing associated social stigma and initiating effective interventions and policies requires to comprehend these cultural differences. Adaptation of qualitative measures would have given better insight of the power dynamics and gender perspective in accessing and making of sexual and reproductive health services and decision.

Thus, to overcome these restrictions, a mixed-methods strategy using quantitative and qualitative research can better understand SRH in Bangladesh. This could use of both

methodologies' strengths and acquire a more complete picture of SRH concerns by triangulating their findings.

Another important limitation of the project is - this project does not address any query regarding sexual orientation of the respondents. Sexual orientation is an individual's long-term emotional, romantic, or sexual attraction to opposite, same, or both sexes (Bailey *et al.*, 2016). It is a multifaceted part of human identity that includes heterosexuality, homosexuality, bisexuality, pansexuality, and asexuality (Winer *et al.*, 2022). It is the researcher personal belief and understanding that the presence of divers' sexual orientation is very much real and not an uncommon phenomenon. Yet the reality is completely ignored and / or immersed due to social disapproval. However, considering the sensitive nature of the issue - as advised by the resource persons and participating university faculty members and limited resources, this study did not included any question associated to sexual orientation of the respondents.

9.4 Recommendations for future research

Bangladesh is the eighth most populous nation with over 170 million people (BBS, 2022). The country's SRH condition has improved in recent years, although several issues remain. A considerable gap remains in developing and implementing SRH programmes for adolescents and young adults. Understanding the level of knowledge, attitude, and practices of sexual and reproductive health among undergraduate students in Bangladesh will allow researchers to evaluate the effectiveness of formal SRH education at the pre-university level and make necessary amendments. Future research on the sexual and reproductive health knowledge, attitude and practices of the undergraduate students of Bangladesh may include -

i. Research on *Challenges in accessing sexual health services* to study on physical and psychological wellbeing due to existing state of SRH knowledge, attitude, and practice.

ii. Research on *Sexual orientation* to address and promote inclusivity, human rights, policymaking, mental health, and understanding human diversity and identity. It helps create a more inclusive and supportive society for all sexual orientations.

iii. Research on *Gender dynamics and SRH* to examine how gender affects sexual and reproductive health. Examine how gender norms, power dynamics, and societal expectations affect male and female students' SRH experiences.

iv. Research on *Impact of peer influences, social networks on the SRH wellbeing* To explore how peer influence and social networks affect university students' sexual behaviours and views. Examine how social interactions affect sexual health decisions.

v. Research on *Impact of reliance on technology on the SRH behaviour and practices* To examine how social media and dating apps affect university students' sexuality and relationships. Explore sexual health education and outreach using technology.

vi. Research on *Contraceptive use and family planning* to Examine university students' contraceptive use and family planning awareness. Assess contraception and family planning adoption hurdles.

vii. Research on *Mental health and reproductive health* to address association between mental health and SRH. The study would allow to investigate how stress, anxiety, and depression may impact sexual behaviours and decision-making among university students.

To understand Bangladeshi university students' sexual and reproductive health (SRH) needs and concerns, research should examine a variety of aspects. Further research in these areas can help design targeted interventions and policies to improve Bangladeshi university students' sexual and reproductive health.

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Appendix 1

College of Nursing, Midwifery and Healthcare

Research Ethics Panel

Paragon House

Boston Manor Road

Brentford TW8 9GA

Name: Iftekhar Kalam
Date: 28th April 2021

Dear Iftekhar

Re: Application for Ethical Approval No 01061
Assessing the knowledge, attitude and practice of sexual and reproductive health of the university students in Bangladesh

Thank you for sending in your application for approval. Chair's Action has considered this application and conditionally approved the research without amendment.

If the research does not progress, or if you make any changes to your research proposal or methodology can you please inform the Panel in writing as this may entail the need for additional review. It is your responsibility, as the principal investigator, to submit a report on the progress/completion of the research twelve months from the date of this letter. Please find attached a blank report form to be completed by
February 2022.

The Panel wish you well with your research and look forward to your report.

Yours sincerely

Heather Loveday

Professor Heather Loveday
Director of Research
Chair, College Research Ethics Panel

Appendix 2

Participant Information sheet for interviews

Project Title: Assessing the knowledge, attitude and practices of sexual and reproductive health among undergraduate university students in Bangladesh

Principal researcher:

Iftekhar Mohammad Shafiqul Kalam, PhD Student, University of West London.

Supervisor(s):

Professor Hafiz T. A. Khan and Dr Minakshi Bhardwaj, University of West London.

Thank you for your interest to take part in this research. Your response will be kept confidential and only used for research purpose. Please read the following information carefully before deciding to take part. Research ethics is granted for this study by the University of West London

Following are the relevant information for the participants on this research.

What is this research about?

The Purpose of the study is to determine the socio economic factors that affect the sexual and reproductive health related knowledge, attitude and practices (SRH-KAP) of the University students of Bangladesh. This research is expected to -

- assess the level of knowledge, attitude toward and usual practices with respect to SRH of the university students and identify the key determinants that contribute in shaping their SRH-KAP.
- examine the influence of different stream of education in shaping the KAP of the university students.
- explore the pattern of relationship and level of intimacy maintained by the university students.
- determine the extent of on campus sexual harassment experienced by the students.

Who is being invited to participate?

- students currently enrolled in undergraduate program either in public university or in private university.
- have internet connection.

- have basic skills in operating computers and internet use.
- able to read and understand English.

What tasks will the participant be asked to do?

Using the link provided the participants will have to

- access the questionnaire.
- read, understand and answer the questions.
- submit the questionnaire.

Do the participant have to participate? What if the participant change his/her mind?

Participation to the study depends up on participant's decision. If someone decides to participate, s/he will be obliged to provide her/his consent. However, participants are allowed to -

- change mind, and withdraw the interview at any time,
- escape any question or sensitive part without letting any reason.

participant will not be affected in anyway by this withdrawal.

Will there be any financial benefit to participant?

No financial benefit is associated for the participation. However participant's honest responses is expected to contribute to

- developing a comprehensive age specific Sexual and reproductive health education contents for the future pre university level students of Bangladesh.
- identifying health burden as a result of existing SRH-KAP and contribute in developing reducing .

How will the data be handled that you provide?

The data will be analyzed to develop the researcher's PhD project keeping participant anonymity and confidential. The questionnaire includes no question that may reveal the identity of the respondent. Data will be kept in a password protected device in a secure way by the principal investigator. The results from this study will be presented in seminar and published in academic journal, however, participants will not be identified in any way.

All information will be handled according to the Data Protection Act 1998, and the General Data Protection Regulation 2018 of the UK. In addition to principal investigator, supervisor

and authorized people from the University of West London will look the data to monitor whether the process of the research is okay or not following the research ethics guidance of the UWL.

How does this research ensure safety of my participation?

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You are welcome to contact to one of the following to get more information:

Professor Hafiz T.A. Khan
Professor of Public Health & Statistics
Health Promotion and Public Health
College of Nursing, Midwifery and Healthcare
University of West London, United Kingdom
Email: hafiz.khan@uwl.ac.uk

Iftekhar Mohammad Shafiqul Kalam
College of Nursing, Midwifery and Healthcare
University of West London, United Kingdom
Email: 21422196@student.uwl.ac.uk

For any queries and concerns, please feel free to contact at the above address before or after your participation. At this stage the researcher would like to say you CORDIAL THANK YOU FOR YOUR PARTICIPATION. For any questions or complaints, you are requested to contact the student's supervisor in the first place. In case of dissatisfaction with the solution from supervisor, you may write to the administrator Maria Pennells to pass your question to the Chair of the Committee.

