SEXUAL AND REPRODUCTIVE HEALTH CARE ACCCES FOR YOUNG ADULTS IN NEPAL

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DEDICATION

This work is dedicated to my mother, who has dedicated the past 23 years of her life to providing me with the resources and experiences that have given me the opportunity to complete this PhD.

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ABSTRACT

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Compared to other South Asian Association for Regional Cooperation (SAARC) countries, Nepal has a higher maternal mortality ratio, a lower rate of skilled attendance at birth, and the highest adolescent birth rate amongst all SAARC countries. Deaths during pregnancy are particularly evident in rural Nepal, where women have significantly lower rates of skilled attendance at delivery and a lower caesarean section delivery rate than women who live in urban areas. There is also a need for more research on the sexual and reproductive health of unmarried young people in Nepal due to changing sociocultural norms surrounding relationships. This dissertation research first conducted an integrated review of the literature on the use of sexual health services by unmarried adolescents and young adults (ages 15 to 24) in the SAARC region **(Chapter Two)**. Chapter Two highlighted the need to research the sexual health services that adolescents and young adults are most in need of and how to deliver these services. Next, two primary studies were conducted in Nepal **(Chapters Three and Four)**: 1) a cross-sectional quantitative study which explored correlates of intended and actual sexual health service use for unmarried young adults (ages 18 to 25) in Kathmandu, Nepal (n=203); and 2) a qualitative descriptive study that examined the maternal care seeking

experiences of women (ages 18 to 30) in Ramechhap District, Nepal (n=20). In Chapter Three, higher perceived youth friendliness of the health system (OR, 1.11; CI, 1.01 – 1.23; $p < 0.05$), a history of unwanted sexual contact (OR, 2.28: CI, 1.21 – 4.29; $p < 0.05$), and prior alcohol consumption (OR, 2.09; CI, 1.04 – 4.18; $p < 0.05$) were statistically significant predictors of intended sexual health service use. Participants in Chapter Four faced barriers to maternal care which included clinic distance, lack of family support, and cost of care. The three papers are followed by a discussion of the significance and ethical implications of key findings **(Chapter Five).** This dissertation research will help to inform future SRH work in Nepal and potentially the development of innovative nurse driven solutions that aim to improve SRH care.

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CHAPTER 1: INTRODUCTION

This three-paper dissertation research primarily focuses on sexual and reproductive health service access for young adults in Nepal. This chapter first introduces Nepal and how the country fits in the wider South Asian Association for Regional Cooperation (SAARC) region in relation to cultural and social practices, and health outcomes. This is followed by an overview of the sociocultural context surrounding sexual health in SAARC countries, and a statement on the sexual and reproductive health problems as they relate to health outcome targets from the United Nations (UN) Sustainable Development Goals (SDGs). Sexual and reproductive health problems are then presented in the context of Nepal to situate the health issues that are relevant throughout this dissertation. The key dissertation aims and objectives of each of the three papers are presented. Finally the three key theoretical perspectives (the Health Belief Model, Andersen's Model of Health Services' Use and a Theory of a Right to Health) that influenced the two data-based studies (Chapters Three and Four) and a discussion of the overall ethical implications of this research (Chapter Five) are introduced.

Introduction to Nepal and SAARC

Geographically, Nepal is a land locked country situated in between India to the South and Tibet to the North. Nepal has three distinct topographical regions: the flat Terai region in the south that shares a border with India, the central Hill region, and the central and northern Mountain region where famous mountains such as Everest and

Annapurna are located. To provide a visual example of the Hill region and a typical village in Nepal, Figure 1.0 presents an image from Ramechhap District, Nepal, where data collection took place for paper three (Chapter Four) of this dissertation.

The most recent countrywide census was conducted in 2011 by the government Central Bureau of Statistics (Central Bureau of Statistics-National Planning Commission, 2011). In this census, the total population of Nepal was approximately 26 million with a median age of 21.6 years, representing a population growth rate of 1.4% since 2001 and a relatively young population. The flat Terai region had the highest population (50.3%) followed by the Hill region (43%) and the Mountain region (6.7%). The urban capital city, Kathmandu, saw the largest population growth rate in Nepal of 61.2% from 2001 to 2011, and the total urban population, relative to the country as a whole, grew from 13.9% in 2001 to 17% in 2011. This suggests a population trend towards urban migration from rural areas. The primary religion is Hinduism with a substantial Buddhist minority, and the country has a caste-based social system.

According to the World Bank Group (2020), the gross national index (GNI) per capita for Nepal in 2018 was $970, and this is considered a low-income economy (defined by the World Bank as a GNI per capita less than $1,025). A Nepal country poverty analysis conducted by the Asian Development Bank (2017) found that while the rural poverty rate (at 27.4% in 2011) has declined at a faster pace than the urban poverty rate, the rural rate is still comparatively higher than the 15.5% in urban Nepal.

Nepal is also part of the wider SAARC region, which is a geopolitical union of nations in South Asia and includes: Afghanistan, Bangladesh, Bhutan, India, the Maldives, Pakistan, Sri Lanka and Nepal (Sáez, 2012). Table 1.0 highlights several economic, linguistic and religious similarities across SAARC countries. Often when considering health outcomes, many of the SAARC countries are considered collectively in the South Asian region due to economic, religious, linguistic and health similarities across countries. As an example, across all SAARC countries with the exception of the Maldives, the per capita expenditure on health care ranges from $30 to $100 (Countdown to 2030, 2016). Similarities also exist for sexual and reproductive health indicators such as the demand for family planning met with modern contraceptive methods (modern medical devices or interventions that interfere with reproduction from sexual intercourse, such as oral contraceptive pills, injectables and emergency contraceptive pills), skilled birth attendance, prenatal care of four or more visits, the maternal mortality ratio, and the postnatal care rates (Hubacher & Trussell, 2015). Table 1.1 contains data for important health outcomes from all SAARC countries to highlight the similarities and differences between countries. The data are based on the countdown to 2030 country profiles, which collects data from several United Nation (UN) databases including: The UN Population Division, Multiple Indicator Cluster Surveys (MICS), and the World Health Organization (WHO) Maternal and Child Epidemiology estimations.

Sociocultural Context of Sexual Health

The primary focus of this dissertation research is on sexual and reproductive health service access in Nepal for young adults, and it is therefore important to introduce the socio-cultural context surrounding sexuality and sexual health in SAARC countries. The broad cultural trends presented may not represent more nuanced local variations. As a first example of a broad trend, gender plays an important role in the cultural manifestation of sexuality. Within the Indian castes system, influenced by Sanskrit texts, Brahmans (the highest caste) believe that women lack wisdom, but they also hold great power (Mahajan, De Sousa, Pimple, Palsetia, & Dave, 2013). The power that they believe women hold has the ability to give life but also lead to destruction and disruption of the patriarchal order in society. This power is linked strongly with sexuality. Because women are considered an object of great sexual attraction, it is believed that they can lead men astray from a higher purpose through inappropriate sexual relationships. In South Asian culture, in an effort to perpetuate order in society, there have been restrictions placed on women's sexuality and autonomy (Papanek, 1975). This system leads to an oppressive and patriarchal gender system which some women can and do resist; although this resistance is not common and often met with punitive actions (Batra & Reio, 2016; Strachan, Adikaram, & Kailasapathy, 2015). Consequently, this gender dynamic has a pivotal influence on sexual health practices within the South Asian culture.

The gender dynamic that originates from ancient Sanskrit texts has manifested in many different ways in the South Asian culture. While there has been a recent shift in the

dialogue between old and young generations on the topic of marriage, the practices of arranged marriage are heavily grounded in the patriarchal South Asian culture (Zaidi & Shuraydi, 2002). Shame is a prominent concept within South Asian culture, with the idea that collectivism is vital, and individual actions should reflect on the larger family context (Patel, 2018). Thus, arranged marriage is not concerned with love and the needs of those involved, but rather with familial and societal compatibility. Importantly, this societal practice most often affects women unfavorably, since they have little autonomy within their household. For example, research by Senarath and Gunawardena (2009) on women's autonomy in health care decision making in South Asia found that decisions about women's health care were made without their participation in 54.3% of Bangladeshi, 48.5% of Indian and 72.7% of Nepalese households.

The idea of a marriage based on love is a relatively new concept in South Asian society (Allendorf & Pandian, 2016). In recent years, arranged marriage has been on the decline, and now young and old generations are in dialogue about the future of arranged marriage, leading South Asian culture to begin to shift away from the traditional definition (Chowdhry, 2007). This decline in arranged marriage has partly been attributed to modernization and the idealization of the West (Adams, 2010). The idealization of the West, made possible through expanded technology access and social media, leads youth and young adults to shy away from tradition and move towards "modern" romantic relationships which often involve dating and sexual relationships before marriage. Shah (2016) found that this has led to a clash in values between the young and old generations,

yet the young generation still lives in a society where romantic and casual relationships go against the cultural norm.

Given the societal shift away from arranged marriages in SAARC countries, sexual relationships before marriage are more common with males reporting higher rates of sexual relationships than females. A cross-sectional survey of urban male college students, over the age of 15, in Kathmandu, Nepal, found that 39% of respondents had sex before marriage (Adhikari & Tamang, 2009). Amongst the study participants who engaged in sexual intercourse, less than two in five had used a condom during first sexual intercourse. A similar study on the sexual health behavior of 15 to 19-year-old male and female adolescents in Pokhara, Nepal, found that one in five unmarried adolescents had sexual experiences, with 13.9% of the sample having engaged in group sex (Damaru, 2012). This study in Pokhara found that males reported engaging in sexual intercourse at significantly higher rates than females (30.3% vs 3.7%). In Jamnagar City, India, a study on high-risk sexual behavior before marriage amongst 450 male college students ages 18 to 24 found that 13.8% of participants had sexual experiences before marriage. Amongst the students who reported sexual experiences, 14.5% reported experiences with commercial sex workers and 33.9% had multiple sex partners. Consistent condom use amongst the sexually active participants was 62.9% (Dave, Makwana, Yadav, & Yadav, 2013). It is important to note that not all sexual relationships before marriage are consensual, and this will be explored further in the section on sexual violence. For young adults, sexual experiences before marriage can lead to stigmatization of young adults by

family, friends and healthcare workers due to the cultural values of South Asia noted above. This stigmatization can in turn present a challenge for unmarried young adults looking to access sexual and reproductive health services.

The Sustainable Development Goals (SDGs)

According to the UN Population Fund, taking a comprehensive approach to sexual and reproductive health and rights (SRHR) is an important part of universal health care access (UNFPA, 2019). The UN suggests several key SRHR services: prevention and treatment of Human Immunodeficiency Virus (HIV) and other Sexually Transmitted Infections (STIs), safe abortion service and treatment of unsafe abortion, detection and prevention of sexual and gender-based violence, providing obstetric care, infertility counseling and services, detecting, preventing and managing reproductive cancers, counselling and services for sexual health and well-being, comprehensive sexuality and for modern contraceptives. These services aim at reducing adverse health outcomes such as STIs, the spread of HIV, maternal and neonatal deaths, sexual trauma, as well as unwanted pregnancies and unsafe abortion (UNICEF, UNFPA, WHO, & World Bank, 2010).

This dissertation work on sexual and reproductive health service access in Nepal aligns with important SDG health goals. Sexual and reproductive health problems directly impact several key goals of the UN 2030 Agenda for Sustainable Development (World Health Organization, 2016). Goal three focuses on good health and wellbeing,

and several of the indicators that have been chosen to measure this goal directly relate to reproductive health, including: the maternal mortality ratio (number of maternal deaths per 100,000 live births), the proportion of births attended by a skilled birth attendant, the number of new HIV infections per 1,000 uninfected population, the adolescent birth rate, and the proportion of women of reproductive age who have their need for family planning satisfied with modern contraceptive methods. Some of the indicators of goal five, for example, focus on ensuring universal access to sexual and reproductive health and reproductive rights. This includes: the proportion of women who have ever had a partner, women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, and the proportion of women who make their own informed decisions regarding sexual relations, contraceptive use, and reproductive health care.

Problem Statement

Based on the SDGs, there are several important sexual and reproductive health indicators relevant to this dissertation for which there is available data across SAARC countries, such as: 1) the maternal mortality ratio; 2) percentage of the overall population with four or more prenatal care visits; 3) skilled attendance at birth; 4) birth rates for adolescents ages 15 to 19; 5) postnatal care for mothers; and 6) percentage of women whose demand for family planning is satisfied with modern contraceptive methods. By analyzing the data aggregated in Table 1.1, compared to the median in SAARC countries,

Nepal has lower rates of skilled attendance at birth (58% vs 72%), a lower percentage of demand for family planning satisfied with modern contraceptive methods (56% vs 65%) and a higher maternal mortality ratio (186 per 100,000 vs 168 per 100,000). Nepal also has the highest adolescent birth rate across all SAARC countries (88 per 1,000 girls).

Rural Maternal Care. Maternal mortality refers to all deaths that occur during pregnancy or in the 42 days immediately following pregnancy (World Health Organization, 2014). Although there has been much global success in reducing maternal mortality, 303,000 mothers still die every year, and 22% of these deaths occur in South Asia (Akseer et al., 2017). While there has been significant progress towards improving maternal care for women in South Asia, a lack of access to safe maternal care remains a key reproductive health problem that negatively impacts the health of many women. Reasons for this disparity include a lack of healthcare decision making autonomy for girls and women, a lack of availability of essential interventions (e.g., prenatal care visits, family planning services, skilled birth attendance, emergency obstetric care, adequate postnatal care), and a lack of investment in health systems (Karlsen et al., 2011; Senarath & Gunawardena, 2009).

The problem of maternal care access is particularly evident in rural Nepal due, in part, to challenges with rural maternal care delivery. Compared to women living in urban Nepal, women living in rural areas have significantly lower rates of skilled attendance at delivery (32.3% vs 72.7%), prenatal care of four or more visits (47.7% vs 71.8%) and a

lower caesarean section rate (3.5% vs 15.3%) (Countdown to 2030, 2016). Current research suggests that home delivery and the use of unskilled birth attendants is still common practice for women in rural Nepal (Sulochana Dhakal, van Teijlingen, Raja, & Dhakal, 2011). Some commonly reported barriers to delivering maternal care in rural parts of Nepal include: service cost (e.g., checkup cost, provider fees, medications), a lack of transport, facility distance, and a large family size (Lama & Krishna, 2014; Morrison et al., 2014; R. Shah et al., 2015).

Reducing the number of maternal deaths to less than 70 per 100,000 women by 2030 remains a health priority for the government of Nepal (National Planning Commission, 2015). One way to achieve this target is to address the inequity in access to skilled maternal health care between urban and rural populations. The most recent maternal mortality ratio of 186 presented in Table 1.1 is from 2017, and while this is a significant improvement from 553 in 2000, there is still a way to go to reduce the number of maternal deaths to less than 70 by 2030, a target set by the government of Nepal National Planning Commission (2015). Additionally, the progress in reducing the maternal mortality ratio in Nepal has been predominantly attributed to improvements in urban care, while progress in rural areas has been very slow (Sanjaya Dhakal, 2007).

The Sexual Health of Unmarried Young People. While women who live in rural populations face significant barriers when accessing maternal care, young adults of all genders in Nepal and other South Asian countries face challenges accessing sexual

health services. According to the UN Population Fund (UNFPA), the sexual health of unmarried young people (defined by the UNFPA as individuals between 10 and 24 years age) in Asia has generally been ignored by health researchers, policy makers, and healthcare providers, and there is a need for more research on the sexual and reproductive health of unmarried young people (UNFPA, 2016). One of the key recommendations from the UNFPA is to address gaps in current sexual and reproductive health research, particularly related to dating behavior (e.g., sexual violence) and sexual activity (e.g., penetrative sex and contraceptive use).

A review of the literature on unmarried young people's sexual behavior in Nepal by the UNFPA and a report on the sexual and reproductive health of young people in Asia and the Pacific conducted by several UN agencies in 2015 highlighted several important literature gaps and focal areas in need of research (UNFPA, 2016; UNFPA, UNESCO, & World Health Organization, 2015). One of the key findings of the 2015 report is that there is relatively limited data on the sexual and reproductive health of sexually active unmarried young people aged between 10 and 24 years living in Asia and the Pacific, as well as a lack of data on the practice and outcomes for young people with an unintended pregnancy, particularly in settings where abortion is restricted. The review of the literature on the sexual behavior of unmarried young people between the ages of 10 and 24 in Nepal by the UNFPA found only twelve studies that took place between 2005 and 2015. Key findings from the UNFPA review were that unmarried young people have poor knowledge of sexual and reproductive health issues, and unmarried women seeking

abortion services experience stigma from healthcare providers for sexual experiences before marriage and report negative health service experiences. There were however some encouraging levels of HIV and emergency contraceptive awareness (Adhikari & Tamang, 2009; Jaiswal, Magar, Thakali, Pradhan, & Gurubacharya, 2005). These findings suggest a need for more research in reproductive and sexual health for unmarried young populations in Nepal who present with various health needs.

This dissertation first presents an integrated review of the literature to understand barriers to sexual health service access in SAARC countries for adolescents and young adults (AYA) ages 15 to 25. In South Asia this age range is particularly important given that over half of the world's 15 to 24-year-old population live in Asia and the Pacific, with 234 million 15 to 24-year-olds in India alone, or 19% of the total world youth population (United Nations Department of Economic and Social Affairs, 2014). Additionally, due to neurobiological changes that happen in the brain during the 10 to 24-year-old age range, research amongst this population has often been conducted collectively, with factors such as age, sex and disease known to have an impact on brain maturation (Arain et al., 2013). The integrated literature review is followed by two primary data-based studies that focus on: 1) identifying factors associated with sexual and reproductive care access for unmarried young adults (ages 18 to 25) in urban Nepal; and 2) barriers to maternal care for women (ages 18 to 30) living in a rural district in Nepal. This primary research, focused on access to sexual and reproductive health care in rural and urban settings of Nepal, is particularly important given: 1) the limited research on the

sexual and reproductive health of unmarried young people living across Asia; 2) the need for more research to identify effective models to deliver sexual health care for unmarried young people in Nepal; and 3) the unmet target maternal mortality rate of 70 per 100,000 by 2030 in Nepal driven largely by lack of access in rural areas.

Key Sexual and Reproductive Health Problems and the Importance of Health Service Utilization

Sexual and reproductive health problems effect all individuals throughout their lives (Ezeh et al., 2016). The key problem areas covered in this section include unintended pregnancies and unsafe abortions, maternal mortality, Human Immunodeficiency Virus (HIV), sexually transmitted infections (STIs), violence against women and unwanted sexual contact, and gynecologic cancers and Human Papillomavirus (HPV). The following sections begin with a broad overview of each of these health problems followed by research on each problem area that has been conducted in Nepal.

Unintended Pregnancy and Unsafe Abortion. Unintended pregnancy, particularly resulting in unsafe abortion, remains a significant global health problem. Between 2010 and 2014, an estimated 44% of pregnancies worldwide were unintended (Bearak, Popinchalk, Alkema, & Sedgh, 2018). Unintended pregnancies are those that result in unplanned births, induced abortions, and miscarriages (Singh, Sedgh, & Hussain,

2010). In low and middle-income countries, evidence suggests that 31% of births from unintended pregnancies and 54% of induced abortions are the result of failures in correct and consistent condom use (Bradley, Croft, & Rutstein, 2011). This research addresses a widespread need for essential sexual and reproductive health education and interventions, in particular, access to modern contraceptive methods (e.g., intrauterine devices, injectable, implantable and oral contraceptives, emergency contraceptive pills) and safe abortion care.

Globally, of 85 million estimated unintended pregnancies, 50% ended in abortions, and it is estimated that half of all abortions worldwide are considered unsafe (Singh et al., 2010). An unsafe abortion is defined by the WHO as "a procedure for terminating an unintended pregnancy carried out either by persons lacking the necessary skills or in an environment that does not conform to minimum medical standards, or both" (World Health Organization, 2004b, p. 1). Research has found that approximately 68,000 women die from unsafe abortions every year, accounting for 13% of the maternal mortality rate (Haddad & Nour, 2009).

In Nepal, it was high maternal mortality rates that led to liberalization of abortion laws in 2002, and as of 2011, 532 facilities across all regions of Nepal were authorized to provide safe abortion services (Samandari, Wolf, Basnett, Hyman, & Andersen, 2012). Currently, abortions are legal with the consent of the pregnant woman (over 16 years-of-age) for any indication up to 12 weeks' gestation, 18 weeks' gestation in the cases of rape and incest, at any time during pregnancy if the mental or physical life of the pregnant

women is at risk (with approval of a medical practitioner) and at any time during pregnancy if the fetus is deformed or incompatible with life (with approval of a medical practitioner). Although the pregnant women alone has the right to continue or discontinue pregnancy, in the case of minors (less than 16-years-of-age) or mental incompetence, a legal guardian must give consent. Pregnancy may not be terminated on the basis of sex selection.

Despite abortion being legal in Nepal, research suggests a lack of knowledge about the legality of abortion, where to access a safe abortion facility, and the prevalence of unsafe abortion. Data from the 2011 Nepal census found that only 38% of women were aware of the legal status of abortion (Central Bureau of Statistics-National Planning Commission, 2011). Partly because of this lack of awareness of the legality of abortion, unsafe abortion is still common practice in Nepal and abortion complications are still prevalent. A study that analyzed data from 386 facilities that provide abortion or post-abortion care in Nepal discovered that out of 323,100 abortions reported, only 137,000 were legal and 63,200 women were treated for abortion complications (Puri et al., 2016). Analysis of demographic and health survey data by Khatri, Poudel, and Ghimire (2019), found urban residents and women living in the Mountain region of Nepal to be significantly more likely to have an unsafe abortion. This study suggested the higher risk of unsafe abortion in the Mountain region may be due to difficult geographic terrain despite the availability of safe abortion facilities. Although not specified in the paper, higher rates of unsafe abortions in urban areas may be due to a lack of awareness of

where to get a safe abortion as well as fear of repercussions from friends and family members, despite the number of urban health facilities.

Primary research on barriers to abortion care for unmarried young women have not been well explored in the literature; however given larger trends described above, potential barriers include social norms surrounding sexual relationships before marriage, a lack of support from family members, the potential cost of abortion care, and negative attitudes towards unmarried pregnant women by providers. The aforementioned research on abortion care in Nepal suggests that despite the legalization of abortion in 2002, unsafe abortion is still common and warrants research and policy attention towards improving access to safe abortion services and contraceptive care.

Maternal Mortality. Globally, while the number of deaths due to maternal mortality has declined by almost half since 1990, the rates are still unacceptable for a problem that is almost entirely preventable with access to obstetric care. A 2016 Lancet report found the global maternal mortality rate fell from 385 per 100,000 live births in 1990 to 216 in 2015, representing a 43.9% decline (Alkema et al., 2016). The current global burden of maternal mortality disproportionately affects low and middle-income countries, where 99% of global maternal deaths occur (Ezeh et al., 2016). Major contributors to maternal mortality include hemorrhages, hypertension, sepsis, abortive outcomes and other indirect causes - all of which can be treated or prevented with proper access to obstetric care.

Direct causes of maternal mortality refer to deaths that occur during pregnancy due to complications during and immediately after the state of pregnancy, while indirect causes are conditions that are pre-existing or aggravated by the physiological effects of pregnancy (World Health Organization, 2004a). A systematic review on the global causes of maternal mortality between 2003 and 2009 found that 73% of deaths were due to direct obstetric causes, and 27.5% were due to indirect causes (Say et al., 2014). By breaking down the direct causes of maternal mortality further, this review found that 27.1% of maternal mortality was due to hemorrhages, 14% as a result of hypertensive disorders, 10.7% because of sepsis, and the remainder due to abortion complications (7.9%), embolism (3.2%) and other direct causes.

While maternal mortality has decreased significantly in Nepal (as noted in the statement of the problem), delivering maternal care in rural areas remains a challenge. Data from the Nepal census suggest a disparity in maternal care between urban and rural populations (Central Bureau of Statistics-National Planning Commission, 2011). In urban Nepal, 84% of women report four or more prenatal care checkups compared to only 56% in rural Nepal. Similarly, 90.3% of women in urban areas had a skilled attendant at birth compared to 50.5% in rural Nepal. Emergency obstetric care such as caesarean section delivery are important interventions aimed at improving maternal care when indicated (Robson, Hartigan, & Murphy, 2013). While the appropriate caesarean section rate remains a topic of debate, in urban Nepal the rate is 19% compared to 7% in rural Nepal.

Human Immunodeficiency Virus (HIV). In terms of global reproductive health problems related to sexually transmitted infections, HIV is one of the most well-known. Human immunodeficiency virus, or HIV, refers to the virus that causes autoimmune deficiency syndrome (AIDS) (Centers for Disease Control and Prevention, 2018). The annual incidence of new HIV cases has stayed fairly constant since 2005, at approximately 2.6 million a year (GBD HIV Collaborators, 2016). The UN has set two targets of reducing the number of people newly diagnosed with HIV and the number of people dying from AIDS-related causes, both to less than 500,000 globally before 2020 (UNAIDS, 2017). Today, around the globe 34% of newly diagnosed HIV infections occur amongst young people between the ages of 15 and 24. In order to achieve the UN goals, it is necessary to increase awareness and knowledge of HIV, methods of preventing HIV, access to HIV testing, and linkage to treatment to reduce the incidence of AIDS-related illness and death. In addition, forward transmission is eliminated among those with HIV who are adherent to their medication regimen, and therefore access to HIV care is also a critically important prevention strategy.

In Nepal, the overall prevalence of HIV is estimated to be relatively low at 0.3% and the epidemic is thought to be concentrated amongst high risk populations such as female sex workers, men who have sex with men, and injection drug users. A study of 5,958 female sex workers in Nepal found the HIV prevalence to be 1.7% (Kakchapati, Singh, Rawal, & Lim, 2017). A study of 401 injection drug users in central Nepal found the prevalence of anti-HIV antibodies to be 13.8% (Kinkel et al., 2015). Although the

overall prevalence of HIV is low in Nepal, it remains important to focus on reducing the number of newly diagnosed HIV infections amongst young people, and high-risk populations, as well as expanding HIV prevention, testing and linkage to treatments to reduce the incidence of AIDS-related illness and death.

