RISK AND PROTECTIVE FACTORS AFFECTING YOUTH REPRODUCTIVE HEALTH IN INDONESIA WITH THE FOCUS ON ACEH PROVINCE

By

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ABSTRACT

Introduction

During 2012-2017, Indonesia faced several challenges regarding youth reproductive health, such as high youth fertility, adolescent childbearing issues, increasing prevalence of sexually transmitted infections, and declines in contraceptive prevalence, antenatal care coverage and knowledge of pregnancy risks. Other challenges include low knowledge of HIV preventions, low birth weight babies and increasing stillbirth rate.

Objectives

The main objective is to examine youth reproductive health outcomes in Indonesia 2017, focusing on Aceh province. The specific objectives are: 1) To identify and analyse the factors influencing youth reproductive health indicators; 2) To analyse the knowledge of HIV- prevention among the youth; 3) To construct a youth reproductive health index (RHI); and 4) To provide recommendations about youth reproductive health in Indonesia.

Methods

Quantitative data on never-married and married youth aged 15-24 years, extracted from the 2017 Indonesia Demographic and Health Survey and 2017 Indonesia Youth Reproductive Health Survey are analysed with SPSS Version 27.0.1.0. Qualitative data, collected through ten focus group discussions (FGDs) and 20 In-depth interviews spread over five selected districts of Aceh Province in 2021 are analysed with NVivo. Covid-19 travel restrictions to Indonesia prevented the researcher from conducting the FGDs and In-depth interviews in person. Instead, these were managed remotely from Adelaide, by employing four research assistants who facilitated the FGDs at local university campuses to adhere to government regulations on Covid-19. The In-depth interviews were conducted online by the researcher by using virtual platforms Zoom and WebEx.

Key Findings

The analysis of quantitative data revealed that reproductive health outcomes among youth in Indonesia are affected by a number of socio-economic and demographic variables such as women's and partner's age, women's and partner's level of education, place of residence, household wealth quintile, number of living children, discussion about family planning with partner or friends/neighbours, number of children ever born, health insurance coverage, number of ANC visits, pregnancy complications, school attendance, number of sources of HIV knowledge, experience in attending or visiting peer-educator or health counsellor programs, knowledge of STI and HIV, and schools as sources of HIV knowledge. Some of these variables are classified as protective factors of youth reproductive health, while some others are classified as risk factors. The analysis of qualitative data, organised into nine main themes: 1) Youth's physical and mental condition; 2) Youth's attitude and knowledge towards reproductive health; 3) Risky behaviour; 4) Family influence; 5) Peer influence; 6) Community influence and government programs; 7) Social norms; 8) Accessibility and health care provider as key access points to reproductive health services; and 9) Exposure to social media and modern technologies of communication, explained various aspects of the state of youth reproductive health through the eyes of youth and community leaders in the context of local cultural and socio-economic conditions and Islamic Sharia Law, which provided valuable insights into the findings of quantitative analysis, particularly with reference to Aceh. Appropriate measures are recommended to address youth reproductive health issues in Indonesia.

DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and the research within will not be submitted for any other future degree or diploma without the permission of Flinders University; and to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

25th July 2022

Yuniarini

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INTRODUCTION

1.1 Background

Over the human life span, youth is the period of dynamic change from childhood to adult age. The quality of transition from childhood to youth is very important for well-being as it has a longstanding effect on human health, and how youth interacts with the physical environment in their routine lives (National Population and Family Planning Board (BKKBN)., (BPS)., (Kemenkes)., & ICF., 2018; UN, 2001). The United Nations (UN) defines adolescents as those persons who are aged 10-19 years and youth as persons aged 15-24 years (UNDESA, 2007). Together, adolescents and youth are referred to as young people, encompassing the age range of 10 to 24 years.

In 2013 the definition of adolescence was modified by the Indonesian Ministry of Health to include only unmarried persons aged 10-24 years (National Population and Family Planning Board (BKKBN)., Statistics Indonesia (BPS)., Ministry of Health (Kemenkes)., & ICF., 2013). However, for statistical purposes, and for policies and actions related to adolescent reproductive health (ARH) Indonesia's National Population and Family Planning Board (Indonesian acronym — BKKBN) defines the age group 15-24 years as adolescence (regardless of marital status). In addition, according to BKKBN et al. (2018), the Indonesia Demographic and Health Survey (IDHS) defines adolescents as "never-married" women and men aged 15-24 years. According to UNDESA (2020), worldwide estimates indicate that there are 1.21 billion young people between 15 and 24 years of age accounting for 15.5 per cent of the global population. In the Eastern and South-eastern Asia region, there are about 304 million youths constituting 13 per cent of the total population of the region (UNDESA, 2020).

In the last 20 years, the focus of study on the wellbeing of youth has been broadened from personal characteristics related to the environment in which they grow-up, namely the family, school or peer group, to the society at large. This expanded focus also includes reproductive health as an important issue for young people, particularly with respect to the risk factors they are exposed to, that have social and health implications such as early pregnancy and exposure to HIV/STI (Blum & Mmari, 2005).

In 2015, the United Nations General Assembly adopted a set of 17 Sustainable Development Goals (SDGs) to build on the recently concluded eight Millennium Development Goals (MDGs), to serve as a shared statement to create peace and prosperity for all by 2030. Target 7 of Goal No 3, of the SDGs contains a set of actions that need to be completed for ensuring universal access to sexual and reproductive health care services, including those for family planning information and education, and the integration of reproductive health into national strategies and programs by 2030 (United Nations, 2016).

1.2 The Importance of Investigating Youth Reproductive Health

The growing young population in developing countries has several implications for sexual health and reproductive health, especially for sexually active youth because of changes in family life and changes in values from traditional to modern (Achmad & Westley, 1999). This is one of the reasons why it is important to investigate youth reproductive health, particularly in Indonesia where the subject has not received much attention from researchers and policy makers, but where the risk and protective factors of reproductive health exist in a multi-layered environment in which the youth live.

More than half of the population in many developing countries is under the age of 25, which potentially creates opportunities for national economic growth, but also requires larger investments in education and health in order

to utilise the full potential of the young population. This also has consequences that affect the world's social, environmental, and economic well-being for generations (Plourde & Dayton, 2014). According to Statistics-Indonesia (2011), as of 2010, around 40.8 million people in Indonesia were classified as youth aged 15-24 years, which constituted 17.2 per cent of the country's population of 237.6 million. The population of the youth aged 15-24 years grew to 44.9 million at the 2020 Census and constituted 16.7 per cent of the country's population of 270.2 million (Statistics-Indonesia, 2021). This implies a growth rate of the youth population of 10.4 per cent per decade.

1.3 Challenges with Youth Reproductive Health in Indonesia

Following the International Conference on Population and Development (ICPD) in Cairo in 1994, the World Health Organisation (WHO) proposed 17 indicators of reproductive health for global monitoring which cover a wide scope of program areas including reproductive health programs for specific groups such as adolescent and young people (WHO, 2006). These indicators are (1) Total Fertility Rate; (2) Contraceptive Prevalence; (3) Maternal Mortality Ratio; (4) Antenatal Care Coverage; (5) Live births attended by skilled provider; (6) Availability of Basic Essential Obstetric Care; (7) Comprehensive Essential Obstetric Care; (8) Perinatal mortality rate; (9) Prevalence of low birth weight; (10) Syphilis serology in pregnant women; (11) Anaemia in women; (12) Obstetrics/Gynaecology admissions owing to abortion; (13) Women with genital mutilation; (14) Infertility in women; (15) Reported incidence of urethritis in men; (16) HIV infection in pregnant women; and (17) Knowledge of HIV-related preventive practices. Also based on the recommendations coming out of the 1994 ICPD, *Population Action International* (PAI) has, since 1995 been publishing the Reproductive Health Index (RHI) which measures the level of Sexual and Reproductive Health/Rights of low-to-middle-income countries globally. This index is scored on a scale of 0 to 100, which is further classified into five broad categories and includes 11 indicators that are similar to the WHO indicators mentioned earlier. The five broad categories are: Lowest, Low, Middle, Mid-High, and Highest. Indonesia, with an index of 49.8

lies in the Middle classification and ranks 40 out of the 62 countries included in the index calculation (PAI, 2015).

In order to reach the Highest category of RHI Indonesia needs to address the challenges related to youth reproductive health indicators (YRHI) as discussed below. The challenges mostly cover the findings of national surveys, namely 1) Indonesia Demographic and Health Survey (IDHS) and 2) Population and Family Planning Performance and Accountability Survey (SKAP), conducted during 2012-2017 covering all the provinces of the country. As mentioned earlier, the present research defines youth as men and women aged 15-24 years, as identified by the United Nations Department of Economic and Social Affairs (UNDESA, 2007).

1.3.1 Antenatal Care Coverage as an ARH Program Outcome

Antenatal care coverage (ANC) identifies the proportion of women who were attended, at least once during their pregnancy, by skilled health personnel for reasons relating to their pregnancy (WHO, 2006). But in 2016, the World Health Organisation introduced a new antenatal care model with a minimum of eight contacts with a health care provider to reduce perinatal mortality and improve women's experience of care (WHO, 2016). The trend in ANC coverage among women (at least once by a skilled provider) has since increased from 93 per cent in 2007 to 98 per cent in 2017 (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018). An increasing trend was also observed for ANC visits (at least four visits by a skilled health personal) from 66 per cent to 77 per cent. Nevertheless, the proportion of mothers visiting ANC clinics has declined for young mothers (aged 15-24 years), from 96.4 per cent in 2012 to 94.2 per cent in 2017.