Maria Pennells
Senior Administrative Officer
The Graduate Centre
University of West London | St. Mary's Road, Ealing, London W5 5RF, United Kingdom
Email: Maria.Pennells@uwl.ac.uk

Appendix 3

Informed consent form

Project Title:

Questionnaire: Assessing the knowledge, attitude and practices of sexual and reproductive health among undergraduate university students in Bangladesh

Principal researcher:

Iftekhar Mohammad Shafiqiul Kalam, PhD Student, University of West London

Supervisor/s:

Professor Hafiz T. A. Khan and Dr Minakshi Bhardwaj

By selecting ***"YES"*** below you are indicating that you -

- are agreeing to provide answer to the following questions. You are giving consent to the researcher about your answers to record, store, and use in the mentioned research purposes. However, your data will be handled anonymously, confidentially, and securely, under the Data Protection Act 1998, and the General Data Protection Regulation 2018.
- read and understood the participant information.
- are informed about this voluntary participation and you are allowed to withdraw from this interview at any time, you can skip any question if you do not want to answer.
- agree to use your data anonymously to analyze, present results in seminar and publish in academic journals.

Appendix 4

RESEARCH DATA MANAGEMENT STATEMENT

As a student or member of staff undertaking a research project, I understand that I am responsible for the following:

- Not collecting data prior to ethical approval.
- Maintaining accurate records of the methodologies used and the results obtained throughout the research project.
- Ensuring research data is kept in a manner that is compliant with legal obligations, the University Research Data Management Policy, the Research Ethics Code of Practice and the University Data Protection Policy and where applicable the requirements of funding and professional bodies.
- Ensuring backups of data and documents are made and updated at regular intervals during the research project.
- Ensuring anonymization of research data containing personal information at the point of collection where possible. Where personal data cannot be anonymized, all identifying information must be removed from working files and kept separate in locked filing cabinets/files or secure password protected electronic folders. Working files must not contain identifying information.
- Transcribing all video and/or audio data using codes or pseudonyms for the identification of individuals.
- Ensuring the storage of confidential or personal data, particularly special category research data is treated with care and is made accessible only to authorized persons. Electronic folders containing personal data will be password protected. Electronic folders containing special category data will be encrypted **and** password protected. This relates to information concerning a subject's racial or ethnic origin, political opinions, religious beliefs, trade union activities, physical or mental health, sexual life, or details of criminal offences.
- Ensuring secure physical storage of personal and/or sensitive personal data in lockable cabinets.
- Not re-using data for a different purpose unless separate ethical approval is given.

- Ensuring secure disposal of research data in accordance with legal, ethical, research funder and collaborator requirements.

- Unless otherwise required, disposing of research data after the following periods

    - UG Students – to be destroyed once marks are ratified by the Assessment Board
    - PG Taught Students – as above unless the project is going to be published (in which case it should be retained for five years)
    - Staff and Research Students– after 10 years or five years after publication whichever is the greater.

Name: IFTEKHAR MOHAMMAD SHAFIQUL KALAM

Application ID: UWL/REC/CNMH-01061

Project title: Assessing the knowledge, attitude and practices of sexual and reproductive health among undergraduate university students in Bangladesh

Appendix 5

Questionnaire: Assessing the knowledge, attitude and practices of sexual and reproductive health among undergraduate university students in Bangladesh

*: Required

About the survey

This survey is conducted as part of PhD research undertaken by the principal researcher at the College of Nursing, Midwifery and Healthcare (CNMH) of the University of West London, UK.

Principal researcher: Iftekhar Mohammad Shafiqul Kalam, PhD Student, University of West London.

Supervisor(s): Professor Hafiz T. A. Khan and Dr Minakshi Bhardwaj, University of West London.

Objective of the Survey

The objective of the study is to identify the socio-economic determinants that affect the sexual and reproductive health (SRH) related knowledge, attitudes, and practices (KAP) of the university students of Bangladesh.

The study is expected to contribute in:

- Describing the impact of sexual and reproductive health (SRH) education at pre-university level.
- Assessing the KAP of the university students with respect to SRH.
- Developing an appropriate sexual and reproductive health education content to be taught at the pre-university level.
- Identifying key factors related to SRH.
- Developing a support pathway for students who are at risk of SRH.

Participant information sheet:

Thank you for your interest to take part in this research. Your response will be kept confidential and only used for research purpose. Please read the following information carefully before deciding to take part. Research ethics is granted for this study by the University of West London.

Following are the relevant information for the participants on this research.

What is this research about?

The Purpose of the study is to determine the socio economic factors that affect the sexual and reproductive health related knowledge, attitude and practices (SRH-KAP) of the University students of Bangladesh. This research is expected to -

- assess the level of knowledge, attitude toward and usual practices with respect to SRH of the university students and identify the key determinants that contribute in shaping their SRH-KAP.
- examine the influence of different stream of education in shaping the KAP of the university students.
- explore the pattern of relationship and level of intimacy maintained by the university students.
- determine the extent of on campus sexual harassment experienced by the students.

Who is being invited to participate?

- students currently enrolled in undergraduate programme either in public university or in private university.
- have internet connection.
- have basic skills in operating computers and internet use.
- able to read and understand English.

What tasks will the participant be asked to do?

Using the link provided the participants will have to

- access the questionnaire.
- read, understand and answer the questions.
- submit the questionnaire.

Do the participant have to participate? What if the participant change his/her mind?

Participation to the study depends up on participant's decision. If someone decides to participate, s/he will be obliged to provide her/his consent. However, participants are allowed to -

- change mind, and withdraw the interview at any time,
- escape any question or sensitive part without letting any reason.

participant will not be affected in anyway by this withdrawal.

Will there be any financial benefit to participant?

No financial benefit is associated for the participation. However participant's honest responses is expected to contribute to

- developing a comprehensive age specific Sexual and reproductive health education contents for the future pre university level students of Bangladesh.
- identifying health burden as a result of existing SRH-KAP and contribute in developing reducing .

How will the data be handled that you provide?

The data will be analysed to develop the researcher's PhD project keeping participant anonymity and confidential. The questionnaire includes no question that may reveal the identity of the respondent. Data will be kept in a password protected device in a secure way by the principal investigator. The results from this study will be presented in seminar and published in academic journal, however, participants will not be identified in any way.

All information will be handled according to the Data Protection Act 1998, and the General Data Protection Regulation 2018 of the UK. In addition to principal investigator, supervisor and authorized people from the University of West London will look the data to monitor whether the process of the research is okay or not following the research ethics guidance of the UWL.

How does this research ensure safety of my participation?

The University research ethics committee, a group of people who work independently, assess each and every research work done under this University to make sure the safety, rights, and other ethical issues. The University of West London ethics committee has approved this study. The researcher will follow the Research Ethics Guidelines as outlined by the UWL.