Sexually Transmitted Infections (STIs). Globally, in addition to HIV, it is estimated that another 354.7 million STIs are the result of four common curable STIs: chlamydia, gonorrhea, syphilis, and trichomoniasis (Unemo et al., 2017). While these infections are very treatable, if left untreated they can lead to a long list of complications for both men and women including pelvic inflammatory disease, chronic pelvic pain, infertility, fetal or neonatal death, premature delivery, neonatal complications, abnormal penile discharge, pain during ejaculation, bumps, blisters of sores on the penis of genitals, pain or burning during urination, and increased urinary frequency. Despite the number of people infected with these four conditions globally, research on prevalence in Nepal has been limited (Shakya et al., 2018).

STIs disproportionately affect marginalized populations, such as sex workers, leading to STI-stigma and a lack of health policy attention due to moral attitudes towards the infections (Mohammed, Hughes, & Fenton, 2016). Negative attitudes towards STIs are related to unfavorable cultural norms surrounding sex outside of marriage and discomfort about discussions about sex in South Asian communities (Shah, 2016). Globally, examining chlamydia, there is limited research on chlamydia prevalence;

however based on estimates from high income countries, chlamydia is most common in young heterosexual adults under the age of 26 (Redmond et al., 2015). There is limited research on STIs in Nepal. In Eastern Nepal, one study of women with pelvic inflammatory disease found that 6% of women tested positive for chlamydia trachomatis (Khanal et al., 2019). Chlamydia is often left untreated and undiagnosed, but to reduce infection numbers, efforts should be directed towards asymptomatic routine screening among those who are most at risk and are sexually active.

Violence Against Women and Unwanted Sexual Contact. A 2013 report on global and regional estimates of violence against women by the WHO found that it is a major problem that has both social and health consequences. Women exposed to gender-based violence are at a much greater risk for acquiring HIV and other STIs, poor pregnancy outcomes, depression and substance abuse disorders (WHO, Department of Reproductive Health Research London School of Hygiene & Tropical Medicine, & South African Medical Research Council, 2013). The report by the WHO also found that 30% of women worldwide will experience some form of physical or sexual violence by their intimate partner at some point during their lifetime, with a great deal of women not seeking any kind of care or help. In addition to improving health and well-being, reducing gender-based violence is an important stride toward improving gender equality.

Research on sexual violence suggests that it is common within marriage in Nepal. Incidences of experiencing sex against one’s wishes as high as 75% have been reported

amongst married women in Nepal, and women who experienced sexual violence from their husbands have a higher odds of reporting an unintended pregnancy (Acharya, Paudel, & Silwal, 2019; Puri, Tamang, & Shah, 2011). Literature in Nepal also suggests that a history of childhood sexual abuse is a significant predictor of early sexual debut (Shrestha, Karki, & Copenhaver, 2016). There appears to be scant literature on unwanted sexual contact and sexual violence against unmarried young adults in Nepal.

The WHO recommends several evidence-based interventions to respond to sexual violence (World Health Organization, 2013). From a health service perspective, key recommendations involve training providers on how to ask both young women and men about exposure to sexual violence, sexual violence counselling, providing proper clinical care and support for survivors of sexual violence, offering emergency contraception, HIV and STI post-exposure prophylaxis, and continuous psychological care and counselling.

Gynecological Cancers and HPV. Other reproductive health conditions that contribute to the global disease burden include gynecological cancers. Examples of gynecological cancers include cervical, breast, vaginal, vulvar, and ovarian cancer. In developing countries, approximately one in four of all cancers that affect women has been identified as a gynecological cancer (Iyoke & Ugwu, 2013). This is primarily due to the incidence of cervical cancer, which accounts for more than 60% of the incidence of cancer cases. In 1975 low- and middle-income countries accounted for 51% of all cancers worldwide, and this increased to 55% in 2007, and by 2050 the percentage is projected to

increase to reach 61% (Thun, DeLancey, Center, Jemal, & Ward, 2010). In 2018 there were approximately 570,000 cases and 311,000 deaths due to cervical cancer, making cervical cancer the leading cause of cancer related death in 42 countries that are primarily in sub-Saharan Africa and South-Eastern Asia (Bray et al., 2018). Human Papillomavirus (HPV), a sexually transmitted infection, has a causal relationship with cervical cancer (Walboomers et al., 1999).

Because a population-based cancer registry does not exist in Nepal, it is difficult to determine precise prevalence rates for gynecologic cancers. The research that does exist has found that cervical carcinoma is the most common cancer for females in Nepal, and there appears to be a trend towards increasing incidences of cervical cancer (Mishra, Neupane, Bhandari, Khanal, & Kallestrup, 2015; Thapa et al., 2018). Although there is limited research on HPV in Nepal, studies have found rates of HPV infection as high as 14.4% (Shakya et al., 2018; Sherpa et al., 2010). Screening for cervical cancer is possible through visual inspection of the cervix with acetic acid (VIA) or Papanicolaou (Pap) smear cytology. A study by Ranjit et al., (2016) that aimed to estimate the prevalence of cervical Pap smear testing among women in Nepal found that of the 829 women included, 87% had no knowledge of cervical smear tests and only 4.7% had undergone a cervical smear.

The WHO recommends HPV vaccination for prevention and control of cervical cancer in most countries for adolescent girls between the ages of 9 and 14 as a two-part series, and a three-part series for girls between 15 and 26 years old (World Health

Organization, 2018). Globally, there are currently three HPV vaccinations that are all highly efficacious in preventing type 16 and 18 of the viruses, which are responsible for 70% of cervical cancers globally. In Nepal, a two-dose HPV vaccine has begun to be widely introduced for adolescent girls ages 11 to 13 as of August 2019 (Poudel, 2019). Although the HPV vaccine is also recommended for boys for prevention of anogenital cancer and genital warts, and transmission of HPV to partners, Nepal has not yet adopted this prevention practice.

In summary, the sexual and reproductive health problems presented in this section require crucial health service interventions that are needed by AYA to prevent avoidable and treatable diseases, disability, psychological trauma, and avoidable mortality. The paragraphs that follow present the aims and objectives of this three-paper dissertation as well as an overview of the key theoretical perspective that guided the design of the two data-based papers presented in Chapters Three and Four.

Dissertation Aims

Given the current gaps in the literature and the importance of reducing the burden of disease caused by sexual and reproductive health problems in Nepal, the purpose of this dissertation research is to achieve the following aims and objectives through a three-paper format.

Chapter Two (Paper One: Integrative Literature Review). The primary aim of Chapter Two (Paper One) was to identify the specific sexual health services unmarried AYA (ages 15 to 24) in SAARC countries are accessing, and to analyze the experience of study participants accessing sexual health services. To achieve this dissertation aim, this paper completed the following objectives: 1) Identified primary research published between 2007 and 2019 that focused on the views of AYA in SAARC countries pertaining to the use of sexual health services; 2) Used a deductive approach for analysis to identify the sexual health service focus of the included literature; 3) Used a deductive and inductive approach to analyze the experience of study participants accessing sexual health services. The purpose of this integrative review was to provide important insights into factors that may prevent unmarried AYA in the SAARC region from seeking sexual health services. This integrative review highlighted several barriers to sexual health service use for unmarried AYA in SAARC countries and gaps in the literature on sexual health service access that led to the design of Paper Two.

Chapter Three (Paper Two: Data-Based Quantitative Study). Based on the findings from Chapter Two (Paper One), the third chapter in this dissertation (Paper Two) presents a quantitative study with the following primary aim: 1) Identify the relationships between young unmarried Nepali adults' (ages 18 to 25) sociodemographic characteristics, sexual health-related variables (i.e., previous sexual behavior, sexual health related awareness and perceptions), perceived youth friendliness of the Kathmandu

Health system and intended use of sexual health services; 2) test the relationship between intention and actual use of sexual health services; and 3) to conduct an exploratory analysis on the factors outlined above associated with actual use of sexual health services.

To achieve the aims of this paper this data-based study recruited 203 unmarried young adults living in Kathmandu, Nepal, to take part in a cross-sectional survey about their sexual health as well as their experiences with health service use in Nepal. Data from this study were analyzed using descriptive statistics, correlational analysis and logistic regression to identify the most significant factors associated with intended and actual sexual health service use based on Andersen's Behavioral Model of Health Services' Use.

Chapter Four (Paper Three: Data-Based Qualitative Study). Chapter Four (Paper Three) presents the second data-based paper in this dissertation. The purpose of this study was to identify barriers and facilitators to maternal care in rural regions of Nepal. This study described Nepali women's' health beliefs and perceptions about maternal education and care delivery in Ramechhap District, Nepal using the Health Belief Model as a guide. The Principal investigator interviewed 20 women (ages 18 to 30) from Ramechhap District, Nepal about their experiences with maternal care during their most recent pregnancy and conducted qualitative content analysis of common barriers and facilitators to maternal care using Atlas Ti software. This paper further

discusses the importance of women's voice in understanding their unique concerns that can improve health care and support reductions in maternal mortality.

Finally, Table 1.2 provides definitions for the following important terms that will appear throughout this dissertation: 1) Reproductive health; 2) Sexual health; 3) Sexual health services; 4) Sexual health services within Nepal; 5) Youth friendly health service; and 6) Emerging adulthood.

Theoretical Perspectives

Three theoretical approaches supported this dissertation: Andersen's Behavioral Model of Health Services' Use, the Health Belief Model, and a Theory of a Right to Health (Andersen, 1995; Rosenstock, 1974; Ruger, 2006). Andersen's Behavioral Model of Health Services' Use and the Health Belief Model were used to identify and operationalize key constructs and variables of interest in Chapters Three and Four, while a Theory of a Right to Health served to integrate and discuss the broader ethical implications of key findings from across the three papers.

For paper two of this dissertation, because of the direct relevance to health care service access, Andersen's Behavioral Model of Health Services Use (1995) was determined to be the most appropriate theory with the most relevant constructs to identify key elements that influence the intention of unmarried urban young adults to seek sexual health services. This model was designed to present the multiplicity of influences on health service use. An ultimate goal of the model is to identify pathways that lead to use

of health service access. This theoretical framework has been adapted for this dissertation study to identify constructs of interest as possible factors influencing intention to seek sexual health services for young adults in urban Nepal. In this adapted model, the key constructs of interest are actual sexual and health behavior, background characteristics (e.g. gender, religion, caste, sexual orientation), sexual health knowledge and awareness, perceived sexual risk and perceived youth friendliness of the health system. Figure 1.1 presents the adapted theoretical model where the directional arrows indicate the relationships between constructs.

Paper three of this dissertation applies the Health Belief Model (1974) as an exploratory framework to understand women's health beliefs towards maternal care amongst a rural population in Nepal. As a widely applied theory in the health behavior field, the Health Belief Model consists of six key constructs that have been shown to predict health behavior: risk susceptibility, risk severity, benefits of action, self-efficacy, and cues to action (Rosenstock, 1974). Risk susceptibility refers to the subjective perception a person has that they are at risk for a particular illness or disease. A person may also have perceptions about the seriousness of a particular condition and the consequences this might come with, such as disability or death along with the social consequences on personal relationships. Benefits of actions are the persons perceptions on how effective they believe certain actions might be towards preventing a particular condition. An example of this could be obtaining a vaccine to prevent a particular illness. An individual's self-efficacy is their own confidence that they are able to perform a

particular action, and a cue to action is the trigger that allows them to decide to take an action. The model was originally developed to explain preventative health behaviors in the United States but has since been used in a variety of different cultural and contextual situations.

The Theory of a Right to Health by Jennifer Prah Ruger offers an ethical justification of the right to health as a meaningful and operational right. Ruger's Theory of a Right to Health provides a philosophical lens that is used to interpret key findings from Chapters Two, Three and Four. Her theory incorporates key dimensions of work by Aristotle, Sen and Sunstein. Fundamental to the theory is that health capability should be central to health policy, and also that a subset of health capabilities assess the equity and efficiency of health policies. Ruger proposes that there needs to be an ethical commitment to redistribute resources from the most fortunate to those in the most need through individuals internalizing the moral norm. This normative reasoning would require collective health policy action through the provision of healthcare, public financing and regulation. Shortfall inequality is introduced as an approach that prioritizes the available resources to reduce the gap between health achievements and potential. Thus, Ruger concludes that in implementing the right to health it is important to consider reducing inequalities in health capabilities among groups and individuals to allow for the highest possible level of health functioning. Justice in global health should be maintained in agreement with these principles.

Summary and Overview of Subsequent Chapters

The following chapters will present three papers related to sexual and reproductive healthcare in Nepal and the SAARC region. Paper one is an integrative review of the current literature on the use of sexual health services by AYA (15 to 24) in SAARC countries. This review expands beyond Nepal due to the lack of literature specifically in this field in Nepal. Additionally, this integrative review also includes older adolescents to reflect the number of sexual health studies in the SAARC region that focused on adolescents. Paper two presents a quantitative cross-sectional study that focuses on identifying factors associated with sexual health service use amongst unmarried young adults (18 to 25) in Kathmandu, Nepal. The final paper focuses on reproductive health, specifically looking at barriers to maternal care for a rural population of young adult Nepalese women (18 to 30). These three papers are followed by a discussion section that presents key findings and ethical implications from each of the three papers as well as the broader implications for future research.

Figure 1.0: Ramechhap District, Nepal

Table 1.0 SAARC Country Characteristics

Country	GNI Per Capita ($) (World Bank Group, 2016)	Life expectancy at birth (World Bank Group, 2016)	Health Spending Per Capita ($) (Countdown to 2030, 2016)	Demand for family planning satisfied, modern methods Age groups: 15-17/18-19/20-49 (%) (Countdown to 2030, 2016)	Religions (BBC, 2016)	Languages (BBC, 2016)	Legality of abortion (Women on Waves, 2018)
Afghanistan	580	63.298	57	16/22/43	Islam	Dari, Pashto	Criminal offense except to save the life of the mother
Bangladesh	1330	72.222	31	68/69/73	Islam, Hinduism	Bengali	Only permitted to save the life of the woman. Menstrual regulation permitted up to 12 weeks during pregnancy
Bhutan	2510	69.807	89	37/57/86	Buddhism, Hinduism	Dzongkha	Unclear
India	1670	68.333	75	12/20/72	Hinduism, Islam, Christianity, Sikhism, Buddhism	Hind, English and 20 other official languages	Legal if performed by a registered physician in a government –approved hospital or facility during the first 20 weeks of pregnancy.
Maldives	10380	77.12	No Data	No Data	Islam	Divehi	Prohibited except for certified medical reasons.

Nepal	730	69.87	40	20/25/72	Hinduism, Buddhism	Nepali	Legal within the first 12 weeks of pregnancy for any women on her request. Within the first 18 weeks of pregnancy in cases of rape and incest. At any time if the pregnancy posed danger to the life or physical or mental health of the pregnancy woman or fetus.
Pakistan	1500	66.332	36	15/31/47	Islam	English, Urdu, Punjabi, Sindhi, Pashto, Balochi	Abortions carried out before the unborn child's organs have been formed are prohibited except in good faith of saving the life of the woman or providing treatment.
Sri Lanka	3850	74.989	No data	No Data	Buddhism, Hinduism, Islam, Christianity	Sinhala, Tamil, English	Permitted only to save the life of the woman.

Table 1.1 SAARC Key Health Outcomes

Country	Demand for family planning satisfied with modern methods (%)	Adolescent (15-19) birth rate (per 1,000 girls)	Skilled Attendance at Birth (%)	Prenatal care of four or more visits (%)	Maternal Mortality Ratio (Per 100,000)	Postnatal Care (%)	Number of Doctors (per 100,000 population)	Number of Nurses (per 100,000 population)	Total expenditure on health, per capita ($)	Out of pocket expenditure as % of total expenditure on health (%)
Afghanistan	42	77	59	18	638	40	2.8	3.2	57	77
Bangladesh	73	78	68	31	173	36	5.3	3.1	34	72
Bhutan	85	28	96	85	183	41	3.7	15.1	91	20
India	66	11	81	51	145	65	7.8	21.1	62	65
Maldives	43	10	96	82	53	80	10.4	39.5	1048	19
Nepal	56	88	58	69	186	57	6.5	26.9	45	55
Pakistan	49	46	69	51	140	62	9.8	5.0	40	65
Sri Lanka	74	21	99	93	36	99	9.6	21.2	153	50
Mean*	**63.6**	**49.9**	**75.7**	**56.9**	**214.4**	**57.1**	**6.5**	**13.7**	**68.6**	**57.7**
Median*	**64.8**	**47.9**	**72.4**	**53.9**	**178.0**	**57.1**	**6.5**	**14.4**	**59.5**	**61.4**
SD*	**13.2**	**27.0**	**14.5**	**23.7**	**168.2**	**18.8**	**2.4**	**8.6**	**36.1**	**16.5**

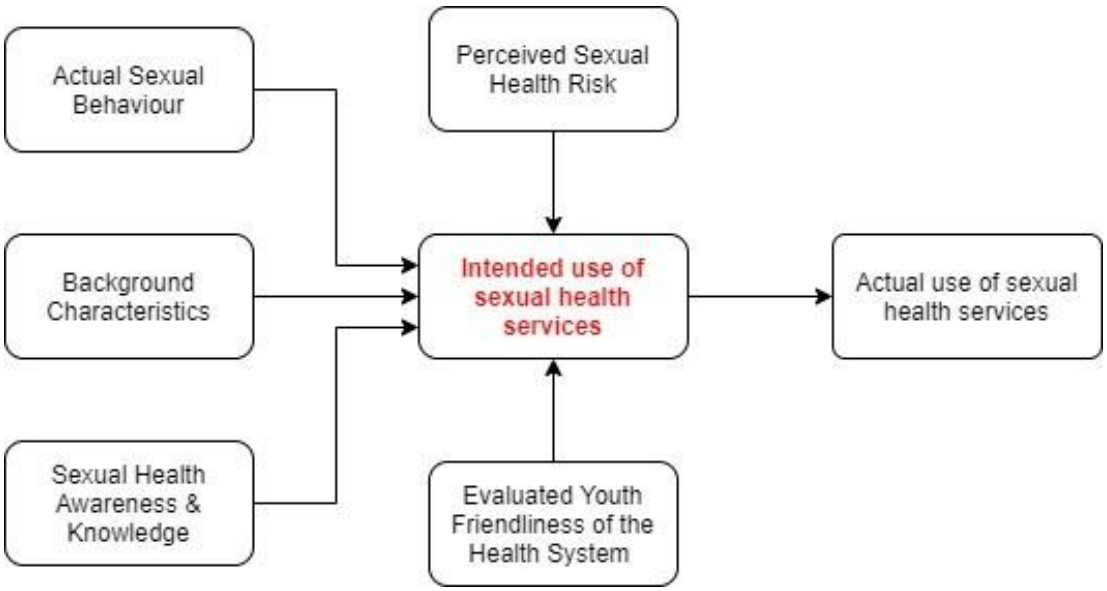
*Mean, median and SD excluded the Maldives from analysis.

Table 1.2: Key Definitions

Term	Definition
Reproductive Health (United Nations Population Information Network)	According to the International Conference on Population and Development Program of Action, "reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable, and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant".
Sexual Health (World Health Organization, 2006).	The World Health Organization (WHO) defines sexual health as "…a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled". While both reproductive and sexual health mention safe and satisfying sexual relationships through a positive lens, the term reproductive health also specifically focuses on care related to reproduction and sexually transmitted diseases. (World Health Oganization, 2006, p.4)
Sexual Health Service (World Health Organization, 2012)	Sexual health services refer to the provision of health care related to the sexual health of the population of interest. The World Health Organization recommends several important programs and health services that aim to improve sexual health. These services and programs should seek to target the following areas: STIs and reproductive tract infections (RTIs) (including HIV), unintended pregnancy and safe abortion, sexual dysfunction and infertility, violence related to gender and sexuality, young people's sexual health and health education, sexual orientation and gender identity, mental health issues related to sexual health, the impact of physical disabilities and chronic illness on sexual well-being, and the promotion of safe and satisfying sexual experiences.
Sexual Health in Nepal (Regmi, Van Teijlingen, Simkhada, & Acharya, 2010)	For young adults in Nepal, the term sexual health is encompassed by reproductive health. Specific sexual health services include sexual health services and education, with a particular emphasis on STI's, HIV AIDS, and the use of modern methods of birth control. In Kathmandu, the following sexual health services are available or in the process of being implemented within the health system for young adults between the ages of 18-25: Sexual health education programs in schools and clinics Free oral contraceptive pills, condoms, depo shots, IUDs, implants, surgical contraception Emergency contraception HPV vaccine & pap smear screening STI/HIV/AIDS testing Safe abortion services
Youth Friendly Health Services (World Health Organization, 2012)	A sexual health service must be youth friendly so that it appeals to the adolescents and young adults who seek care. According to the World Health Organization, there are five key dimensions that are required to achieve a youth friendly

	health service. The service must be equitable, accessible, acceptable, appropriate and effective. For a service to be equitable, all youth must be able to obtain the health services that are available. The providers and support staff offering the service must do so equally for all youth clients, and there should be policies in place that do not restrict the provision of the service based on the client's status. Accessible services are ones that youth are well informed about and know how to obtain. The policies in place should make sure that the service is either free or affordable to youth and the hours of service delivery should be convenient. For the service to be considered acceptable and for youth to be willing to obtain the service it should guarantee confidentiality and ensure privacy. The services must also be appropriate, meaning that the health services offered are the right ones for the population and they actually need the services. The youth friendly services offered must also be effective, such that they are provided in a way that positively impacts the health of the clients using the services.
Emerging Adulthood (Arnett, 2000)	Emerging adulthood refers to the period from late teens through the twenties, with a focus on the 18-25 age period. Evidence suggests that this is a distinct period in terms of identity exploration, and social changes. The timeframe is considered to be one of great importance and change in which the individual will obtain the educational training and foundation for their adult life, and by the end of their twenties they will have made decisions that will be important throughout the rest of their life.

Figure 1.1: Adapted Model of Health Services' Use



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Journal to Submit: Sexual & Reproductive HealthCare

CHAPTER 2: THE USE OF SEXUAL HEALTH SERVICES BY UNMARRIED ADOLESCENTS AND YOUNG ADULTS (AYA) IN SAARC COUNTRIES: AN INTEGRATIVE LITERATURE REVIEW

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Abstract

There has been limited research on the sexual health of unmarried adolescents and young adults (AYA) in South Asia. This is especially true for unmarried AYA living in the South Asian Association for Regional Cooperation (SAARC) countries. The purpose of this integrative review was to identify literature on what sexual health services AYA in SAARC countries are accessing and to analyze their experiences accessing these services. Three databases were searched from 2007 to 2019 for relevant articles: PubMed, CABI Global Health (global health database for the public health digital library with a historical focus on agriculture and environmental issues in the developing world), and Popline (previously a global reproductive health database funded by the United States Agency for International Development). We identified 23 articles that met inclusion criteria and focused on the experience of unmarried AYA (ages 15 to 24) in SAARC countries accessing sexual health services. The article results were analyzed using Atlas Ti qualitative analysis software to synthesize the findings. The Joanna Briggs Institute checklist for qualitative research, cross sectional and analytic studies, and the Mixed Methods Appraisal tool were used to assess the quality of included articles. The 23 studies represent India (n = 10, 43.5%), Nepal (n = 5, 21.7%), Pakistan (n = 4, 17.4%), Bangladesh (n = 3, 13.0%) and Sri Lanka (n = 1, 4.3%). Literature findings identify a lack of service awareness, social stigma, confidentiality concerns, cost hindrances, and poor provider experience as barriers to care access. Inequities in sexual health service access exist for AYA and there are service gaps based on gender. Future research should

further explore the services that youth are most in need of and how to best offer services in specific contexts.

Keywords: *Sexual health services, South Asia, Adolescents and Young Adults.*

Introduction

Without access to high quality sexual health services and education, adolescents and young adults (AYA) (defined as ages 15 to 24 for the purpose of this review) are especially vulnerable to the harmful consequences of sexually transmitted infections (STIs), including human immunodeficiency virus (HIV), and unplanned pregnancies (UNFPA, UNESCO, & World Health Organization, 2015). Worldwide, 15 to 24 year-olds experience the highest rates of sexually transmitted infections (STIs), representing almost 50% of all newly acquired STIs and 42% of new HIV infections in 2010 (UNAIDS, 2012). Today's youth generation is the largest in history, with 1.8 billion of the world's population between 10 to 24 years of age. Most of these young people live in low-to-middle income countries and 60% live in Asia and the Pacific, where all of the South Asian Association for Regional Cooperation (SAARC) countries are located.

India has the highest number of 10 to 24-year old's in the world (356 million) followed by Pakistan in third (59 million) and Bangladesh in fourth (48 million). SAARC is a geopolitical union of nations in South Asia and includes the following countries: Afghanistan, Bangladesh, Bhutan, India, Nepal, the Maldives, Pakistan and Sri Lanka (Sáez, 2012). Due to changing socio-cultural norms and an increase in the age of marriage, there are rising numbers of young people in SAARC countries who have sexual experiences before marriage in contexts where this has not traditionally been accepted (Adhikari, 2009; Allendorf & Pandian, 2016; Basu, 2008; Damaru, 2012; Zaidi & Shuraydi, 2002). Providing the appropriate sexual health services that are also tailored to

this age group (referred to as “youth-friendly” by the World Health Organization (WHO) are important steps towards improving sexual health service access to ultimately reduce the potential consequences of sexual health problems such as HIV, unintended pregnancy and STIs (World Health Organization, 2012).

