Chapter 8
Discussion

This chapter serves to synthesise the qualitative and quantitative findings of the present research, taking the reader through the studies that were conducted to construct the social communication framework. It summarises the outcome of the qualitative and quantitative studies and validates the proposed conceptual model. The rationalisation of the research is divided into sections that explore three major ideas:

- Understanding health communication discourse the and significance of social communication in today's context
- Persistent information gaps among women across all ages and their relevance for female adolescents' reproductive health and well-being
- The proposed social communication model as a vehicle of information dissemination for health behaviour change

The chapter concludes by consolidating the findings to summarise the conceptual framework proposed in this research.

1.1 Understanding the Discourse of Health Communication Frameworks and the Significance of Social Communication in the Present Context

The feminist movement 'Our Bodies, Ourselves', which originated in 1969, strove to empower women by encouraging open discussions about their own bodies, instead of relying solely on expert opinions (Our Bodies Ourselves Today, 2023). This approach emphasised the value of personal experiences for understanding one's own body and related topics. As a result, women became better prepared to identify institutions that could address their health needs as well as make informed decisions about pregnancy, with the acknowledgement of information about one's body as being perhaps the most essential education. These radical thoughts and ideas have now persisted for a few generations. However, discussions on topics related to women's bodies, health, sexuality, and pleasure are often exclusive to groups of feminist women with radical perspectives, and discussions on such topics are generally uncommon for

large swathes of the female population. Moreover, such topics are typically discussed only later in life, well beyond the formative years of most women.

The inclusion of adolescent sexual and reproductive health in the WHO's (2017) Sustainable Development Goals acknowledges the need for discussions on reproductive health and well-being from an early age. Despite being recognised as important since the 1960s, the topic of adolescent sexual and reproductive health is relatively obscure in mainstream discourse. Consequently, there is a lack of generational transmission of information on the topic. The sociocultural and demographic restrictions on women's education remain the same in many parts of the world. Globally, adolescent girls possess variable and scant information regarding reproductive health and well-being, frequently in environments laden with cultural stigmas and taboos regarding such topics (Chandra-Mouli et al., 2017). Despite extensive research on menstruation and sexual health, there is a limited understanding and awareness of reproductive health and its consequences on women's health (Global Education Monitoring Report Team, 2019). Adverse outcomes related to adolescent reproductive health and well-being include unsafe abortions leading to maternal mortality, adolescent pregnancy, and reproductive tract infections.

Numerous governmental, for-profit, and non-profit organisations design health communication interventions aimed at raising awareness, promoting adherence, and providing timely action reminders. Their approach towards health communication is typically structured, with a focus on health-promoting methods. Over time, health communication has evolved from static, unidirectional print messages to dynamic two-way interactions. However, the linearity of message transmission has not been surpassed. Advanced data-driven technologies empower consumers with greater choice autonomy, expand the acceptance and adaptability of health communication programmes, and can achieve high outreach by targeting large, diverse populations; however, with their new role as 'prosumers', individuals struggle to assimilate diverse forms of information because of information overload.

Consequently, the effectiveness of health promotion practices is under constant scrutiny. Although some individuals have acknowledged, accepted, and benefitted from health communication programmes and interventions, evidence of significant, long-term, sustainable behaviour change at the population level is minimal. The factors affecting the effectiveness of such interventions vary across different situations. Some individuals voluntarily engage in the recommended practices to improve their fitness and health, while in other cases, individuals are employed by agencies to conduct health interventions among specific target

groups.(Lupton, 2015; Reddy et al., 2020). In such scenarios, individuals who have benefitted from the interventions may continue their participation and involvement, whereas those who have shifted towards self-reliance may not.

Based on the literature review and findings, it is evident that self-management and self-responsibility play significant roles in health promotion strategies. This challenges prevailing notions social groups or individuals are inherently ignorant, lack self-control, or are unable to take appropriate responsibility for their health. This paradigm shift underscores the importance of individual agency in self-care (Chapin et al., 2016).