You are welcome to contact to one of the following to get more information:

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Professor of Public Health & Statistics

Health Promotion and Public Health

College of Nursing, Midwifery and Healthcare

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Iftekhar Mohammad Shafiqul Kalam
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University of West London, United Kingdom
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For any queries and concerns, please feel free to contact at the above address before or after your participation. At this stage the researcher would like to say you CORDIAL THANK YOU FOR YOUR PARTICIPATION. For any questions or complaints, you are requested to contact the student's supervisor in the first place. In case of dissatisfaction with the solution from supervisor, you may write to the administrator Maria Pennells to pass your question to the Chair of the Committee.

Maria Pennells
Senior Administrative Officer
The Graduate Centre
University of West London | St. Mary's Road, Ealing, London W5 5RF, United Kingdom
Email: Maria.Pennells@uwl.ac.uk

Informed Consent Sheet

By selecting ***"YES"*** below you are indicating that you -

- are agreeing to provide answer to the following questions. You are giving consent to the researcher about your answers to record, store, and use in the mentioned research purposes. However, your data will be handled anonymously, confidentially, and securely, under the Data Protection Act 1998, and the General Data Protection Regulation 2018.
- read and understood the participant information.
- are informed about this voluntary participation and you are allowed to withdraw from this interview at any time, you can skip any question if you do not want to answer.
- agree to use your data anonymously to analyse, present results in seminar and publish in academic journals.

1. Do You want to participate in the Study? * ***Mark only one option***

☐ Yes
☐ No   Skip to section 31 (Thank you)

Section One: This section includes questions related to respondent's key socio demographic characteristics that may shape the SRH knowledge level, sexual conduct and sexual health of the respondent such as –

- Academic background of the respondent and parents Living arrangement
- Family orientation (Relationship with parents, elder brothers and sisters etc.)
- Religious affiliation of the respondents and so on.

2. Please Indicate your Gender* ***Mark only one option***

	Male
	Female
	Prefer not to mention

3. What is your age (according to your last birthday)? * ***Mark only one option***

	18		23
	19		24
	20		25
	21		26 and Above
	22		

4. What is your religion? * ***Mark only one option***

	Buddhism		Islam
	Christianity		Other
	Hinduism		Prefer not to mention

5. How important is religion in your life? ***Mark only one option***

Not Important	1	2	3	4	5	***Very Important***

6. Currently you are a student of _ _ _ ? ***Mark only one option***

	Public University		Private University

7. Currently you are a student of _ _ _ ? ***Mark only one option***

	First Year
	Second Year

☐	Third Year
☐	Fourth Year
☐	Fifth Year

8. Prior to your university, you were a student of _ _ _ (options given in alphabetic order) * ***Mark only one oval per row***

	Bengali Medium	English Medium	Mardashah
During Secondary (School etc.)			
During Higher Secondary			

9. Your academic institution (during secondary / higher secondary) * was operated / funded by _ _ _ . ***Mark only one option per row***

	Government	Others
Secondary (School etc.)		
Higher Secondary (college etc.)		

10. Your academic institution (during secondary and higher secondary) was _ _. ***Mark only option per row***

	Co education	Non co education
Secondary (School etc.)		
Higher Secondary (college etc.)		

11. Your academic institution (during secondary / higher secondary) was located in _ _ _ . * ***Mark only one in each per row***

	Urban Arear (Divisional / Zilla Sadar)	Semi Urban (Upa zilla etc)	Rural Area	Other
Secondary (School etc.)				
Higher Secondary (college etc.)				

12. What is your parent's academic qualification? * ***Mark only option in each row***

	Did not attend formal schooling	Completed primary schooling	Completed secondary school	Graduate	Above	Prefer not to Mention
Father						
Mother						

13. Have you ever discussed about sexuality or reproductive health related issues with your parents? * ***Mark only option in each row***

	Yes, casual / general discussion or knowledge sharing	Yes, only it is unavoidable	Never
Father			
Mother			

14. Have you ever discussed (/shared information) about your sexual and reproductive health related issues with your sibling(s)?

	Yes, casual / general discussion or knowledge sharing	Yes, only it is unavoidable	Never
Elder Sister			
Elder brother			
Younger sister			
Younger Sister			

Section Two:

This section includes questions related to the

- Source of sexual and reproductive health (SRH) related information
- Formal SRH education curriculum
- Knowledge of SRH of the participants

15. Have you heard the term "***Puberty***" (***Boyoshondhi***)? [***Puberty*** *(**Boyoshondhi**) means the ways in which boy's / girl's bodies change during the teenage years*] ***Mark only one option***

☐ Yes ☐ No

16. During which academic class did you hear the term "Puberty" for the first time?

☐ Primary (Class eight and below)
☐ Secondary (Class Nine and Ten)
☐ Higher Secondary
☐ During University Years

17. Did you ever have any discussion about puberty (Boyoshondhi) - during your teenage years from any source(s)? * ***Mark only one option***

☐ Yes ☐ No

18. From whom (or where) did you get information about changes (related to sexual development) for the ***first time***? ***Mark only one option***

☐	Mother	☐	Teacher(s)
☐	Father	☐	Internet
☐	Brother(s) or sister(s)	☐	Academic curriculum
☐	Cousin(s)	☐	Books / Newspapers/ Magazines etc.
☐	Friend(s)	☐	Health clinic / Hospital etc.
☐	Relative(s)	☐	Other source

19. (During your teenage years) Did you have any detailed discussion on the development of reproductive system of men and women (such as where eggs and sperm are made / how pregnancy occurs etc.)? ***Mark only one option***

☐ Yes ☐ No

20. At which level of academic class did you (for the first time) learn the term testicles, ovum, sperm, eggs etc.? ***Mark only one option***

☐ Primary (Class eight and below)
☐ Secondary (Class Nine and Ten)

	Higher Secondary
	During University Years

21. Who / what has been the ***most important (or frequent) source*** of information regarding sexuality and reproductive system (e.g. Puberty / boyoshondhi, Menstrual cycle etc.)? *[SELECT MOST IMPORTANT IN COLUMN 1 AND SECOND MOST IMPORTANT IN COLUMN 2]* ***Mark only one option per row***

Options	Most important	Second most important
Mother		
Father		
Brother(s) or sister(s)		
Cousin(s)		
Friend(s)		
Relative(s)		
Teacher(s)		
Internet		
Academic curriculum		
Books / Newspapers/ Magazines etc.		
Health clinic / Hospital etc.		
Other source		

22. Did you find the informally received information on development of reproductive system (e.g. Puberty / boyoshondhi, menstrual cycle etc.) adequate/helpful to clear your confusion? *

Not at all helpful	1	2	3	4	5	***Fully satisfied***

23. Some school(s) / college(s) have classes on puberty, on sexual * and reproductive systems and on relationships between boys and girls. Have you ever attended formal lessons on any of such topic in your academic curriculum? ***Mark only one option***

	Yes. Skip to question 24
	No. Skip to question 29
	May be can not remember. Skip to question 29

Note: Formal SRH education curriculum (Part one) The following section asks questions about student's experience and perception related to the content delivery, coverage and efficacy of formal SRH related curriculum lessons received during their pre-university level of education.