Background

In order to optimally promote sexual health for AYA, it is important to focus on sexual health services which includes potentially life-saving education, screening and treatment for pregnancy, STIs, HIV, cervical cancer and other conditions. These health services aim to reduce the health consequences of sexual health conditions. For example, in India estimates suggest that 13% of adults living with HIV are between the ages of 15 and 24 (Avert, 2017). In Nepal, the self-reported STI rates are at least three times higher amongst young men than older men (Ministry of Health, 2016). Moreover, a demographic study in Pakistan found that only 28% of young men aged 15 to 24 knew that condoms could prevent HIV (National Institute of Population Studies, 2013). An important STI, Human Papillomavirus (HPV), has a causal relationship with cervical cancer, which is one of the most common types of cancer for women living in SAARC countries (Bobdey, Sathwara, Jain, & Balasubramaniam, 2016; Thapa et al., 2018).

Sexual health services are defined by the WHO as the provision of health care related to the sexual health of the population of interest (World Health Organization, 2012). The WHO recommends several key sexual health services and the implementation

of youth-friendly care (World Health Organization, 2010). Examples of key services include testing and screening for STIs (including HIV) and reproductive tract infections (RTIs), counselling on unintended pregnancy and safe abortion care, addressing violence related to gender and sexuality, and advocating for young people's sexual health education, among others. The WHO, presents five key dimensions that are required to achieve a youth-friendly health service (World Health Organization, 2012). The service must be equitable, accessible, acceptable, appropriate and effective. For a service to be *equitable*, all youth must be able to obtain the health services that are available. The providers and support staff offering the service must do so equally for all youth clients, and there should be policies in place that do not restrict the provision of the service based on the client's status. *Accessible* services are ones that youth are well informed about and know how to obtain. The policies in place should make sure that the service is either free or affordable to youth and the hours of service delivery should be convenient. For the service to be considered *acceptable* and for youth to be willing to obtain the service it should guarantee confidentiality and ensure privacy. The services must also be *appropriate*, meaning that the health services offered are the right ones for the population and they actually need the services. Finally, the youth friendly services offered must also be *effective*, such that they are provided in a way that positively impacts the health of the clients using the services.

A report conducted by the United Nations Population Fund (UNFPA) on the sexual and reproductive health of young people in Asia and the Pacific identified several

key research focus areas (UNFPA et al., 2015). The report found that there is relatively limited data on the sexual and reproductive health of sexually active unmarried young people (defined as individuals ages 10 to 24) as well as a lack of data on the practice and outcomes for young people that undergo an abortion procedure, particularly in settings where abortion is illegal. Research on sexual health service access is particularly important to prevent and reduce sexual health consequences such as unintended pregnancy rates, and sexually transmitted infections. Thus, the purpose of this integrative review is to: 1) identify the type of sexual health services used by unmarried AYA in SAARC countries; and 2) analyze the experience of study participants accessing sexual health services using the WHO framework for youth friendly health services.

This review focuses on AYA (15 to 24 years old) living in urban or semi-urban environments due to significant internal urban migration for reasons such as employment opportunities, increased living standards and political circumstances (United Nations Department of Economic and Social Affairs, 2014). Significant rural to urban migration in South Asia has led to a failure to cope with the pressures of increasing population numbers through implementing basic urban services such as healthcare (Ellis & Roberts, 2016). The Economist Intelligence Unit (EIU) found in 2015 that across five dimensions used to assess a “livable city” (stability, health care, culture and the environment, education, and infrastructure) no major city in South Asia ranked higher than 110 out of 140 cities assessed globally (Economist Intelligence Unit, 2015). This emphasizes the

need to focus on the delivery of health care for this urban AYA population in SAARC countries.

Methods

Search Strategy. This review followed an integrative review methodology outlined by Whittemore and Knafl (2005). Figure 2.0 presents a visual representation of the search strategy, which has been reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Liberati et al., 2009). The first author (JJ) searched: PubMed, CABI Global Health, and Popline, and Table 2.0 presents the specific search strategies used for this review. Examples of key terms include: “Sexual Health Services”, “Reproductive Health”, “Women’s Health” and “Family Planning Services”. The initial search was run in 2017 and rerun in 2019 to account for a lapse in time since the original search. The Popline database was closed in January 2019 and was not able to be included in the rerun of the search. The search strategy for this review was developed and reviewed throughout the search and screening process in collaboration with a health information specialist from the University of Pennsylvania Biomedical Library.

Inclusion Criteria. For this review inclusion criteria were developed to identify original research that focused on AYA in SAARC countries use of sexual health services. Eligible articles were published between 2007 and 2019, written in English, research

conducted in one of the SAARC countries, and included a study population where at least 50% of the participants were between the ages of 15 and 24. In addition, at least 50% of the study population lived in an urban or semi-urban environment and articles either had to have a majority unmarried or student population. Review articles, commentaries, editorials, and abstracts were excluded from this review, however grey literature that included primary research by a United Nations agency were included.

Study Procedures. The initial and rerun search of three electronic databases yielded 1,979 citations. The first author (JJ) completed the study identification and screening process using Endnote as an organizational tool. The citations of identified articles were screened, and duplicates were removed (n = 210)**.** Following this, the title and abstract of the remaining citations (n = 1,769) were screened and studies that were not relevant to the topic were excluded (n = 1,620). The full texts of the remaining articles (n = 149) were reviewed. In total, twenty-three studies met the eligibility criteria.

To appraise the quality of the included research studies and to assess internal validity, three critical appraisal tools were used: 1) the Joanna Briggs Institute checklist for qualitative research; 2) the Joanna Briggs Institute checklist for analytical cross-sectional studies; and 3) an adapted version of the Mixed Methods Appraisal Tool (MMAT) (Joanna Briggs Institute, 2014, 2016; Pluye, Robert, Cargo, & Bartlett, 2011). All these tools include eight to ten questions each and each tool has specific questions that are designed to address possible bias in study design, conduct and analysis. The

answers to each of the eight questions can either be reported as “yes”, “no”, “unclear” or “not applicable”. A points system was created based on this checklist, with articles receiving one point if the answer to a question was “yes”. If the answer to the question was “no” or “unclear”, the article would not receive any points. If a question was answered as “not applicable” then the maximum number of points would be decreased by one. This would lead to a total point score, which is presented as a percentage in Table 2.3. Based on this percentage, the research study was then appraised as either poor, fair, or good.

The 23 included articles were then extracted for the following descriptive study information: 1) article characteristics (i.e., title, author, year, country, city and state); 2) study design and methods (i.e., study design, study size, study population, unmarried sample and sampling methods); and 3) population of interest (i.e., gender, age group). Qualitative descriptive analysis of the included article’s results was then completed in Atlas Ti using both deductive and inductive coding.

Five deductive codes were created based on the WHO definition of sexual health services: 1) STI testing, prevention, treatment and HPV/cervical cancer prevention; 2) unintended pregnancy prevention and safe abortion services; 3) sexual health counselling; 4) sexual health education; and 5) general primary sexual health care. These deductive codes were created to determine the sexual health service focus of the included articles.

To analyze the experience of AYA participants accessing sexual health services, inductive coding first allowed for ideas to emerge from the articles, for example the

acceptability of a public health midwife, service cost and health care provider preference. Inductive coding was then complemented by deductive coding based on the WHO 'quality of care' framework, and five deductive codes were incorporated that are considered important aspects of youth friendly care (i.e., accessibility, acceptability, equitability, appropriateness, and effectiveness). The first author (JJ) independently completed the qualitative data extraction process. Once the data were coded, thematic synthesis was used to identify key themes that were common across codes (Thomas & Harden, 2008). Following content analysis, key participant quotes were then presented as they relate to the WHO 'quality of care' aspects of youth friendly care to highlight the experiences of study participants accessing sexual health services.

Results

The included articles were published between 2012 and 2019, presenting some of the most recent literature on the topic. With the search parameters and strategies used, this review was only able to identify 23 relevant studies on sexual health service access by unmarried AYA in SAARC countries. Of the 23 included studies, 14 (60.8%) were published from 2012 to 2017 and 9 (39.5%) were published between 2007 and 2012. Ten (43.5%) of the included studies took place in India, 5 (21.7%) in Nepal, 3 (13.4%) in Bangladesh and 1 (4.4%) in Sri Lanka. No studies were found that took place in Afghanistan, Bhutan, of the Maldives. A majority of the included studies were quantitative (n=14, 60.8%) and all of the quantitative studies implemented a cross-

sectional survey design. Five (21.7%) studies were qualitative and 4 (17.4%) utilized a mixed method approach with a cross-sectional survey and either focus groups or in-depth interviews, or a combination of the two. In terms of gender focus, 10 (43.5%) of the studies focused on women only, 12 (52.2%) on men and women, and 1 (4.4%) on men only. Across all studies, there were a total of 15,383 participants. Of the included studies, 20 studies had either a majority unmarried or student sample study population, while three qualitative studies referenced unmarried participants without explicitly stating the total number of unmarried individuals. Details on the: study design, country, study size, study population, unmarried population, average age, gender focus, and sexual health service focus are presented in Table 2.2.

Sexual Health Service Focus. Several studies referred to participants visiting a health care provider or facility for sexual health service without specific mention of the type of sexual health services that were available and offered (n=11, 47.8%). These studies were coded under the category of “general primary sexual health care services”. Of the studies that did mention a particular type of sexual health service, 9 (39.1%) addressed STI/HIV testing, treatment and prevention along with HPV/Cervical cancer prevention. Nine (39.1%) presented results on unintended pregnancy prevention and safe abortion services. A total of 5 (21.7%) articles reported results on sexual health education. Only one study (4.3%) reported results on sexual health counselling. There was no literature on important healthcare related to sexual health counselling, particularly

in the following key areas of counselling: sexuality and gender-based violence prevention, sexual identity and gender orientation, sexual dysfunction and infertility, and chronic illness and disability related to sexuality.

Participants Experiences with Sexual Health Services.

***Service Accessibility*.** Analysis of service accessibility found that most participants were aware of health services, the distance to services, clinic opening times, the cost of services, and anticipated stigma from health care providers when accessing services. A significant number of studies, however (n = 9, 39.1%) reported a lack of awareness or a need for greater awareness of the sexual health services available to participants. A participant from one qualitative study mentioned that *"The center is beside my home, but I did not know about it."* (Ainul, Ehsan, Tasmiah, & Reichenbach, 2017, p. 15). Among studies that indicated the percentage of AYA aware of the sexual health services available to them, the range was from 2% to 45%. While some studies reported that distance was a significant obstacle to health service access, one study found that location was not a problem (Ainul et al., 2017; Kalyanwala, Zavier, Jejeebhoy, & Kumar, 2010; Talpur & Khowaja, 2012). A study on female sex workers (ages 15 and over) reported that they preferred to access a clinic that was far away from them for fear of recognition (Ghimire, Smith, & Van Teijlingen, 2011)**.**

Clinic opening times were an issue for some AYA (Agampodi, Agampodi, & Ukd, 2008; Ainul et al., 2017; Ghimire et al., 2011; Kamath et al., 2016; Regmi, Van

Teijlingen, Simkhada, & Acharya, 2010; Santhya, Prakash, Jejeebhoy, & Singh, 2014). Clinics were often only open during school times, so students were afraid they would be recognized at a clinic while wearing their school uniform. However, other AYA mentioned that it was convenient they could visit the clinic during their school break, and participants indicated a need for more convenient clinic hours. Cost of health care was also reported as a barrier to seeking care (*n* = 5, 21.7%). There were several reports that unmarried participants and those deemed to have multiples sexual partners, such as sex workers and those engaging in extra marital relationships, perceived that they had been charged more for health services they received (Iqbal, Zakar, Zakar, & Fischer, 2017; Santhya et al., 2014; Wahed et al., 2017).

More than half of the studies (*n* = 13, 56.5%) reported shyness, embarrassment, social taboo and actual or anticipated social stigma as major barriers to seeking sexual health services for AYA. Fear of being judged by those in their social network (friends, peers and family) was reported as a major barrier to seeking sexual health services for 30% to 55% of participants in studies that reported this as a percentage (Talpur & Khowaja, 2012; Tamang, Raynes-Greenow, McGeechan, & Black, 2017; Wahed et al., 2017). A participant from one qualitative study in Nepal stated that *"We have a belief that doctors may ask different questions. We always fear when answering these questions; so, we rarely go to them (clinic). We especially feel too shy to share our sexual behaviors with those doctors"* (Regmi et al., 2010, p. 621).

***Service Acceptability*.** Lack of service privacy and confidentiality was one of the most significant concerns reported by participants across multiple studies (*n* = 9, 39.1%). This resulted in participants feeling uncomfortable sharing their sexual health concerns in the clinic space. One study in India by Santhya et al., (2014) found that 25% of study participants reported that other clients were present during their consultation. Participants felt ashamed when visiting an STI testing center or when answering providers question. In a qualitative study by Kumar and Koliwad (2007, p. 5), a participant reported *"I don't want to go the testing center. If someone sees me going, they would think I am a bad girl. How do I know that my results won't be leaked to someone else?"*. A participant from a study in Nepal mentioned that *"Because I had to show my private parts to the doctor and they touch my genitals, it wasn't easy, it was very uncomfortable. So it's difficult"* (Menger, Kaufman, Harman, Tsang, & Shrestha, 2015, p. 327).

Experiences with service providers varied across studies, with several studies presenting what AYA saw as their preferred provider for sexual healthcare. While some participants reported a positive experience with the provider, others found the visits stigmatizing, judgmental and perceived receiving false health information from health care providers. Participants indicated a lack of attention given to the patient narrative. A participant from a qualitative study by Agampodi et al., (2008, p. 5) in Sri Lanka stated that *"The doctor and the attendant are very busy to clear off the crowd. If you start long stories, they will ask you to cut it short. How can you cut it short when you do not even know how to start?"*. During an in-depth interview with a participant in India a

participant stated that *"The doctor told me that it is wrong to engage in sex before marriage. He said that I could take the emergency contraceptive pill (ECP) after sex, but it is dangerous, that is, it can cause more bleeding and difficulty in conceiving (in future)"* (Santhya et al., 2014, p. 35). This quote is an example of incorrect information from a healthcare provider. However, not all interactions with service providers were reported to be negative. In a study in Bangladesh by Ainul et al., (2017, p. 16) a participant reported that *"I was surprised by her behavior. I didn't feel any hesitation and she listened to my problem patiently. I liked the service because of her friendly behavior"*.

The reputation of the facility and provider appeared to be important to participants, and several studies indicated characteristics of their preferred sexual health care provider. Participants appeared to prefer a provider with a formal healthcare background (e.g., doctor or nurse) as opposed to one with informal sexual health training (n = 5, 21.7%). Studies frequently (n = 8, 34.8%) reported that the gender of the service provider was important to them. Participants preferred a same-sex provider, especially one of closer or same age; however, many indicated that this was not always available. A female participant from Nepal mentioned that *"I am not aware of such services, but we may feel more comfortable if there are young service providers of the same gender. We cannot show parts of our body to male doctors (laughter)"* (Regmi et al., 2010, p. 622). This last quote indicates cultural taboos could also be a factor affecting access to needed health care.

In Sri Lanka it was found that young girls appreciated the services offered by a public health midwife, however boys refused this provider option and wanted to see a young male doctor (Agampodi et al., 2008). In the same qualitative study in Sri Lanka, boys had greater concerns about the lack of services available to them. Boys felt that they had fewer services available to them than girls did, with one participant stating that *"No one cares about boys, we have problems to discuss. We don't know whether these healthcare workers are good at solving problems. The way they treat other illnesses made me feel uncomfortable to discuss sensitive reproductive issues with them"*(Agampodi et al., 2008, p. 5). Girls and young women were more likely to indicate perceived social stigma towards sexual experiences before marriage and economic constraints as reasons they did not seek care (Menger et al., 2015; Santhya et al., 2014).

***Service Equitability*.** Unmarried study participants faced greater stigma when seeking sexual health services compared to married individuals. There was a general perception across three (13.0%) studies that married participants had greater access to sexual health services than unmarried participants (Andersen et al., 2015; Santhya et al., 2014; Wahed et al., 2017). In a study conducted in India by Santhya et.al., (2014) most of the respondents (68%) believed that unmarried women were charged more for an abortion than married women. In this study, there was the perception that health care providers discouraged unmarried young women from seeking sexual health services.

Service Appropriateness. Amongst studies that looked at STI and unwanted pregnancy prevention, participants were provided or offered some appropriate information and services, such as condoms, intrauterine devices (IUDs), and STI testing, however many unmarried participants indicated they were not provided with a service (Kumar & Koliwad, 2007; Santhya et al., 2014). In a study in India, a participant recalled that *"The doctor told me that he cannot prescribe an IUD for me since I am unmarried, and that he also cannot explain to me how the condom is used, but would explain it to my boyfriend"* (Santhya et al., 2014, p. 36). This experience is also representative of the inability of this unmarried participant to receive effective sexual health care, and a lack of decision-making autonomy for the female participant. When it came to sexual health education, studies that indicated a percentage of participants who agreed that sexual health education was an appropriate and necessary topic found that over 80% of participants thought of sexual education to be an appropriate service that should be offered to them. Because multiple studies did not mention the specific services AYA were seeking or offered, it was difficult to discern service appropriateness.

Service Effectiveness. Several studies found that participants felt the consultation experience was an uncomfortable one (n = 4, 18.0%), with mixed reviews concerning the effectiveness of the service provided, particularly related to a lack of available medicines, and lack of sexual health education (Menger et al., 2015; Regmi et al., 2010; Santhya et al., 2014; Wahed et al., 2017). In a qualitative study in India, one female mystery client

recalls how she was not able to receive the IUD she wanted because of sex before marriage *"The doctor told me that I should not engage in sex before marriage… He told me that he cannot insert an IUD for me as I am unmarried; that I could use an injection that can prevent pregnancy for three months' or I could use condoms or the OCP. He advised me to take a packet of condoms for my boyfriend"* (Santhya et al., 2014, p. 35). In Nepal, an unmarried male participant describes a clinic experience where he was not able to receive the service he needed *"Once, I have a pain in my younanga (penis). My friend advise me to visit the health post. When I dared to share my problem, the health service provider shouted at me. Later, I went to another hospital for check-up"* (Regmi et al., 2010, p. 622). These experiences represent the inability of AYA to received effective sexual health care.

Quality of The Evidence. Using the evidence appraisal tools, a significant proportion of the studies were of "fair" quality (n = 11, 47.8%) and few were noted to be of good quality (n = 6, 26.1%). The qualitative studies were not based on a philosophical perspective or guided by a clear theoretical framework. Qualitative studies should address this in order to explore and reduce the potential for researcher bias. Quantitative studies lacked psychometrically sound instruments to measure the research objective. Most of the quantitative research was descriptive, and correlational studies were limited to examining differences in sociodemographic service use. There were no longitudinal or intervention studies.

Discussion

There is a lack of research on the sexual health of unmarried AYA in SAARC countries. Across the 23 included studies published between 2012 and 2019, the specific type of sexual health services unmarried AYA would seek at a clinic or from a provider was frequently not reported. In studies that did specify the type of sexual health service, unintended pregnancy prevention and the provision of safe abortion care, and STI/HIV testing and prevention were the two most commonly researched sexual health services. Five studies also focused on sexual health education. Research has traditionally explored sexual health services within the context of reproduction and family planning. There was no literature on important sexual health services in the area of counselling (i.e., counseling on sexuality and gender-based violence prevention, sexual identity and gender orientation, sexuality and mental health, safe and satisfying sexual experiences, sexual dysfunction and infertility, sexuality, chronic illness and disabilities). Analysis based on the WHO framework for youth friendly health service delivery highlighted several barriers to sexual healthcare for AYA.

This integrative review identified the following barriers to sexual health service access for participants across the various studies: 1) social stigmatization of unmarried adults for sexual experiences before marriage; 2) lack of service awareness; 3) inappropriate clinic opening times; 4) appropriate distance to a clinic; 5) cost of clinic services and higher costs for unmarried adults; 6) a lack of privacy and confidentiality; 7) poor provider experiences; 8) refusal to provide certain services to unmarried adults; and

9) provision of false health information. The barriers to sexual health services identified in this review have important implications for future programs and policies to establish youth friendly sexual healthcare in this region.

As presented by the World Health Organization, to appeal to youth a sexual health service should include ethical aspects of care (World Health Organization, 2012). Barriers such as a lack of service awareness, social stigmatization for sexual experiences before marriage by health care workers, the cost of services, and inaccessible opening times suggests deficits in service accessibility and the inequitable distribution of sexual health care in SAARC countries. Additionally, a lack of clinic privacy and confidentiality, and poor experiences with providers suggests that participants find sexual health services to be of questionable quality. Moreover, unmarried AYA were not always provided with the health service they visited the clinic for, such as the provision of appropriate modern contraceptive methods. This can partly be attributed to the stigmatization of unmarried study participants by health care providers for engaging in sexual relationships before marriage. Stigmatization of unmarried AYA is accompanied by the dissemination of sexual health misinformation. This can result in AYA being misinformed and refusing to access a health clinic for sexual health care. This can lead to sexual risk behavior such as unprotected sexual intercourse and not seeking safe abortion care. All of the barriers to sexual health services presented indicate the importance of implementing youth friendly clinical practice and provide direction for future research. For example, in order to access health care AYA must first be aware of the services that

are available to them. A lack of basic health service awareness is a key barrier to health service access. Thus, providing youth friendly health care that aims to increase access to quality sexual health care remains a priority in SAARC countries.

At present, the state of the science on sexual health care access among unmarried AYA in the SAARC region is still in the early stages of descriptive research and has not yet evolved to utilize sophisticated research methodologies as compared with other geographical contexts such as the African continent. Africa is used as a comparator given similar health challenges but with significant additional funding and health policy directed towards sexual health service research due to the AIDS epidemic ("The HIV/AIDS Epidemic In Africa: Implications For U.S. Policy," 2002). Notably, sub Saharan Africa, which includes many developing countries analogous to SAARC countries, has been the recipient of large amounts of funding for research and health care infrastructure to combat the HIV epidemic. As a result, for example, in countries such as Uganda, Ghana and South Africa, there is evidence of studies that have tested the feasibility and effects of various health behavioral interventions on sexual health service acceptability and usage (Nuwamanya et al., 2018; Smith, Tolla, Marcus, & Bekker, 2019; Tabong et al., 2018).

In this integrative review, a high proportion of studies were of “fair” quality and few were noted to be of “good” quality based on the evaluation metrics indicated above. To improve our understanding of sexual health service access, in the future it would be important to explore a variety of individual, environmental, and system-related factors to

understand significant factors associated with sexual health use amongst this population. This future research in the SAARC region should explore and understand key factors associated with barriers to sexual health service access for unmarried AYA within specific geographic, cultural, economic and social contexts in SAARC countries. The ultimate goal of such research should be to develop and implement innovative guidelines and strategies that aim to increase access, utilization, and quality of effective sexual health care.

Conclusion

There are a host of concerns that affect the use of sexual health services for unmarried AYA. This includes but is not limited to a lack of service awareness, stigmatization and privacy concerns, financial worries, and poor provider experiences. All of the barriers outlined present opportunities for dialogue and future research to improve sexual health service access. More sophisticated research designs and methodological approaches would help to build greater knowledge of predictors of service use among AYA, advancing the state of the science and the care that is needed for this vulnerable population. There was also limited literature on important sexual health services such as sexual health counselling and sexual health education, and this has implications for clinical practice to determine methods of providing specific services to a newly emerging at-risk-population.