1.3.2 Behavioural Outcome

1.3.2.1 Knowledge of Sexuality and HIV/AIDS Transmission

In Indonesia, recent data show that only 15 per cent female and 16 per cent of males have comprehensive knowledge about the prevention and transmission of HIV (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018). Specifically, among never-married youth aged 15-24 there only around a half (46.6 per cent female and 51 per cent male) of youth have comprehensive knowledge of HIV-related prevention practices. In addition, knowledge about the risk of pregnancy has declined among adolescent males aged 15-19 from 51 per cent in 2012 to 48 per cent in 2017 (National Population and Family Planning Board (BKKBN)., Statistics Indonesia (BPS)., Ministry of Health (Kemenkes)., & ICF., 2018).

1.3.2.2 Contraceptive Prevalence

Despite the fact that contraceptive prevalence among currently married women aged 15-49 years has increased in the five-year period from 2012 to 2017 (IDHS 2017) it has declined among women in the 15-19 and 20-24 age-groups for both married and unmarried women (Table 1.1). These declines could partly be explained by the fact that during the same period, the percentage of female youth in union (married or living together) aged 15-19 and 20-24 years declined from 12.8 per cent to 9.3 per cent, and from 59.5 per cent to 49.4 per cent respectively (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018; National Population and Family Planning Board (BKKBN). et al., 2013).

Similarly, the 2019 SKAP also shows a decline in contraceptive use among either all female youth or among in-union female youth between 2018 and 2019 as can be seen in Table 1.1.

Table 1.1 Trends in Contraceptive Prevalence in Indonesia 2012-2019

Marital status	IDHS		SKAP		
	2012	2017	2017	2018	2019
Married and unmarried women					
15-19 age group	6.3%	4.4%	3.4%	4.2%	3.6%
20-24 age group	36.2%	29.6%	29.0%	32.1%	31.0%
Married/in-union women					
15-19 age group	48.1%	45.2%	43.6%	49.8%	46.2%
20-24 age group	60.5%	59.3%	53.4%	56.5%	54.3%

Source: Prepared by author based on data available in 2012 IDHS, 2017 IDHS and 2019 SKAP and 2019 SKAP

According to the World Health Organisation contraceptive use is influenced by demographic factors such as age, sex, number of children ever born, number of children surviving, access to family planning, knowledge about family planning and factors influencing the discontinuation of the use of contraceptives (WHO, 2006). Currently married women in Indonesia who do not have adequate exposure to the messages of family planning are most often found in the lowest wealth quintiles (51 per cent of the women without adequate exposure to family planning messages are in the lowest wealth quintile). Around 80 per cent of women with No education lack exposure to media to access information about family planning. Moreover, among women who have never used contraception, only one percent were visited by a family planning worker to discuss family planning. In addition, reasons for discontinuation of contraceptive use for side effects/health concerns has increased from 18.1 per cent in 2012 to 33.2 per cent in 2017 (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018; National Population and Family Planning Board (BKKBN). et al., 2013) .

1.3.3 Program Impacts

1.3.3.1 Youth Fertility and Maternal Mortality

According to BKKBN et al. (2013), Indonesia's total fertility rate (TFR) remained unchanged at 2.6 births per woman as found in the surveys conducted between 2002 and 2012. The TFR later declined to 2.4 as found by

the 2017 IDHS. Nevertheless, Indonesia has not achieved the goal of reducing the TFR to 2.1 births per woman by 2015 that was set by National Population and Family Planning Board of Indonesia (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018). In addition, the 2019 SKAP also showed that the TFR increased from 2.38 in 2018 to 2.45 in 2019 which in fact shows a trend against the 2019 National Medium Term Development Plan (RPJMN) target of 2.28 children per woman (Rahmadewi, Lilestina, Ekoriano, et al., 2019). Most importantly the same survey also showed an increase in the age-specific fertility rate (ASFR) of youth aged 15-19 years from 30 per 1,000 women (2018) to 33 per 1,000 women (2019). The PRB (2020) database for 2017 also shows that the Adolescent Fertility Rate (births per 1,000 women aged 15 to 19) is 48 for Indonesia which is among the top five South East Asian countries behind Laos (94), Cambodia (57), Philippines (57) and Thailand (51). Additionally, data from the 2017 IDHS reveals that 6.9 per cent of women aged 20-24 had their first birth by age 18 years and 0.3 per cent by age 15 years (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018, p. 76 Table 5.9). WHO (2006) stated that adolescent pregnancy remains a major contributor to maternal/child mortality and ranks second among causes of death for girls aged 15 to19. In fact, the 2017 IDHS shows that among this group 5 per cent had given birth and 2.1 per cent were pregnant with their first child at the time of the survey (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018, p. 69 Table 5.11). Further, 9 per cent of all births in Indonesia during 2020 were to mothers aged 15-19 which puts the country among the top five out of eleven South East Asian countries (PRB, 2021).

According to the UNFPA, 1.1 million women aged 20-24 years gave birth by age 18 years in Indonesia and thus it is ranked 5th in the list of the world's top ten countries with the largest numbers of women of this age-group to give birth by age 18 years. The other countries in the top five are India, Bangladesh, Nigeria, and Brazil (Loaiza & Liang, 2013) . Likewise, Maternal Mortality Ratio (MMR) database from WHO shows that during 2017, 177 mothers died per 100,000 live births in Indonesia (WHO, 2019c).

1.3.3.2 Low Birth Weight and Perinatal Mortality Rate

Low birth weight is a risk factor described as a measure of infant health and used as a substitute indicator of infant morbidity (WHO, 2006). The 2017 IDHS found that more babies were born with a birth weight less than 2.5 kg (low birth weight[1]) among mothers aged under-20 years than among mothers of older cohorts in Indonesia (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018).

Moreover, even though the perinatal mortality rate[2] in Indonesia has declined from 26 per 1,000 pregnancies in 2012, to 21 per 1,000 pregnancies in 2017, the stillbirth rate[3] which contributes to the perinatal mortality rate, has increased from 12 per 1,000 pregnancies in 2012 to 17 per 1,000 pregnancies among mothers aged under 20 years (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018; National Population and Family Planning Board (BKKBN). et al., 2013).

1.3.3.3 Sexually Transmitted Infections (STIs)

The 2017 IDHS shows an increase in the prevalence of sexually transmitted infections among female youth, from 16.8 per cent to 18.8 per cent. The STI has also increased among male youth from 2.7 per cent to 4.1 per cent (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018). Further, according to the Population Reference Bureau, in 2016 the HIV/AIDS prevalence among adolescents aged 15 to 24 years in Indonesia was 0.3 per cent for men and 0.2 per cent for women (PRB, 2020).

[1] Low birth weight is a term used to describe babies who are born weighing less than 5 pounds, 8 ounces (2,500 grams) (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018).
[2] Perinatal mortality rate is the sum of the number of stillbirths and early neonatal deaths divided by the number of pregnancies of 7 or more months' duration, expressed per 1,000 (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018).
[3] Stillbirths are foetal deaths in pregnancies lasting 7 or more months (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018).

1.3.4 Social Determinants of ARH outcome: the other Reproductive Health Risk Factors

The findings from the two IDHS also reveal a few other challenges. Around 80 per cent of never-married youth in Indonesia reported that had had a girl/boyfriend and most of them started dating when they were aged between 15 and 17 years-old with an increasing proportion of never-married youth reporting having premarital sexual intercourse (increased from 0.9 per cent to 1.5 per cent) and less than half of them used a condom during their most recent intercourse (BKKBN, (BPS), (Kemenkes), & USAID, 2018; Statistics-Indonesia, (BKKBN), Health-Ministry, & ICF-International, 2013). The 2019 SKAP also reveals that the premarital sexual intercourse trend increased between 2018 to 2019 among never-married male youth aged 20-24 years from 5.9 per cent to 7 per cent (Rahmadewi, Lilestina, Kistiana, et al., 2019).

Moreover, among those youth who had ever had sexual intercourse, 12 per cent of females reported an unwanted pregnancy and around 7.4 per cent of the males also reported that their girlfriends had an unwanted pregnancy (BKKBN et al., 2018). It was also found that proportionately more males in 2017 compared to 2012 thought that pre-marital sexual intercourse was acceptable.

The other concerns are that there is a higher percentage of never-married youth aged 20-24 who neither attended school, nor were working in 2017 compared to 2012. For females aged 20-24, these percentages slightly increased from 16.4 in 2012 to17.8 in 2017, however the corresponding percentages for males are 12.9 and 17.9 respectively (BKKBN et al., 2018; Statistics-Indonesia et al., 2013). It is interesting that while for males aged 15-19 years these percentages also showed an increase (from 11.5 in 2012 and 12.9 in 2017), females of the same age group declined from 15.9 per cent in 2012 to 12.8 per cent in 2017.

The statistics discussed above indicate that the overall reproductive health situation of the youth in Indonesia, as reflected in the trends of several RH indicators has deteriorated in recent years. As mentioned earlier, this is a matter for concern and needs to be addressed, so that reproductive health of the youth can improve, which in turn can contribute to improvement in Indonesia's overall reproductive health situation as measured through the Reproductive Health Index (RHI).