24. Which academic year did you attend such lesson(s)? ***Select all that apply***

	Primary (Class eight and below)
	Secondary (Class Nine and Ten)
	Higher Secondary
	During University Years

25. Which of the following types of information was discussed in those lessons? ***Select all that apply***

	Yes	No
Puberty related information		
Sexual behavior with partner		
Family planning and contraceptive measures		
Sexually transmitted infection		
Protection from unwanted sex and unintended pregnancy		

26. Did your teacher / instructor elaborately discussed (or covered) the contents (or chapters) given in the text book? ***Mark only one option***

	Discussed elaborately.
	Mentioned the chapters but did not discussed in detail.
	Did not even mention / discuss such content.
	I read the relevant chapter(s) all by myself.

27. Did you find the lesson(s) taught in your academic institution(s) / curriculum to be informative and adequate to address your confusion regarding sexual and reproductive needs? ***Mark only one option***

Not at all helpful	1	2	3	4	5	***Fully satisfied***

28. (***If attended any such lessons***) Do you think that on these topics there should be more classes / fewer classes / the number were about right? * ***Mark only one option.***

- [ ] More. Skip to question 24
- [ ] Less. Skip to question 29
- [ ] About right. Skip to question 29

Skip to Question 31

Note: Formal SRH education curriculum (Part two) The following section asks questions about student's experience and perception related to the content delivery, coverage and efficacy of formal SRH related curriculum lessons received during their pre-university level of education.

29. (***If you did not attend any formal education on SRH***) Do you think there should be age specific comprehensive contents on these topic to be taught during pre-university years? ***Mark only one option***

[ ] Yes [ ] No

30. In your opinion which of the following types of information should be included in these lessons?

	Yes	No
Puberty related information		
Sexual behaviour with partner		
Family planning and contraceptive measures		
Sexually transmitted infection		
Protection from unwanted sex and unintended pregnancy		

Skip to Question 31

31. The following questions ask about the STD, their symptoms and spread. ***Mark all that apply.***

	Which of following STDs have you ever heard of	Symptoms of which of the following STDs is known to you?	Do you know how one may get infected with the following STDs?
Hepatitis			
HIV - AIDS			
Gonorrhoea			
Syphilis			
Herpes			
Chlamydia			
Genital warts			
None of the above			

32. For each of the following statement identify whether you - 'Agree' / 'Disagree' / 'Don't know'. ***Mark one option from each row.***

	Agree	Disagree	Don't know
One may have been exposed to an STD if s/he had sex(vaginal, anal or oral) without using condom with someone has an STD or HIV?			
A person should get tested if s/he have ever had sex (vaginal, anal or oral) without using condom with someone has an STD or HIV? Or Whose status is not known.			
One may have been exposed to an STD if s/he have ever had multiple sex partners.			

A person should get tested if s/he ever had unprotected sex with a person who has ever injected drugs.			
Using a latex fe/male condom during sex lower risk form becoming infected with a disease spread during sex			
People who have ab STD have no visible symptom.			
It is possible to have more than one sexually transmitted disease at the same time.			

33. For each of the following contraceptive methods identify whether you - 'never heard of the method' /'only heard the name of it ''know how the method works' / 'use or used the method'. ***Mark one option from each row.***

	Never heard of the method	Only heard the name of the method	Know how it works	Use / used it
Pill (Woman take pill everyday)				
Condom (man can put a rubber device on his penis before intercourse)				
Emergency contraceptive pill (A woman ca take pills soon after intercourse)				
Injection (woman can have an injection 2/3 months)				
Implants or IUDs				
Female / male sterilization				

Periodic abstinence / Rhythm (A couple can avoid sex when pregnancy is more likely to occur)				
Withdrawal				

34. In your opinion, which of the following contraceptive method(s) can effectively protect against the spread of sexually transmitted diseases? * ***Mark all that apply***

☐	Pill	☐	Implants or IUDs
☐	Condom	☐	Female / male sterilization
☐	Emergency contraceptive pill	☐	Periodic abstinence / Rhythm
☐	Injection	☐	Withdrawal

35. In your opinion, which of the following routes can spread sexually transmitted diseases? * ***Mark one option from each row.***

	Yes	No	I don't know
Vaginal intercourse			
Hand Shaking			
Deep Kissing			
Anal Intercourse			
Toilet sharing			
Genital contact			
Oral intercourse			

Note: The following asks questions about the students attitude regarding relationship.

36. Young people have various views about relationships. For each of the following statement please indicate whether you "agree" or "disagree. ***Mark one option from each row.***

Statements	Agree	Disagree
It is all right for unmarried boys and girls to kiss, hug and touch each other.		
There is nothing wrong with unmarried boys and girls having sexual intercourse.		
Sometimes it is right to force partner to have intercourse ifs/he loves his / her partner		
Everyone has to maintain virginity until s/he gets married		
I don't care if the person I am going to get married had prior relation		
It is right to be tested for STDs before marriage		
Having multiple relation is acceptable		
A person should always use condom if s/he is not sure of the STD status of his partner.		

Section Three:

This section includes questions related to the

- Student's requirement, access and use of reproductive health care services.
- Availability for on campus sexual and reproductive health care facility.

37. (In the last 12 months) Did you ***feel*** the need to visit to a health facility or doctor to receive services or information on SRH related issue(s) (e.g. contraception / pregnancy / abortion /sexually transmitted infection etc.)?* ***Mark only one option.***

	Yes		No

38. Did you ***visit*** any health facility or doctor to receive service(s) or * consultation on SRH related issue(s) [e.g. contraception / pregnancy / abortion /sexually transmitted infection etc.] in the last 12 months?

	Yes	Skip to question 39
	No	Skip to question 42

Note: In case you visited any health facility or doctor to receive service(s) or consultation on SRH related issues.

39. What kind of facilities did you visited for sexual health services or counselling?*

Mark only one option

- ☐ Government facility
- ☐ Private practitioner
- ☐ NGO clinics
- ☐ |Local pharmacy

40. Did they provide the service you required? * ***Mark only one option.***

- ☐ Yes
- ☐ No
- ☐ Advised / recommended me to go some other place

41. If you visited any such facility how would you rate their performance regarding the following *(1 being worst and 5 being excellent)* ***Mark only one option per row.***

	1	2	3	4	5
Were the staff welcoming					
Did you feel comfortable enough to ask question?					
Were you satisfied with their answer?					
Did you able to talk privately with the service?					
Were you satisfied with the cleanliness of the facility?					

Skip to Question 43

In case you did not visit any facility:

42. What was the reason for not visiting any health facility or doctor to receive services or information on SRH related issues(s) (e.g. contraception / pregnancy / abortion /sexually transmitted infection etc.) ***Mark all that apply.***

- ☐ Did not know where to go.
- ☐ Feeling ashamed.
- ☐ Took measures as advised by family member(s) / friend(s) etc.
- ☐ Took measures as advised by searching internet / vlog.

Skip to Question 43

Institutional support regarding SRH related issues:

43. To the best of your knowledge - does your university have any service delivery point or counselling unit that deals with SRH related issues? ***Mark only one option.***

- [ ] Yes ***Skip to question 44***
- [ ] No ***Skip to section 4***
- [ ] Not sure / Never hard of any such facility. ***Skip to section 4***

If the university has any such facility:

44. [To discuss abut your SRH related issues] Have you ever visited (or will you consider visiting your university's facility to discuss about your SRH related issues when (if) needed? ***Mark only one option.***

- [ ] Yes visited. ***Skip to question 45***
- [ ] Yes will consider visiting it needed. ***Skip to section 4***
- [ ] No did not visit ***Skip to question 46***
- [ ] Will not visit even if needed. ***Skip to question 46***

In case you visited university facility:

45. Did you get the service that you needed? * ***Mark only one option.***

- [ ] Yes and I am satisfied.
- [ ] Yes but I am not satisfied.
- [ ] Advised / recommended me to go some other place.
- [ ] No.