Figure 2.0: PRISMA Flow Diagram

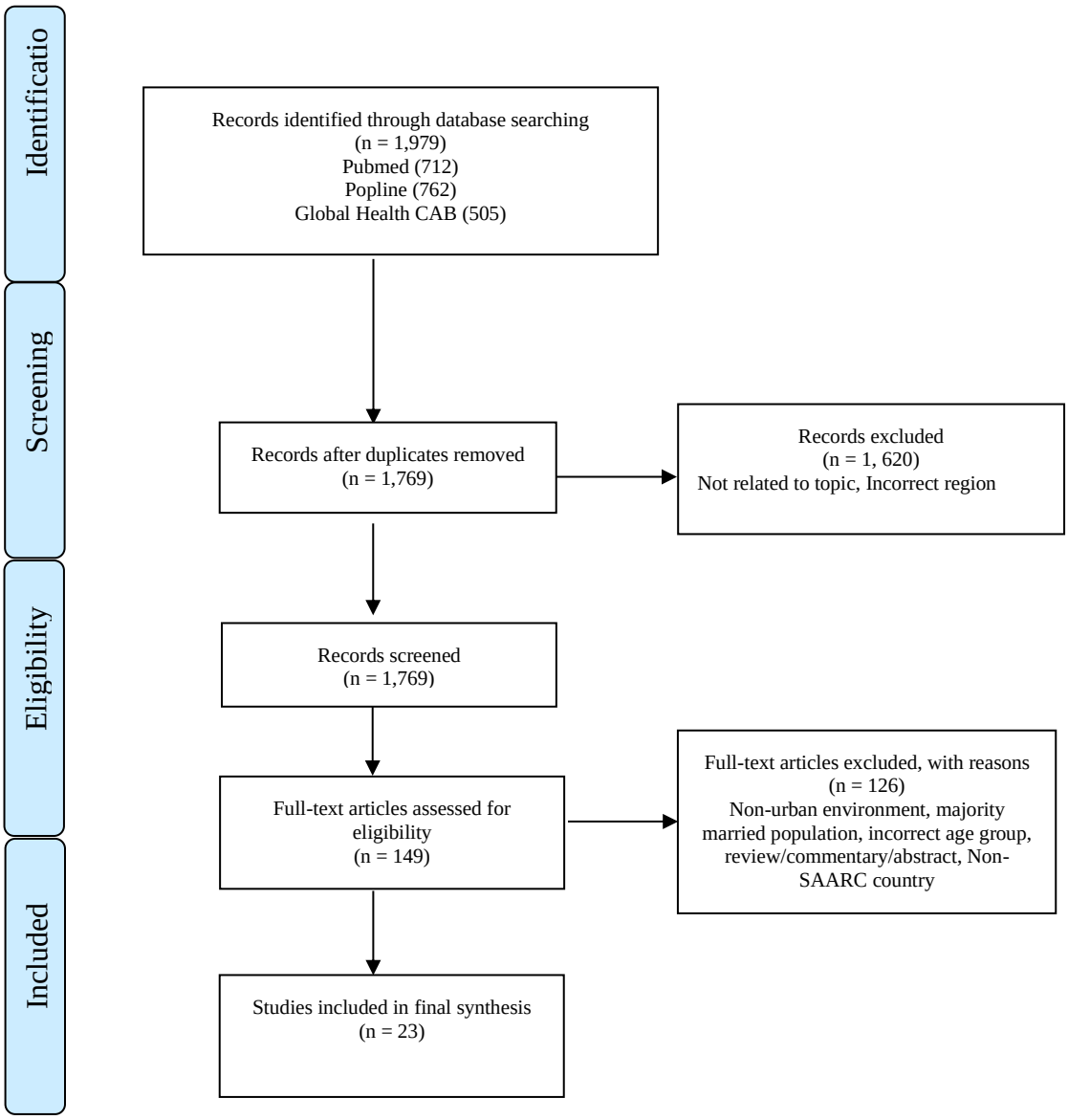

Table 2.0: Database Search Terms

Database	Search Terms
PubMed	Search parameter: Jan 2007 – Jan 2018 ("Sex Education"[Mesh]) AND "Asia, Western"[Mesh] Results: 65 ("Family Planning Services"[Mesh]) AND "Asia, Western"[Mesh] Results: 305 ("Reproductive Health"[Mesh]) AND "Asia, Western"[Mesh] Results: 133 ("Women's Health Services"[Mesh]) AND "Asia, Western"[Mesh] Results: 92 youth friendly services AND "Asia, Western"[Mesh] Results:27 Search parameter: Jan 2018 – July 2019 ("Sex Education"[Mesh]) AND "Asia, Western"[Mesh] Results: 9 ("Family Planning Services"[Mesh]) AND "Asia, Western"[Mesh] Results: 46 ("Reproductive Health"[Mesh]) AND "Asia, Western"[Mesh] Results: 19 ("Women's Health Services"[Mesh]) AND "Asia, Western"[Mesh] Results: 11 youth friendly services AND "Asia, Western"[Mesh] Results:5
Popline	Sex Education, 2007 - 2017, Asia Southern, Results: 391 Sexual health services, 2007 - 2017, Asia Southern, Results: 371 Database closed in Jan 2019
CABI Global Health	Search parameter: Jan 2007 – Jan 2018 Sexual health services Results: 238 Family planning services AND South Asia, Results: 78 Sex Education AND South Asia Results: 94 Updated Search parameter: Jan 2018 – July 2019 Sexual health services Results: 64 Family planning services AND South Asia Results: 25 Sex Education AND South Asia Results: 6

Table 2.1: Study Characteristics

Author & year	Title	Country	City/State	Study Design	Study Size	Unmarried/student Population	Study Population	Average Age	Gender	Sexual Health Service Focus
Agampodi et al. (2008)	Adolescent perceptions of reproductive health care in Sri Lanka (Agampodi et al., 2008)	Sri Lanka	Kalutara	Qualitative, focus groups	Focus groups = 32	32 (100%)	School and non-school adolescents	17-19	Men & Women	General primary sexual health care services
Ainul et al. (2017)	Adolescent Friendly Health Corners (AFHCs) in selected government health facilities in Bangladesh: An early qualitative assessment (Ainul et al., 2017)	Bangladesh	Moulivibazar, Thakurgaon, Patuakhali, Sirajganj, Cox's Bazar	Qualitative, in depth interviews	In depth interviews = 50	50 (100%)	Unmarried adolescent girls	15-19	Women only	General primary sexual health care services
Andersen et al. (2015)	Marital status and abortion among young women in Rupandehi, Nepal (Andersen et al., 2015)	Nepal	Rupanedhi district	Cross sectional survey	n = 600	325 (54%)	Rupanedhi district women	17.8	Women only	Unintended pregnancy prevention, safe abortion services
Benzaken et al. (2011)	Exposure to and opinions towards sex education among adolescent students in Mumbai: A cross-sectional survey (Benzaken, Palep, & Gill, 2011)	India	Mumbai	Cross-sectional survey	n = 427	Student Population	Junior college students	15-20	Men & Women	Sexual health education

Ghimire et al. (2011)	Utilization of sexual health services by female sex workers in Nepal (Ghimire et al., 2011)	Nepal	Kathmandu Valley	Mixed Methods	Survey n = 425 In depth interviews n = 15	Survey =55.6% of regression analysis In depth interviews = 9 (60%)	Female sex workers	15-46	Women only	General primary sexual health care services
Gupta et al. (2015)	Inequity in awareness and utilization of adolescent reproductive and sexual health services in union territory, Chandigarh, North India (Gupta, Bhatnagar, & Bahugana, 2015)	India	Chandigarh	Cross-sectional survey	n = 854	Student population	School and non-school	10-19	Men & women	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment; Unintended pregnancy prevention, safe abortion services; Sexual health education
Iqbal et al. (2017)	Perceptions of adolescents' sexual and reproductive health and rights: a cross-sectional study in Lahore District, Pakistan (Iqbal et al., 2017)	Pakistan	Lahore	Mixed Methods	Survey n = 600 Focus groups n = 24	Student population	Lahore young adolescents	17.3	Men & Women	General primary sexual health care services
Kabir et al. (2014)	Treatment-seeking for selected reproductive health problems: behaviours of unmarried female adolescents in two low-performing areas of Bangladesh	Bangladesh	Dhaka City, Nabiganj Upazila	Cross-sectional survey	n = 1600	1,600 (100%)	Dhaka city adolescents	12-19	Women only	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment; General primary sexual health care services

	. (Kabir, Saha, Wirtz, & Gazi, 2014)									
Kalyanwala et al. (2010)	Abortion experiences of unmarried young women in India: evidence from a facility-based study in Bihar and Jharkhand (Kalyanwala et al., 2010)	India	Bihar, Jharkand	Cross-sectional survey	n = 549	549 (100%)	Unmarried women seeking abortion	19.5	Women only	Unintended pregnancy prevention, safe abortion services
Kamath et al. (2016)	A qualitative study on how adolescent males in South India view reproductive health (Kamath et al., 2016)	India	Karnatake	Qualitative, in depth interviews & focus groups	In depth interviews = 10 Focus groups = 6	Student population	Udupi Taluk adolescent	16-19	Men only	General primary sexual health care services
Khan et al. (2016)	Knowledge, attitudes, and perception towards human papillomavirus among university students in Pakistan (Khan, Buksh, Rehman, & Saleem, 2016)	Pakistan	Lahore	Cross-sectional survey	n = 390	Student population	Public and private university students	23	Men & Women	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment, HPV/ Cervical cancer prevention
Kulkarni et al. (2015)	Awareness and practice regarding cervical cancer prevention among female college	India	Mangalore	Cross-sectional survey	n = 260	Student population	Pre-university and degree college women	17-20	Women only	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment, HPV/ Cervical cancer

	students of Mangalore city, India (Kulkarni et al., 2015)									prevention
Kumar et al. (2007)	Perception and risk behaviour related to HIV / AIDS among unmarried female college students of Maharashtra, India (J. Kumar & Koliwad, 2007)	India	Maharastra	Cross-sectional survey	n = 1098	1,098 (100%)	College students	19	Women only	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment, HPV; Unintended pregnancy prevention, safe abortion services
Kumar et al. (2017)	Knowledge Attitude and Perception of Sex Education among School Going Adolescents in Ambala District, Haryana, India: A Cross-Sectional Study (R. Kumar et al., 2017)	India	Haryana	Cross-sectional survey	n = 743	Student population	School going adolescents	15.96	Men & Women	Sexual health education
McManus et al. (2008)	Study of knowledge, perception and attitude of adolescent girls towards STIs/HIV, safer sex and sex education: (a cross sectional survey of urban adolescent	India	South Delhi	Cross-sectional survey	n = 251	Student population	Adolescent schoolgirls	16.38	Women only	General primary sexual health care services

	school girls in South Delhi, India) (McManus & Dhar, 2008)									
Menger et al. (2015)	Unveiling the silence: women's sexual health and experiences in Nepal (Menger et al., 2015)	Nepal	Kathmandu	Qualitative, in depth interviews & focus groups	In depth interviews = 13 Focus groups = 5	Unstated unmarried participants	Kathmandu women	20-36	Women only	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment; Sexual health education; General primary sexual health care services
Nasim et al. (2012)	Adolescent's perspective on reproductive health: a study from Karachi (Shahid, Nasim, Memon, & Mustafa, 2012)	Pakistan	Karachi	Cross-sectional survey	n = 912	Student population	College students	17-19	Men & Women	Sexual health education
Regmi et al. (2010)	Barriers to sexual health services for young people in Nepal (Regmi et al., 2010)	Nepal	Kathmandu, Chitwan	Qualitative, in depth interviews & focus groups	In depth interviews = 31 Focus groups = 10	Unstated unmarried participants	College and youth club students	15-24	Men & Women	Unintended pregnancy prevention, safe abortion services; General primary sexual health care services
Santhya et al. (2014)	Accessing adolescent friendly health clinics in India: The perspectives of adolescents and youth	India	Jharkand, Maharashtra, Rajasthan	Mixed Methods	Mystery Client interviews n = 24 Exit Interviews n = 5 Survey	Survey = 1,117 (52.4%)	Adolescents and young adults in community	Survey UYM = 18.6 Survey UYW = 17.5	Men & Women	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment; Sexuality & gender

	(Santhya et al., 2014)				n = 2,131					based violence prevention, counselling; General primary sexual health care services
Sjostron et al. (2014)	Medical students' attitudes and perceptions on abortion: a cross-sectional survey among medical interns in Maharastra, India (Sjöström, Essén, Sydén, Gemzell-Danielsson, & Klingberg-Allvin, 2014)	India	Maharastra	Cross-sectional survey	n = 1996	Student Population	Fifth year medical students	20-24	Men & Women	Unintended pregnancy prevention, safe abortion services
Talpur et al. (2012)	Awareness and attitude towards sex health education and sexual health services among youngsters in rural and urban settings of Sindh, Pakistan (Talpur & Khowaja, 2012)	Pakistan	Sindh	Cross-sectional survey	n = 150	102 (72%)	Public and private university students	16-25	Men & Women	Unintended pregnancy prevention, safe abortion services; General primary sexual health care services
Tamang et al. (2017)	Knowledge, experience, and utilization	Nepal	Kathmandu Valley	Cross-sectional survey	n = 1400	1,133 (80.9%)	Adolescents and young adults in	15-24	Men & Women	STI/HIV Testing, STI/HIV Prevention,

	of sexual and reproductive health services amongst Nepalese youth living in the Kathmandu Valley (Tamang et al., 2017)						community			STI/HIV Treatment; Unintended pregnancy prevention, safe abortion services; General primary sexual health care services
Wahed et al. (2017)	Barriers to sexual and reproductive healthcare services as experienced by female sex workers and service providers in Dhaka city, Bangladesh (Wahed et al., 2017)	Bangladesh	Dhaka	Mixed Methods	Survey n = 731 Focus Group n = 23	Unstated unmarried participants	Female sex workers	15-49	Women only	STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment; Unintended pregnancy prevention, safe abortion services; General primary sexual health care services

Table 2.2: Study Characteristics (continued)

	Number of studies (n)	Percent of studies (%)
SAARC Country		
Afghanistan	0	0
Bangladesh	3	13.4
Bhutan	0	0
India	10	43.5
Nepal	5	21.7
The Maldives	0	0
Pakistan	4	17.4
Sri Lanka	1	4.4
Publication Date		
2007-2009	3	13.4
2010-2012	6	26.1
2013-2015	7	30.4
2016-2017	7	30.4
2018-2019	0	0
Study Design		
Cross-sectional survey	14	60.8
Qualitative	5	21.7
Mixed methods	4	17.4
Gender Focus		
Women only	10	43.5
Men only	1	4.4
Men & women	12	52.2

Sexual Health Service Focus	Number of studies (n)	Percent of total studies (%)
STI/HIV Testing, STI/HIV Prevention, STI/HIV Treatment, HPV/ Cervical cancer prevention	9	39.1
Unintended pregnancy prevention, safe abortion services	9	39.1
Sexual health counselling	1	4.3
Sexual health education	5	21.7
General primary sexual health care services	11	47.8

	Number of total studies (n)	Percent of total studies (%)
Quality Assessment		
Poor	6	26.1
Fair	11	47.8
Good	6	26.1

Table 2.3: Quality Appraisal

Qualitative Appraisal

Author(s)	Title	1	2	3	4	5	6	7	8	9	10	Total Score*	Appraisal
Agampodi et al. (2008)	Adolescent perceptions of reproductive health care in Sri Lanka	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	6/10 (60%)	Fair
Ainul et al. (2017)	Adolescent Friendly Health Corners (AFHCs) in selected government health facilities in Bangladesh: An early qualitative assessment	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	6/10 (60%)	Fair
Kanath et al. (2016)	A qualitative study on how adolescent males in South India view reproductive health	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	6/10 (60%)	Fair
Menger et al. (2015)	Unveiling the silence: women's sexual health and experiences in Nepal	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	6/10 (60%)	Fair
Regmi et al. (2010)	Barriers to sexual health services for young people in Nepal	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	6/10 (60%)	Fair

*Questions:

1. Is their congruity between the stated philosophical perspective and the research methodology?
2. Is there congruity between the research methodology and the research question or objectives?
3. Is there congruity between the research methodology and the methods used to collect data?
4. Is there congruity between the research methodology and the representation and analysis of data?
5. Is there congruity between the research methodology and the interpretation of results?
6. Is there a statement locating the researcher culturally or theoretically?
7. Is the influence of the researcher on the research, and vice-versa, addressed?
8. Are the participants, and their voices, adequately represented?
9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?
10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

Author(s)	Title	1	2	3	4	5	6	7	8	Total Score*	Appraisal
Andersen et al. (2015)	Marital status and abortion among young women in Rupandehi, Nepal	No	Yes	Unclear	Unclear	No	No	Unclear	Yes	2 (25%)	Poor
Benzaken et al. (2011)	Exposure to and opinions towards sex education among adolescent students in Mumbai: A cross-sectional survey	No	Yes	No	No	3No	No	Unclear	Yes	2 (25%)	Poor
Gupta et al. (2015)	Inequity in awareness and utilization of adolescent reproductive and sexual health services in union territory, Chandigarh, North India	No	Yes	Yes	Yes	No	No	Yes	Yes	5 (62.5%)	Fair
Kabir et al. (2014)	Treatment-seeking for selected reproductive health problems: behaviours of unmarried female adolescents in two low-performing areas of Bangladesh	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6 (75%)	Good
Kalyanwala et al. (2010)	Abortion experiences of unmarried young women in India: evidence from a facility-based study in Bihar and Jharkhand	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6 (75%)	Good
Khan et al. (2016)	Knowledge, attitudes, and perception towards human papillomavirus among university students in Pakistan	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6 (75%)	Good
Kulkarni et al. (2015)	Awareness and practice regarding cervical cancer prevention among female college students of Mangalore city, India	No	No	No	No	No	No	Unclear	Yes	1 (12.5%)	Poor
Kumar et al. (2007)	Perception and risk behaviour related to HIV / AIDS among unmarried female college students of Maharashtra, India	No	Yes	Yes	Yes	No	No	Yes	Yes	5 (62.5%)	Fair
Kumar et al. (2017)	Knowledge Attitude and Perception of Sex Education among School Going Adolescents in Ambala District, Haryana, India: A Cross-Sectional Study	No	Yes	No	No	No	No	No	Yes	2 (25%)	Poor
McManus et al. (2008)	Study of knowledge, perception and attitude of adolescent girls towards STIs/HIV, safer sex and sex education: (a cross sectional survey of	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7 (87.5%)	Good

	urban adolescent school girls in South Delhi, India)										
Nasim et al (2012)	Adolescent's perspective on reproductive health: a study from Karachi	No	Yes	No	Unclear	No	No	No	Yes	2 (25%)	Poor
Sjostron et al. (2014)	Medical students' attitudes and perceptions on abortion: a cross-sectional survey among medical interns in Maharashtra, India	No	Yes	No	Unclear	No	No	No	Yes	2 (25%)	Poor
Talpur et al. (2012)	Awareness and attitude towards sex health education and sexual health services among youngsters in rural and urban settings of Sindh, Pakistan	Yes	Yes	No	Unclear	No	No	No	Yes	3 (37.5%)	Fair
Tamang et al. (2017)	Knowledge, experience, and utilization of sexual and reproductive health services amongst Nepalese youth living in the Kathmandu Valley	Yes	Yes	Yes	Unclear	No	No	Yes	Yes	5 (62.5%)	Fair

Quantitative Appraisal

*Questions:

1. Were the criteria for inclusion in the sample clearly defined?
2. Were the study subjects and the setting described in detail?
3. Was the exposure measured in a valid and reliable way?
4. Were objective, standard criteria used for measurement of the condition?
5. Were confounding factors identified?
6. Were strategies to deal with confounding factors stated?
7. Were the outcomes measured in a valid and reliable way?
8. Was appropriate statistical analysis used?

Mixed Methods Appraisal

Author(s)	**Title**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Total Score***	**Appraisal**
Ghimire et al. (2011)	Utilization of sexual health services by female sex workers in Nepal	No	Yes	Unclear	Yes	No	Yes	Yes	Unclear	Unclear	Yes	5/10 (50%)	Fair
Iqbal et al. (2017)	Perceptions of adolescents' sexual and reproductive health and rights: a cross-sectional study	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	9/10 (90%)	Good

	in Lahore District, Pakistan												
Santhya et al. (2014)	Accessing adolescent friendly health clinics in India: The perspectives of adolescents and youth	Yes	Yes	Unclear	Yes	No	Unclear	Yes	No	Yes	Yes	6/10 (60%)	Fair
Wahed et al. (2017)	Barriers to sexual and reproductive healthcare services as experienced by female sex workers and service providers in Dhaka city, Bangladesh	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	8/10 (80%)	Good

*Questions:

1. Are there clear qualitative and quantitative research questions (or objectives), or a clear mixed methods question (or objective)?
2. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?
3. Is the process for analyzing qualitative data relevant to address the research question (objective)?
4. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?
5. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?
6. Is the sampling strategy relevant to address the quantitative research question (qualitative and quantitative aspects of mixed methods question)?
7. Is the sample representative of the population understudy?
8. Are measurements appropriate (clear origin, or validity known, or standard instrument)?
9. Is there an acceptable response rate (60% or above)?
10. Is the integration of qualitative and quantitative data (or results) relevant to address the research question (objective)?

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CHAPTER 3: FACTORS ASSOCIATED WITH SEXUAL HEALTH SERVICE USE AMONGST UNMARRIED YOUNG ADULTS IN KATHMANDU, NEPAL

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Abstract

Purpose: Research on how to effectively deliver sexual health services to unmarried young adults in Nepal is limited. This study examined key theoretical correlates from Andersen's Behavioral Model of Health Service Use and intention as well as actual sexual health service use amongst a sample of unmarried young adults (ages 18 to 25) in Kathmandu, Nepal.

Methods: This study used a cross-sectional correlational design. Unmarried young adults between 18 and 25 years old were recruited from three colleges and universities in Kathmandu to take part in a one-time in person survey on a tablet device. A total of 110 women and 93 men (n=203) took part in the study. Key theoretical correlates of interest included: past sexual behavior, sexual health awareness and knowledge, perceived sexual risk and perceptions about the youth friendliness of the health system. Analysis involved descriptive statistics, bivariate analysis, and backwards elimination logistic regression.

Results: The mean age of participants was 19.6 (SD = 1.7). Approximately 37% of participants reported engaging in sexual intercourse, with 55.7% reporting condom use during most recent intercourse. Less than half (39.1%) were aware of sexual health services such as a safe abortion facility, and less than one third (26.6%) were aware of Human Papillomavirus (HPV). Actual reported sexual health service use was 13.9%, and amongst sexually active participants 19.4% reported accessing a sexual health service compared to 10.9% for non-sexually active participants ($X^2=2.67$; $p < 0.10$). Males

reported higher actual service use compared to females (64.3% vs 35.7%; $X^2=4.49$; $p < 0.05$). Logistic regression analyses showed higher perceived youth friendliness of the health system (OR, 1.11; CI, 1.01 – 1.23; $p < 0.05$), experiences with unwanted sexual contact (OR, 2.28: CI, 1.21 – 4.29; $p < 0.05$), and alcohol consumption (OR, 2.09; CI, 1.04 – 4.18; $p < 0.05$) were statistically significant predictors of intended sexual health service use. Participants who intended to use sexual health services had 3.8 times the odds of actually utilizing sexual health services compared to those who did not intend to use sexual health services (OR, 3.8; CI, 1.66 – 8.69; $p < 0.01$).

Keywords: *Sexual Health Services, Nepal, Youth Friendly Health Services,*

Introduction

Based on United Nations data from 2017, Nepal has the highest adolescent birth rate for young people ages 15 to 19 (88 per 1,000 girls) amongst all South Asian Association for Regional Cooperation (SAARC) countries.[1] Nepal also has a lower rate of satisfied demand for family planning (58%) compared to the median (65%) in SAARC countries. The maternal mortality ratio is higher in Nepal (186 per 100,000) compared to the overall SAARC median (178 per 100,000). Maternal mortality includes deaths as a result of unsafe abortion, which account for one of the leading global causes of maternal mortality (13%).[2]

Without access to relevant sexual health services such as sexually transmitted infection (STIs) and human immunodeficiency virus (HIV) testing, safe abortion care, and modern methods of family planning, young adults in Nepal are particularly vulnerable to poor sexual health outcomes. These outcomes include new HIV infections, increased risk for maternal mortality attributed to unsafe abortion, unwanted pregnancies and a high adolescent birth rate.[3] Limited research in Nepal has found that young people do not have access to appropriate and adequate sexual health services, and that there is a need for further research on how to effectively deliver these health services.[4-7]

While Nepal has traditionally had an arranged marriage system, research suggests that sexual relationships before marriage and casual relationships are common. A survey of emergency contraceptive use among 185 women in Pokhara, Nepal found 47% of emergency contraceptive pill (ECP) users were under 25 years of age, and 70% of ECP

users described their current sexual relationship as infrequent. In this study, nearly one third of ECP users reported being unmarried. Research by Tamang et al.[4] conducted amongst 1,400 youth ages 15 to 24 (80.9% never married) in the Kathmandu Valley found that 35% of participants were sexually active. Amongst sexually active participants, only 17.5% reported condom use at first sexual intercourse, despite relatively high awareness of condoms as a safe sexual practice (92.7%). A further study by Khatiwada et al.,[8] that analyzed data from the 2011 Demographic and Health Survey found that Nepalese youth (ages 15 to 24) have sexual experiences before marriage at an earlier age than found in previous Demographic and Health Surveys despite traditional cultural and religious expectations. These findings underscore the importance of focusing on the sexual health of this unmarried young population.

Although important health services such as safe abortion care have been legal in Nepal since 2002, data from the 2011 Demographic and Health Survey found that only 41% of female youth knew abortion was legal.[9] A further study that analyzed data from abortion facilities across Nepal found that of 323,100 abortions, 63,200 women were treated for abortion complications and only 137,000 abortions were completed legally.[10] Findings from a United Nations Population Fund (UNFPA) review of the literature on unmarried young people's (ages 10 to 24) sexual health behavior in Nepal between 2005 and 2015 highlighted the stigma from healthcare providers for sexual experiences before marriage that unmarried women face when seeking abortion care.[7] The World Health Organization (WHO) recommends youth friendly models of healthcare that offer

equitable, accessible, acceptable, appropriate and effective care to increase youth service access.[11]

Given the importance of research on how to effectively deliver sexual health services to the unmarried youth population in Nepal, the primary purpose of the current analysis is to examine three relationships in Anderson's Behavioral Model of Health Services (described below). First, to identify correlates of intended sexual health service access amongst unmarried young adults living in Kathmandu, Nepal; second, to examine the relationship between intention and actual sexual service use; and third, to explore correlates of actual sexual health service use.

Theoretical Framework

Andersen's Behavioral Model of Health Service Use served as a theoretical guide for this study.[12] The goal of the model (6th iteration) is to predict and explain effective and efficient health service access. Figure 1.1 (Chapter One) presents the adapted theoretical framework for this study demonstrating the relationships among key constructs of interest. In this framework, the key explanatory constructs of interest are: 1) background characteristics (e.g. gender, education level, religion, caste, sexual orientation), and health behaviors (cigarette and alcohol consumption); 2) actual sexual behavior (e.g. sexual intercourse, condom use, dating history); 3) sexual health awareness and knowledge (e.g. abortion awareness, Human Papillomavirus [HPV] awareness, STI

awareness); 4) perceived sexual risk; and 5) evaluated youth friendliness of the health system.

Given the importance of research on how to effectively deliver sexual health services to the unmarried youth population in Nepal, the primary purpose of the current analysis is to examine three relationships in Anderson's Behavioral Model of Health Services. First, to identify correlates of intended sexual health service access amongst unmarried young adults living in Kathmandu, Nepal; second, to examine the relationship between intention and actual sexual service use; and third, to explore correlates of actual sexual health service use. The exploratory aim on actual use was conducted to obtain an effect size for future work

Methods

Study Design, Setting and Procedures. The study used a cross-sectional correlational design. Study recruitment was conducted in 10 purposefully chosen wards in the Kathmandu Valley, as well as the surrounding municipalities (Lalitpur, Khumaltar, Dhapakel, Bhaktapur and Thumi). These wards and surrounding municipalities were selected due to the proximity of colleges and universities. Data were collected using a convenience sample method.[13] Participants were approached using recruitment flyers distributed by research assistants to students at three academic institutions. Study participation required a one-time in-person survey on a tablet device.

To be eligible, participants had to be unmarried, live within one of the chosen recruitment areas, lived in Kathmandu for at least one year, visited a health clinic since the age of 15, not be currently pregnant, and able to read and write English (survey administered in English). Following written informed consent, self-administered tablet surveys took approximately 20 minutes to complete in a private location. Participants received 100 Nepalese Rupees compensation for their time and effort (equivalent to US $1). This compensation in Nepal would be enough for participants to purchase lunch for the day or a cellular recharge card that could last up to a month. Research assistants were present to complete informed consent, clarify survey content, and provide participant compensation. IRB approval for this study was obtained from the University of Pennsylvania IRB and Nepal Health Research Council.