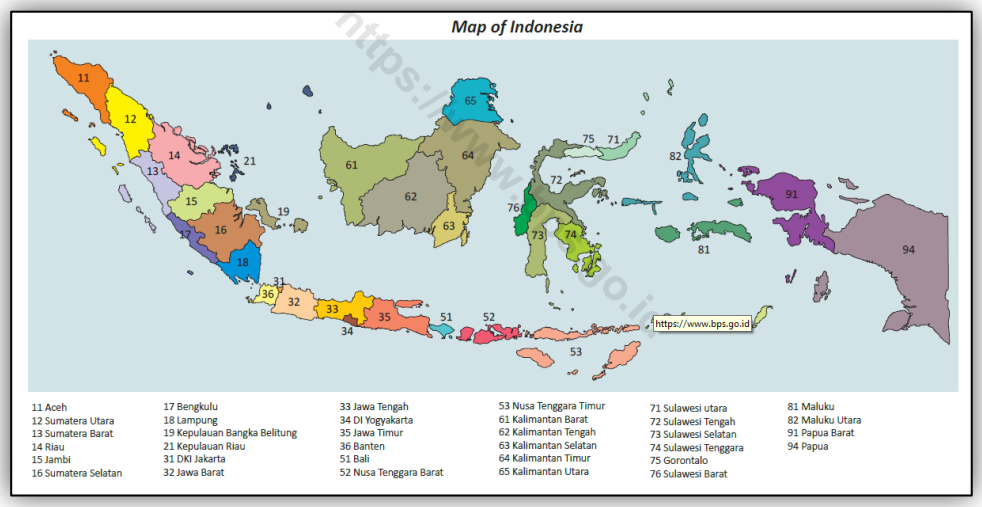
1.4 Socio-demographic Characteristics of Youth in Indonesia

For a comprehensive understanding of the reproductive health challenges of the youths, it is important to understand the nature of youth in Indonesia in terms of their marriage pattern, their socio-economic conditions, and their sexual behaviour. The following section provides a discussion of these elements.

1.4.1 Marriage Patterns of Youth in Indonesia

Indonesia is an archipelagic country in Southeast Asia (Figure 1.1) that consists of 34 provinces with 1,340 ethnic group with 16.5 per cent of the total population categorised as youth aged 15-24 years (BPS-Statistics, 2020).

Figure 1.1 Map of Indonesia



Source: BPS-Statistics 2020

Indonesia as one of the most ethnically diverse countries in the world and home to the world's largest Muslim population, has endogamy as the norm in prevailing marriages across all provinces (Utomo & McDonald, 2016). Consequently, as opposed to marrying someone from another ethnic group generally Indonesians are more likely to marry someone from the same ethnic group which was also revealed in the 2010 census. But this condition does not necessarily apply to youth and more educated individuals in Jakarta and North Sumatra due to the extended duration of formal education which facilitates the mixing of young people from different ethnic and social groups. Some ethnography studies also found various patterns of marriage among youth in Indonesia. For example Carnegie (2013) found in Roti, East Nusa Tenggara, there has been a shifting preference of intermarriage between indigenous Rotinese Christians and Muslim migrants which shows that young Muslim men recently prefer to marry a girl of the same religion and customs which originally most commonly Muslim men married local Christian women. This change happened due to the financial constraints that became a burden to arrange the bride-wealth payment required to marry an indigenous Rotinese. In contrast, in Soroako, Sulawesi, Robinson (1998) concluded that young women preferred to marry wage-earning young men, particularly those who came from outside the tribe as the result of village economy integration, which contradicts kin-arranged marriages that had been common in the past.

In Indonesia, under the previous country's marriage law enacted in 1974, the minimum legal age to marry was 16 years for women and 19 years for men (O'shaughnessy, 2009). However, the Religious Affairs ministry regulation allows children below the legal age to marry if they obtain a marriage dispensation permit from the local religious court, thus a married 16 year-old girl in Indonesia is accepted by society to act as a responsible adult (i.e. by having sex, getting pregnant and performing the role of a mother) (Ketchell, 2018). But on the other hand, single older adolescents are considered sinners and disrespected if they incur a premarital pregnancy. Recently, the Indonesian government has officially ratified Law No. 16 of 2019 as an

Amendment to Law Number 1 of 1974 concerning Marriage as mandated by the Constitutional Court (MK) (Murni, 2020a). The new Marriage Law changes the minimum threshold for both men and women to marry to at least 19 years of age.

Early marriage among adolescent females in Indonesia is significantly related to low educational levels, being underprivileged, living in rural areas and having no access to media information (Berliana, Kristinadewi, et al., 2018). Insufficient knowledge regarding reproductive health issues and sexuality may have been acquired by less educated female adolescents. A family's economic status also plays a substantially important role in determining a child's marriageable age. Most young females in urban areas are employed and they tend to work rather than marry at an early age. Furthermore, mass media has been found to be highly effective in having an impact on changing behaviour and bringing new ideas to both young and older members of the family. But, in general, the proportion of youth who read information about some Reproductive Health indicators has decreased in the period of 2009 to 2017 (National Population and Family Planning Board (BKKBN)., Statistics Indonesia (BPS)., et al., 2018) in Indonesia. For example, 19 per cent of women read information about postponement of marriage in the 2012 IDHS compared with 13 per cent of women in the 2017 IDHS (National Population and Family Planning Board (BKKBN)., Statistics Indonesia (BPS)., et al., 2018). A specific character concerning Indonesia is that early marriage among adolescents was commonly arranged by local Islamic Scholars (known as Ulama) who teach at local Islamic boarding schools (known as Pesantren) by choosing the adolescent female students to be introduced to a particular male student (Smith, 2014). Such early marriage arrangements in Islam are believed to be a prevention among young people from creating sin from dating and having sexual activities before marriage: in most cases, families let the Ulama choose the right person among the students to be the wife/husband of their child (Smith, 2014).

In terms of multiple sexual partners, polygyny is common in Indonesia especially among Muslim males. Some problems arise when an adult male has an adolescent second wife. In addition to the risks of having medical complications from having a teenage pregnancy, the wife may face difficult conditions related to the SRH rights (Razak, Dahong, Ahmad, Dema, & Mustanir, 2018). Many younger women were married off illegally (known as Nikah Siri) due to the absence of first wife permits. Unregistered marriage may result in difficulties of having a legal identity for subsequent children (Razak et al., 2018). Without a marriage certificate, the government does not issue a birth certificate and ID number for the child which are needed as legal identity for example to enrol in school.

1.4.2 Education and Employment of Youth in Indonesia

School enrolment at the secondary level in Indonesia has dramatically increased over the past several decades (Zuilkowski, Samanhudi, & Indriana, 2019). The overall school enrolment rate in Indonesia has increased steadily since the late 1970s and there is almost no gender gap in school enrolment rate including at the Tertiary education level (Okumura, 2017). However, strong gender roles still exist in Indonesia with men expected to be the primary workers with stable jobs and women expected to be the primary caregivers. Young men have more pressure than young women to find stable and good income jobs, to secure a marriage and to support their family (Okumura, 2017). Thus, pathways from school to employment are different between men and women with men more likely to seek and continue employment and women more likely to leave their employment and look after their families. Nevertheless, little attention has been paid to gender differences in the school to work transition. Most men look for employment after completing their education while women are more likely to have two separate pathways – either staying at home or looking for employment. Despite the significant increase in female labour force participation in the past few decades, male labour participation rate is still much higher than that of women.

With regard to school dropouts among youths, cost was found to be the primary reason (Zuilkowski et al., 2019). Families had to provide not only school fees – particularly at the upper-secondary level – but also multiple payments for uniforms, shoes, textbooks, and worksheets. As well as parents being the decision makers regarding the decision to leave school, students themselves were also seen to be decision makers and decided to leave school to relieve the financial pressure on their families. In addition, premarital pregnancy in Indonesia is also a common reason of expulsion from school which in the worst case, such adolescents may also be isolated from their families (Ketchell, 2018).

Young people without any job experience in Indonesia have become more vulnerable in earning higher wage when entering the labour market, especially when they are not in a strong bargaining position compared to older workers. While in urban areas most workers aged 18-24 year work as paid employees (including as casual employees) and are actually covered by the minimum wage policy, in the rural areas, the proportion of paid employment is relatively low and the workers are not covered by the minimum wage, i.e., the self-employed and unpaid family workers (Pratomo, 2016). This situation is due to the scarcity of job opportunities and choices in the paid employment sector in rural areas compared to urban areas.

1.4.3 Family Planning among Youth in Indonesia

In Indonesia, sexually active unmarried adolescents commonly do not use any modern contraceptive, rather they use traditional methods such as the calendar method which is likely to be unsuitable for adolescents due to their unstable hormonal condition (Alesna-Llanto & Raymundo, 2005). Being unmarried but sexually active shows a positive correlation with knowledge regarding traditional family planning methods, such as withdrawal methods and periodic abstinence (Budiharsana, 2017). Awareness of more modern contraceptives that are common and easy to find, such as the contraceptive pill, condoms, injectables, and intrauterine devices is minimal, and there is

even less awareness regarding the emergency contraceptive pill, which is also often difficult to obtain. This clearly indicates that adolescents in Indonesia need comprehensive education regarding more effective modern contraceptives that are available to them. When adolescents have a low awareness and at the same time face important barriers in accessing modern contraceptive information and services, this may result in a high rate of unintended pregnancy and an increased risk of contracting HIV and STIs (Budiharsana, 2017).

Further, contraceptive services are not available for unmarried adolescents, and abortion is not legal (Shaluhiyah, Suryoputro, Novelira, & Indraswari, 2020) in Indonesia. Sexually active adolescents and youth ending up having unwanted pregnancies and resorting to illegal abortion (Budiharsana, 2017). Moreover, unmarried sexually active adolescents have great difficulties obtaining contraceptive services as the policy set forth in Law 52/2009 on population stipulates that the targets of the national family planning program are limited to married couples only (Budiharsana, 2017). Being married also does not seem to help overcome the cultural barrier. Even though the use of condoms is recommended when one is not sure of his/her partner's sexual hygiene asking a spouse to use a condom is sometimes considered as a lack of trust in each other. In addition, among sexually active people in Indonesia, the use of *Jamu* (traditional herbal medicine) is very common and believed to be capable of preventing ovulation and thickening the female womb to prevent sperms from meeting the ovum (Hendari, Ahmad, & Martiningsih, 2018).