1.1.1 Shortcomings in Current Health Communication Frameworks

Several agencies have developed health communication frameworks that provide systematic approaches for integrating and navigating health interventions. These frameworks include:

- ***The strategic communications framework for effective communications proposed by the WHO:*** This approach presents a set of guiding principles applicable to health interventions. The intended audience for this framework includes individuals, professionals, and decision makers who are responsible for making health decisions. While the framework's structured format facilitates programme integration; it lacks insights into communication content and its potential impact on individual behaviour (WHO, 2017).
- ***Field Guide to Designing a Health Communication Strategy published by O'Sullivan et al. (2003):*** This resource published by the Johns Hopkins Center for Communication Programs adopts a collaborative and participatory approach to health communication that emphasises the convergence of the receiver and sender. The 300-page document serves as a practical guide for professionals who design, implement, or support strategic communication efforts. Each section of the field guide is further divided into steps, offering valuable resources such as worksheets, tips, checklists, self-assessment questions, important notes, and case studies. While it excels in detailing stakeholder roles, including those responsible for communication design, the field guide primarily focuses on designing strategies for building and implementing interventions rather than specifying intervention content (O'Sullivan et al., 2003).

- ***The Periodic Table of Healthcare by Owen Health:*** This framework aids agencies engaged in health communication to tailor strategies that encompass the customer experience, brand planning, and multichannel marketing. It offers a customisable design approach adaptable to the specific requirements of an agency or client. Despite its comparatively recent publication in 2018, the Periodic Table of Healthcare has since been used extensively. It is built such that any firm or organisation can customise it to design strategies that caters to an organisation's needs.

While the health communication frameworks discussed above cater to different facets of health communication and are widely used from a management and systems perspective, they do not adequately address the psychological variables that influence individual behaviour. Rather than delving into the intricacies and underlying factors contributing to behavioural change, they often define health behaviour change in methodologically prescribed terms and processes. Specifically, the WHO framework describes stakeholder roles and responsibilities, the Johns Hopkins framework focuses on the overall implementation intervention plan, and the Periodical Table of Healthcare Communication (2018) foregrounds the customisability of branding strategies for different audiences and clients. As a result, the 'what' and 'why' of communication design are not sufficiently explored, leading to a lack of depth for addressing the underlying psychological variables that influence interventions and contribute to behavioural change. The next section of the chapter explores some of these issues.

1.1.2 *Factors Affecting the Efficacy of Health Communication*

Designing health communication for multicultural and diverse populations poses challenges. Factors such as language, technology, and infrastructure have been acknowledged by organisations and agencies as having a substantial impact on the overall efficacy of interventions. However, underlying factors, including sociodemographic, cultural, and psychological dimensions, exert a stronger influence on the efficacy of healthcare programmes. These factors present greater challenges as they often resist quantification, leading to their implications going unnoticed.

Perceptions of health risks vary considerably across individuals. The risk perception attitude framework (Rimal et al., 2009; Turner et al., 2006) classifies people into four categories:

- Group 1: Characterised by high risk perceptions and weak efficacy beliefs, resulting in a perceived lack of control over one's actions and an indifferent attitude towards protective behaviours.
- Group 2: Characterised by high risk perceptions and strong efficacy beliefs, leading to responsive attitudes and extensive engagement in self-protective behaviours.
- Group 3: Characterised by low risk perceptions and strong efficacy beliefs, resulting in limited engagement in self-protective behaviours.
- Group 4: Characterised by high risk perceptions and weak efficacy beliefs, leading to avoidance attitudes.

This individual variability presents challenges in health communication, as strategies often address common patterns identified within specific populations or groups rather than individual traits. Additionally, the focus on immediate action often falls short of ensuring sustainable, long-term health behaviour change.