Questionnaire

Measures: Independent Variables

*Background Characteristics and Health Demographic Characteristics***.** Basic background characteristics (e.g., age, gender, sexual orientation, caste, religion, educational level) and personal health behavior information included questions from a structured questionnaire on sexual health designed by the World Health Organization and publicly available questions from the Nepal Demographic Health Survey.[14,15] Key health behaviors were cigarette consumption and alcohol consumption in the past 12 months, which were included as health behaviors that are often associated with sexual risk

behvaiors.[16,17,18] All questions in this study were worded in a gender neutral or sex/gender inclusive manner, so that all participants, regardless of gender could respond to the questions.

Sexual Behavior and Related Questions. To measure sexual behavior, participants were asked binary response (yes/no) questions about if they had ever had sexual intercourse (defined as the insertion of the penis into the vagina or rectum), used a condom during last intercourse, ever used a dating app, ever had a boyfriend or girlfriend, and ever had unwanted sexual experiences or forced sexual intercourse. Questions were adapted from the 2001 World Health Organization questionnaire designed to ask young people about their sexual health.[14]

*Sexual Health and Service Awareness and Knowledge Benefit***.** To evaluate participants sexual health and service awareness, participants were asked binary response (yes/no) questions about their awareness of HIV, STIs, condoms, oral contraceptive pills, injectable contraceptives, HPV, HPV vaccination, safe abortion facilities and the legality of abortion. Participants were also asked two binary response (yes/no) questions on whether they thought they could improve their health by learning more about HIV as well as HPV.

*Perceived Sexual Risk***.** Perceived sexual risk was measured using three items that asked participants about their perceived risk of getting HIV, getting an STI, or becoming pregnant. The three items on HIV and perceived STI risk came from an existing publicly available and tested Likert risk scale.[19] The item on perceived risk of pregnancy was

included as an addition and followed the same format as the HIV and STI items. Participants could select their level of risk on a 5-point Likert item (i.e., no risk, small risk, 50/50 risk, high risk, or very high risk). The three items were combined to give a score ranging from 0 to 12, with 12 indicating higher perceived sexual risk. The Cronbach's alpha for this scale in this study was 0.88.

*Perceived Youth Friendliness of the Health System***.** Participants were asked about their experiences visiting health clinics and hospitals since the age of 15 using ten 4-point Likert item scale questions to measure and address key elements of youth friendliness of the health system in Kathmandu. Summary scores ranged between 10 and 40 with higher scores indicating higher perceived youth friendliness of the health system. Participants were asked, for example, how much they agree or disagree with statements such as "the staff at the health clinic are friendly and respectful". In this analysis, the Cronbach's alpha was 0.72.

Measures: Primary and Secondary (Exploratory) Outcome Variables

*Intention to Seek Sexual Health Services***.** The primary outcome variable, intention to seek sexual health services, was measured using two questions. To target different aspects of intention to perform a behavior, individuals are asked different terms such as 'plan' and likely' which are treated as a combined measure of intention.[20] Participants were first asked how much they agree or disagree that they plan to visit a health clinic or doctor of any kind to receive services or information on various sexual and reproductive

activities within the next year (i.e., contraception, pregnancy, abortion, or STI). They were also asked how likely they were to visit a health clinic or doctor of any kind to receive these services or information, also within the same 1-year time frame. The two questions each had Likert response categories ranging from a score of 1 (e.g. strongly disagree) to 4 (e.g. strongly agree).

We combined the two items and took the average to create a sexual health service intention score. Using this new variable, we then created a median split to form a dichotomous outcome variable with low intention and high intention as the measured outcome. We dichotomized the outcome variable because a scatter plot of the continuous outcome and one of the primary predictors of interest (perceived youth friendliness) revealed that the relationship was not strictly linear. It seems to support the observation that as you go past a certain threshold for perceived youth friendliness, participants tend to have higher intention to seek care, while lower perceived youth friendliness scores tend to have lower intention scores, thus a binary medium spilt fit the data better.

*Actual Sexual Health Service Use***.** Actual use of sexual health services was measured as a binary response (yes/no) question, where participants were asked whether they had visited a health clinic or doctor of any kind to receive services or information on various sexual and reproductive activities within the past year (i.e., contraception, pregnancy, abortion, or STI).

Data Analysis

Study Population. The study was powered to achieve 80% power at $p < .05$ significance level. To achieve this, a sample of 200 participants would be appropriate. At the completion of data collection, a total of 271 individuals were screened for eligibility, 205 met eligibility criteria, and 203 agreed to complete the full survey with an overall response rate of 99%. Of those who were not eligible to take part in the study, reasons included: incorrect age, currently pregnant, and the participant had not accessed a health facility since the age of 15. It is important to note that all of the individuals who were approached agreed to be screened for eligibility.

Descriptive Analysis. Descriptive analyses included means, medians, standard deviations, and contingency tables with proportions for categorical data. Baseline bivariate comparisons were based on logistic regression for each individual continuous and categorical predictor variable because both the primary and exploratory outcome variables were binary. Based on these comparisons, relevant variables at the $p \leq 0.20$ level were treated as covariates in the subsequent logistic regression analysis.[21] Demographic measures were treated as continuous or categorical, while intention was measured as a dichotomous outcome.

Logistic Regression Analysis. Initially all variables from the bivariate analysis that were significant at the $p \leq 0.20$ level were included in the logistic model. We created two logistic regression models using a backward elimination approach to test predictors

of both intention and actual use of sexual services. Using a backward elimination approach, we removed the variable with the highest p-value and re-ran the model using an iterative process. For both intention and actual service use, because there were only four missing observations, we handled missing data by eliminating these four cases. Tables 3.5 and 3.6 present the final logistic regression model with predictors of intention and actual sexual health service use in the past or next 12 months with significant variables from Andersen's Behavioral Model of Health Service Use. Multicollinearity between independent variables was measured using the Variance Inflation Factor (VIF) statistic in addition to pairwise crosstabulation between predictor variables.[22] The VIF among the predictor variables in both models ranged from 1.01 to 1.04, suggesting no strong evidence of multicollinearity.

Results

Background Characteristics and Health Behavior. A total of 93 males (45.8%) and 110 females (54.2%) took part in the study, with a mean participant age of 19.6 (SD =1.7). When asked about sexual attraction, 88.6% identified that they were attracted to the opposite sex, 1.5% to the same sex, and 9.9% to both sexes equally. The participants were primarily studying to complete a bachelor's degree (57.6%), or in college (Grade 11 or 12) (36.5%). The most common religion was Hinduism (81.3%), and Buddhism was the second most common (9.4%). Newari (34.5%), Brahman (20.7%), and Chhetri (23.2%) were the three most common castes. Most participants (78.9%) perceived their

financial situation to be good or very good. Approximately two thirds of participants (64.8%) reported consuming alcohol in the past twelve months, and close to 30% had smoked cigarettes. Table 3.1 presents a full summary of the sociodemographic and health behavior variables.

Sexual Behavior and Related Questions. Approximately 37% of participants reported engaging in sexual intercourse, and of those who reported engaging in sexual intercourse 55.7% reported using a condom during last intercourse. More males reported engaging in sexual intercourse than females (63.5% vs 36.5%; X^2=14.35; p<.01). Close to two thirds (62.4%) reported ever having a boyfriend or a girlfriend. In the whole study sample, 19.3% of the participants said they had used a dating app such as Tinder. More than four in ten (40.9%) reported experiencing some form of unwanted sexual contact such as being touched on a part of their body that they did not want to be touched, and 5.9% reported forced sexual intercourse against their will. Although females reported higher incidences of unwanted sexual contact (53.6% vs 25.8%; X^2=16.15; p<.01), males reported more accounts of forced sexual intercourse than females (9.7% vs 2.7%; X^2=4.38; p<.05). Table 3.2 presents a full summary of sexual behavior and related variables.

Perceived Sexual Risk. The majority (83.7%) of participants indicated no risk of HIV, while 8.4% said they had a 50/50 risk of getting HIV. The majority (87.0%) of

participants also indicated no risk of getting someone pregnant or becoming pregnant, 82.6% of participants said that they were at no risk of getting an STD, 7.0% said they had a 50/50 risk and 4.5% indicated a high or very high risk. The majority (76.6%) of participants' total risk score was 0 out of 12, which indicates no perceived sexual risk.

Sexual Health and Service Awareness and Knowledge Benefit. Awareness of STIs such as HIV was high (91.1%), while less (71.9%) were aware of STIs other than HIV, such as chlamydia. A significant number of participants (96.1%) indicated that they could improve their sexual health by learning more about HIV. Almost all (99%) were aware of the availability of condoms and 82.3% were aware of oral contraceptive pills. However, there was significantly less awareness of injectable contraceptive methods such as depo Provera (33%). Although abortion is legal in Nepal, only 35% of participants were aware that it was legal, and 65% thought that it was not legal or were unsure if it was legal. Less than half (39.1%) of participants knew of a safe place that someone could go to get an abortion. Less than one third of participants (26.6%) were aware of HPV, and only 19.9% knew there is a vaccine to prevent HPV. More than three quarters of participants (82.2%) indicated that they could benefit their health by learning more about HPV.

Perceived Youth Friendliness of the Health System. A large majority (93.9%) of participants agreed that it was easy to find a health clinic and 87.1% agreed that there

is a health clinic close to where they live. When asked about clinic wait times, 60.9% said that their wait time was less than 30 minutes and 58.6% of participants said that the health clinic was pleasant to sit in, while 41.4% said that it was not. Approximately three-quarters of participants (76.4%) agreed that the staff at the clinic were friendly and respectful, while 23.6% disagreed. And, 90.2% said that the information they received from the health clinic was easy to understand, helpful, and they felt that their privacy was respected. Most participants (87.2%) felt the information they shared with the health clinic staff would be kept confidential. Finally, 79.3% agreed that the cost of their clinic visits was affordable, while 22.7% of participants disagreed.

Intention and Actual Use to Seek Sexual health Services. Intention to seek sexual health services was found to be low for 66.0% of participants. In this study 13.9% of participants reported actual use of sexual health services in the past 12 months. Amongst sexually active participants, 19.4% reported accessing a sexual health service compared to 10.9% for non-sexually active participants (X^2 =2.77; $p < 0.1$). Males reported higher actual service use compared to females (64.3% vs 35.7%; X^2 =4.49; $p < 0.05$).

Bivariate Analysis: Intention and Actual Use. Independent predictor variables that had significant relationship at the $p \leq 0.20$ level with intention to seek sexual health services were included in the initial logistic regression model. These variables were:

alcohol consumption ($p = 0.04$), dating app use ($p = 0.06$), unwanted sexual contact ($p = 0.01$), forced sexual intercourse ($p = 0.07$), perceived sexual risk ($p = 0.10$), perceived youth friendliness of the health system ($p = 0.02$), STI awareness ($p = 0.15$), Depo Provera awareness ($p = 0.14$), legality of abortion awareness ($p = 0.19$), and safe abortion location awareness ($p = 0.07$). Independent predictor variables that had a significant relationship at the $p \leq 0.20$ level with actual sexual health service use were included in an exploratory logistic regression model. These variables were: gender ($p = 0.03$), sexual attraction ($p < .01$), education level ($p = 0.01$), alcohol consumption ($p = 0.10$), cigarette consumption ($p = 0.11$), sexual intercourse ($p = 0.10$), dating app use ($p < .01$), ever had a boy or girlfriend ($p = 0.14$), forced sexual intercourse ($p < .01$), perceived sexual risk ($p < .01$), perceived youth friendliness of the health system ($p < .01$), benefit of HIV knowledge ($p = 0.05$), condom awareness ($p = 0.14$), depo Provera awareness ($p = 0.04$), safe abortion location awareness ($p = 0.04$), HPV vaccine awareness ($p < .01$), and benefit of HPV knowledge ($p = 0.04$).

Multivariable Analysis. Following a backwards elimination approach, in the final logistic regression model, there were significant effects for perceived youth friendliness (odds ratio [OR], 1.11; 95% confidence interval [CI] 1.01 – 1.23; $p = .04$), unwanted sexual contact (OR, 2.28; 95% CI, 1.21 – 4.29; $p = .01$) and alcohol consumption (OR, 2.09; 95% CI, 1.04 – 4.18; $p = .04$). Greater Perceived youth friendliness, having experienced unwanted sexual contact and a history of alcohol

consumption were all associated with intention to seek sexual health services. Having safe abortion awareness and STI awareness were not found to be statistically significant.

To demonstrate the theoretical relationship between intention to seek sexual health services and actual use of sexual health services, actual sexual health service use was regressed on intention to seek sexual service use. Actual sexual health service use was found to have a statistically significant relationship with intended use of sexual health services (OR, 3.8; CI, 1.66 – 8.69; $p < .01$). Individuals who intended to seek sexual health services had 3.8 times the odds of actually using a sexual health service.

Finally, in an exploratory logistic regression analysis (Table 3.6) actual sexual health service use was regressed on the possible influential variables that were significant at the $p \leq 0.20$ level based on bivariate analysis (gender, sexual attraction, education level, alcohol consumption, cigarette consumption, sexual intercourse, dating app use, ever having a boy or girlfriend, forced sexual intercourse, perceived sexual risk, perceived youth friendliness of the health system, benefit of HIV knowledge, condom awareness, depo Provera awareness, safe abortion location awareness, HPV vaccine awareness, benefit of HPV knowledge).

Following a backwards elimination approach, in this exploratory logistic regression model, there were significant effects for perceived youth friendliness (OR, 1.19; 95%; CI, 1.01 – 1.39; $p = .03$), sexual attraction (OR, 2.91; 95%; CI, 1.54 – 5.50; $p < 0.01$), cigarette consumption (OR, 3.05; 95%; CI, 1.04 – 8.94; $p = .04$), dating app use (OR, 3.59; 95%; CI, 1.25 – 10.3; $p = .02$), forced sexual intercourse (OR, 5.92; 95%; CI,

1.16 – 30.14; p = .03), perceived sexual risk (OR, 1.33; 95%; CI, 1.11 – 1.59; p < .01), and depo Provera awareness (OR, 2.81; 95%; CI, 1.01 – 7.81; p < .01). Greater perceived youth friendliness, sexual attraction to the same sex or both sexes, a history of cigarette consumption, prior use of a dating app use, a history of forced sexual intercourse, greater perceived sexual risk and awareness of depo Provera were all associated with actual sexual health service use. None of the other variables were statistically significant.

Discussion

This is one of the first studies to examine important theoretical factors that impact intention and actual sexual health service use in the specific context of unmarried young adults in Nepal. There were important descriptive findings related to sexual risk amongst sexually active participants, high rates of unwanted sexual contact, low awareness of the legality of abortion and where to find a safe abortion facility, low awareness of sexual health problems such as HPV, and the importance of youth friendly models for healthcare. In the final logistic regression model, greater perceived youth friendliness of the health system, having a history of unwanted sexual contact and a history of alcohol consumption were significant in examining intention to seek sexual health services. In addition, in an exploratory logistic regression analysis, greater perceived youth friendliness, sexual attraction to the same sex or both sexes equally, having a history of cigarette consumption, prior use of a dating app, a history of forced sexual intercourse, higher perceived sexual risk, and prior awareness of depo Provera were significant in

examining actual sexual health service use. The findings from this study contribute to the limited existing sexual health research on unmarried young adults in Nepal and provide direction for future research to improve sexual health service access for this unmarried population.

Perceived youth friendliness of the health system was found to be a significant predictor of intention and actual sexual health service use. This highlights the clinical significance of establishing youth friendly models of healthcare for unmarried young adults in Nepal. Research in other countries has begun to explore innovative solutions to implement youth friendly health care. For example, researchers in Sweden qualitatively interviewed health care providers who reported that maintaining privacy, confidentiality, and access as areas for improvement.[23] In Sweden, they have implemented drop-in appointments, phone consultations and consulting via a web-based clinic as solutions towards improving accessibility.

While Sweden may have a well-resourced health system, there is potential for several of these solutions to be tested in the Nepalese health system. One potential area to explore with nurses and doctors in Nepal is privacy and confidentiality through training facility staff on techniques to make young adults feel comfortable sharing sensitive information during a clinic visit and in a private clinic setting. Another solution to engage young adults with sexual health care would be to implement drop in STI testing discretely. Services such as chlamydia, gonorrhea and HIV testing do exist in Nepal;

however, as highlighted in this study, most young people are unaware of where to access these services or do not feel comfortable doing so.

Recently, there has also been a significant amount of research dedicated towards technology-based health interventions such as mHealth, which refers to the use of mobile devices in health intervention research.[24] MHealth Interventions have proven to be effective in contexts such as Zambia, India, Malawi, and other low and middle income countries[25,26,27,28]. Increasing numbers of young adults in Nepal have access to a computer and an android or apple mobile device, creating potential for mHealth and telehealth research aimed at developing tech-based health interventions that promote sexual health care access in the context of unmarried young adults in Nepal. Improved technology access provides a medium to connect young adults in Nepal with available health care. For example, a mobile application could improve awareness of where health centers are located and what health services are offered at a given health center. Expanding upon this may involve using a mobile application to directly connect young adults in Nepal with healthcare providers to seek professional and confidential advice for sexual health problems through a telehealth model.

Given the sizable and increasing Nepalese youth population, it is important for sexual health research in Nepal to focus on implementing models for youth friendly health care to improve sexual health service access.[4] In Nepal, approximately 40.3% of the total populations were considered in the youth age group (defined as 16-40 years of age by the government of Nepal) based on the most recent 2011 census data.[16]

Kathmandu has the highest proportion of youth in Nepal among the 16 to 25-year-old age group, of which 69.9% of males and 43.4% of females were unmarried.

Participants in this study had low awareness of HPV and HPV vaccination. Although this was not significant in the multivariable analysis, this is still a very important public health finding as HPV is an STI that has a causal relationship with cervical cancer (implicated in 99.7% of cervical carcinomas worldwide). Limited prior research on the prevalence of STIs amongst 2,416 married women in rural Nepal found the overall STI prevalence rate to be 17.5% and the HPV prevalence rate to be 14.4%.[29] As of August 2019, a two-dose HPV vaccine was introduced for all girls between 11 and 13 in Nepal.[30] In a 2010 trial implementation of the HPV vaccine offered to 1,096 girls aged 20 to 26 years in Nepal, 99.3% of girls completed the three-dose series; however, the high vaccine cost and lack of public awareness were reported as potential barriers to broader implenetation.[31] A significant number of study participants indicated a willingness to learn more about sexual health conditions such as HPV. It is therefore important to improve unmarried young adults' awareness of important preventative sexual health care options in Nepal, such as the HPV vaccine and not as commonly known STIs such as HPV.

Awareness of the legality of safe abortion services or where to access a safe abortion was low amongst participants. In Nepal, abortion laws are relatively liberal compared with other countries in the South Asian region. Abortions are legal with the consent of pregnant women over 16 years-of-age up to 12 weeks' gestation for any

indication. Abortions are also legal up to 18 weeks' gestation in the case of rape and incest, anytime during pregnancy if the physical or mental health of the pregnant women is at risk, and at any time during pregnancy if the fetus is deformed or incompatible with life.[32] Women in Nepal who are over 16 years of age have the sole right to continue or discontinue pregnancy. For minors, defined as under the age of 16 in the case of abortion, a legal guardian must give consent. Despite the legality of abortion, the lack of awareness of where to find a safe abortion facility for participants in this study implies the continued need to direct attention to promote awareness of where safe abortion facilities can be accessed. This is in addition to the ongoing need to educate young people on the circumstances associated with abortion care in Nepal.[7,9,10,32]

One way to prevent unwanted pregnancies and also avoid the need for abortion care would be greater knowledge and access to contraceptive services for unmarried young people in Nepal. Amongst sexually active participants in this study, there was low condom use; however, in the total study population perceived sexual risk was also extremely low. While higher perceived sexual risk scores were found to be a significant predictor of actual sexual health service use, the overall risk scores remained low. This suggests that participants may engage in unsafe sexual intercourse and have limited perception of sexual risk. It is important to note that participants who did not use a condom during sexual intercourse had a higher perceived risk score compared to participants who did use a condom; however, this relationship was not statistically significant. Although there is limited research on sexual risk behavior amongst unmarried

young adults in Nepal, a study by Adhikari found a similarly low rate of condom use (48%).[33] This is a clinically relevant finding that has implications for the potential spread of STIs and HIV amongst unmarried young people in Nepal.

Unwanted sexual contact (referring to being touched on a part of the body you do not want to be) was reported by over one third of study participants and a significant predictor of intention to seek sexual health services. Forced sexual intercourse was a significant predictor of actual sexual health service use, with one in twenty participants reporting being forced to have sexual intercourse against their will. Interestingly, although more females reported unwanted sexual contact, males reported higher rates of forced sexual intercourse. A recently published study by Thapalia et al.,[34] found that more than three-quarters of secondary level female students studied had experienced some form of sexual harassment; however, they did not have a clear understanding of how to respond to sexual harassment. Research on intimate partner violence amongst married women in Nepal has found high rates of physical or sexual violence that also leads to higher odds of reporting unintended pregnancy.[35-37] The literature on sexual violence amongst unmarried young adults is more limited. The finding that unmarried males experience higher rates of forced sexual intercourse could potentially be due to sexual abuse within or outside of the home; however, this is something that should be explored through future research. The significance of unwanted sexual contact and forced sexual intercourse highlight the need for more research to understand sexual violence

amongst unmarried young people in Nepal, as well as the clinical role of sexual health care in reducing the long-term effects of sexual violence.

It is important to note that there were no differences in intention to seek sexual health services by any demographic characteristic (e.g., age, gender, sexual attraction, education level, religion, caste, employment status, student status, and family financial status). Sexual attraction (attraction to the same sex or both sexes equally) was the only significant demographic predictor of actual sexual health service use. This suggests that variations based on social and economic background do not necessarily influence a participant's likelihood to seek sexual health services. Instead, other constructs in the theoretical model better explains sexual health service use. For future research, these significant theoretical constructs, e.g., sexual and health behavior, and sexual health service awareness require more attention to guide research on improving access to sexual health services among young people in Nepal.

Potential study limitations include using a two-item measure to capture intention to use health services, which could account for the lower alpha coefficient reliability for the two-item intention outcome scale (Cronbach's $\alpha = 0.67$). Future research should aim to identify other items to add to the original two items that capture intention to seek sexual health services that might provide a measure with greater reliability. There were also clinically relevant findings such as the association between abortion awareness and intention to seek sexual health services that were not statistically significant but may have reached statistical significance with a larger sample size or variability in the measures.

In the final logistic regression model, the r^2 of 8.3% was relatively low, while an r^2 of 28.9% in the explanatory logistic model was significantly higher despite the relatively small number of participants who reported actual sexual health service use. This suggests that in the future, it may be beneficial to power a study using actual sexual health service use as the primary outcome using the findings from this study as examples of effect size. In addition, because a convenience sample was used to recruit unmarried young adults primarily from colleges and universities in the Kathmandu area, the findings are not generalizable to all unmarried young adults in Kathmandu. In the future, it would be important for a larger study to recruit a wider sample using a probability sampling technique to capture diverse perspectives. This would lead to the inclusion of a more diverse sample consisting of individuals without college or university backgrounds. Of note, during recruitment no individual refused to take part in the eligibility screening process for this study, suggesting that young adults in Nepal understand the importance of sexual health research and are willing to participate. The high study participation rate speaks to the acceptability of this research and also the feasibility of future sexual health research amongst unmarried young adults in Nepal.

Implications and Contribution Statement

The findings from this study have implications for exploring innovative models for delivering youth friendly health services, improving awareness of key sexual health services such as safe abortion care, and addressing sexual health knowledge deficits in

order to increase access of sexual health services and thereby improve the health and wellbeing of unmarried young adults in Nepal.