Skip to Section 4

In case you did not (won't) visit university facility for SRH related services:

46. What is the reason for not using(/ will not consider visiting)university facility for SRH related services or counselling when (*/if*) needed? ***Mark only one option.***

- [ ] Never thought they are capable of dealing with SRH related issues.
- [ ] Heard not so favourable report about the facility.
- [ ] Did not need to visit.
- [ ] Privacy concern.
- [ ] Other.

Skip to Section 4

Section Four:

This section includes questions associated with

- Existence of relationship.
- Degree of sexual intimacy and communication.
- Possible risk associated to unwanted pregnancy, STIs and so on.

Questions of Relationship status

47. How would you describe your current relationship status? ***Mark only one option.***

- [ ] Never been in any relationship. ***Skip to question 48.***
- [ ] Currently single but previously had relationship. ***Skip to question 49.*.**
- [ ] In current relationship. ***Skip to question 51***.
- [ ] Prefer not to mention. ***Skip to question 61.***

Reason for 'Never been in any relationship'?

48. What is your reason for 'Never been in any relationship'? * ***Mark only one option.***

- [ ] Never felt the need.
- [ ] Family restriction.
- [ ] Religious reason.
- [ ] Did not find appropriate person.
- [ ] Prefer not to mention.

Skip to Question 61.

About your relationship:

49. In which class did you start your first relationship? ***Mark only one option.***

- [ ] Secondary (Class Nine and Ten)
- [ ] Higher Secondary (Class 11 and 12)
- [ ] During University Years
- [ ] Prefer not to mention

50. How did your first relationship lasted? ***Mark only one option.***

- [ ] Less than six month.
- [ ] Between six months to one years.
- [ ] Between one year to two years.
- [ ] More than two years.

Skip to Question 61.

About your current relationship:

51. How would you describe your current relationship? ***Mark only one option.***

- [ ] Couple / Might lead to marriage.
- [ ] Engaged
- [ ] Married.
- [ ] Divorced / Separated.
- [ ] Prefer not to mention.

52. How long is your current relationship? ***Mark only one option.***

- [ ] Less than six month.
- [ ] Between six months to one years.
- [ ] Between one year to two years.
- [ ] More than two years.

Level of physical intimacy in your relationship:

53. In your relationship **(Previous / Existing),** have you ever been intimate with your partner such as: ***Mark only one option per row.***

	Yes, consensual	Yes, non-consensual	No	Prefer not to mention
Holding hand				
Hugging				
Kissed				

54. Have you ever been physically involved (having intercourse) with your partner? ***Mark only one option.***

- [ ] Yes ***Skip to question 55.***
- [ ] No. ***Skip to Question 61.***
- [ ] Prefer not to mention. ***Skip to Question 61.***

In case you are (/were) physically involved

55. How often do (/did) you have intercourse with your partner? ***Mark only one option.***

- [ ] It happened only once.
- [ ] It happened more than once.
- [ ] It happens regularly.
- [ ] Prefer not to mention.

56. How do you describe your event of "***first***" intercourse? ***Mark only one option.***

- [ ] I forced my partner to have intercourse.
- [ ] I persuaded my counterpart to have intercourse.
- [ ] My partner persuaded me to have intercourse.
- [ ] It was mutually consensual.
- [ ] Prefer not to mention.

57. Would you say it (the event of ***"first"*** physical interaction) was - ***Mark only one option.***

- [ ] Unplanned.
- [ ] Planned.
- [ ] Prefer not to mention.

58. During intercourse do (/did) you (/partner) take measures to prevent pregnancy / sexually transmitted diseases?

- [ ] Yes.
- [ ] No.
- [ ] Prefer not to mention.

59. **Male respondent:** Did your partner ever got pregnant by you?

Female respondent: Did you ever become pregnant by your partner?

- [ ] Yes. ***Skip to Question 60.***
- [ ] No. ***Skip to Question 61.***
- [ ] Prefer not to mention. ***Skip to Question 61.***

In case responded / partner became pregnant:

60. What happened to the pregnancy? ***Mark only one option.***

- [ ] Gave birth.
- [ ] Currently pregnant.
- [ ] Aborted.
- [ ] Miscarriage.
- [ ] Prefer not to mention.

Section Five:

This section includes questions related to incident of on campus sexual harassment (if any) experienced by the students and institutional responses in dealing the issue.

61. Have you ever experienced / witnessed any sexual harassment while you are on campus premises?

- [ ] Yes. ***Skip to Question 62.***
- [ ] No. ***Skip to Section 31 (Thank you).***
- [ ] Prefer not to mention. ***Skip to Section 31 (Thank you)***

In case of having experience of on campus sexual harassment:

62. Who was involved with the event? ***Mark all that apply.***

- [ ] Student.

☐ Faculty / Teacher.
☐ Staff.
☐ Prefer not to mention.

63. What kind of harassment did you experienced?* ***Mark all that apply***

☐ Sexual comment, jokes, gestures or looks.
☐ Unwanted touched, grabbed or pinched.
☐ Cornered, or blocked from moving; or followed too closely in a sexual way.
☐ Flashed or mooned.
☐ Had sexual rumors spread about you.
☐ Other.

64. In how many occasions(s) have you experienced such incident? ***Mark all that apply.***

☐ Only once.
☐ Several times.
☐ Such incident is quite regular.
☐ Prefer not to mention.

65. Did you complain about the incident(s) to university authority? ***Mark only one option.***

☐ Yes. ***Skip to Question 66.***
☐ No. ***Skip to Question 67.***

In case you complained.

66. Did the university authority take necessary measure(s)?

☐ Yes and I am satisfied with the university action.
☐ Yes but I am satisfied with the university action.
☐ No action were taken.

In case you complained.

67. Why have not you complained to the university authority? ***Mark all that apply.***

☐ Did not know where to complain.
☐ Do not trust the authority.
☐ Fear of retaliation.
☐ To avoid embarrassment.
☐ Prefer not to mention.

Thank you for your patience and cordial participation.