1.2 Existing Gaps in the Understanding of Reproductive Health and Well-Being

1.2.1 Lacunae Revealed Through the Qualitative and Quantitative Data

A mixed methods approach was used in this research to understand information seeking and knowledge building amongst female adolescents as well as to identify variables that influenced the two. A qualitative study (Chapter 4) and a quantitative study (Chapter 5) were conducted to delve into these aspects.

The quantitative findings revealed a significant deficit in knowledge concerning reproductive health and well-being across women of all age groups. To illustrate this point, when asked to rate their knowledge of reproductive health and well-being, 53.2% of the participants admitted knowing nothing about the topic. Notably, older qualitative participants (those above the age of 60), who comprised 6.3% of the quantitative sample, indicated having gained knowledge primarily through lived experience. Their knowledge encompassed topics such as PCOS, the ovaries and uterus, and common problems related to reproductive health and conception. Conversely, participants below the age of 45 did not exhibit knowledge that reflected their access to various information sources. Interestingly, those under the age of 30 demonstrated an awareness of the influence of mental health on reproductive health and well-being, indicating a willingness to consider mental health as a contributing factor.

The qualitative data unearthed several underlying factors that contributed to the identified knowledge gaps. These factors included experiential learning, influence of sociodemographic settings, and information exposure. Most significantly, the qualitative findings indicated that the knowledge obtained and educational gaps during adolescence hampered the participants' understanding of reproductive health and well-being.

The data were aligned with the health belief model, which identifies the demographic and psychological variables that contribute to health behaviour change. According to this model, a lack of health consciousness and behaviours stems from a perceived absence of susceptibility and severity as well as casual attitudes arising from an individual's demographic and psychological traits. All these variables prevent individuals from understanding the severity of the consequences of risk situations. Moreover, the research findings exhibited a notable affinity with Bronfenbenner's (1979) ecological systems theory. Taken together, the abovementioned findings indicate that the female research participants were generally unaware of the future implications of their reproductive health and well-being, unless they encountered actual health issues.

In summary, the research findings indicated a widespread lack of a conceptual understanding of reproductive health and well-being among women across all age groups, highlighting a crucial disconnect between individuals' perceived knowledge and their actual knowledge. The qualitative and quantitative data both showed that experiential learning, whether from personal experiences or the shared experiences of close associates and peers, played a more significant role in shaping risk perception than did formal knowledge.

This emphasises the need for targeted interventions tailored to adolescents. Such interventions should encourage adolescents to contemplate about their future health and life choices and proactively adopt measures towards self-reliance. Additionally, these interventions ought to be meticulously designed for adolescents, given that adolescence is a transitional period and a critical phase for formative learning.

Adolescents need to learn to bear the responsibility of decision making through changes in their attitudes and beliefs. Risk perception varies across different age groups, and individuals' approaches are shaped by their attitudes and perceived notions. For example, a 33-year-old qualitative participant refrained from discussing certain topics even with her friends because of social norms. Such differences are also culturally influenced, as exemplified by a 42-year-old qualitative participant living in an urban setting who, during her menstrual cycle,

had to use separate utensils and was not allowed to enter the kitchen by her traditional mother-in-law.

Thus, it is essential to recognise that the discourse on behavioural interventions frequently employs a top-down, paternalistic approach focusing on information provision rather than the promotion of mindfulness towards one's health and well-being.

1.2.2 The Imperative for Adolescent Reproductive Health and Well-Being

The study of adolescent behaviour has long been a focus of healthcare interventions, with considerable emphasis on topics such as menstrual practices, health, hygiene, and sexual behaviour. Nonetheless, the broader aspects of reproductive health and general well-being are often overlooked. This is especially salient given that the global distribution of adolescents has changed significantly, with approximately 1.3 billion female adolescents now constituting 16% of the world's population (UNICEF Data, 2022). In India, which is currently estimated to be the world's most populous country, the adolescent population comprises over a quarter of the total population, and one in every 10 Indian is a female adolescent (Centre for Catalyzing Change, 2011)