Table 3.0: Description and reliability coefficients for instruments measuring components of intention to seek sexual health services

Component	Instrument	No. of Items	Reliability (Alpha)
Perceived risk			
Perceived Sexual Risk	Sexual risk	3	0.89
Health System			
Youth Friendliness	Perceived youth friendliness scale	10	0.72
Intention			
Sexual Health Service use	Intention to seek sexual health services in the next 12 months	2	0.67

Table 3.1: Socio-demographic background, health behavior and intention to seek SHS (N=203)

Predictor Variable	Total Sample		Low Intention to Seek SHS		High Intention to Seek SHS		P*
	N/Mean	%/SD	N/Mean	%/SD	N/Mean	%/SD	
Age							
(Mean, SD)	19.64	1.69	19.67	1.71	19.63	1.69	0.86
Gender							
Male	93	45.8	60	65.2	32	34.8	0.69
Female	110	54.2	74	67.9	35	32.1	
Sexual Attraction							
Opposite sex	179	88.6	121	68.4	56	31.6	0.27
Same sex	3	1.5	2	66.7	1	33.3	
Both equally	20	9.9	10	50.0	10	50.0	
Education Level							
Grade 8 – 10	2	1.0	2	100.0	0	0.0	0.43
Grade 10 – 12	29	14.3	21	75.0	7	25.0	
Grade 12	45	22.2	26	59.1	18	40.9	
Currently studying bachelors	117	57.6	77	65.8	40	34.2	
Bachelor's degree	10	4.9	8	80.0	2	20.0	
Religion							
Hindu	165	81.3	104	63.8	59	36.2	0.56
Buddhist	19	9.4	14	73.7	5	26.3	
Kirat	6	3.0	5	83.3	1	16.7	
Christian	8	3.9	7	87.5	1	12.5	
Atheist	4	2.0	3	75.0	1	25.0	
Other	1	0.5	1	100.0	0	0.0	
Caste							
Newari	70	34.5	45	66.2	23	33.8	0.60
Brahman	42	20.7	24	57.1	18	42.9	
Chhetri	47	23.2	32	68.1	15	31.9	
Tamang	4	2.0	2	50.0	2	50.0	
Janijanti	16	7.9	12	75.0	4	25.0	
Madhesi	8	3.9	6	75.0	2	25.0	
Other	16	7.9	13	81.3	3	18.8	
Spoken English							
Yes	168	83.2	113	68.1	53	31.9	0.30
No	34	16.8	20	58.8	14	41.2	
Time Lived in Kathmandu							
Less than one year	1	0.5	1	100.0	0	0.0	0.35
1 – 5 years	54	26.6	36	66.7	18	33.3	
6 – 10 years	20	9.9	10	50.0	10	50.0	
Greater than 10 years	128	63.1	87	69.1	39	39.9	
Employment Status							
Full – time (Crete full time part time)	1	0.5	1	100.0	0	0.0	0.34
Part – time	19	9.4	10	52.6	9	47.4	
Seasonal	9	4.4	7	77.8	2	22.2	
Unemployed	174	85.7	116	67.4	56	32.6	
Student Status							
Yes	201	1.0					
No	2	99.0					
Family Financial Situation							

Bad	5	21.2	3	60.0	2	40.0	0.88
Good	155	76.4	104	67.5	50	32.5	
Very Good	43	2.5	27	64.3	15	35.7	
Sexual & Health Behavior							
Alcohol Consumption							
Yes	129	64.8	78	60.9	50	39.1	0.04
No	70	35.2	52	75.4	17	24.6	
Cigarette Consumption							
Yes	60	29.6	42	70.0	18	30.0	0.51
No	143	70.4	92	65.3	49	34.7	
Sexual Intercourse							
Yes	74	36.6	46	63.9	26	36.1	0.56
No	128	63.4	87	68.0	41	32.0	
Condom use during last intercourse							
Yes	39	55.7	23	60.5	15	39.5	0.54
No	31	44.3	21	67.7	10	32.3	
Dating app use							
Yes	39	19.3	21	53.8	18	46.2	0.06
No	163	80.7	113	70.2	48	29.8	
Ever had boy/girlfriend							
Yes	126	62.4	83	66.4	42	33.6	0.82
No	76	37.6	51	68.0	24	32.0	
Unwanted sexual contact							
Yes	83	40.9	46	55.4	37	44.6	0.01
No	120	59.1	88	74.6	30	25.4	
Forced sexual intercourse							
Yes	12	5.9	5	41.7	7	58.3	0.07
No	191	94.1	129	58.3	60	31.8	
Perceived Sexual Risk (0 – 12)							
(Mean, SD)	0.87	2.04	0.70	1.87	1.21	2.33	0.10
Youth Friendly Health Services Score (10 – 40)							
(Mean, SD)	28.89	3.35	28.49	3.31	29.64	3.30	0.02
Actual use of sexual health services							
Yes	28	13.9	11	39.3	17	60.7	0.00
No	173	86.1	123	71.1	50	28.9	

*all P values were obtained from logistic regression.

Table 3.2: Self-perceived sexual health awareness, benefit of increased knowledge, and intention to seek SHS (N=203)

Predictor Variable	Sample Size & Percent		Low Intention to Seek SHS		High Intention to Seek SHS		P*
	N	%	N	%	N	%	
HIV Awareness							
Yes	185	91.1	121	66.1	62	33.9	0.60
No	18	18.9	13	72.2	5	27.8	
HIV Knowledge Health Benefit							
Yes	195	96.1	129	66.8	64	33.2	0.80
No	8	3.9	5	62.5	3	37.5	
STI Awareness							
Yes	146	71.9	101	69.7	44	30.3	0.15
No	57	28.1	33	58.9	23	41.1	
Condom Awareness							
Yes	201	99.0	133	66.8	66	33.2	0.63
No	2	1.0	1	50.0	1	50.0	
Oral Contraceptive Pill Awareness							
Yes	167	82.3	111	67.3	54	32.7	0.70
No	36	17.7	23	63.9	13	36.1	
Depo Provera Awareness							
Yes	67	33.0	40	59.7	27	40.3	0.14
No	136	67.0	94	70.2	40	29.8	
Legality of Abortion							
Yes	71	35.0	42	59.2	29	40.8	0.19
No	45	22.2	33	75.0	11	25.0	
Unsure	87	42.9	59	68.6	27	51.4	
Safe Abortion Location Awareness							
Yes	79	39.1	47	59.5	32	40.5	0.07
No	123	60.9	87	71.9	34	28.1	
HPV Awareness							
Yes	54	26.6	38	70.4	16	29.6	0.50
No	149	73.4	96	65.3	51	34.7	
HPV Vaccine Awareness							
Yes	40	19.9	25	62.5	15	37.5	0.57
No	161	80.1	107	67.3	52	32.7	
HPV Knowledge Health Benefit							
Yes	166	82.2	109	66.5	55	33.5	0.98
No	36	17.8	24	66.7	12	33.3	

*all P values were obtained from logistic regression.

Table 3.3: Socio-demographic background, health behavior and actual SHS use (N=203)

Predictor Variable	Total Sample		Did Not Access SHS		Did Access SHS		P*
	N/Mean	%/SD	N/Mean	%/SD	N/Mean	%/SD	
Age							
(Mean, SD)	19.66	1.69	19.70	1.67	19.39	1.83	0.36
Gender							
Male	93	45.8	74	80.4	18	19.6	0.03
Female	110	54.2	99	90.8	10	9.2	
Sexual Attraction							
Opposite sex	179	88.6	158	89.3	19	10.7	0.00
Same sex	3	1.5	2	66.7	1	33.3	
Both equally	20	9.9	12	60.0	8	40.0	
Education Level							
Grade 8 – 10	2	1.0	2	100.0	0	0	0.01
Grade 10 – 12	29	14.3	25	89.3	3	10.7	
Grade 12	45	22.2	31	70.5	13	29.5	
Currently studying bachelors	117	57.6	105	89.7	12	10.3	
Bachelor's degree	10	4.9	10	100.0	0	0	
Religion							
Hindu	165	81.3	137	84.0	26	16.0	0.58
Buddhist	19	9.4	17	89.5	2	10.5	
Kirat	6	3.0	6	100.0	0	0	
Christian	8	3.9	8	100.0	0	0	
Atheist	4	2.0	4	100.0	0	0	
Other	1	0.5	1	100.0	0	0	
Caste							
Newari	70	34.5	62	91.2	6	8.8	0.70
Brahman	42	20.7	35	83.3	7	16.7	
Chhetri	47	23.2	38	80.9	9	19.1	
Tamang	4	2.0	4	100.0	0	0	
Janijanti	16	7.9	13	81.3	3	18.7	
Madhesi	8	3.9	7	87.5	1	12.5	
Other	16	7.9	14	87.5	2	12.5	
Spoken English							
Yes	168	83.2	145	87.4	21	12.6	0.22
No	34	16.8	27	79.4	7	20.6	
Time Lived in Kathmandu							
Less than one year	1	0.5	1	100.0	0	0	0.88
1 – 5 years	54	26.6	45	83.3	9	16.7	
6 – 10 years	20	9.9	17	85.0	3	15.0	
Greater than 10 years	128	63.1	110	87.3	16	12.7	
Employment Status							
Full – time (Crete full time part time)	1	0.5	1	100.0	0	0	0.93
Part – time	19	9.4	17	89.5	2	10.5	
Seasonal	9	4.4	8	88.9	1	11.1	
Unemployed	174	85.7	147	85.5	25	14.5	
Student Status							
Yes	201	1.0	171	85.9	28	14.1	0.57
No	2	99.0	2	100.0	0	0	
Family Financial Situation							
Bad	5	21.2	5	100.0	0	0.0	0.58

Good	155	76.4	133	86.4	21	13.6	
Very Good	43	2.5	35	83.3	7	16.7	
Sexual & Health Behavior							
Alcohol Consumption							
Yes	129	64.8	106	82.8	22	17.2	0.10
No	70	35.2	63	91.3	6	8.7	
Cigarette Consumption							
Yes	60	29.6	48	80.0	12	20.0	0.11
No	143	70.4	125	88.7	16	11.4	
Sexual Intercourse							
Yes	74	36.6	58	80.6	14	19.4	0.10
No	128	63.4	114	89.1	14	10.9	
Condom use during last intercourse							
Yes	39	55.7	29	76.3	9	23.7	0.44
No	31	44.3	26	83.9	5	16.1	
Dating app use							
Yes	39	19.3	27	69.2	12	30.8	0.00
No	163	80.7	145	90.1	16	9.9	
Ever had boy/girlfriend							
Yes	126	62.4	104	83.2	21	16.8	0.14
No	76	37.6	68	90.7	7	9.3	
Unwanted sexual contact							
Yes	83	40.9	71	85.5	12	14.5	0.86
No	120	59.1	102	86.4	16	13.6	
Forced sexual intercourse							
Yes	12	5.9	6	50.0	6	50.0	0.00
No	191	94.1	167	88.4	22	11.6	
Perceived Sexual Risk (0 – 12)							
(Mean, SD)	0.87	2.04	0.64	1.74	2.29	3.02	0.00
Youth Friendly Health Services Score (10 – 40)							
(Mean, SD)	28.89	3.35	28.62	3.32	30.44	3.09	0.00

*all P values were obtained from logistic regression.

Table 3.4: Self-perceived sexual health awareness, benefit of increased knowledge, and actual SHS use (N=203)

Predictor Variable	Sample Size & Percent		Did Not Access SHS		Did Access SHS		P*
	N	%	N	%	N	%	
HIV Awareness							
Yes	185	91.1	157	85.8	26	14.2	0.72
No	18	18.9	16	88.9	2	11.1	
HIV Knowledge Health Benefit							
Yes	195	96.1	168	87.1	25	12.9	0.05
No	8	3.9	5	62.5	3	37.5	
STI Awareness							
Yes	146	71.9	124	85.5	21	14.5	0.72
No	57	28.1	49	87.5	7	12.5	
Condom Awareness							
Yes	201	99.0	172	86.4	27	13.6	0.14
No	2	1.0	1	50.0	1	50.0	
Oral Contraceptive Pill Awareness							
Yes	167	82.3	142	86.1	23	13.9	0.99
No	36	17.7	31	86.1	5	13.9	
Depo Provera Awareness							
Yes	67	33.0	53	79.1	14	20.9	0.04
No	136	67.0	120	89.6	14	10.4	
Legality of Abortion							
Yes	71	35.0	63	88.7	8	11.3	0.72
No	45	22.2	37	84.1	7	15.9	
Unsure	87	42.9	73	84.9	13	15.1	
Safe Abortion Location Awareness							
Yes	79	39.1	63	79.8	16	20.2	0.04
No	123	60.9	109	90.1	12	9.9	
HPV Awareness							
Yes	54	26.6	44	81.5	10	18.5	0.23
No	149	73.4	129	87.8	18	12.2	
HPV Vaccine Awareness							
Yes	40	19.9	29	72.5	11	27.5	0.00
No	161	80.1	142	89.3	17	10.7	
HPV Knowledge Health Benefit							
Yes	166	82.2	145	88.4	19	11.6	0.04
No	36	17.8	27	75.0	9	25.0	

*all P values were obtained from logistic regression.

Table 3.5: Final Logistic Regression Model Relating Intention to Seek Sexual Health Services in the next 12 Months with Andersens' Behavioral Model of Health Service Use Significant Variables (n=199)

Regression Variable*	Odds Ratio	Confidence Interval	P-value
Perceived Youth Friendly Health Service Score	1.11	1.01 – 1.23	0.04
Abortion Awareness	1.64	0.86 – 3.11	0.13
STI Awareness	0.59	0.29 – 1.18	0.13
Unwanted Sexual Contact	2.28	1.21 – 4.29	0.01
Alcohol Consumption	2.09	1.04 – 4.18	0.04

*Pseudo R^2 of 8.3%; ROC of 0.69

Table 3.6: Final Logistic Regression Model Relating Actual Sexual Health Services with Andersens' Behavioral Model of Health Service Use Significant Variables (n=199)

Regression Variable*	Odds Ratio	Confidence Interval	P
Perceived Youth Friendly Health Service Score	1.19	1.01 – 1.39	0.03
Sexual Attraction	2.91	1.54 – 5.50	0.00
Cigarette Consumption	3.05	1.04 – 8.94	0.04
Dating App Use	3.59	1.25 – 10.3	0.02
Forced Sexual Intercourse	5.92	1.16 – 30.14	0.03
Perceived Sexual Risk	1.33	1.11 – 1.59	0.00
Depo Provera Awareness	2.81	1.01 – 7.81	0.00

*Pseudo R2 of 28.9%; ROC of 0.84

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CHAPTER 4: BARRIERS TO MATERNAL CARE ACCESS FOR WOMEN IN RURAL RAMECHHAP DISTRICT, NEPAL: A QUALITATIVE DESCRIPTIVE STUDY

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Abstract

Compared to women living in urban areas, women in rural areas of Nepal have less access to prenatal care and skilled attendance at birth, less utilization of postnatal care, and less access to emergency obstetric care. This paper reports on a qualitative descriptive study about the maternal care seeking experiences of women living in Ramechhap District, a rural area in Nepal. Face-to-face, semi-structured interviews were conducted with 20 young women (ages 18 to 30). Interview questions were guided by the Health Belief Model. Participants identified barriers to maternal care including the long walking distance to a clinic, a lack of family support, cost of care, and a lack of autonomy, particularly related to health care decision making. The findings suggest more research is needed on barriers to maternal care and the policies that support equity of maternal care across Nepal.

Keywords: *Global Maternal Care, Rural Maternal health, Women's Health, Nepal.*

Introduction

The 2017 United Nations Trends in Maternal Mortality Report estimated the maternal mortality ratio in Nepal to be 187 per 100,000 (WHO, UNICEF, UNFPA, World Bank Group, & United Nations Population Division, 2019). Compared to other countries in the South Asian region, Nepal has the second highest maternal mortality ratio. An important goal identified in the Sustainable Development Goals (SDGs) is an overall global reduction in the maternal mortality ratio to 70 per 100,000 live births by 2030 (Callister & Edwards, 2017). The National Planning Commission of Nepal has set a health target of reducing the maternal mortality ratio to less than 70 per 100,000 by 2030 primarily through increased provision of antenatal (prenatal) care, skilled attendance at birth, and expanded family planning services (National Planning Commission, 2015).

A systematic review of the major global, regional and national causes of maternal mortality between 1990 and 2013 by Kassebaum et al., (2014) identified major global causes of maternal mortality, including: maternal hemorrhage, maternal sepsis, hypertensive disorders, obstructed labor, unsafe abortions, and Human Immunodeficiency Virus (HIV). The World Health Organization (WHO) recommends several cost-effective health interventions to reduce maternal mortality which can be delivered during the antenatal, intrapartum, and postnatal phases of pregnancy (Gulmezoglu et al., 2016). Examples of medical interventions include treatment of postpartum hemorrhage, management of preeclampsia, and prevention of obstructed

labor. These maternal care interventions require access to effective care during pregnancy, delivery and the postnatal period following birth.

Prenatal care during pregnancy (four or more visits) has been proven to reduce conditions that can lead to maternal mortality, such as pre-eclampsia, maternal infection and anemia (Carroli, Rooney, & Villar, 2001). According to the WHO, prenatal care can be defined as “the care provided by skilled health-care professionals to pregnant women and adolescent girls in order to ensure the best health conditions for both mother and baby during pregnancy. The components of antenatal (prenatal) care include risk identification; prevention and management of pregnancy-related or concurrent diseases; and health education and health promotion.” (World Health Organization, 2016). Since 2002, the WHO has recommended a four-visit model for prenatal care, where pregnant women visit a skilled health-care professional at four critical points during pregnancy. During a prenatal care visit, the WHO also promotes four key prenatal care interventions for a positive pregnancy: nutritional interventions, maternal and fetal assessment, preventative measures, and interventions for common physiological symptoms. There is a strong relationship between the percent of women who attend four or more prenatal visits and the number of maternal deaths per 1,000 pregnancies (McClure, Goldenberg, & Bann, 2007). Globally, as the number of women who seek four or more prenatal care visits increases, the maternal mortality rate decreases. This highlights the significance of directing efforts towards the delivery of effective maternal healthcare.

Literature Review on Maternal Care in Rural Nepal

In Nepal, literature suggests that traditional practices surrounding birth influence a woman's decision to seek maternal care. Nearly two-thirds of deliveries in Nepal take place at home, while women with higher levels of education tend to deliver at a health facility (Bhandari, Kutty, Sarma, & Dangal, 2017). Qualitative research in rural Nepal by Khatri et al., (2017) found that women who give birth at home do so with the assistance of family and others, including their mother-in-law and senior women in the community. This study by Khatri et al., also found some traditional beliefs; that is a belief in rural areas that if older women in the community gave birth at home with no complications, then there should be no problems for younger women. For women in this study, in cases of prolonged or difficult labor, participants would often seek the help of a traditional healer first, rather than go to a birth center directly. Other qualitative research by Pun et al., (2016) explored perceptions of domestic violence against pregnant women in Nepal and found culturally specific acts of violence against pregnant women, such as a cultural pressure and psychological stress to give birth to sons because of a fear that pregnant women would face discrimination, denial of food, and be forced to work hard physical work during pregnancy. A quantitative study in the rural Terai (flat) region on intimate partner violence found that 28.9% (n=426) of women experienced some form of intimate partner violence during pregnancy (Singh, Evans-Lacko, Acharya, Kadel, & Gautam, 2018).

In rural areas, the provision of adequate health care remains a challenge. This presents global ethical challenges related to the equitable distribution of health resources (Stapleton, Schröder-Bäck, Laaser, Meershoek, & Popa, 2014). Some of the known challenges of delivering healthcare to rural populations include: transportation issues for providers to reach patients and health facilities, difficulties with training and encouraging doctors and nurses to work in a rural population rather than an urban health institution, and inadequate infrastructure to support healthcare facilities (Strasser, 2003). While these are global challenges in providing rural maternal care, the literature presents many challenges that are relevant to Nepal.

Women who live in rural areas of Nepal have less access to prenatal and postnatal care, less utilization of skilled attendance at birth, and less access to emergency obstetric care than women living in urban Nepal (Central Bureau for Statistics-National Planning Commission, 2001; Countdown to 2030, 2016; Mehata et al., 2017). A study that utilized the Nepal Demographic and Health Survey to examine determinants of institutional delivery (e.g., hospital or health clinic) concluded that women who lived in urban areas of Nepal were 69% more likely than women who live in rural areas to deliver at a dedicated healthcare institution (Shahabuddin et al., 2017). Globally, there is a need for research that explores barriers to rural maternal care within specific geographic, social, economic and cultural contexts to understand and address specific barriers to healthcare (Say & Raine, 2007). Thus, the aim of this study was to understand factors that promote and inhibit women from seeking maternal care in Ramechhap District, Nepal through in

depth semi-structured qualitative interviews with a sample of 20 women. Ramechhap District was selected because of the lack of research on maternal care specific to this rural district in Nepal.

The Health Belief Model

As a widely applied theory in the health behavior field, the Health Belief Model consists of six key constructs that predict health behavior and was an important guide for this research, particularly to elicit participant experiences and beliefs towards maternal care during interviews. The model highlights the constructs of risk susceptibility and severity, perceived benefits and barriers, self-efficacy, and cues to action (Rosenstock, 1974). These constructs are defined in Figure 4.0 below. The model was originally developed to address preventative health behaviors in the United States but has since been used in a variety of different cultural and contextual situations. Within the context of this study, the Health Belief Model was used to guide selection of areas to explore with study participants in order to better understand women's health beliefs and experiences with maternal care in Ramechhap District, Nepal. To explore barriers to maternal healthcare, it was important to understand Nepali women's perceptions of their risk for an illness or disease and the consequences that might come with it (i.e., risk susceptibility) as well as their degree of confidence in seeking maternal care. This was important to understand women's perceptions regarding the risks of pregnancy and how

confident they felt accessing maternal healthcare could reduce the risk of adverse pregnancy outcomes.

Methods

Design and Sampling. A qualitative descriptive approach was used for this study (Sandelowski, 2010). This qualitative design allows for a nuanced understanding of the phenomena as it relates to nursing and healthcare (Kim, Sefcik, & Bradway, 2017). Twenty women participated in a one-time, face-to-face in-depth semi-structured interview about their maternal care experiences during their most recent pregnancy. To be eligible, women had to be between 18 to 30 years of age, primarily live in Ramechhap

Figure 4.0: Definition of Health Belief Constructs

Risk susceptibility and severity: The subjective perception a person has that they are at risk for a particular illness or disease. A person may also have perceptions about the seriousness of a particular condition and the consequences this might come with, such as disability or death along with the social consequences on personal relationships.

Benefits of actions: Benefits of action refers to a person's perceptions on how effective they believe certain actions might be towards preventing a particular condition. A common example of a benefit could be preventing a particular illness by obtaining a vaccine.

Barriers to action: Barriers to action are the obstacles that prevent an individual from performing a certain action. In this case, an obstacle to seeking obstetric care during pregnancy could be financial costs.

Self-efficacy: An individual's belief about their ability to perform a particular behavior and overcome barriers to action. Low self-efficacy may result in an individual not performing a particular behavior.

Cue to action: The triggers that allow an individual to decide to take an action.

District, Nepal, and previously been pregnant but not known to be pregnant at the time of interview.

Access to the villages where interviews were conducted in Ramechhap District was made possible due to pre-existing relationships between the research team and the community. Members of the research team acted as gatekeepers to the community, and as such women were initially recruited through prior connections made during several previous visits to the village. Snowball sampling, a type of purposeful sampling, identified a sample frame of individuals that each subsequent participant recommended to take part in further interviews (Goodman, 1961). From this, potential participants were identified, screened for eligibility and if eligible were invited to take part in a voluntarily 20-40-minute interview about their experience during their last pregnancy. Interviews were conducted over a two-week period in 2016. The research team consisted of a male research assistant who also served as gatekeeper to the community, a female professional translator, and a male principal investigator. Prior to data collection, institutional review board approval was obtained through the University of Pennsylvania and the Nepal Health Ethics Research Council.

Participant Consent. Twenty women between 18 and 30 years of age took part in this study. Prior to the interview, informed consent was obtained. To do this, participants were given a written IRB approved informed consent form that had been translated into Nepalese. They were explained the consent process by the male first

author in English, and this was translated into Nepalese by a female professional translator. Participants were given the opportunity to ask any questions about the study to the translator in Nepalese, and the investigator would respond to their questions. Following any questions, participants were asked to sign the written informed consent form or verbally consent to take part in the study, this verbal consent was recorded. For women who were unable to read or write (n =2) and unable to sign the informed consent form, they gave verbal consent to print their names on the informed consent form.

Interview Guide and Process. To achieve the aims of this study, a semi-structured interview guide was created. This interview guide included questions that followed key constructs from the Health Belief model (Rosenstock, 1974). Sample questions are available in Table 4.1. Prior to data collection, the interview guide was reviewed with members of the research team and the translator for clarity in verbal translation. Between two and three interviews were conducted each morning, with team debriefings occurring at the end of each day to allow for sufficient time for travel in the afternoon and to listen back to the recordings in the evening to identify topics to focus on in subsequent interviews. Examples of important focus topics that emerged during the interview process included: the lack of education opportunities for women, urban and foreign migration, and women's self-efficacy and self-motivation to seek maternal care.

Following informed consent, to begin the interview women were asked open ended questions about their day-to-day activities, with prompts that explored what a

typical day involved from morning through nighttime. These questions were asked to gain a background on the educational, financial and social background of participants. Following this, participants were asked about their last pregnancy, and prompts ranged from asking specific questions about how they found out they were pregnant to their experience with health care. When asked about their delivery experience, participants were given the opportunity to provide their own narrative of their birth experience. Women were then asked who looked after them during their most recent pregnancy in order to gain a sense of family support and the members of the family who were involved with their care.

To address key constructs from the Health Belief Model, more specific theory-based questions were asked about the care that participants received during their prenatal checkups, including the type of provider they saw and the care that they received. Women were asked about the benefits of going for a checkup, what made it easy for them to attend a checkup, what motivated them to attend a checkup, and what made it hard to attend a checkup. They were also asked how they remembered to go to a checkup and how they travelled to the checkup. The final question in this section had to do with suggestions they might have for other women in their village who could be seeking prenatal care in the future.

Following this, using a short questionnaire, a member of the research team verbally asked participants about general demographic and health topics, including age, source of family income. Using the semi-structured interview guide, the first author asked

questions in English. These questions were then translated into Nepalese by the professional translator so that the participant would be able to understand. The participant would respond to questions in Nepalese, and their responses would then be translated back into English for the first author to understand.

Interviews concluded when data saturation was reached and new data during interviews repeated data collected in prior interviews (Saunders et al., 2018). At the end of each interview, participants received a 250 NPR mobile cell recharge card or cash equivalent as compensation for their time (Grady, 2005). In the setting where interviews were conducted, this amount would be enough for cellular charges (calls and texts) for a month or more, bus fare for two to the capital city, Kathmandu, or lunch for two people for three days.

Transcription Process. At the conclusion of all field data collection, the audio recording files were taken back to Kathmandu and stored securely on a School of Nursing research drive. The audio recording files were made available to a professional translator in Nepal who transcribed the recordings into English and Nepalese, and then translated the Nepalese portions of the interviews into English. To ensure accuracy in translation, an independent Nepalese research team member listened to the audio recordings and compared the final English transcriptions with the original audio recordings to confirm their accuracy (Brislin, 1970). The final audio transcriptions were then analyzed in ATLAS.ti Qualitative data analysis software.

Data Analysis. Initial analysis involved the primary investigator reading through transcriptions line by line on paper. The data were then coded openly in ATLAS.ti using an inductive approach to allow for ideas to emerge from the data. During coding, we used a constant comparative method to integrate codes into categories that subsequently led to emerging themes (Glaser, 1964). After a category was coded several times, coding was stopped to record a memo and highlight the main ideas. Following further comparison of categories and integration of key properties, these categories were then captured and integrated into themes, despite some nuances and variability that existed under a theme. While the primary investigator coded data in ATLAS.ti, the themes that emerged were triangulated with one member of the Nepali research team for congruence. This member of the team analyzed and coded data using Microsoft word due to a lack of access to ATLAS.ti. Descriptive statistics were used to analyze the demographic and health characteristics data.