Appendix 6.1

Summary table of the scoping review for knowledge, attitudes practices of the university students of Bangladesh

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
1	Ahmmed, F. et. al. 2021. Sexual and reproductive health experiences of adolescent girls and women in marginalized communities in Bangladesh	To assess perspectives and the role of social and gender norms on the construction of knowledge re garding menstruation, pregnancy and abortion. health care	Participato ry research - in depth interview and FGD	adolescent girls and women in three isolated rural communities of Bangladesh	Study reveals unhygienic health practice. Irregular use of contraception. High prevalence of unwanted pregnancy and abortion.	Programs and interventions are needed that engage with women's experiences within the sociocultural context of studied communities.
2	Akhter S. et.al., 2021, Harmful practice prevail legal knowledge: a mixed - method study on the paradox of child marriage in Bangladesh	Aimed to explore legal knowledge, perception and practice of child marriage in Bangladesh.	Mixed method	Adolescent boys and girls aged between 10 and 19 years and their parents were interviewed in three Bangladeshi districts.	Lack of law enforcement and persistent social norms ultimately allow child marriage to persist in Bangladesh.	Attempts to identify the administrative, social cultural impediments measures require to be considered and implemented to curb the paradox of child marriage situation.
3	Jahangir YT et.al. 2020. "Provider perspectives on sexual health services used by Bangladeshi women with mHealth Digital Approach: A qualitative study. Bangladesh	Study aims to identify provider percepti ons of mHealth for sexual health care.	Qualitativ e study	A qualitative study was conducted with 26 medical doctors to explore their perception s of the mHealth STI services used by Bangladeshi women.	In general women have less autonomy in accessing STI services. Study identifies the need to increase access and use of digital to bridge the health communication gaps associated to sexual health for Bangladeshi women.	Finding can be used for successful expansion and implementation of digital platform to deal SRH related issues.
4	Zakaria M. et. al. 2020. Knowledge on attitude towards, and practice of sexual and reproductive health among older adolescent girls in Bangladesh: An institution based cross section study	This study aims to explore the level of knowledge, at titudes, and practices (KAP) of SRH among college-going older adolescent girls.	Cross section study.	the older adolescent girl age group of 16-17 years old (*N* = 792) attending a higher secondary grade in Chittagong district	The level of knowledge abou t puberty, family planning, maternal health, and HIV/AIDS was not satisfactory among the older adolescent girls.	This study suggests effective implementation of SRH-related comprehensive education programs and incorporate use of mass media effectively.

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
5	Akhter N. et.al. 2020. Awareness about reproductive health issue among the adolescent Girls in a rural area of Bangladesh	To assess the awareness about reproducti ve health issues among adolescent girls in a rural area of Bangladesh	Descriptiv e type of cross-sectional study	For the study 148 adolescent girls were selected purposively form different Upazilas of Gazipur district in Bangladesh.	Study finds lack of knowledge related to STI&Ds, FP, and unhygienic ways to manage menstrual events.	To improve the condition of adolescent girls by giving clear and correct knowledge on reproductive health which will help them to maintain a good and sound reproductive he alth in future.
6	Khan & Ruby. 2020 From missing to misdirected: young men's experiences of sex education in Bangladesh	Attempts to explore the experiences of sex education of children and adolescents, especially boys.	Qualitativ e study based on in depth interview	For the study nine Bangladeshi young men aged 19–24 were interviewed to learn about sex and sexuality during their adolescence	Peers, pornography, and embodied learning were the most convenient and common sources of information about sex and sexuality for the adolescent and young adults.	The study reveals the effect of silence from parents, lack of school-based sex education, unreliable peer, and pornography in shaping the SRH knowledge and behavior of the young adults and discusses the relevance of embodied learning.
7	Ghose B., et. al. 2017 Factors associated with male involvement in reproductiv e care in Bangladesh .	To investigate factors associated with male involvement in reproductive h ealth among Bangladeshi men.	Survey data from Bang ladesh De mographic and Health Survey (BDHS) conducted in 2011.	Study participants were 1196 married men, aged between 15 and 69 years and living in both urban and rural households	Only 40% of the male were found to be active about partners' reproductive healthcare. Level of male involvement was found to be associated with schooling experience, type of residency and exposure to electronic media.	National health policy programs aimed at promoting male involvement in reproductive care should focus on improving knowledge and awareness of reproductive health though community health education programs with a special focus in the rural areas
8	Jesmin, S. et. al. 2016. Community influences on married women's safer sex negotiation attitudes in Bangladesh: A multilevel analysis	To examine community effects on married women's safer sex negotiation attitu des,	Cross-sectional study	Sample of 15,134 ever married women in 600 communities' data from the 2011 Banglades h DHS.	women's empowerment, age, and HIV knowledge ha d significant associations with their safer sex negotiation attitude s.	Higher community-level poverty was associated with greater positive safer sex negotiation attitudes. Prevailing gender norms and overall women's empowerment in the community also had significant effects.
9	Mondol, N. et. al. 2016. Socioeconomi c and Demographic Disparities in Knowledge of Reproductive Healthcare among Female University Students in Bangladesh	The study objectives are to identify the associations between knowledge of reproductive health care with sociodemographi c and health factors, and to determine the factors affecting knowledge of	Cross-sectional study	The methodology involved data collection from 300 female students at Rajshahi University in Bangladesh	- More than one-third of female university students in Bangladesh lack sufficient knowledge of reproductive health care. - Age, education level, family type, and knowledge about family planning and contraceptive use	The policy recommendations based on the study include promoting and strengthening health education programs focusing on reproductive health care for female university students in Bangladesh.

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
		reproductive health care among female university students in Bangladesh.			are significant predictors of reproductive health care knowledge among female university students.	
10	S. Mou et.al, 2015. Knowledge and perceptions of sexually transmitted diseases, HIV/AIDS, and reproductive health among female students in Dhaka, Bangladesh	To assess the knowledge and perceptions of STDs, HIV/AIDS, and reproductive health among young female university students in Dhaka, Bangladesh.	Cross-sectional study	The methodology involved a cross-sectional study among 402 female students from seven universities in Dhaka, Bangladesh. Data were collected through face-to-face interviews using a structured questionnaire.	Despite high reported knowledge of STDs and HIV/AIDS, understanding of transmission and prevention is poor among young female university students in Dhaka, Bangladesh. Targeted reproductive health education strategies are crucial for improving knowledge and perceptions of STDs, HIV/AIDS, and reproductive health among young female students in Bangladesh.	Strategies for creating reproductive health education targeted at young female students are essential for the prevention of STDs and HIV/AIDS.
11	Gani, M. et.al. 2014. Urban-rural and socioeconomic variations in the knowledge of STIs and AIDS among Bangladeshi adolescents.	To identify socioeconomic and urban–rural determinants of knowledge regarding STIs including HIV/AIDS transmission.	This study used data from the Bangladesh Adolescents Survey 2005	A cluster sampling of 11986 adolescents was conducted.	Study finds overall knowledge of transmission of STIs was poor. indicators show higher knowledge level of the urban adolescents as compared to their rural counterpart.	Study revealed the urban–rural factor was more important than another socioeconomic factor.
12	Jesmin, S. et. al. 2014. Can a woman refuse sex if her husband has sexually transmitted infection: Attitudes toward safer - sex negotiation among married women in Bangladesh	This paper examined predictors of married Bangladeshi women's attitudes towards safer-sex negotiation	Cross-sectional study	Study based on 15,178 currently married women aged 15–49 from the 2011 Bangladesh DHS.	Approximately 92% of women believed that a wife's refusal to have sex with her husband is justified if he has an STI	Findings suggest that sexual health education programs may be more effective if they include strategies to address social norms and cultural practices that limit women's autonomy in society.