Adolescence and young adulthood mark a critical period of change in terms of health problems and determinants in later life. Research shows that the health habits formed during adolescence, such as during one's teenage and college years, may suppress the effect of disease risk after the age of 45 and determine an individual's risk of developing chronic diseases and cause of mortality (Bundy et al., 2018). Despite considerable research on sexual practices and menstruation, our understanding of reproductive health and its implications for women's bodies continues to be rudimentary. The discourse on sexual health often does not include a positive and respectful approach, and ignoring or minimising the importance of sexual pleasure, consent, and relationships is arguably the norm. Promoting greater engagement among adolescents with their health can enhance healthcare utilisation and the effectiveness and sustainability of sexual and reproductive health interventions and rights for adolescents (Sebastian et al., 2014).

Female adolescents today experience significant shifts in their career options, perspectives, and lifestyles, offering the opportunity to fulfil their aspirations and voice their choices. However, these changes have unique health implications. The interplay between the biological clock and the career clock presents complex issues. The biological clock is a prevalent framework for determining reproductive time in the context of late childbearing and

age-related infertility. Many women are delaying childbirth, with a growing percentage having their first child at the age of 35 or later (Cooke et al., 2010; Lavender et al., 2015; Wyndham et al., 2012). This postponement poses reproductive health challenges, as it clashes with the limited fertility window determined by female biology. Correspondingly, the French philosopher Michel Foucault (2003) famously discussed the idea of 'biopolitics' as a modern technology of power that seeks to control societal norms and the biological processes of the human species.

In summary, adolescence is an ideal period for educating individuals about health and cultivating healthy habits and lifestyles that can endure throughout their lives. Positive health behaviours adopted during adolescence can reduce an individual's risk of developing chronic diseases in adulthood (Taylor, 2018). This accumulated evidence stressed the urgent need for an intervention model that educates adolescents about their well-being in a manner that enables them to contemplate the long-term consequences of their health choices.

1.3 Formulation of a Social Communication Model for Adolescents

1.3.1 Benefits of the Proposed Framework

The social communication model proposed in this research is an onion framework that integrates psychological theories and concepts in a gamified format. Gamification is widely recognised as an effective approach for developing health interventions. In addition to increasing the interactivity of and engagement with content, it offers a methodology that can incorporate psychological theories and concepts for constructing behaviour change mechanisms. The proposed social communication model strives to heighten individuals' awareness of their health choices through information seeking, knowledge building, self-maintenance, and self-goals. The integration of reflexive and participatory consciousness with the stages of change, nudge, and risk perception adds further depth to the model.

Participatory consciousness involves a profound sense of vitality and connection with the world, where individuals primarily engage with the world through intuition, emotion, sensory experience, and the immediate present, and reality is perceived as vibrant, organic, and imbued with a spiritual essence. In contrast, reflexive consciousness involves the capacity to comprehend both ourselves and the world through mental images and abstract ideas. Over time, there has been a noticeable shift from reflexive to participatory consciousness, and the

subsequent loss of meaning may result in a ‘detached’ consciousness that impairs empathy, causing individuals to perceive everything in an objective and mechanistic fashion (Krasevac, 1993).

Understanding consciousness and its different aspects is pivotal in the context of contemporary health communication. With increasing reliance on AI for monitoring, supervision, and decision making, humans may be approaching a liminal, cyborg-like existence. This shift is driven by the perceived unreliability and scientificness of extant practices, leading to a lack of understanding of simple and logical phenomena that is further exacerbated by cultural influences and norms.

The TTM complements this framework by offering strategies for public health interventions that address individuals at different stages of the decision-making process. By assessing an individual’s current stage of change, the TTM facilitates effective interventions that are tailored to the target population’s level of motivation and knowledge and account for lapses in decision making; this allows individuals to move through the stages of change—from precontemplation, contemplation, preparation, and action, to maintenance, which is the ideal stage for health behaviour change (DiClemente & Prochaska, 1998).