Study Validity. Several techniques were used to maintain study validity and rigor of the data (Cypress, 2017). Although a semi-structured interview guide was used, participants were also given the chance to speak freely about the phenomenon of interest based on their own perceptions and knowledge structures. To maintain validity during the data analysis phase, potential qualitative codes and themes were triangulated with another member of the research team for concurrence in coding and ideas relating to emerging

themes (Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014). Qualitative data analysis software was used to keep a record of data coding and analysis procedures, and an electronic audit trail of data coding is available. Presentation of key finding are provided in concurrence with direct quotes from study participants.

Researcher Statement. This statement serves to situate the primary researcher within the context of this qualitative study. The primary researcher was a first year PhD Nursing student at a United States academic PhD program during data collection and in his second year during data analysis. Although he has strong ties to Nepal through personal connections, he himself is not of Nepali origin. His background is as a registered nurse in women's health, and his research looks at understanding access to reproductive and sexual health care in Nepal. His goal with this study was to understand the factors that influence maternal care access in rural Nepal, and he hopes to use this research as a basis for future studies on improving women's healthcare in Nepal.

As a male investigator, he faced potential challenges interviewing women about their experiences with pregnancy. For example, given cultural norms surrounding maternal care, there was the potential that women did not want to discuss their experiences with pregnancy. Anticipating these challenges, he worked with a female translator during the interview process. Before conducting the study, he did have some preconceptions about what he would expect to hear during interviews. For example, he

expected there to be poor prenatal care uptake, a lack of support for maternal care from family members, and a high number of home births.

Results

Table 4.0 provides background characteristics for the women who participated in this study. The mean age of participants was 23.5, with a range of 18 to 29 (SD=3.5). Most of the women in this study predominantly came from an agricultural background (65%), where farming and animals were the main sources of income in addition to financial support from husbands who migrated abroad to seek work. In terms of educational level, 40% (n=20) of women had no formal education. For women who attended school, the mean grade level completed was 7.6 (SD=4.3). Based on the self-reported age at first child, the mean age was 18.7, with a range of 15 to 23 (SD=2.4). Two participants were unable to recall how old they were when they had their first child. Women had a mean of 1.9 pregnancies with a range of 1 to 4 and 1.7 children with a range of 1 to 3 (n=20). When asked where they delivered their last child, 40% (n=8) delivered at home, 10% (n=2) at a local clinic, 5% (n=1) at a district level hospital, and 45% (n=9) delivered at a hospital in the capital city, Kathmandu. Women attended a mean total of 4.2 prenatal checkups, and this ranged from 0-9 (n=20), and 70% had 4 or more prenatal checkups.

To situate the context these women live in, contextual themes related to daily village life, migration, and education are presented first. This is followed by themes that

emerged from the data and describe women's health beliefs and perceptions about maternal education and care delivery that follow key constructs from the Health Belief Model.

Contextual Themes

Daily village life for women. The women interviewed for this study primarily came from agricultural backgrounds. Their district, Ramechhap, is a hilly to mountainous region, approximately one to two days travel and bus journey away from the capital city, Kathmandu. One participant expressed the sentiment of day-to-day village activities in this way: *"It's that only working in field, rearing animals, we have to feed the children, give them clothes to wear, have to educate them, it's like that in village, isn't it?" (Participant 11, 29-year-old).* A significant portion of their daily activities involved managing the household, tending to crop and livestock, and taking care of children.

Migration. A common theme was urban migration, either referring to a move to Kathmandu for families, or husbands moving abroad to look for work. As is typical in Nepal, most men would migrate to Arab countries such as Saudi Arabia, Dubai, and Qatar for work, and would often not return home for over a year at a time, leaving women in Nepal to manage the household: "*He occasionally comes during dashain/tihar, sometimes he comes every month when he have holidays" (Partcipant 11, 29-year-old).*

Participants who had moved to Kathmandu, or expressed interest in moving to Kathmandu, did so for opportunities to further their children's education, better access to health services and greater employment prospects. Many extended families were divided, and women would split their time between the village and Kathmandu to take care of older members of the family living in the village. This is expressed by a participant in the following way: *"We went to Kathmandu to educate our children, but we return back because my mother in-law is alone, there is no one in village." (Participant 8, 23-year-old).* Another participant expressed an interest in moving to Kathmandu in the future: *"Yes, I will stay here (village) for some time until my child is 2 or 3 years old and I may go back to Kathmandu" (Participant 13, 23-year-old).* One participant expressed more trust in the urban healthcare in Kathmandu: *"In the village even if you have stomach pains you have doubt, but when you go to Kathmandu for checkup you won't have any doubt" (Participant 15, 21-year-old).*

Education. On average, women completed seventh grade (n=12), and 40% (n=8) of participants self-reported that they had no formal education. As one participant noted: *"My parents sent me to school, but my mother got sick and my brothers and sisters were too young, so I didn't get to study" (Participant 16, 27-year-old).* Reasons for not receiving an education included having to stay at home to assist with the household, or a lack of access to a school. A few women mentioned that they dropped out of school because they were unable to pass the required exams. For women with larger families, the

education of boys was prioritized over the education of girls: *"It's like a trend like as I am daughter in law. So it's a trend like daughter in law is not sent to school. And beside that I have a house hold" (Participant 7, 22-year-old).* Another participant stated that: *"I have five siblings, two sisters and three brothers. Don't know why, but they sent my brother's to school, but they did not educate us" (Participant 20, 28-year-old).* Given the opportunity, women indicated an interest in furthering their children's education. One participant stated that *"As far as possible I plan to send them till higher education, if possible, till grade 15!" (Participant 11, 29-year-old).*

Risk Susceptibility and Severity

Delivery at Home and Birth Complications. For the 40% (n=8) of women who delivered at home, reasons included encouragement by other family members, the sudden onset of labor, poor access to transportation, and a self-belief that they could deliver without formal assistance. Participants mentioned that because their elders managed it, they too should be able to do so as well. *"The people of village said that it will be quick we don't need to go [to] hospital and it will be at home" (Participant 9, 21-year-old).* Participant 20 expressed her belief that she did not require healthcare provider assistance:

> *But my, doctor used to say that my [blood] pressure is low then… he used to say that 'I won't be able to give birth to my baby due to my low pressure, so you have to go to Kathmandu anyhow'. But, I didn't believe it. Because, I used to feel that 'even though my pressure is low I am not weak so, I can give birth.*

A similar sentiment was expressed by participant nine: *"No, it was my own decision I didn't have prolonged labour pain so [I decided to deliver at home]" (Participant 9, 21-year old).* Participants 9 and 20 did not have a high susceptibility or perceived risk of pregnancy complications and made the choice to ignore the advice of a healthcare provider. One participant expressed difficulties with transportation caused by the 2015 earthquake as a reason for delivery at home: *"No, hospital was too far, and there was problem with transportation. The vehicles couldn't reach and the house collapsed due to earthquake" (Participant 10, 22-year-old).*

In terms of complications of home delivery, participant 2, who first attempted to deliver at home, describes her experience seeking further care when the baby was discovered to be in a breech position:

> *I was in labor pain from the previous evening, but baby was not born by 3:00am. The doctor was called at around 9am in the morning and they gave saline water and labour pain was more intense. After some time, baby was born but only the legs of baby came out. The doctor said he could not do anything further and I was referred to Kathmandu at 3pm. Then, I was carried in a local stretcher called "doko" up to certain place and from there I was taken in a white colour vehicle named "Forel" like jeep and was carried till Khadichaur at around 10:00 p.m and the operation was done at 10:30pm.*

Based on this experience, when complications arise during delivery at home, it is an arduous and often dangerous process to travel to the nearest health center that has the capability of performing an emergency delivery or cesarean section.

Benefits of Seeking Obstetric Care

The Prenatal Checkup Experience. Participants generally felt that the prenatal checkup experience was beneficial. Prenatal checkups generally included an assessment of blood pressure, fetal heart tones, and the position of the baby. Some but not all required the recommended vaccinations (e.g., Tetanus), and prenatal vitamin supplements were also provided. Some women did receive health education on nutrition during pregnancy and how to take care of the baby after delivery. There were no ultrasound facilities available in the village, so women who needed this service had to go to Kathmandu. For example, participant one expressed that: *"I don't remember much, but the checkup was beneficial" (Participant 1, 18-year-old).* Another participant felt reassured by her prenatal checkup visits: *"Yes I am happy. Only if they didn't do checkup on me and didn't provided the monthly medicines I have no idea what would have happened to me…" (Participant 17, 29-year-old).*

Delivery at a Health Center in Kathmandu. The two primary reasons for delivering in Kathmandu were the general lack of local health infrastructure and the discovery of possible birth complications discovered at a local clinic visit. If women were

told during their pregnancy that complications were likely to arise during delivery, then they were more likely to go to Kathmandu to deliver. In total, 45% (n=9) of women delivered their last child in a Kathmandu hospital, and Thapathali teaching hospital was the main delivery center used. Because most of the women interviewed had attended four or more prenatal checkups, they had the opportunity to discover possible birth complications during these visits, many of which were initially discovered at a local clinic.

"I went to the Kathmandu then the doctor told that my baby was in breech position that's why they said that would feel uncomfortable, so they suggested not to return to the village, so I stayed there [Kathmandu]" (Participant 8, 23-year-old).

Women who delivered at home also suggested that if they had been told that their pregnancy was not going to be normal, then they saw the benefit of going to Kathmandu to deliver. Some women who discovered complications during their checkup then went to Kathmandu and stayed in the capital city at the recommendation of the doctor. The general lack of health infrastructure was a primary reason for going to the capital city for further care, and women saw the benefits of travelling for a higher level of obstetric care. For example, one participant highlighted the need to travel to Kathmandu for caesarean delivery: *"And if there are any cases of major surgery, the doctor we have cannot perform it and we need to go to Kathmandu…" (Participant 17, 29-year-old).*

Barriers to Seeking Obstetric Care

Long Clinic Distance/Lack of Transportation. Participant 4 describes her journey to the nearest health clinic offering a prenatal checkup: *"Talking about walking, it takes three hours (walking) to reach Bhaisey hilltop (nearest clinic), and I felt like if there was hospital in the village then it would have been easier" (Participant 4, 19-years-old).*When asked what made it difficult to attend a checkup, overwhelmingly women who received their prenatal care in Ramechhap said that the walking distance to the clinic was what made attending a prenatal checkup difficult. Given the lack of transportation and difficult terrain, often women would walk between three to five hours through mountain terrain to reach a health clinic that offered a checkup. Many women suggested that it would be easier if someone came to the villages offering a basic checkup rather than them having to make the trip to a clinic.

Cost of Care. Women were asked to estimate the costs they encountered during their last pregnancy, and they were also asked to estimate what would have been a reasonable cost for their family. The estimated average cost of care during pregnancy for the participants in this sample was 19,250NPR ($190); however, women estimated 12,500NPR ($125) as an affordable cost of care for their family. One participant stated that *"It could be good if less money was spent, we don't have money" (Participant 12, 28-year-old)*. Another participant expressed the same concerns regarding the costs of pregnancy: *"It was expensive and was difficult for the family" (Participant 1, 18-year-*

old). Participant 20 described how she learned about financial costs during her first pregnancy and decided to save for her second pregnancy:

> *During the first time, I didn't know anything like there might be need of money. I didn't have any knowledge; I didn't know about the diet. I didn't even have any savings. But during the second time, I had some savings. I also did all the savings for my diet. Hence, I didn't have any problem.*

Generally, the costs incurred included clothes, food, hospital expenses, medicine, and travel expenses. Women and their families afforded the costs involved with pregnancy by taking out loans from other family members, or from the support of their husbands work. For participant six, who went to Kathmandu and delivered at Thapathali teaching hospital in Kathmandu, the cost of delivery was free. However, other women who delivered via C-section reported expensive hospital bills. For example, participant six reported that delivery via cesarean section would cost upwards of 35,000NPR ($350).

Self-Efficacy

Self-efficacy emerged as one of the greatest facilitators of women seeking prenatal care. Women were interested in learning about the health of their baby and listening to advice from health care providers on self-care during pregnancy. Most of the participants said that no one needed to encourage them to go to a checkup, and they went on their own accord with the belief that taking care of one's health is of primary importance. As participant 17 stated:

I used to remember you go to doctor regularly like after my each end of the months of pregnancy like I went in 2, 6 and 9 months, I used to remember at that time as I used to feel like something might happen to my baby [fetus] while I am working and I wanted to know it's condition.

Women attended their prenatal care visits despite significant barriers to accessing a health clinic, and women felt confident in their ability to seek care. If women felt stomach pain, nausea, or had any other concerns they generally went to the clinic to put their mind at ease and learn how to take care of their health. As indicated by one participant, women still went despite the distance: *"I used to feel that even though it is far, I will come slowly for routine checkup, I will do good deeds for my child" (Participant 18, 18-years-old)*. The main aspects of prenatal care that women found to be particularly useful to women were learning about the condition of the baby, being told not to carry heavy loads, and being provided with medications such as multivitamins and pain medications.

Cues to Action

Family Support. Over half of participants reported support for attending prenatal checkups and health facilities from family members, but there was still a lack of support for some participants. Support of family members can be seen as a cue to action for some participants, while also a barrier to care for others. For participant 19, the senior members of her family suggested that she did not have to go for a prenatal checkup or deliver at a

healthcare facility, and that they would instead rely on traditional birth practices, which are still used in her village.

> *Yes, they said I can give birth normally, even my father-in-law and mother-in-law said they will keep the traditional healer during the labour pain. I felt if my husband was with me that time he would take me to Kathmandu.*

However, there was support for formal healthcare from husbands, with five participants who specifically mentioned it was their husband that encouraged them to go for prenatal checkups and supported them in doing so.

Appointment Reminders. Women primarily remembered to go to their next checkup based on a date provided by a nurse or other health care provider at the clinic and remembered to go by this date. Women also reported being provided with a written list of dates for their next checkup: "*No. I knew by myself that I need to go there at that date. Like this date I've been given to attend" (Participant 3, 24-year-old).* Some women received a phone call from the clinic close to the date of their next appointment reminding them to come in: "*Doctors called and sometimes I have to go on my own preference" (Participant 1, 18-years-old).* When participants were asked further about what was meant by their own preference, they often referred to expressing concerns about their health or the health of their fetus. A further participant reported her experience being reminded to attend her checkups by the health clinic: *"They used to call me time*

and again and told me to have checkup as I might feel difficulties later" (Participant 8, 23-year-old).

Women's Health Autonomy

One key theme that emerged was that women wanted further education on their bodies and health to make informed health care decisions. In the villages that interviews were conducted, participant 20, one of the oldest participants in this study, described the current nature of village life that prevents women from speaking up or even learning about their own health. She felt that she expressed the sentiment of fellow women in her village, particularly related to furthering women's autonomy when it came to health and health care decision making:

> *If there would be any awareness program for the women living in remote areas as they know nothing, they are following what is said to them, they are still living under the pressure of male members, isn't it? Let's say that, many women don't even know anything, ah, if there would be that kind of program then, the women would have knowledge about their rights and they could raise their voice, then, if they would be capable of being aware of their own health then they also could be healthy.*

Participant 20 suggested that it would be helpful for women to be able to learn about their rights and health. The desire to learn more about their health and rights in order to make autonomous decisions was expressed by other participants. As an example,

when participants were asked whether they would be interested in learning how to perform elements of a prenatal checkup, almost every woman interviewed expressed an interest in learning how to perform a prenatal checkup and to improve their general health knowledge if there was an opportunity to do so.

Discussion

The purpose of this study was to explore the maternal care seeking experiences of women who live in several villages in rural Ramechhap district, Nepal. This study presented several key findings related to prenatal care access and place of delivery, as well as results pertaining to the general health of women in the study. This study also found that facilitators of prenatal care access included the individual self-efficacy of women, the support of their family, and appointment reminders from health clinic staff. The major barriers to prenatal care access related to the distance to the clinic, unsupportive family members, and the cost of care incurred during pregnancy.

A somewhat unexpected finding was the particularly high level of prenatal care access by the women in this study, with 70% of participants indicating they attended four or more prenatal care visits during their last pregnancy. Prior research in other regions of Nepal (Gorkha and Pokhara) and analysis of data from the Nepal demographic and health survey have found significantly lower rates of four prenatal care visits ranging from 25% to 50% (Awasthi et al., 2018; Joshi, Torvaldsen, Hodgson, & Hayen, 2014; Sharma, Pokharel, Budhathoki, Yadav, & Pokharel, 2016). It is important to note that this study

was conducted in the central development region of Nepal, which is in the rural hill region. At only one to two days travel to Kathmandu, while still considered a rural region, it is not as distant from the capital city as other rural areas. Despite the physical distance to a health clinic, it is possible that participants still had more access to health facilities compared to more rural regions of Nepal, contributing to higher prenatal care visit rates. Many participants were also able to travel to Kathmandu for care from urban health institutions. Thus, the barriers to care found in this specific study setting cannot be generalized to all areas of Nepal given the differences in local economies, geography (i.e., hill, mountainous or flat topography), and cultural practices that exist across Nepal. This reiterates the need for theory-driven research to understand barriers to maternal care within specific contexts. By applying the theoretical approach of the Health Belief Model in interviews with women to understand barriers to maternal care, this theory-driven approach helped to identify specific targets for improving maternal care in Ramechhap District, Nepal (Brazil, Ozer, Cloutier, Levine, & Stryer, 2005). This information is important to funders and policy makers looking to design and evaluate the impact of health service interventions.

Almost all of the women in this study reported their husband's encouragement and support of prenatal care as a cue to action. One study conducted in urban Nepal found that educating both the male partner and woman on the importance of maternal care leads to higher prenatal and postnatal care access (Mullany, Becker, & Hindin, 2007). Future work should address the importance of the husband in promoting or

hindering maternal care access. In addition, it is important to highlight that elder women in the community were not always supportive of younger women seeking formal health care assistance, with a common cultural belief that if the older generation was able to manage child birth then the younger generation should be able to as well. This concerning finding is one that should be researched in more depth, given that it may contribute to a lack of perceived risk of pregnancy complications and risk susceptibility for younger women.

Our findings indicate that the physical distance to a health clinic was a major barrier to accessing prenatal care and delivering at a health facility. This is a common problem that is identified in the literature in Nepal, notably in rural areas. A study of women from 17 village development committees in the flat Terai region of Nepal found that women were more likely to deliver at a health facility if it was within one hours walking distance from their homes (Mahato, van Teijlingen, Simkhada, Sheppard, & Silwal, 2017). In the current study, participants would often have to walk three or more hours across hilly terrain to a basic health clinic, and vehicular transportation to a better equipped rural hospital was an even greater challenge due to the lack of road infrastructure.

The costs involved in pregnancy care also presented a significant financial burden to women and their families. Participants indicated an average cost during pregnancy of approximately 19,250NPR. This was 6,750NPR more than participants said their family could afford. There is limited research in Nepal that suggests cost is a major perceived

barrier to maternal care. This presents an important opportunity for future research and health policy initiatives directed at reducing the financial burden of maternal care (Sharma Gautam & Hearn, 2019).

The lack of autonomy for women was an important theme that emerged and also relates to the lack of decision-making that impacts educational opportunities for women, daily village life spent managing the household, and the ability to make informed decisions about their health. As is common in South Asian culture, women often live in a patriarchal system under pressure from their husbands as well as older women in the community to focus their time on taking care of the household and raising children (Mahajan, De Sousa, Pimple, Palsetia, & Dave, 2013). This leads women to not have the individual ability to pursue educational opportunities, employment opportunities and to learn about their own health in order to make informed health care decisions. The concept of autonomy is an important ethical concept that enables women to have control over their own bodies and be free to make their own decisions regarding their health and well-being (Adhikari, 2016). To our knowledge, there is some descriptive and correlational research on the importance of women's autonomy on health service utilization in Nepal, however, this research has not yet led to any significant implementation of solutions that aim to improve health care autonomy for women in Nepal. Bhandari et. al., (2017) associated higher education with higher autonomy and found that out of 500 women surveyed in Western Nepal, higher levels of women's education had a strong positive association with institutional delivery (OR = 4.11, CI = 9.43 – 61.64). Gautam and Jeong

(2019) associated factors such as access to media, intended pregnancy and household wealth with higher autonomy and increased likelihood of sufficient antenatal care based on the 2016 Nepal Demographic and Health Survey Data.

The importance of autonomy in healthcare decision making also presents an opportunity to understand the role of nurses to improve health care for women in rural areas of Nepal. During interviews, several participants were found to have low perceived risk susceptibility of complications during pregnancy, and some even chose to ignore the advice of health care providers. To overcome the low perceived risk susceptibility of complications during pregnancy for women that can occur during pregnancy without proper health care, it is important to focus on understanding the autonomy and scope of practice of nurses and the challenges that nurses face in delivering care. A 2018 study of 511 skilled birth attendants that explored the realities of skilled attendance at birth in rural Nepal found that skilled attendants at birth, primarily nurses and nurse midwifes, failed to meet the standard of training for a skilled birth attendant and performed less than the minimum number of deliveries per month recommended by the WHO to maintain competence (Rajbhandari et al., 2019). Examples of direction for future research on the role of nurses in delivering obstetric health care could include further understanding if nurses perceive that they are practicing out of their scope of nursing practice and without proper training or supervision, and if they perceive they have adequate equipment and support personnel. This could potentially lead to the design and implementation of interventions to expand the scope of autonomous nursing practice in Nepal with proper

training and resources. In addition, with expanded scope of autonomous practice, training and resources, nurses will have the potential to create and test nurse driven interventions to provide appropriate care and educate women about their health to empower women to make informed health care decisions. Another approach would also be village wide interventions to promote women's autonomy as a social norm (Bicchieri, 2017). What was also typical in this study was the dichotomous choice that women faced to either deliver at home with the assistance of elder women from their community with the occasional support of a community health care worker or nurse, or to make the difficult decision to travel far from home to seek care at a hospital. With better resources, training and support for nurses who currently work in rural areas of Nepal like Ramechhap, it may also be possible to expand the healthcare choices that women have during pregnancy and ultimately allow them to make a more informed plan for delivery

To our knowledge, this is the first study to use the Health Belief Model to understand barriers to maternal care in a rural region of Nepal. The benefit of using constructs from the Health Belief Model is that we can take the barriers and facilitators of maternal care identified by the women in this study in this study, such as the cues to action, self-efficacy and perceived pregnancy complications and communicate with researchers and health policy makers the next steps required to act and the benefits of acting. From this study, the next steps involve further survey research with a larger sample across multiple regions to assess the prevalence of identified barriers to care to eventually develop interventions and health policy guidelines that address these barriers.

The main study limitations related to researcher bias, funding constraints and study timing. The primary investigator incorrectly assumed that prenatal care for participants in this study was going to be low as found in other studies on maternal care access in Nepal. Questions were thus designed to understand why prenatal care access may be low instead of aiming to understand specific reasons maternal care access was higher in this region compared to other regions. For example, questions could have been included to ask participants about reasons for accessing a health clinic outside of pregnancy and their experiences with non-pregnancy related care. Timing and funding constraints meant that data collection could only take place over a period of two weeks including travel time. In the future a larger study with a mixed methods methodology could help to further understand barriers to maternal care identified in this study.

Conclusion

Referring to the health priority set by the National Planning Committee of Nepal to reduce the maternal mortality ratio to 70 per 100,00 by 2030, it is clear that improving access to maternal care and addressing context specific barriers to care remains a vital area for research in Nepal. Participants in this study faced barriers to accessing maternal care that either required them to seek further treatment at an urban health centre using valuable family resources if they had them or deliver at home. Inadequate access to quality maternal care leads to increased maternal mortality rates in rural areas of Nepal compared to urban centres, creating an unjust health inequity (Whitehead, 1992). Health

conditions such as haemorrhage and sepsis can lead to maternal mortality, but they can be effectively managed at an equipped health facility (Kifle, Kesete, Gaim, Angosom, & Araya, 2018). Many barriers to maternal care can also be addressed through funding, designing, and implementing innovative health behavioral and structural interventions. For example, it is important to address a lack of healthcare decision making autonomy for women. This can lead to an inability of women to learn about their own health and make important decisions about health care. Other barriers to health care identified using the theory-driven Health Belief Model included: the cost of care, distance to a clinic and unsupportive cultural practices. The benefits of this theory driven approach allows for future research to target these barriers to ultimately reduce the healthcare inequities that exist for women who live in rural regions of Nepal compared to the urban areas.