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
13	Kabir H., et. al. 2014. Treatment seeking for selected reproductive health problems; behaviors of unmarried female adolescents in two low performing areas in Bangladesh	This study aimed to explore treatment-seeking behavior of unmarried female adolescents.	Cross sectional survey	800 unmarried female adolescents aged 12-19 years were selected for participation by simple random sampling	Menstrual problem is common among unmarried adolescents. Self-treatment was the most reported method of care for those who experienced any symptoms of STI.	The study help develop effective measures to tackle menstrual problem. And ensure accessible counselling and service delivery point to deal and promote STI related issues.
14	Bhuiyan M, 2014. Inclusion of sex education in school curriculum of Bangladesh: Parents' Attitude	The study examined the attitude of Bangladeshi parents' regarding inclusion of sex education in school curriculum of Bangladesh	Cross sectional survey	120 parents participated in the survey study. Respondents were equally distributed from two district Dhaka and Rajbari.	About 48.3% parents showed favourable attitude, whereas 25% parents stated negative attitude towards inclusion of sex education in school curriculum.	The study illustrated that parent's attitude towards sexuality education are correlated with their level of education and their occupations.
15	Akhter B., et. al., 2014. Exploring Adolescent Reproductive Health Knowledge, Perceptions, and Behavior, Among Students of Non-Government Secondary Schools Supported by BRAC Mentoring Program in Rural Bangladesh.	Objective was to understand the lack of knowledge on reproductive health among adolescent girls and boys in rural secondary schools, and identify the main sources of information on reproductive health for students.	Qualitative research methods including in-depth interviews, focus group discussions, and key informant interviews were used.	Adolescents in rural secondary schools in Bangladesh, Adolescent girls and boys, Students of three secondary schools supported by BRAC Education Program in Mymensingh district, Bangladesh.	Adolescent students in rural secondary schools in Bangladesh lack knowledge about reproductive health, with girls having better menstrual hygiene knowledge but poor knowledge about sexually transmitted diseases. Both students and teachers feel that the current information available is insufficient for adolescents.	The study suggests the need for improved reproductive health education for adolescents in the BRAC Education Program in rural Bangladesh.
16	Ahmed F. et.al., 2009. Adolescent Male Reproductive Health Knowledge and Practices in Bangladesh	The study objectives include understanding adolescent male reproductive health knowledge and practices.	Cross sectional survey using a structured questionnaire.	The methodology involved the random selection of 800 young male students from public and private universities in Bangladesh.	At least half of the university students (384, 48%) did not understand much about puberty and remained confused.	Policy recommendations include introducing reproductive health education in the curriculum at the secondary level to help adolescents navigate puberty-related issues, have a healthy reproductive life, avoid sexual problems, understand the importance of sex education, and stay

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
						away from drug addiction.
17	Bosch AM et.al. 2008. "Perceptions of adolescents and their mothers on reproductive and sexual development in Matlab, Bangladesh".	Aim of this study was to investigate the perceptions o f adolescents and their mothers on markers of reproductive a nd sexual develo pment.	Data was collected by means of a survey and through in-depth interviews .	The study was conducted on 12 to 16-year-old adolescent girls and boys, in Matlab, Bangla desh Their mothers were also interviewed.	Study finds Adolescent girls and boys are not adequately informed about menarche and spermarche. Bangladesh, mental well-being in reproductive life is a dimension that is easily overshadowed by the physical aspects of reproductive.	The study emphasized on the implementation of SRH education for adolescents.
18	Bhuiya, I. et. al., 2007. Improving Sexual and Reproductive Health of Female Adolescents in Bangladesh by Providing Information and Services	Assess the feasibility of providing sexual and reproductive health (SRH) information and services to Bangladeshi female adolescents and their knowledge, attitude, and service use.	quasi-experimen tal design with pre-post measurem ents	-Female adolescents in Bangladesh - Aged 15-19 years - Half of them are married - Ignorant about sexuality, contraception, STIs, HIV, and AIDS	The interventions increased adolescent sexual and reproductive health (SRH) knowledge, which led to more positive attitudes towards using health facilities for contraceptive services and condom use by unmarried sexually active adolescents and increased SRH service use.	Policy recommendations could include the need for more comprehensive and targeted policies to improve sexual and reproductive health education and services for female adolescents in Bangladesh.
19	Rob, U. et.al. 2006. Reproductive and sexual hea lth education for adolescents in Bangladesh : parents' view and opinion	This study attempted to find out whether parents in Bangladesh co nsidered it important to provide reproduc tive and sexual h ealth education to their adolescent children	Mixed method	A total of 1,612 parents or guardians were selected for the study and 1,531 were successfully interviewed	There remains considerable lack of knowledge among parents on basic understanding of reproductive and sexual health matters. Not all parents are in favor of introducing SRH education for their children.	Making parents more aware of SRH matters.

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
20	Shahjahan, M. et.al. 2006. Why males in Bangladesh do not participate in reproductive health: Lessons learned from focus group discussions	The article explores male perception, attitude, and knowledge on reproductive health issues and their opinions on how men's participation in reproductive health could be increased	Qualitative method	Data collected from six focus groups' sessions men aged 18-59.	Men's unmet reproductive and sexual health needs often undermined. Men often do not like to have SRH related discussion with the service providers.	To increase male participation in reproductive health, males suggested introduction of male workers and visiting at the household level to counsel and mobilize them to participate in reproductive health.
21	Cash, K. et. al. 2001. Without sex education: exploring the social and sexual vulnerabilities of rural Bangladesh children.	Research was conducted to understand the young people's risks and vulnerabilities	Mixed method	In depth interviews were conducted with 20 men, 20 women and 25 never-married adolescents (aged 13-18 years) from Bangladesh	The Study research revealed the vulnerability of the youth in relation to SRH.	Lack in appropriate knowledge, information and awareness about sexual and reproductive health unduly heightens young people's fears and increases their social and sexual vulnerabilities.

Appendix 6.2

Summary table of the scoping review for prevalence and experiences of on-campus sexual harassment of the university students of Bangladesh

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
1	Alam N., et. al., 2010. Sexually Harassing Behavior Against Adolescent Girls in Rural Bangladesh	The study aims to examine the extent and type of sexually harassing behavior experienced by unmarried adolescent girls in rural Bangladesh and to identify the type of perpetrators as perceived by the victims.	Observational study	Used 2004 National Nutrition Program baseline survey and collecting self-reported data on sexual harassments of 5,106 girls aged 13-19 years selected randomly.	- 43% of adolescent girls in rural Bangladesh experienced some form of sexual harassment. - The main perpetrators of sexual harassment were male young spoilt bullies, neighborhood youths, students, and hoodlums.	The policy recommendation was to address the high prevalence of sexual harassment experienced by adolescent girls in rural Bangladesh to achieve gender equality in health and social development.
2	Islam T., 2012. Eve teasing in Bangladesh: Social and Legal Perspective	The study objective is to explore the causes and psycho-social impact of eve-teasing on adolescent girls in Sylhet city using quantitative methods.	Quantitative study	- Working women - Housewives - Aged women - School and college going girls - Female garment workers - Adolescent girls in Sylhet city	The main findings of the study include exploring the causes and psycho-social impact of eve-teasing on adolescent girls, identifying cultural and social factors as root causes, and highlighting the serious difficulties faced by victims leading to social isolation and self-rejection among girls.	Victims suggested multiple steps to minimize this social evil that can be undertaken both by the Government and the social institutions.
3	Nahar P., 2013. Contextualizing sexual harassment of adolescent girls in Bangladesh.	The study aims to contextualize the form of sexual harassment known as "eve teasing" experienced by Bangladeshi adolescent girls using qualitative	Qualitative methods and participatory approach including focus group discussions, key informant	Bangladeshi adolescent girls (12–18 years) which emerged from a study of adolescent sexual behavior carried out by young people.	- Sexual violence and harassment have significant negative psychological impacts on girls, leading to feelings of insecurity and loss of self-esteem. - "Eve teasing" among	The study asserts that comprehensive sexuality education that goes beyond a mere health focus and addresses gender norms and helps youth to gain social-sexual interaction skills is important.