In addition, contraception is also important in terms of preventing unintended pregnancies among teenage mothers. In Indonesia, the most commonly used postpartum contraceptive method for young mothers was the IUD, Depo-Provera injection or an implant (Amelya, Huthia, Better, & Eka, 2016). Post-partum contraception preferences among teenage mothers are significantly correlated with the mother's occupation, marital status, age at marriage, unintended pregnancy, husband's occupation, pregnancy and delivery complications, gestational age, and babies birth weight (Amelya et al., 2016).

1.4.4 Sexual Behaviour of Youth in Indonesia

Utilisation of reproductive health centres, particularly those that are available in schools can be one way for adolescents to gain knowledge about reproductive health (Violita & Hadi, 2019). But, according to Violita and Hadi (2019), adolescents in Indonesia tend not to use the service because they have already had other informal sources of information of reproductive health such as from a family member. Low adolescent exposure to reproductive health information may increase risky sexual behaviour (Etrawati, Martha, & Damayanti, 2017).

Engaging in risky sexual behaviour could also be influenced by having low self-efficacy, less parental control and having friends with negative sexual behaviour among youth (Etrawati et al., 2017). According to Etrawati et al., risky sexual behaviour commonly indulged in by young people includes French kissing followed by vaginal sexual intercourse, petting, oral sex, masturbation, and anal sex. This risky sexual behaviour may lead to unwanted adolescent pregnancy which has a higher risk to infant and maternal health (Mas' udah, Besral, & Djaafara, 2018).

Unmarried youth in Indonesia who have engaged in sexual activity are more likely to be of low educational status, having partners, approving pre-marital sex (Budiharsana, 2017) and urban residents (Raymundo & Laguna, 2001). Accepting attitudes toward premarital sexual behaviour (such as kissing, petting, oral sex and sexual intercourse) were commonly affected by acculturation processes between people from different cultures (Pradnyani, Putra, & Astiti, 2019). This acceptance is also affected by the fact that when the adolescents reach puberty they have high sexual intentions and curiosity, but at the same time they have limited knowledge of sexual and reproductive health.

According to Berliana et al. (2018), the prevalence of premarital sex is higher among married youths aged 15–24 years compared to sexual activities of unmarried youth. Indonesians males, who are less-educated, and who live in

rural areas are also more likely to have had premarital sex. On the other hand the more-educated and rural females tend to marry sooner after having their first sexual intercourse (Berliana, Utami, Efendi, & Kurniati, 2018). People who had premarital sex and those who tended to delay their first marriage, remained sexually active during their bachelor periods (Berliana, Utami, et al., 2018).

Access to antenatal care becomes a huge concern for young girls living in rural areas, having a lower educational attainment, giving a higher order birth and experiencing an unwanted pregnancy (Efendi, Chen, Kurniati, & Berliana, 2017). Palanca-Tan, Cruz, and Sumalangcay (2017) have identified lack of opportunities and choices for future education and social discrimination as leading causes of high adolescent fertility.

1.5 Study Objectives

Based on the challenges described above, this research aims to find an answer to "Why has the reproductive health (RH) situation of the youth in Indonesia, as implied by several RH indicators, deteriorated or not improved in recent years?".

The above research question can be addressed by pursuing the following objectives focussing on Indonesian youth:

1) to identify and analyse the factors influencing youth reproductive health indicators for which data are available, such as, contraceptive prevalence rate, stillbirth rate, antenatal care, prevalence of low birth weight babies, and the prevalence of sexually transmitted infections (STIs);
2) to analyse knowledge of HIV-related preventive practices among youth in Indonesia;
3) to construct a youth reproductive health index (RHI) for Indonesia, based on Objectives 1 and 2;

4) to provide recommendations to the government regarding youth reproductive health in Indonesia.

1.6 Scope of Research

This research focuses on risk and protective factors that influence youth reproductive health outcomes in Indonesia with a focus on Aceh Province. Aceh province is chosen as the focus of the primary data collection for a number of reasons. The Total Fertility Rate (TFR) of Aceh province in 2017 is 2.7 which is, higher than Indonesia's TFR (2.4) (BKKBN et al., 2018). The Age Specific Fertility Rate (ASFR) has actually decreased from 25 (2012) to 21 (2017) for the 15-19 cohort and from 115 (2012) to 97 (2017) for the 20-24 cohort. However, 12.5 per cent of females aged 19 years have started childbearing as they reported to either having had a live birth or were pregnant with their first child at the time of the survey in 2017 (Gunawan & Ilham, 2018). In addition, in Aceh it is found that the percentage of low birth weight babies among under-20 year-old mothers is higher (7.9 per cent) than the two older cohorts (6.4 per cent and 5.9 per cent) in 2017. Regarding knowledge about contraception method, it is found that the percentage of never-married male youth who reported that they knew any contraceptive method has decreased from 96.9 per cent to 91.9 per cent. Similarly, never-married females knowing about STIs has declined from 18.7 per cent to 17.5 per cent (BKKBN et al., 2018; Statistics-Indonesia et al., 2013). From the 2017 IDHS, it was also found that the highest percentage (18.4 per cent) of females who self-reported to have had a sexually transmitted infection is found among the 20–24-year age-cohort (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018).

Under the 1999 Islamic Criminal Law on Aceh's status as a special region, Aceh is the only province in Indonesia with the authority to formally implement Sharia Law since 2001 (Afrianty & Mann, 2020). Along with the implementation of Sharia law, some parts of Indonesia including Aceh have been faced with a situation where westernisation and the morality idealised

by Islamic values in the society regarding adolescent reproductive health and rights has subjected young women and men to a mutually conflicting state (Utomo & McDonald, 2009) and has led to duality of behaviour among the youth. Since the Government of Aceh updated the Aceh Islamic Criminal Law no 6/2014 about Indecency in 2014, local regulations regarding criminal issues have been incorporated into Sharia Law, which to some extent has prompted some citizens of Aceh to take the law into their own hands and misuse it to assault and embarrass anyone being caught of "*khalwat*" (Lamb, 2014). In addition, there is punishment for breaking the law and such punishment is also meted out to young persons aged 12 to 18 years as well as to pregnant women proved guilty of indulging in acts prohibited by Islamic Law, including "*khalwat*" (Governour of Aceh, 2014). One of such punishments is caning in public by the Sharia police and a fine of up to 10 million rupiah.

Further, when any type of disaster hits a place, it becomes vital to recognise the reproductive health needs of the young and the adults. In this regard, lessons were learned from the various impacts of the 2004 Indian Ocean Tsunami in Aceh (Carballo, Hernandez, Schneider, & Welle, 2005). A study conducted in Aceh among females aged 15 to 19 years to estimate fertility among youth who were affected by the disaster found that 7.8 per cent of the respondents were married under the age of 20 after the tsunami, some of them married to widowers (Kinoshita, Suhardan, Danila, Chiang, & Aoyama, 2016). The study also found that 18.7 per cent of the respondents missed income earners and 40.9 per cent lost family members in the tsunami.

In order to fulfil the objectives of this research, two secondary datasets will be used, namely the Indonesia Demographic and Health Survey and the Indonesia Adolescent Reproductive Health Survey, both conducted in 2017 by Statistics Indonesia (BPS) in cooperation with the National Population and Family Planning Board (BKKBN). The analyses of these data will be supplemented with primary data collected through In-depth interviews of a sample of 15-24 year-old males and females in Aceh province.

1.7 Organisation of the Thesis

After briefly introducing the background of the study, the present chapter (Chapter One) has stated the study's objectives. In this chapter, some challenges related to reproductive health outcomes among youths aged 15 to 24 years in Indonesia is introduced. Facts from recent surveys are presented to support the introductory discussion on the youth's reproductive health condition in Indonesia. This chapter also presents background socio-demographic information of youth in Indonesia. It highlights the family structure, marriage, socio-economic characteristics, family planning and sexual behaviour among youth in Indonesia.

In Chapter Two, various theoretical approaches to reproductive health outcomes are reviewed in order to develop a framework for this research.

Chapter Three introduces the data sources and methodology utilised in the present study. It shows how quantitative and qualitative research are integrated to provide a comprehensive study of risk and protective factors affecting the reproductive health outcomes among youth in Indonesia.

Chapter Four explores the demographic characteristics and statistical analysis exploring reproductive health outcomes of youth in Indonesia, computed using SPSS 27 application. Analysis findings are presented in this chapter.

Chapter Five presents the construction of an Indonesia Youth Reproductive Health Index using selected items that represent the variables of interest from the data set of 2017 IDHS.

Chapter Six presents the results of primary data collection through In-depth interviews and focus group discussions of a sample of youths in Aceh province to explore their reproductive health outcomes. This chapter also explains some reasons why this province was chosen as the primary data collection locus.

Chapter Seven as the final chapter concludes the study and presents its policy implications by suggesting the possibility of an integrated approach to population policy and youth sexual and reproductive health policy.

2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter contains a review of literature relevant to this research. According to Lenz, Balkin, and Smith (2017, p. 93), a literature review is "the presentation of a logically argued case that found on a comprehensive understanding of the current state of knowledge about a topic of a study". Further, Turner (2018) has reviewed a number of articles and identified a taxonomy that includes six main categories of literature review based on their stated purposes: focus, goal, perspective, coverage, organisation, and audience. The present literature review purposively focuses on the first category on theories and applications in studies of youth reproductive health outcomes by integrating past research relating to the topic. This review also focuses on the fifth category by classifying the literature either conceptually or methodologically to construct the theoretical framework.