Table 4.0: Participant Characteristics

Participant Number	Age	Age at first child	Education Level	Number of prenatal check-ups	Number of pregnancies	Number of children	Reported costs during pregnancy (NPR)	Source of income
Participant One	18	16	Grade 6	5	1	1	16,500	No income
Participant Two	19	19	Grade 10	4	1	1	32,500	Agriculture
Participant Three	24	17	No formal education	5	3	2	10,000	Agriculture
Participant Four	19	17	Grade 8	4	1	1	35,000	Agriculture
Participant Five	26	17	Uneducated	4	1	1	5,000	Husband's employment and agriculture
Participant Six	23	21	Grade 12	9	1	1	0	Husband's employment and agriculture
Participant Seven	22	18	Grade 9	3	1	1	450	Husband's employment
Participant Eight	23	21	Grade 5	5	2	2	25,000	Husband's employment
Participant Nine	21	18	Grade 5	1	2	2	0	No income
Participant Ten	22	17	No formal education	4	4	3	25,000	No income
Participant Eleven	29	15	No formal education	0	3	3	Unknown	Agriculture
Participant Twelve	28	19	No formal education	3	3	3	6,500	Agriculture
Participant Thirteen	23	23	Grade 9	0	1	1	20,000	Agriculture and animal husbandry
Participant Fourteen	23	20	Grade 4	6	2	2	80,000	Husband's employment and agriculture
Participant Fifteen	21	Unknown	Grade 9	4	1	1	30,000	Animal husbandry
Participant Sixteen	27	21	No formal education	9	2	2	15,000	Agriculture
Participant Seventeen	29	Unknown	No formal education	5	2	2	30,000	Agriculture
Participant Eighteen	25	17	Grade 4	4	2	2	17,500	Agriculture

Participant Nineteen	18	17	Grade 10	3	1	1	7,000	Husband's income
Participant Twenty	28	17	No formal education	5	3	2	9,800	Husband's employment and agriculture

Table 4.0: Participant Characteristics (Continued)

Variable	Mean	Standard Deviation
Age	23.4	3.5
Age at First Child	18.7	2.4
Education Level (Grade)	7.6	4.3
Number of Prenatal Checkups (Visits)	4.2	2.3
Number of Pregnancies	1.9	0.9
Number of Children	1.7	0.7

Table 4.1: Sample Interview Guide

The purpose of this interview is to gather information on the care that you received during your last pregnancy. The following questions will ask you about the most recent time you were pregnant. Please answer the questions as completely as you can. If you are unable to or do not want to answer a question, please inform the interviewer.		
Item	**Question**	**Prompts**
Open-Ended Questions		
1	Walk me through your day	What do you do when you first wake up in the morning? What do you do during the day? What do you do at night? What are your hobbies? Tell me about your family.
2	Tell me about your last pregnancy	How did you find out you were pregnant? What did you do when you did not feel well? What was your experience with health care during your pregnancy? Where did you deliver your last baby? What factors or who influenced you to deliver where you did? How long does it take you to reach the health clinic? Who was with you when you gave birth? Who delivered the baby? Were there any complications? / What problems did you have when giving birth?
3	Tell me about who looked after you during your last pregnancy. This can refer to individuals who completed check-ups or generally cared for you during pregnancy.	How did you find out you were pregnant? What did you do when you did not feel well? What was your experience with health care during your pregnancy? Where did you deliver your last baby? What factors or who influenced you to deliver where you did? How long does it take you to reach the health clinic? Who was with you when you gave birth? Who delivered the baby? Were there any complications? / What problems did you have when giving birth?
4	If you were to have another child, how would you go about seeking assistance with prenatal care differently?	n/a
5	Think back to your antenatal care checkup, please try and recall your experience as best you can	Who did you see? What did they do? What information would you have liked to have received during your visit?
Health Belief Questions		**Construct**
6	What do you think of when you hear the term antenatal checkup? • What are some reasons to seek maternal care? • Did you experience any health complications during pregnancy?	Risk susceptibility/ Risk severity
7	What do you think the benefits of an antenatal checkup are? • How does seeking prenatal care help you and your baby?	Perceived benefits
8	What makes it hard for you to attend an antenatal checkup? • How do you get to the health clinic? • What do people in your family say about you seeking maternal care?	Perceived barriers
10	What would motivate you to seek antenatal care? • Was your husband supportive of your decision to seek pregnancy care?	Risk susceptibility/ Perceived benefits/ Self-efficacy
11	What makes it difficult for you to seek antenatal care?	Perceived barriers

	• What are some of the financial expenses you faced during your most recent pregnancy?	
12	How do you get to your antenatal checkup? • Would you travel to the clinic on your own?	Self-efficacy
13	How do you remember now to go for your antenatal checkup? • Did any clinic staff remind you to attend your appointment?	Cues to action
14	What would help remind you to attend your antenatal checkup? • Do you have a method of remembering when to attend your prenatal checkups?	Cues to action
15	What suggestions or ideas do you have to get women in your village to seek antenatal care? • Is there anything you would have liked to have done differently during your most recent pregnancy?	n/a
General/Sociodemographic Questions		
16	How old are you?	
17	What do you do to earn money?	
18	What is your level of education?	
19	How old were you when you had your first child?	
20	How many antenatal checkups did you attend during your last pregnancy? When during your pregnancy?	
21	How many times have you been through pregnancy?	
22	How many children do you have?	

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CHAPTER 5: DISCUSSION AND CONCLUSIONS

Introduction

The purpose of this dissertation was to: 1) understand barriers to sexual health services for unmarried adolescents and young adults (ages 15 to 24) across all South Asian Association for Regional Cooperation (SAARC) countries; 2) identify factors associated with sexual health service use for unmarried young adults (ages 18 to 25) in urban Nepal; and 3) identify barriers to maternal care for women (ages 18 to 30) in Ramechhap District, Nepal. This final chapter includes a summary and discussion of the findings. Findings from the three papers are interpreted using a global health ethics perspective to justify the need for health resources to be directed towards sexual and reproductive health. Finally, implications for research, health policy, and clinical practice will be discussed. This analysis will include a discussion on future research opportunities on sexual and reproductive health service access for young adults in Nepal.

Global Health Ethics Perspective

The major barriers to healthcare found in Chapters two, three and four presents an important opportunity to discuss the ethics involved in the distribution of sexual and reproductive health care resources, disparities in healthcare access, as well as the importance of health autonomy in Nepal. In this discussion, the Theory of a Right to Health by Jennifer Prah Ruger serves to integrate key findings from this dissertation.

This ethical theory by Ruger highlights the important ethical implications related to sexual and reproductive health care access evident across all three papers in this dissertation.

The Theory of a Right to Health. In her Theory of a Right to Health, Ruger offers an ethical justification for the right to health as a meaningful and operational right (Ruger, 2006). This discussion will describe the Theory of a Right to Health as it relates to important findings from each of the three papers. The Theory of a Right to Health is grounded in Aristotle's theory of the good, Amartya Sen's Capability Approach, and Incompletely Theorized Agreements (ITA). Ruger crucially makes the case for an ethical demand for equity in health, with an ultimate goal of human flourishing. This theory provides a philosophical lens to analyze the need for more attention and healthcare resources directed towards improving the sexual and reproductive health of adolescents and young adults in Nepal, and to discuss the disparities in care found throughout this dissertation.

Aristotle's theory of the good states that political activity and legislation should lead to "the good life and happiness" (Aristotle, 1998). This creates a social obligation to enable all human lives to flourish. Critically, health care is a means that is only useful as much as it can promote human functioning. To distribute limited resources, Aristotle argues for proportional justice. The distribution of a resource such as healthcare is best if it can "bring the people as close to good functioning as their natural circumstances

permit" (Nussbaum, 1987). The operationalization of functioning is somewhat controversial, and Ruger does not offer a definition but instead a framework for establishing the important aspects of health. Applied to healthcare, this approach would support resource allocation to individuals who have the most need in order to bring them as close to the highest level of functioning that their circumstances permit; this idea is later introduced by Ruger as shortfall equality.

The concept of shortfall equality applies to the disparity in maternal healthcare between women in urban and rural Nepal. As introduced in Chapter One, women in rural areas of Nepal have lower rates of prenatal care of four or more visits, lower caesarean section rates, and lower rates of skilled attendance at delivery (Countdown to 2030, 2016). These disparities can be attributed to an unequal distribution of maternal care that has led Nepal to have one of the highest maternal mortality ratios in South Asia, despite progress since the year 2000. Progress towards reducing the maternal mortality ratio has primarily been the result of developments in urban areas, and rural progress has been significantly slower (Dhakal, 2007). This unequal distribution of maternal care is supported by qualitative research in Chapter Four. When asked to describe their experiences with maternal care in Ramechhap District, Nepal, despite relatively high prenatal care access, women still faced substantial obstacles accessing obstetric care that can be partly attributed to contextual circumstances. For example, women faced physical walking distances to a health clinic that are substantially longer than in urban areas. Women in this rural district also came from poorer agricultural backgrounds and reported

that the costs they experienced during pregnancy were often higher than they perceived their family could afford. The health clinics they had access to also had less resources than in urban areas, and women would often have to travel to Kathmandu for further care. Access to emergency obstetric care such as caesarean delivery was also challenging due to poor road infrastructure and transportation access. While infrastructure and transportation access issues are not completely solvable by healthcare resource allocation alone, there are potentially innovative methods of reducing this shortfall inequality that will be discussed below. It will be necessary to overcome the inequality between urban and rural maternal care to achieve the SDG Nepal has set of reducing the maternal mortality ratio to less than 70 per 100,000 (Målqvist, Pun, Raaijmakers, & Kc, 2017).

Sen's capability approach applies Aristotle's theory of the good but places emphasis on individual capability to achieve valuable functioning as the central variable in social evaluation (Sen, 2014). In health, capabilities could range from simple (e.g., the capability to live a life of normal length) to complex (e.g., the capability to participate in community life). It is important to note that similar to Aristotle and functioning, Sen's capability approach requires open discourse to deliberate key capabilities. He also claims incomplete capability specification and partial ordering are important to understanding the demands of equality. Focusing on basic capabilities that are essential to human flourishing (e.g., the capability to avoid premature mortality) is an example of incomplete specification. Partial ordering asserts that not every aspect of a construct has to be weighted and ordered for social evaluation. Applied to health, there is no need to create

relative weights for certain simple and complex health capabilities. This concept of incomplete specification and partial ordering are important in addressing health disparities given limited resources. Returning to the example of maternal mortality, because avoiding premature mortality would be considered a basic capability that is essential to human flourishing, it is important to place emphasis on health care that reduces maternal mortality. One example of a health service proven to reduce maternal mortality is safe abortion care.

In Chapter One unsafe abortion was introduced as one of the leading causes of maternal mortality, accounting for 13% of maternal mortality globally (Haddad & Nour, 2009). Despite the relatively liberal policies regarding abortion care in Nepal, significant numbers of abortions occur unsafely and illegally (Puri et al., 2016; Singh & Ratnam, 1998). The problem of unsafe abortion care and unintended pregnancy was revisited in Chapters Two and Three. A key finding from Chapter Two was the disparity in accessing safe abortion care between unmarried and married individuals in the South Asian region. Unmarried participants felt that they would be stigmatized by healthcare providers for sexual relationships before marriage and thus did not feel comfortable accessing safe abortion care. In Chapter Three, study participants were found to have low awareness of both the legality of abortion care and where to go for a safe abortion. Participants who reported being sexually active were also found to have low rates of contraceptive use, potentially leading to unintended pregnancy. The risks associated with unsafe abortion include death. Given that avoiding premature mortality is considered a basic capability, it

is necessary to allocate health resources towards improving safe abortion care access and reducing the number of unintended pregnancies. It is also necessary to further explore models for youth friendly healthcare, as stigmatization of unmarried young adults for sexual experiences before marriage was a key finding in Chapter Two, and it was also found to be significantly associated with intended and actual sexual health service use in Chapter Three. Examples of how to potentially implement youth friendly health care and improve access to safe abortion care in Nepal are discussed in more detail below.

In considering human heterogeneity, Sen also argues that humans exist with variations in internal (e.g., sex, age, health status) and external (e.g., environment, socio-cultural norms, education, wealth) characteristics. Such internal and external variations in human experience should inform the assessment of equality in proportion to disadvantage. The emphasis by Sen on human heterogeneity is important to health policy and offers a rationale to treat individuals differently based on inequalities. This is important to justify resource allocation and reallocation. For example, in Chapter Four women experienced variations in family wealth that contributed to the financial burden of care and they also faced scarce distribution of health facilities. Thus, it would be justified to provide additional health resource allocation towards obstetric care in rural Nepal to reduce the inequality between rural and urban maternal care.

Chapter One introduced sexual gender-based violence and unwanted sexual contact as major problems that put women at a much greater risk for acquiring HIV, other STIs, and poor pregnancy outcomes. Unwanted sexual contact and forced sexual

intercourse were explored again in Chapter Three, and both were found to be significant correlates of intended or actual sexual health service access for unmarried young adults. While women expressed significantly higher rates of unwanted sexual contact, in Chapter Three men experienced higher rates of forced sexual intercourse. To date, most research on sexual violence in Nepal has been within married populations, and the findings from Chapter Three begin to introduce the problem of sexual violence amongst unmarried young people in Nepal. The differences in experience with sexual violence based on gender warrant further attention. Focusing on sexual violence is especially important since reducing gender-based violence represents an important stride towards improving gender equality.

Ruger introduces ITAs as a framework to resolve conflict when incomplete specification and partial ordering fail to provide agreement on certain health outcomes. Developed by Sunstein, the goal of ITAs are to bring social agreement when individuals disagree on fundamental matters. Although commonly applied in law, Ruger argues that the ITA approach has applications in health and complements the capability approach by Sen. When applied to health, people often have different and conflicting views and no unanimously agreed unique view of health or health capabilities exists. Because the capability approach by Sen has incomplete orderings, combining the ITA approach provides a framework for a practical approach to health policy decisions. This approach allows for agreements on central aspects of health and capabilities with no need for agreement on non-central aspects.

An example of ITAs to provide agreement on certain health outcomes would be the importance of HPV vaccination in Nepal. In a context such as the United States, the HPV vaccine has often been incorrectly attributed with early sexual debut and sexual promiscuity (Bednarczyk, 2019). There is potential that similar misconceptions could manifest with the recent introduction of the HPV vaccine for adolescent girls in Nepal (Poudel, 2019). However, because the introduction of the HPV vaccine for adolescent girls ages 11 to 13 only occurred in 2019, HPV vaccination as well as cervical cancer screening techniques such as Papanicolaou (Pap) smear cytology are important sexual health research areas. It is possible that sociocultural views towards sexual relationships before marriage could lead parents to refuse the HPV vaccine for their children. By using the ITA approach, perhaps a more agreeable outcome to both health policy makers and consumers is a reduction in deaths caused by cervical cancer. As introduced in Chapter One, cervical cancer is one of the leading causes of cancer related deaths amongst women in developing countries and has a causal relationship with HPV (Iyoke & Ugwu, 2013). HPV and HPV vaccination awareness were again explored in Chapter Three, and unmarried young adult participants were found to have low awareness of both HPV and the HPV vaccine. Given the risk of mortality attributed to cervical cancer, there is a need in Nepal to direct healthcare resources towards prevention, screening and education on HPV and HPV vaccination (Arbyn et al., 2020).

Personal Health Autonomy. Throughout Chapter Four, autonomy emerged as a key theme that impacted many aspects of the lives and opportunities of women. As an example, women faced barriers to education and several participants expressed that the education of boys was prioritized over the education of girls. Women also had few opportunities for financial independence because of societal pressure to manage the household. This lack of autonomy also manifested when it came to health decision making. Personal autonomy involves the ability to make meaningful choices that are free from both the controlling interferences of others and limitations that prevent meaningful choices with adequate health information (Varelius, 2006). Respect for autonomy has become a key bioethical concern, particularly in modern Western Bioethics (Entwistle, Carter, Cribb, & McCaffery, 2010).

As previously mentioned, low levels of autonomy for women in Nepal have been associated with problems accessing safe abortion care and maternal care (Bhandari, Kutty, & Ravindran, 2016). Conversely, high levels of autonomy in Nepal are found to increase the likelihood of delivery at a health facility. Inadequate sexual health education and awareness of available health options can ultimately interfere with personal autonomy, negatively impacting important health outcomes. A lack of adequate sexual and reproductive health information was found in all Chapters of this dissertation. For example, Chapter Two presented a lack of research on sexual health education and counselling for adolescents and young adults in South Asia. In Chapter Three young adults were found to have poor awareness of where to go for safe abortion care and

knowledge of conditions such as HPV. Participants in Chapter Four expressed a desire to learn more about their health and their bodies. Autonomy has been highlighted as an important theme in this dissertation because it also relates to the disparities in sexual and reproductive health care. In sexual and reproductive healthcare, a lack of autonomy presents, for instance, as unmarried young adults not accessing safe abortion care because of fear of stigmatization from healthcare providers for sexual relationships before marriage, women in rural areas not being able to access health facilities, and young unmarried men and women unable to speak up and seek help about their experiences with sexual violence.

Implications for Future Research, Health Care Workers, and Health Policy,

There are several directions for future research, clinical practice, and health policy that emerge from this dissertation. Fundamental to all areas of future work is the integration of youth friendly health care and the promotion of individual health autonomy.

Implications for Future Research. Consistently, there is limited data on the prevalence of specific diseases such as HIV, STIs, and HPV in Nepal. This lack of data suggests a need for more epidemiological disease surveillance research. A specific example of a sexual health infection where there is relatively limited prevalence research is chlamydia. As of January 2020, on PubMed there are few known studies on chlamydia

prevalence in Nepal. The current literature that does exist focuses on a rural population of mostly married women (Christian et al., 2005; Khanal et al., 2019; Shakya et al., 2018). Research on an infection such as chlamydia is important given that it is one of the most common STIs that is easily curable but can cause long-term complications such as pelvic inflammatory disease and infertility if left untreated (Rowley et al., 2019).

Research on HPV in Nepal has been limited, and the handful of prevalence studies that have been conducted in Nepal suggests significant HPV prevalence in the country (Shakya et al., 2018; Thapa, Maharjan, et al., 2018; Thapa, Shrestha, et al., 2018). Given the health significance of HPV, an infection that has a causal relationship with cervical cancer, it is important to encourage more research on HPV in Nepal. Research that does exist suggests that knowledge of HPV and the HPV vaccine is particularly poor (Sathian et al., 2017). This HPV research is especially important now given the recent introduction of the two-dose HPV vaccine series in Nepal. Examples of potential areas of research are how to educate adolescents, young adults, and parents about the importance of HPV.

Experiences with unwanted sexual contact and forced sexual intercourse were found to be factors significantly associated with intended or actual sexual health service use for unmarried young adults in Chapter Three. Research and policy directed at sexual violence in Nepal will also help to improve gender equality. Although there is research on intimate partner violence amongst married couples in Nepal, the research on sexual violence outside the traditional definition of a relationship is less developed. There is the

potential to develop this body of sexual violence research further to promote strategies aimed at reducing sexual violence. Interesting findings from Chapter Three that should be explored in future research include the high rates of unwanted sexual contact experienced by unmarried young women in Kathmandu, as well as the higher rates of forced sexual intercourse experienced by unmarried young men compared to unmarried young women.

It is important to promote safe abortion care in settings where it has not been accepted for groups of individuals, particularly unmarried people, who face stigmatization for sexual relationships before marriage. This also coincides with the provision of modern contraceptives to reduce unintended pregnancies. Potential areas for future research in Nepal include determining the best method of connecting young adults with existing safe abortion facilities and other important sexual health services. An example of a potential solution involves mHealth for sexual health (Feroz, Abrejo, Ali, Nuruddin, & Saleem, 2019). While one potential direction for mHealth research could be sexual health education, as evident in Chapters Two and Three, adolescents and young adults are not connected to the existing sexual health services that are available to them. The disconnection with healthcare services provides an important focal area for future sexual health research in Nepal. There is an opportunity to leverage the use of smartphones and tech enabled devices by young adults to connect individuals with sexual health care.

When considering the barriers to safe abortion care such as stigmatization from healthcare providers and privacy concerns, as found in Chapters Two and Three, the

provision of youth friendly health care will help to alleviate these barriers. A solution to raise awareness of established youth friendly healthcare facilities and promote access to youth friendly care is to evaluate how youth friendly available sexual health services are in Nepal. In a context such as the United States, there has been innovative research on the use of mystery shoppers for quality assurance evaluation of HIV/STI testing sites offering services to young gay and bisexual men (Bauermeister et al., 2015). There is potential for this type of research to be replicated in contexts such as Nepal, and for the findings to be disseminated in a widespread manner that is available to young adults.

Implications for Health Policy. Health policy recommendations that arise from the research conducted in this dissertation relate to funding directions for future sexual and reproductive health research, wider distribution of preventative sexual health care, establishing methods of expanding awareness of sexual health care, as well as directing resources to nurses to allow Nepalese nurses to be able to practice with a greater degree of autonomy, to conduct effective nursing research, and to establish evidence based models for nursing practice that positively impact sexual and reproductive health care in Nepal.

To provide direction to focus on the most relevant sexual and reproductive health care in Nepal, it will be important to understand the prevalence of key sexual health conditions. One example of a sexual health problem where the exact prevalence in the general Nepalese population is poorly understood is STIs. The epidemiology of STIs in

both rural and urban populations in Nepal requires further research to guide health policy towards the most important sexual health problems. Areas for policy to focus on preventative sexual health care include HPV vaccination. Given the particular significance of HPV and its link with cervical cancer, it is necessary to promote the two-dose vaccine series in adolescent girls ages 11 to 13, while also implementing further health policy to make the HPV vaccine available to a wider audience which includes adolescent boys and young adults. It will also be necessary for health policy that looks to improve access to contraceptive methods and promote awareness of existing health care such as safe abortion care. None of these potential policy initiatives will be possible without also establishing effective models for sexual and reproductive health care, and this will require proper support and funding for Nepalese nurses, as will be discussed in further detail below.

Implications for Health Care Workers. The challenge of delivering obstetric care in rural areas of Nepal is ongoing. While this is partly due to a lack of infrastructure, it is also the result of a lack of human resources. Across all parts of South Asia, it has historically been a challenge to encourage healthcare workers to work in rural areas. As an example, research in Bangladesh found an urban bias in facility development and resource distribution where all of the specialized hospitals and medical colleges are located in city centers (Hossen & Westhues, 2011). In rural areas of Bangladesh untrained or unqualified private practitioners provide nearly 90% of treatment. Nepal also

faces similar challenges in providing healthcare workers to rural populations. A study of 393 Nepalese medical students found reasons for students choosing urban health facilities to practice include a lack of diagnostic facilities, team work, political interference, high public expectations, and the difficult life styles in rural remote locations (Sapkota & Amatya, 2015). In this study in Nepal, participants who came from a rural background were four times more likely to choose a rural location for future practice.

The current model of health care delivery, particularly in rural areas of Nepal, relies heavily on nurses often practicing out of their scope of practice and with limited resources. Current research suggests that for reasons such as a lack of personal autonomy, poor working conditions, and insufficient postgraduate education opportunities, new nurses in Nepal express a desire to migrate to other countries for work. A 2018 study by Poudel, Ramjan, Everett, & Salamonson, found that out of 799 nursing students, 93.5% expressed a desire to migrate to another country to work as a nurse following graduation. In day to day clinical practice, nurses in Nepal also face barriers to utilizing research and evidence-based practice in the care provided. A study by Subramaniam and Paudel (2016) of 97 nurses found the number one reason that nurses cannot utilize research and evidence-based practice in the workplace to be inadequate facilities and resources for implementation. Overcoming the loss of nurse in Nepal to more developed countries will require significant dedication to creating an environment that promotes autonomy, personal identity and research within the nursing profession. Examples of this would involve the opportunity for nurses to undertake more postgraduate education within

nursing, supporting nurse driven research through funding sources specific to nursing, and to also promote a more positive and modern image of nursing.

Because this dissertation study conducted research in both urban and rural areas of Nepal, the challenges that nurses face in delivering sexual and reproductive health care are different. While in urban Nepal there is a wide distribution of health care facilities and nurses, there have been limited resources directed to expanding awareness and distribution of sexual health care for adolescents and young adults in these urban areas. This lack of sexual health care distribution of services that are readily available can partly be explained by the lack of nursing research and autonomous practice the takes place in Nepal due to inadequate nursing funding, postgraduate educational opportunities such as master's programs and doctoral programs, as well as a lack of autonomy for nurses due to the physician driven nature of the healthcare profession that is evident in urban Nepal. In rural Nepal, nurses face a very different challenge that is caused by a lack of health care supplies and resources, such as proper equipment and personal for assistance, and also inadequate advanced nursing training. This forces nurses in rural areas of Nepal to practice with the resources that they do have; however, this often leads to nurses having to practice outside of their scope of practice and without what would be considered proper supervision or assistance.

It is clear that overcoming the disparity between urban and rural maternal care will require innovative solutions. One of the most successful models for encouraging healthcare worker retention in rural areas is seen in rural Australia. Since 1990, Australia

has implemented a six-component framework for encouraging rural healthcare worker retention (Buykx, Humphreys, Wakerman, & Pashen, 2010). As part of this approach, healthcare workers are provided with appropriate and adequate infrastructure necessary for healthcare workers to perform their job. Examples of adequate infrastructure include a ready to access vehicle, adequate housing and ready access to a reliable information and communication technology system. Additionally, they are provided with realistic and competitive remuneration and retention bonuses beyond what would be available in urban areas. A model such as this also has potential for replication in contexts such as Nepal and presents a potential area for future healthcare workforce research. For example, the provision of a four-wheel drive vehicle to travel through challenging rural terrain to urban health facilities could appeal to nurses and doctors. This would also serve to connect rural populations with urban health facilities more quickly, a challenge experienced by participants in Chapter Four. A model like this would require significant funding to implement and can only be achieved through health policy initiatives; however, such resources will be necessary to reduce the shortfall inequality between urban and rural maternal care in Nepal.

Conclusions

This research in Nepal was conducted because of known gaps in the literature on sexual and reproductive healthcare. In Chapter Two, key findings included the lack of research on specific sexual and reproductive health services unmarried adolescents and

young adults need in South Asian countries. Chapter Two also identified important barriers to sexual and reproductive health care, such a societal stigma and stigma from healthcare providers for engaging in sexual activity before marriage. These barriers to health care were accompanied by privacy concerns and a lack of education or counselling on sexual health. Young adults in Chapter Three were found to have a lack of awareness of safe abortion care and sexual health conditions such as HPV. Factors associated with increased intention to seek sexual health services included higher perceived youth friendliness of the health system, experiences with unwanted sexual contact and alcohol consumption. Perceived youth friendliness of the health system, sexual attraction, cigarette consumption, dating app use, forced sexual intercourse, perceived sexual risk, and depo Provera awareness were all significantly associated with actual sexual health service use. In Chapter Four, key barriers to maternal care for women in Ramechhap District, Nepal included physical clinic distance, a lack of family support for maternal care, cost of care and a lack of personal autonomy. Our findings underscore the importance of further developing sexual and reproductive health research in Nepal.

To credit health researchers and policy makers in the country, Nepal has made a significant amount of progress towards improving sexual and reproductive health. From a health policy perspective, abortion and modern contraceptives have been legally available since 2002. There has also been a significant reduction in the maternal mortality ratio, and the HPV vaccine is becoming available. Prior research has led to an understanding of the major barriers to health care both in rural and urban populations; however, solutions

and health interventions are not as widely implemented. Moving forward, it is imperative to continue to build on the work that has been completed and now implement more solutions to improve sexual and reproductive health in the country.

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