Nudges are rooted in behavioural economic and psychological research on human behaviour and cognition (Lin et al., 2017), and offer potential improvements for patient outcomes and healthcare delivery in healthcare settings (Patel et al., 2018). The social communication model proposed in this study includes both hard and soft nudges to support self-monitoring and self-management; hard nudges come into play only in the case of major breakdowns and lapses that may necessitate a reinitiation of the intervention. Importantly, both types of nudges serve as a mechanism for negative reinforcement rather than punishment.

In health decision making, individuals must weigh the consequences and benefits of their actions, which often involve pleasurable behaviours such as eating and smoking that may contribute to poor health and disease. The motivation to refrain from engaging in such pleasurable behaviours or inconvenient preventive behaviours partially hinges on beliefs about the likelihood of personal health consequences (Rogers, 2010). Thus, the willingness to be healthy becomes the driving force for behaviour change.

The proposed social communication model aims to promote well-being by not only informing and raising awareness but also devising a self-development mechanism grounded in informed choices. Given that discussions on reproductive health and well-being remain stigmatised in several parts of the world, interventions based on the model proposed in this

study have the potential to allow female adolescent to take ownership of their health and well-being. The proposed model could be used to construct self-directed, technological interventions for female adolescents with an emphasis on choice autonomy.

1.3.2 Integration of the Proposed Framework With the Toolkit

To validate the applicability of the framework, a toolkit for social communication was developed. The primary objective of developing this toolkit was to explore sensitive topics related to reproductive health and well-being in an innovate manner. The toolkit was developed through a series of EBCD workshops conducted among young adults. The workshops allowed the participants to gain insights from the experiences of women at various life stages (i.e., the qualitative participants of the qualitative study), enabling them to envision a path towards well-being for themselves and adolescents.

1.3.2.1 Designing Culturally Relevant Communication. The workshops were designed to integrate the perspectives of three generations of women. Qualitative data analysis enabled the workshop participants to explore the cultural influences and practices referenced by the qualitative participants. Throughout the sessions, the workshop participants acknowledged the persistence of myths, misconceptions, and misinformation. However, a glimmer of positive change emerged as open dialogues on reproductive health topics gained traction. This newfound awareness inspired the workshop participants to proactively disseminate the information they once lacked, ultimately empowering future generations.

1.3.2.2 Relevance of Scientific Perspectives in Cultural Traditions. Amidst the various traditions reported by the qualitative participants, scientific rationales were found to underpin certain age-old practices. While older generations were familiar with these rationales, younger qualitative participants often followed these customs out of familial obligation. For example, the practice of consuming warm herbal drinks during one's menstrual cycle or specific foods to comfort adolescents. The qualitative participants expressed the need to perpetuate these practices in a more informed manner.

1.3.2.3 Addressing Generational Information Gaps. Generations have passed with enduring misconceptions and misinformation, particularly regarding female physiology. Only a few qualitative participants possessed comprehensive knowledge of their own bodies,

revealing a significant knowledge gap. Recognising this gap, the workshop participants felt a profound responsibility to equip future generations with greater awareness and the capacity to take ownership of their physical well-being.

1.3.2.4 Establishing Adolescent-Centric Communication. Effective communication necessitates relevance and contextuality, as concepts that are not immediately relevant often struggle to gain traction. This challenge extends to conveying future health risks to any demographic. Renfree et al. (2016) noted the difficulty in communicating such risks effectively. In such scenarios, constructive fear can serve as a catalyst for motivating health behaviour change in unforeseen circumstances (Maddux & Rogers, 1983). Additionally, sharing lived experiences that shed light on future implications can inspire individuals to become self-reliant and self-aware to the best of their abilities (Bruine de Bruin & Bennett, 2020).

1.3.2.5 Empowering Agency in Reproductive Time. The concepts of tracking and calculating feature prominently in the strategies women employ to manage their biological clocks. This expectation of agency over reproductive time involves both planning and future anticipation. Researchers such as Martin (2010) and Myers (2014) have highlighted the ways in which reproductive time is influenced by the expectation of predicting and preparing for the future. Among the qualitative participants, this practice of self-awareness acted as a technology of power that regulated individual behaviours, echoing Michel Foucault's concept of biopolitics.