With reference to the research objectives of this thesis, as mentioned in Chapter One, the literature review presented in this chapter focuses on extant literature on youth reproductive health and covers each of the eight variables of youth reproductive health outcomes selected from a total of 17 reproductive health outcomes introduced by WHO (2006)[4]. The selection of eight outcome variables is based on the availability of data on youth reproductive health outcomes as at the 2017 Indonesia Demographic and Health Survey (2017

[4] According to (WHO, 2006), the 17 reproductive health outcomes are: 1) Total Fertility Rate; 2) Contraceptive prevalence; 3) Maternal mortality ratio; 4) Antenatal care coverage; 5) Skilled birth attendance; 6) Availability of basic essential obstetric care; 7) Availability of comprehensive obstetric care; 8) Perinatal mortality rate; 9) Low birth weight; 10) Syphilis serology in pregnant women; 11) Anaemia in women; 12) Obgyn admission owing to abortion; 13) Female genital mutilation; 14) Women's infertility; 15) Urethritis in men; 16) HIV infection in pregnant women; 17) Knowledge of HIV-related preventive practices.

IDHS). These eight variables are: (1) Pregnancy and fertility; (2) Contraceptive prevalence; (3) Antenatal care coverage; (4) Skilled birth attendance; (5) Stillbirth; (6) Prevalence of low birth weight (7) Prevalence of sexually transmitted infections (STIs); and (8) Knowledge of HIV-related preventive practice. In this review, the terms “young women” or “female youth” are used to describe women aged 15 to 24 years, while the word “adolescent” is specifically used to describe women aged 15 to 19 years (UNDESA, 2020).

2.2 Review of Some Related Theories

2.2.1 Youth Pregnancy and Fertility

It is evident in China that being pregnant or starting childbearing at an adolescent age may result in higher risk of health complications such as anaemia, eclampsia and higher likelihood of stillbirth, preterm delivery, low birth weight and maternal mortality (Xie et al., 2021) as well as developing hypertension as found in Ethiopia (Bitew, Habitu, & Gelagay, 2021) where these complications are the products of public condemnation, fear, lack of access to skilled prenatal care, and poor nutritious food. At a larger scope, some researchers have suggested that postponement of early childbirth, as shown in Kenya could reduce the rate of population growth rates, increase the likelihood of achieving social prosperity and larger economic and social benefits (Aduragbemi, Banke-Thomas, & Ameh, 2018).

At the first (individual) level, youths face many biological, behavioural, knowledge-wise and attitudinal problems that could affect their reproductive health. Biologically, as found in Ethiopia, initiating sexual activities before the age of 15 years is a strong predictor of developing health issues related to first births among married female youth (Mmari & Sabherwal, 2013). In Sub-Saharan African (SSA) countries it has been found that youth are more likely to initiate having sex at an earlier age, and with increasing age they are expected by the society to start parenthood in adolescence (Mmari & Sabherwal, 2013). But other studies in SSA show that increased age of

adolescents act as a protective factor and makes them aware of using contraceptives (Mmari & Sabherwal, 2013). It is also important to have information about the attitudes and opinions of young people about early sexual relationships so that appropriate interventions can be undertaken in order to protect the health of adolescents. In this context Jaya and Hindin (2009) have found from a survey of youth in Delhi, India that despite males being more active in attracting the opposite sex in romantic relationships most of the young people, either males or females, agreed with the attitude that a sexual relationship is permissible only to married couples.

Similarly, longer exposure to the possibility of premarital sexual activity due to the earlier age of sexual relationships among SSA youth has increased the chance of having premarital pregnancy compared to youth who decided to initiate sexual activities later (Mmari & Sabherwal, 2013). Risky behaviours, such as cigarette smoking, drinking alcohol, drug taking, porn movie watching, and anal sex are also found to be related with having sexual activity, having multiple sexual relationships and becoming adolescent parents (Blum & Mmari, 2005). This is relevant to what Kirby (2001) wrote in his article 'Summary Findings to Reduce Teen Pregnancy' that consuming alcohol and drugs decreases self-consciousness and reasoning to make decisions which cause experiencing unprotected sex. In addition, as found in Sri Lanka, adolescent pregnancies strongly connect with low educational levels, especially among those who dropped out of junior high school when they were aged 11 years whereas junior high school is normally completed by age 16 years (Agampodi et al., 2021). Hence, being knowledgeable and developing better perspectives regarding contraceptive use also protects adolescents from unwanted pregnancy (Blum & Mmari, 2005).

Thus, it is vital that correct information is provided to young people regarding reproductive health in order to improve their consideration of sexual companionship, marriage, and childbearing (Daflapurkar, 2014). The author also added that an absence of contraceptive knowledge may lead the youth to indulge in sexual intercourse without protection and end up with an unwanted pregnancy or sexually transmitted infection (STI), or both. This is

also applicable to female youth in Ghana who have poor knowledge of HIV transmission which has proved to be correlated with a higher probability of getting pregnant before their 18th birthday when the effect is predicated by formal education attainment of the adolescent girl (Adomako, Frimpong-Manso, Munemo, Duah, & Agbadi, 2021). Further, being employed and enrolled in school can play important roles as protective factors to adolescent females to use contraceptives before engaging in sex and thereby be less likely to get pregnant and become mothers at a young age (Adomako et al., 2021; Blum & Mmari, 2005; Mkwananzi, 2017).

In addition to their relationship with their peers at the individual level, the youth's relationship with their partners or family members can also influence the chances of youth pregnancy and fertility. Adolescent pregnancy is significantly associated with having an active conversation with partners regarding sex, but without any contraceptive content in the South African context, being convinced by their partner to have unprotected sex in the context of Chile, having a pregnant adolescent relative/friend in both the South African and China context, and having multiple sexual partners among salaried working males (Blum & Mmari, 2005). But in contrast with Blum and Mmari findings about the working young male, in Senegal it is found that young females who are employed have a lower risk of having many children which indicates that female employment may reduce fertility (Van den Broeck & Maertens, 2015). Further, Baba, Goto, and Reich (2014) found that early childhood pregnancy among adolescent girls in Japan was strongly correlated with juvenile delinquency, victimisation, and child sexual abuse. Migrant women, as found in a study in Ghana, who lived in inadequate housing also reported some of the above factors related to early childhood pregnancy (Adomako et al., 2021).

The above discussions are pertinent to the youth's individual level factors. At the family level, some studies have shown that the structure and strength of relationships in a family are associated with premarital pregnancies of young females living in that family because of a lack of communication and affection

shown by the parents. For example, in Cameroon, living in a polygamous family structure is related with the beginning of premarital sex among adolescents, especially when they perceive their parents to be weakly connected with each other (Blum & Mmari, 2005). But, the absence of a parent, especially that of the biological father, has also been found to be related to adolescent pregnancy (Mkwananzi, 2017). Spending one's childhood and adolescence with only one parent is also a strong predictor of teen motherhood among young women in Peru (Favara, Lavado, & Sánchez, 2020). Gender of the household head is also seen to be a factor affecting youth pregnancy. Among Somali refugees in Ethiopia, a young girl living in a household-headed by a female is more likely to get married before 18 years of age compared with teenage girls who live in a household headed by a male. According to Elnakib et al. (2021), this is because the female head of the household earns less income which leads them to give the financial burden of their female children to men who are willing to marry them (Elnakib, Hunersen, Metzler, Bekele, & Robinson, 2021).

A youth's involvement in school and community activities can also influence their fertility and pregnancy (Blum & Mmari, 2005). Attending school and having an academic achievement may protect youths from early pregnancy (Favara et al., 2020), which is especially true for adolescents who belong to lower wealth households (Adomako et al., 2021; Mkwananzi, 2017). Being exposed to stereotyping and gender-based assault in a relationship with a much older partner may result in less negotiation for safer sex (Mkwananzi, 2017). In Ethiopia, early childbearing, preceded by child marriage has been shown to be one of the main factors of maternal mortality (Bitew et al., 2021). Early childbearing is common among youth, who are either not enrolled in school or not attending school. For example, in Peru youth who dropped out of school are more likely to end up in a sexual bond with their lovers (Favara et al., 2020). Further, conception among adolescents was also found among South African school enrolee girls, especially during school holidays compared to school terms, and early childbearing was even more prevalent among those who did not enrol in school (Rosenberg et al., 2015). However, a strong

connection with school circumstances also improves the outcome of youth health (Adomako et al., 2021) and creates a pathway to responsible adulthood through abstinence and contraception (Peterson & Bonell, 2018). In addition, youth who have educated parents are at an advantage for being motivated and guided in terms of sex education (Bitew et al., 2021).

At the societal level, it is found in India that living in urban centres constitutes a risk factor in the experience of sexual behaviour due to more exposure of undesirable western culture that changes the attitude and perception towards premarital sexual activity (Majumdar, 2018). Though it became a risk factor for early sexual behaviour, living as an urban population has recently become a protective factor of early childbearing to young women due to them having more educated parents, contraceptive acceptance, and higher educational attainment in the context of Sri Lanka (Agampodi et al., 2021). Furthermore, when marriage among young people is strongly acceptable by the society in which they live, pregnancy among young people is also considered as a normal matter and an issue not to be discussed seriously among family members (Rajbanshi, Norhayati, & Nik Hazlina, 2021).

2.2.2 Contraceptive Use among Youth

Unintended pregnancy among young people results in severe socio-economic problems such as reduced earning potential, school discontinuation, and lower educational attainment (Sánchez-Páez & Ortega, 2018). Thus, according to Trandafir et al. (2019), accessible contraceptive methods and contraceptive use among sexually active youth are important for addressing unwanted pregnancies among youth.