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
		methods and a participatory approach	interviews, and observation		Bangladeshi adolescent girls is influenced by socio-cultural norms related to sexuality and the lack of access to sexual and reproductive health information and services in Bangladesh.	
4	Khan BU., et. al., 2018. Nature of Sexual Harassment Against the Female Students of Bangladesh: A Cross-Sectional Study in Tangail Municipality.	To find out the nature and extent of sexual harassment among adolescent girls in Tangail Municipality, Bangladesh.	Mixed method	Female students of Tangail Municipality, Bangladesh.	The study recommends a change in the social system to address sexual harassment of adolescent girls in Bangladesh.	Study stressed of implementation of comprehensive sexuality education is crucial in addressing gender norms and helping youth develop social-sexual interaction skills.
5	Haque MF., 2019. Sexual Harassment of Female Workers at Manufacturing Sectors in Bangladesh	The study aims to identify the current status and nature of sexual harassment of women at work in the manufacturing sector in Bangladesh.	Qualitative approach involving In-depth Interviews (IDIs) and Focus Group Discussions (FGDs)	Six In-depth Interviews (IDIs) and four Focus Group Discussions (FGDs) have been conducted among the female workers work in tannery, RMG, and leather footwear manufacturing sectors in Bangladesh.	The main findings highlight the prevalence and impact of sexual harassment on female workers in Bangladesh.	The majority of victims were subjected to verbal or nonverbal sexual harassment by male students, strangers, or university faculty.
6	Rashaam C., 2020. Break the silence Bangladesh: Examining 'everyday' experiences of sexual violence	Identify the diverse range of contexts in which sexual violence occurs in Bangladesh points to the ongoing impact of cultures of	Observational study		The main findings include insights into the diverse contexts of sexual violence in Bangladesh, the influence of class and space on this	

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
	through online activism.	shame and stigma in preventing disclosure and bystander intervention.			violence, and the impact of cultures of shame and stigma on disclosure and intervention.	
7	Parvej MI., et. al., 2020. Sexual Harassment Experience Among the Female Population in Bangladesh	The study objectives include understanding the scenario of sexual harassment in Bangladesh, identifying the age group of offenders, comparing sexual harassment rates in different districts.	Observational study	This paper includes the students of different institutions, homemaker, worker, employer and maids. A number of 489 respondents were interviewed to know about their experience on sexual harassment.	- 91.4% of respondents experienced sexual harassment at least once in their life, with a percentage facing it daily or frequently. - Victims were mostly harassed by strangers. - Offenders were predominantly in the age group of 16-30, and the incidents generated significant fear among the female population.	The study emphasized the need for strict law enforcement and social awareness to reduce sexual harassment nationwide.
8	Uzzaman MA., et. al. 2021. Personal Safety and Fear of Sexual Harassment among Female Garment Workers in Bangladesh.	The study objectives include determining personal safety and fear of sexual harassment among female garment workers in Bangladesh. And contributing to policy practices regarding sexual harassment among female garment workers.	Cross-sectional study	201 female garment workers from Dhaka and Chittagong cities,	Personal safety and fear of sexual harassment may discourage women from participating at work and in public life, limiting their life opportunities.	The main findings highlight the prevalence of sexual harassment by managers, the association of age and work experience with safety and harassment fears, and the lower safety scores among those with less work experience

	Author, Year, Title and Country	Objective	Study design	Population, sample design, sample size	Key Findings	Value and Contribution
9	Rezvi, MR., 2022.Sexual Harassment of University Students in Bangladesh: A Case on Dhaka University	The study is focused on two objectives: (1) finding the rates of sexual harassment (SH) in higher education (i.e., in universities) of Bangladesh and (2) exploring the fears of female students to report (SH) in Bangladesh.	Mixed method	A survey was conducted online with 210 female Dhaka University students. Moreover, 17 in-depth interviews (IDIs) with victims of SH were conducted.	The study found that the rate of SH in higher education was very high, with the rate of verbal SH (60%) being higher than the rate of non-verbal SH (51.4 %).	Study identifies dread of academic difficulties, shame, distrust of legal processes, and, most crucially, fear of social stigma were the reasons for remaining silent. The prevalence of SH in Bangladesh's higher education would increase due to the culture of silence regarding SH.

Appendix 7

Appendix 7.1: Description of the independent variables considered for the logistic regression model.

Independent variable(s)	Category
Gender[1,2,3,4]	Male[#] Female
Age[1,2,3,4]	<23[#] ≥ 23
Religion[1,2,3,4]	Buddhism Christianity Hinduism Islam[#]
Location of academic institution[1,2,3,4]	Rural[#] Urban
Academic qualification of father[1,2,3,4]	Less than graduate[#] Graduate or over
Academic qualification of mother[1,2,3,4]	Less than graduate[#] Graduate or over
location of pre university academic institution[1,2,3,4]	Rural and Semi-urban Urban[#]
Medium of instruction during preuniversity education[1,2,3,4].	English medium[#] Bengali medium Madrasah
Types of University[1,2,3,4]	Public university[#] Private university
Co- education status during at pre-university stage[1,2,3,4]	Non co-education[#] Co-education
Access to formal SRH Education at pre university stage[1,2,3,4]	Yes No[#]
Student's having information of STIs, contraception etc.[2,3]	Yes No[#]
Student's had access and / or visited to SRH services or counselling during last 12 months of the survey.[3]	Yes No[#]
Student have access to mass and social media.[4]	Yes No[#]

1,2,3,4 denotes association with the respective objective of study.
#: Reference group

Appendix 7.2: Description of the dependent variables considered for the logistic regression model.

<table>
<tr><th></th><th colspan="2">Dependent variable(s)</th><th>Category</th></tr>
<tr><td rowspan="4">Objective 1</td><td colspan="2">Student have heard at least four or more STDs</td><td>Yes, No</td></tr>
<tr><td colspan="2">Student is familiar with the symptoms of at least three STDs</td><td>Yes, No</td></tr>
<tr><td colspan="2">Student is familiar about the spread of at least three STDs.</td><td>Yes, No</td></tr>
<tr><td colspan="2">Student’s knowledgeable (knows name of at least four STDs, symptom, and modes of transmission of at least three STDs</td><td>Yes, No</td></tr>
<tr><td>Objective 2</td><td colspan="2">Student visited SRH service or counselling centers with in previous 12 months prior to the survey</td><td>Yes, No</td></tr>
<tr><td rowspan="2">Objective 3</td><td rowspan="2">Exposed to potentially risky sexual preference(s) and perception(s)</td><td>Binary logistic regression</td><td>Not at risk[##]
At risk</td></tr>
<tr><td>Multinomial logistic regression</td><td>Not at risk[##]
At moderate risk
At high risk</td></tr>
<tr><td rowspan="2">Objective 4</td><td colspan="2">Student experienced on campus sexual harassment</td><td>Yes, No</td></tr>
<tr><td colspan="2">Student reported the sexual harassment incident to university authority</td><td>Yes, No</td></tr>
</table>