1.3.3 Expert Consensus on the Framework and Its Applicability

In the assessment of the framework's theoretical underpinnings and its sequential flow, experts found unanimity. However, they raised concerns regarding the applicability of the framework in real-life scenarios. It was suggested that the framework's efficacy should be tested in real-life situations, specifically to determine if users of the toolkit were able to understand the relevance of reflective journaling and whether it leads to sustainable behaviour change.

The experts endorsed the relevance of the framework's components and the rationale for having individuals navigate through the entire process. There was consensus about using archetypes for customising messages as per individual personality types, as well as the use of

psychological concepts to promote healthy behaviour. Nonetheless, some concerns were raised about the components, leading to several suggestions and opinions regarding the information delivery mechanism.

According to their recommendations, if a mechanism for the source of information is being developed, it should cater to those aged 10 and above, enabling discussions about reproductive health to commence comfortably as they enter puberty. The involvement and training of parents were also highlighted as essential elements. Female adolescents typically seek information about sensitive topics from trusted sources; however, due to sociocultural norms, discussing reproductive health and well-being continues to be uncomfortable in many parts of the world. Consequently, female adolescents turn to external sources such as peers or the Internet, leading to incomplete information and misinformation.

All the experts concurred that in the early stages of puberty, use of the toolkit should be facilitated and supervised. They recommended that the toolkit be implemented as a school activity or by a non-governmental organisation, which would offer female adolescents a safe and collaborative environment to learn about topics related to reproductive health and well-being. Finally, the experts approved of the concepts as a medium for social communication that would enable adolescents to explore their reproductive health and well-being.

1.4 Finality of the Conceptual Framework

The model proposed in this study is designed to guide adolescents through the various changes in their reproductive health and well-being, fostering self-reliance. The conceptual framework introduced in Chapter 1 elucidates the behaviour change process, highlighting the variables that lead to the change. According to the model, individuals progress through a trajectory that begins with information seeking and leads to knowledge, maintenance, and the establishment of self-goals.

Information seeking is defined as the acquisition of information necessary to complete specific goals. The model also describes a series of behaviours encompassing information needs, information source selection, evaluation, and information utilisation. During the knowledge acquisition process, humans engage in different forms of knowledge building activities. This constructivist approach entails inquiry into specific subjects and topics, leading to a more in-depth understanding through interactive questioning, dialogue, and the ongoing refinement of ideas.

Knowledge building is a type of deliberate, conscious effort to produce knowledge based on exposure to various information sources. An individual's information seeking is influenced by both positive and negative factors. These underlying variables are shaped by the sociodemographic context, including environmental factors and exposure to the sources of knowledge and information. Positive influences are likelier to have a favourable impact on an individual's life, whereas negative influences can hinder information seeking and knowledge building. How an individual deals with these influences is contingent on their attentional attitudes. Relatedly, the interaction between influences and attitudes directs individuals towards information seeking, followed by knowledge building.

Given the uniqueness of each individual, the interactions between these variables would vary immensely. Therefore, for any social communication medium to be effective holistically, it must motivate and empower individuals to become self-driven, ensuring the sustainability and maintenance of behaviour change for the rest of their lives. The social communication framework proposed in this study (see Figure 48) is based on empirical research, and it integrates the stages of change model, risk perception, and nudge to cultivate participatory and reflective consciousness. Such a reflective approach can inculcate self-reliance and when implemented as a toolkit, presents strong evidence of a positive impact on self-reliance. Nevertheless, further research is necessary to rigorously evaluate the toolkit's efficacy in promoting sustainable behaviour change. Detailed insights regarding the implications of this research as well as recommendations for future studies can be found in Chapter 9.

Figure 1

Conceptual Framework Based on the Outcome of the Research