At an individual level, youth's physiological, attitudinal and demographic status affect their decision to use contraceptives (Blum & Mmari, 2005). In the context of Latin America and SSA countries, demand for contraceptives is more prevalent among sexually-active adolescent females who are unmarried compared to married female youth, and among those who are aged 20-24

years compared to younger youth (Sánchez-Páez & Ortega, 2018). Among African-American youth in the U.S, a female and her partner having a history of positive childbearing motivations at younger age is a predictor of contraceptive use (Alexander, Perrin, Jennings, Ellen, & Trent, 2019). Contraceptive use, especially with prescribed contraceptives, is also prevalent among young females with high self-discipline (Hamidi, Deimling, Lehman, Weisman, & Chuang, 2018) and among those who are aware of the possibility of having an unwanted pregnancy (Wolgemuth et al., 2018). Youth belonging to upper socio-economic status are more likely to use contraception (Aventin et al., 2021; Olika, Kitila, Terfa, & Olika, 2021), which is true especially of female youth (Agampodi et al., 2021).

Youths do not use contraceptives due to some key factors such as unaffordability due to financial challenges (Bain, Amu, & Tarkang, 2021), difficult access (Keogh et al., 2021), doubts of condom quality and its unpleasant effect on sex (Aventin et al., 2021; Bain et al., 2021; Mulumeoderhwa, 2018), lack of knowledge about contraception (Chernick, Siden, Bell, & Dayan, 2019), and a high level of watching pornography (Wright, Herbenick, & Paul, 2019). Specifically for young women, the low likelihood of contraceptive use is found among women who were less educated (Olika et al., 2021) and were also faced with disturbed menstruation or sexual pleasure lost due to the effect of contraception (Keogh et al., 2021).

Beyond the individual level of the youth's environment, relationships with peers, partners or family members also affects their contraceptive use. A study in Nigeria in 1997 showed that marriage status protects adolescents from having multiple sexual partners and a stable relationship with one steady partner is a motivating factor for contraceptive use, especially condoms, due to frequent discussions regarding pregnancy and STIs (Blum & Mmari, 2005). But that finding may not be relevant among sexually active young women who may have a higher tendency to use contraception if they have more than one concurrent sexual relationship (Weitzman, Barber, & Kusunoki, 2019). In the Southern Africa context, among youth who put commitment into their love

relationship, the attitude towards 'unprotected sexual intercourse means appreciation to the partner' has become a risk factor for contraceptive use (Aventin et al., 2021).

Moreover, a young unmarried female with a boyfriend would be more likely to use contraceptives than a young female who is married (Agha et al., 2021), or someone who is in an occasional relationship (Aventin et al., 2021). On the other hand, a young man who believes that "True Love" means 'flesh-to-flesh' sexual interaction would be very likely to have unprotected sex (Mulumeoderhwa, 2018). Non-use of contraceptives in the U.S. context, especially that of condoms during sexual intercourse, has also been found to be associated with intimate partner violence committed by youth who use marijuana and had heavy drinking habits (Deutsch, 2019; Orchowski, Gobin, & Zlotnick, 2018). The same is true in cases of predatory sexual behaviour by older males (Lys, Gesink, Strike, & Larkin, 2019) and among young girls who have partners that did not attend the same school as theirs at the start of the relationship (referred to as school-discordant) (Strully & Kennedy, 2019). On the other hand, functioning communications of youths with their friends or partners regarding sexuality, pregnancy and AIDS contributes to the likelihood of using contraceptives and preventing unwanted pregnancies (Blum & Mmari, 2005).–Effective peer-communication leads to young girls making a final decision on contraceptive use and their adherence in the future due to the opinion of trusted people (Weitzman et al., 2019). In the U.S. context, adolescent males chose to use condoms after being encouraged and introduced to contraceptives by members of their family, especially father figures, in order to prevent their sons from impregnating their girlfriends (Chernick et al., 2019). Parental discomfort regarding discussion of sexual matters with young family members resulted in the absence of any guidance and ended up in an absence of contraceptive use among sexually active youth (Aventin et al., 2021).

At the school level, it is found that inadequate sexual health education and inaccurate information about contraceptives delivered at school are risk

factors in adolescent's contraceptive use (de Looze, Madkour, Huijts, Moreau, & Currie, 2019; Lys et al., 2019). Young people seem fairly content with their choices and sexual autonomy when education about contraception is provided properly (Lys et al., 2019) because they become aware of any fallout from unprotected sex (Aventin et al., 2021). Among U.S. adolescent students, the availability of free condoms at school either from teachers/counsellors or from vending machines/baskets encouraged adolescent students to use contraceptives and lower the chances of contracting sexually transmitted infections (Buckles & Hungerman, 2018).

At the community level, Lys et al. (2019) found that young people in North western Canada failed to use contraceptives due to their lack of comfort towards health care providers that they know in person, especially when they lived in a small community. These youth were very concerned about confidentiality (i.e. their need for contraceptives) would be revealed to their parents (Lys et al., 2019). Fear of being denied, judged and disrespectfully treated by the health providers created other barriers making contraception unaffordable for young people in the SSA countries context (Bain et al., 2021). Further, though contraceptive services have been made free, as found in Nigeria, unfriendly attitudes by health care providers and weak contraceptive logistic systems continue to be a challenge to young people's access to contraceptives (Adedini, Mobolaji, Alabi, & Fatusi, 2021). On the other hand, young people who are provided with adequate family planning information by health providers, are three times more likely to use contraception compared with the young persons who are not given such information (Olika et al., 2021).

At a societal level, contraceptive use among young people is frequently affected by culture and custom (Ormel et al., 2021). Premarital sex, which is forbidden in this society, is strongly associated with social norms that discourage contraceptive use resulting in low prevalence of contraceptives, and in such situations a youth may feel embarrassed to discuss and convince their partner to use contraception and feel less confident in obtaining contraceptive

methods (Agha et al., 2021). In addition, in a society in which the religious leaders support monogamy and do not support birth control, contraceptive use is discouraged. (Aventin et al., 2021). Moreover, social media that provides plenty of information regarding contraception creates confusion in young people's minds (Chernick et al., 2019). Inequality in gender norms related to the belief that the pleasure of sex belongs only to males also discourages the use of condoms (Aventin et al., 2021). But on the other hand, equal gender norms prove advantageous to young females in terms of using contraceptive pills especially in relatively gender-equal societies in which young women have the power to avoid getting pregnant (de Looze et al., 2019). School-based learning on sexual health education has also already proved to have a positive effect on youth contraceptive use among U.S. male adolescents (Chernick et al., 2019).

2.2.3 Antenatal Care (ANC) among Female Youth

The World Health Organisation (2006) shortlisted Antenatal care (ANC) coverage as one of the indicators for monitoring reproductive health goals. ANC coverage is defined by the WHO as "the proportion of women attended, at least once during their pregnancy, by skilled health personnel for reasons relating to pregnancy". In the calculation of ANC coverage the "numerator is the number of pregnant women attended, at least once during their pregnancy, by skilled personnel for reasons related to pregnancy during a fixed period" and the denominator is the "total number of live births during the same period" (WHO, 2006, p. 21).

According to Edward and colleagues, following what WHO has standardised, at least four facility-based ANC visits should be received by a pregnant woman, (Edward et al., 2020). Specifically, pregnant young women under the age of 19 years do not have adequate awareness of the benefits of ANC visits and therefore they are more vulnerable to health deficiency and malnutrition compared to adult pregnant women (Fulpagare et al., 2019). Decades ago, youths used to begin ANC visits at a late stage in their pregnancy (Kramer,

1987), but recently they are becoming more aware of pregnancy risks and start looking for pregnancy care services earlier (Musarandega et al., 2017).

At an individual level, youth's likelihood of having at least four ANC visits is affected by their socio-demographic factors such as education, residency, wealth, and media exposure (O. E. Banke-Thomas, Banke-Thomas, & Ameh, 2017; Efendi et al., 2017). A complete ANC coverage with four antenatal visits is more likely to be found among youth aged 20-24 years, who are exposed to mass media, and who have had the pregnancy as the first birth order (Singh, Singh, & Singh, 2021). Women's education is also significantly associated with their utilisation of full ANC. Young women who have attained at least a secondary level of education have the highest tendency to use full ANC compared with women with lower levels of education (Ahinkorah et al., 2021; Efendi et al., 2017), and women with no education are the least likely (Singh et al., 2021). Similar to education, wealth is also associated with the utilisation of ANC. Young woman belonging to the richest wealth quintile have a higher level of ANC utilisation compared to those who belong to the poorest wealth quintile (O. E. Banke-Thomas et al., 2017; Masruroh et al., 2021; Singh et al., 2021). Having unintended pregnancies discourages young women completing their maternal care during pregnancy (Masruroh et al., 2021).

At the relationship level, a family's attention plays an important role in a pregnant youth's utilisation of ANC. Women who had pregnancy complications and received support and companionship from their husbands and family members have a positive action on ANC utilisation (Mosiur Rahman, Haque, & Sarwar Zahan, 2011). A young woman's partner's education is also a significant predictor of ANC in that a women whose partner has attained at least basic Primary education is more likely to complete ANC coverage compared to a woman whose partner has No education (A. Banke-Thomas, Oluwasola, Kivuvani, & Ameh, 2017). It has also been found that husband/partner who formed an "expectant fathers" club to discuss pregnancy, father's role and their contribution to a successful pregnancy gave the highest priority to the young pregnant wife to finish all their ANC visits

(Friedewald, Fletcher, & Fairbairn, 2005). In addition, friends who become discussion partners regarding pregnancy issues also play important roles in decisions for a young pregnant woman to achieve full ANC coverage (Dougherty, Stammer, & Valente, 2018).

At a community level, victimisation and discrimination could become risk factors of antenatal attendance among pregnant young women. Young women's willingness to have ANC could be outweighed by their being treated as shameless, immature and immoral; and being disregarded and excluded by health care providers due to their young age (Sewpaul, Crutzen, Dukhi, Sekgala, & Reddy, 2021). On the other hand, support and respectful treatment by health care workers could create a feeling of acceptance and comfort among the pregnant young women, and could become main predictors of antenatal care among adolescents and young women (Dougherty et al., 2018; Sewpaul et al., 2021). Inadequacy of knowledge, disrespectful treatment from health care workers and stigma, frequently found in private sector services also discourage young women from accessing ANC (Owolabi et al., 2017). In the context of Zambia less antenatal care among adolescent women is associated with lack of specific space for adolescents in health clinics which allowed them to meet older pregnant women who dominated the counselling sessions and sometimes offended them with their words (Bwalya, Sitali, Baboo, & Zulu, 2018). Refusal of care at health facilities also occurs when teenage girls come to the facility without a husband's companionship (Hazel et al., 2021). On the other hand, a greater likelihood of having full ANC by young women could be found in households of higher wealth status and in highly educated communities (Hardhantyo & Chuang, 2020). Programs related to the prevention of mother-to-child transmission (PMTCT) of HIV/AIDS in the community, specifically to recognise the probable infection of HIV which could be followed up by antiretroviral treatment has also been found to encourage pregnant young women to have pregnancy care (Musarandega et al., 2017).

2.2.4 Skilled Birth Attendance (SBA)

One of the 100 Global Health Indicators is the percentage of births attended by skilled health personnel or a skilled birth attendant (SBA). It is also one of the indicators of Sustainable Development Goal 3 (WHO, 2018, p. 15 and p. 87). Thus, similar to ANC, the young women must be attended by an SBA when delivering a baby under any circumstances in order to prevent maternal death (O. E. Banke-Thomas et al., 2017).

At an individual level, the utilisation of SBA is high among young women who are literate (Tappis, Koblinsky, Doocy, Warren, & Peters, 2016), who have attained at least Secondary education, who come from the richest wealth quintile, who have an intended pregnancy (Ahinkorah et al., 2021), those who are exposed to media at least once or more times a week, those who have made at least four ANC visits (S. Yaya et al., 2021), and those who have health insurance (Mati, Adegoke, Michael-Asalu, & Salihu, 2018). The likelihood of utilising SBA also increases with age among female youth (Bhowmik, Biswas, & Woldegiorgis, 2019). Additionally, the strongest tendency to use SBA is found among young women who are powerful in terms of saving money for their delivery (Nyongesa et al., 2018), do not agree with wife beating and make decisions about their extra-household expenses, health and visiting family without being chaperoned (S. Yaya et al., 2021). On the other hand, the utilisation of SBA is much less among young women who reside in rural areas compared to those women who are urban residents (Alex-Ojei, Odimegwu, & Akinyemi, 2020), among young women with third or fourth order births compared to first or second order births (S. Yaya et al., 2021). In informal settlements in Dhaka, Bangladesh the reluctance to use low-cost or free health care for pregnancy and childbirth, including skilled birth assistants is associated with women's fears about modern medical treatment and fears of unnecessary Caesarean section deliveries, hidden costs, lack of social support and lack of familiarity with the health institutions (Akhter, Dasvarma, & Saikia, 2020). The study by Akhter et al. is not confined to female youth but covers all women of reproductive ages. In addition, young pregnant women do

not utilise SBA due to their higher confidence of having an unassisted childbirth or being helped by an unskilled helper (Alex-Ojei et al., 2020) and uncertainty concerning being undressed and treated by a male provider (Ag Ahmed, Hamelin-Brabant, & Gagnon, 2019; Akhter et al., 2020). Some women also do not have SBA due to their misperception that visiting health facilities equals having a Caesarean section (Akhter et al., 2020).

At a family or relationship level, having a partner with at least Primary education and belonging to a female-headed household boosts young women's likelihood of using a skilled birth attendant at delivery (Aduragbemi et al., 2018; Alex-Ojei et al., 2020). Young women who come from families that do not follow any religion are more likely to seek maternal care compared to women who come from families that believe in religion (A. Banke-Thomas et al., 2017). In Nigeria, adolescent mothers who are under the control of one family member's permission to visit a health facility are much less likely to have skilled birth attendants than adolescent mothers who are bound by such restrictions (Alex-Ojei et al., 2020). Furthermore, in the context of Cambodia, Kenya, Zambia and Bangladesh, having discussions with spouse/partner, family members and healthcare providers regarding birth preparedness, leads young women to have a childbirth assisted by a skilled birth attendant (Edward et al., 2020; S. Islam et al., 2018).

Inside a community, it is found in Cambodia, Zambia and Kenya that woman's likelihood of utilising SBA becomes statistically significant if she has an opportunity to discuss her pregnancy by living in a care-seeking intervention site managed by health workers (Edward et al., 2020). In the context of Ghana, the size of a network which a pregnant woman has to discuss about pregnancy and childbirth positively influences the likelihood of utilising SBA (Dougherty et al., 2018). However, some young women prefer to deliver at home for reasons of transportation, distance to a health facility (Tappis et al., 2016) or for a prior satisfactory experience of child birth assisted by unskilled birth attendants (Yanagisawa, Oum, & Wakai, 2006).

At a societal level, the study for Dhaka referred to above revealed that the utilisation of maternal health care, including the use of skilled birth attendants at delivery is difficult for pregnant women to access when they do not have adequate information about the provision of health care services (Akhter et al., 2020). Akhter et al. (2020) found that the barrier to accessing SBA is also caused by a "Culture of Silence" among some pregnant young women who tried to hide any pregnancy complication to support the societal attitude that sees any pregnancy illness as a normal women's reproductive role, thus the expected role also leads to young women having a home-based delivery as a welcomed method by the family. Akhter et al. (2020) also found that the culture of modesty and rejection of male health workers were other barriers to SBA. Meanwhile in Ethiopia, use of maternity homes as a place of birth preparedness to provide shelter for women who live remotely from a health facility, to be quickly transported to the facility as soon as possible when they come into labour, has become strong evidence as a protective factor for SBA utilisation (Gurara, Van Geertruyden, Gutema, Draulans, & Jacquemyn, 2021).

2.2.5 Young Maternal Age and Stillbirths

Stillbirths are foetal deaths in pregnancies lasting 28 weeks or more, which contribute to the measurement of the perinatal mortality rate (BKKBN et al., 2018). Perinatal mortality rate itself is shortlisted as one of the indicators for monitoring reproductive health goals mentioned in the Millennium Development Goals (WHO, 2006). Specifically, WHO defines stillbirth as the "dead fetus of 1000 g or more at birth, or after 28 completed weeks of gestation, or attainment of at least 35 cm crown-heel length" (Da Silva et al., 2016, p. 6061). However, in this review, several different studies used slightly different foetal death periods from after 22 to 28 weeks of gestation to define stillbirths.

At the individual level, several studies have found that physical factors affect the occurrence of stillbirths among young women. Studies in India and the

U.S. found that early maternal age is strongly related to an escalated risk of stillbirths, especially among girls aged under 15 years due to their physical immaturity (Patra, 2016; R. E. Wilson, Alio, Kirby, & Salihu, 2008). A study in the U.S. found that foetus deaths among pregnant adolescents commonly occur when the pregnancy is less than 28 weeks (Warshak et al., 2013). The odds of stillbirth among adolescents significantly increases when there are complications of the umbilical cord, placenta previa or placental abruption, foetal abnormality and its inferior growth (Bateman & Simpson, 2006) and it is more likely to happen among adolescents who had repeated pregnancies, especially with a history of stillbirths or infant deaths (Fatti, Shaikh, Eley, Jackson, & Grimwood, 2014). In addition, adolescents with obesity have a higher risk of experiencing stillbirths at earlier gestational ages than normal weight adolescents (Warshak et al., 2013). This happens due to the lipid metabolism alteration which increases the foetal thrombotic risk, commonly associated with stillbirth among obese adolescents (Chen et al., 2021). Another risk factor is associated with HIV positive pregnant women who perinatally pass the virus to the their baby in the uterus (vertical transmission) and suffer an increased likelihood of either miscarriage or stillbirth (Fatti et al., 2014). In terms of socio-demographic factors it has been found in remote villages of Nepal that stillbirths occur more frequently among pregnant women who are less-educated, deprived, malnourished and have short birth-intervals (Paudel, Javanparast, Dasvarma, & Newman, 2018b).

Meanwhile, risk factors of stillbirth that are found at the community level in Pakistan are strongly associated with the lack of capability to have a timely and relevant continuum of care and unsafe labour augmentation especially among women who had pregnancy complications (Pasha et al., 2015). However, pregnant adolescent girls in South Africa who are fully-supported in terms of perinatal care by devoted community-based support workers have a low risk of experiencing stillbirths (Fatti et al., 2014).

At the societal level, stillbirth is strongly associated with child marriages and early childbearing. It has been found in remote villages of Nepal that adolescent girls are forced to marry at a very young age, start another

pregnancy soon thereafter and subjected to repeated-childbearing in order to have a son (Paudel, Javanparast, Dasvarma, & Newman, 2018a). In the same remote villages of Nepal, gender-related cultural practices made adolescent pregnant daughters-in-law powerless to take decisions about their maternal healthcare and, as a result end up having dreadful perinatal care (Paudel et al., 2018a). This also happens among Pakistani girls who avoid medical care and prefer to adhere to prevailing traditions of the society (Pasha et al., 2015). In addition, a longitudinal ecology study in Scotland found that the inclined prevalence of stillbirth and infant mortality in society were also facilitated by the increased deprivation and shortages of basic essentials in the society (Harpur et al., 2021).

2.2.6 Low Birth Weight

The World Bank and WHO define low birth weight (LBW) as a birth weight of less than 2500g (Kramer & Victoria, 2001). Further, according to Kramer (1987, p. 681) "pregnancy outcomes, including birth weight and gestational age are generally less favourable among adolescents and women over 35 years of age". Low birth weight and other perinatal complications may lead to death and disability (Kramer & Victoria, 2001). This point may be substantiated by a recent study showing that in Bangladesh, teenage pregnancy and delivery are associated with pre-term births and LBW babies (Mezmur, Assefa, & Alemayehu, 2021) and they have been found to have long-term potential effects on the child (Trandafir et al., 2019) for example the increased risk of having asthma in the future as found in a study in ten different countries (Xu et al., 2014).

At an individual level, a young woman's physiological factors affect the probability of having low birth weight babies. Girls who have experienced menarche within the preceding two years are still in the midst of their growth phase, and as such they are likely to have a lower Body Mass Index (BMI) than fully grown women (Kramer, 1987). Low pre-pregnancy BMI as well as inadequate gestational weight gain were strongly related with low birth weight

(Mohamed et al., 2022). An adolescent woman's height also influences her intrauterine growth during pregnancy, particularly when she is shorter, malnourished and has a low calorie intake which in turn places physical limitations on the placenta and the growth of the foetus (Kramer, 1987). Other biological and physiological factors may support Kramer's statement. For example, imperfections of blood circulation to the cervix and uterus can block the mother-to-foetus nutrient transmission (Pratiwi, 2020). Under such conditions, malnutrition may become a huge problem for pregnant adolescents because their foetus may not be as well-nourished to support their growth as occurs in adult pregnant women (Pratiwi, 2020). Newborns of adolescent mothers may have low birth-weight due to the competition for nutrients between mothers and foetuses (Xie et al., 2021). Among adolescent mothers prenatal stress, caused either by physical symptoms or socio-economic pressures associated with decreased maternal warmth[5] may harm the baby's health (Scorza et al., 2021). LBW is also found to occur among young mothers who have had inadequate prenatal care (Guimarães et al., 2013; Hacker et al., 2021), multiple births and experience of pregnancy loss (Kananura, 2021), HIV infection (Anderson et al., 2021), eclampsia and preeclampsia (Mezmur et al., 2021), and have been partnerless during pregnancy (DeMarco et al., 2021; Kramer, 1987). Risky behaviour among pregnant adolescents may worsen the development of the offspring's weight at birth. Increased cigarette smoking, alcohol consumption, drug use and tobacco chewing by pregnant adolescents also put the baby at risk of having low birth weight (Guimarães et al., 2013; Kramer, 1987). It is also found in Japan that many pregnant adolescent girls preferred to abort their pregnancy rather than giving birth, and when the abortion failed because it was committed during the last stage of the pregnancy, the probability of low birth weight babies increases (Baba et al., 2014). In addition to maternal biological conditions, demographic factors have also been found to affect the occurrence of low birth weight babies. For example, lower socio-economic status, residence in rural areas, and poor quality diet are significant factors

[5] "Maternal warmth refers to physical and verbal affection expressed toward the child, as well as acceptance of the child's needs and interests" (Scorza et al., 2021, p. 2).

contributing to LBW babies among young mothers (DeMarco et al., 2021; Kananura, 2021), as is lower maternal schooling (Guimarães et al., 2013). A study in Malaysia found that the maternal diet effects the baby birth weight, that intaking condiments and confectionaries is associated with low birth weight, while increased maternal fruit intake is strongly related with the increase in birth weight (Mohamed et al., 2022). However, adequate antenatal care reduces the probability of adverse foetal outcomes, including LBW babies among very young women (Kramer & Victoria, 2001).

At a family level, physical violence plays a significant but indirect role in the occurrence of low birth weight babies. In the context of Iran, very young women, who are subjected to physical violence from their partner, are more likely to experience pre-term birth with low birth weight, than non-abused women (Faramarzi, Esmaelzadeh, & Mosavi, 2005). As a result of domestic abuse during their pregnancy, adolescent women have a significantly high risk of having poor weight gain, early bleeding, smoking, and or alcohol or drug use, which later become other risks of giving birth to babies with low birth weight (Parker, McFarlane, & Soeken, 1994). Such abuse also leads to late perinatal care and treatment of infections of maternal complications, anaemia and low weight gain (Parker et al., 1994).

2.2.7 Sexually Transmitted Infections (STIs)

During their sexual life, youth engage in risky sexual behaviour without adequate knowledge on how to protect themselves from any adverse consequences of unprotected sex (Ningpuanyeh & Sathiya Susuman, 2017). Therefore, sexually risky behaviour becomes one of the significant individual level risk factors of getting sexually transmitted infections (STIs) (Beadnell et al., 2005). Having sexual intercourse with inconsistent condom use facilitates the spread of STIs, and it is specifically a major reason for women to become vulnerable to infections (Chialepeh & Susuman, 2017) as well as among homosexuals (Soe, Bird, Schwandt, & Moraros, 2018). Exchanging sex for drugs or money, which end up having HIV or other STIs are prevalent

behaviours among older adolescents, especially males (McNeal & Walker, 2016). The incidence of having STIs is significantly associated with the use of drugs such as cannabis, especially among young people aged 18 to 24 years (Soe, Bird, Schwandt, & Moraros, 2018) and among male youths who watch pornography (Kirby, 2001). Homeless young people, i.e. those who have spent a year or more in unstable households during their lifetime have a higher probability of having exchange sex and condom-less sex as reasons to get STIs (Madden et al., 2021). Since pre-exposure prophylaxis[6] was introduced as a medicine to prevent HIV transmission, the use of condoms, especially among men having sex with men (MSM) has reduced the risk of contracting HIV and created a "risk compensation" to a higher likelihood of the youths having rectal gonorrhoea and chlamydia (Aguirrebengoa et al., 2021). Beside risky behaviour, earlier sexual activity among youths that creates a longer exposure to STIs also has a very strong connection with the prevalence of STIs (Houle et al., 2018). However, some studies have shown the role of key protective factors in preventing human papillomavirus (HPV) that causes cervical cancer, by having quadrivalent HPV vaccine for youths (Gomes et al., 2020). In addition, those who have greater access to varied types of contraceptives especially those who prefer using a double method[7] are less likely to report having STIs (Buckles & Hungerman, 2018). It is also found that awareness of the harmful effects of STIs, either by using contraceptives, abstinence or focusing on personal development helps adolescents, specifically those who live in foster care, to avoid being victims of STIs (C. Ross, Kools, & Sieving, 2021).

At the relationship level, risky sexual behaviour involving other people may also lead to the prevalence of STIs (Ningpuanyeh & Sathiya Susuman, 2017). Having unprotected anal sex among men having sex with men (MSM) is a risky behaviour for STIs (Jose, Sakboonyarat, Mungthin, Nelson, & Rangsin, 2021;

[6] "HIV preexposure prophylaxis (PrEP) is a preventive measure that consists of administering antiretroviral drugs to uninfected individuals who engage in high-risk sexual behavior in order to avoid infection" (Aguirrebengoa et al., 2021, p. 2).

[7] Double methods according to Buckles and Hungerman (2018) refers to the use of the Pill or any long-acting reversible contraceptives combined with the use of condoms.

Kirby, 2001) or HIV infection (Yoon et al., 2018). MSM that is asymptomatic to certain STIs could transmit Rectum pharynx infection to the sex partner unintentionally (Mizushima et al., 2019). It is also possible that MSM youth, who are not aware of the symptoms of STIs carry on having sex with infected partners, putting themselves at risk of infection (Feinstein, Dellucci, Graham, Parsons, & Mustanski, 2018). In addition, an increased likelihood of the incidence of STIs is found among youths who have been sexually assaulted (Soe et al., 2018), especially among those who have a history of victimisation during group sex (Buttram, Pagano, & Kurtz, 2018). A follow-up study on the health of pregnant adolescents in the U.S. found that women who became victims of intimate partner violence from their current partner (the father of the baby) are more likely to have an STI during their first six to 12 months after giving birth (Willie, Callands, & Kershaw, 2018).

It has been found in Nigeria and Tanzania that women whose husbands were not circumcised had higher odds of contracting HIV than women whose husbands were circumcised, and that in these studies it is not the women's behaviour but their husbands' that is the main risk factor for HIV (Blum & Mmari, 2005). Further, women who cannot negotiate safe sex with male partners who are more powerful in terms of age and finances (Mkwananzi, 2017) and women who have multiple sexual partners are at higher risk of having STIs (Kirby, 2001).Also, young women with more than three lifetime sex partners are at an increased risk of getting Gonorrhoea and Chlamydia infection (Jongen et al., 2021).

At the community level, programs on HIV prevention have a positive impact on avoiding STIs, because such prevention programs deliver strong messages about condom use during sex, and young and sexually active people who test negative for HIV report frequent use of condoms (Houle et al., 2018). The key behind this finding is the use of condoms during sex. At the school level, despite wide opposition to condom distribution programs for fear they would encourage promiscuous sex, most evidence empirically shows the contrary in that condom distribution has no relationship with increased sexual activity

among adolescents (Buckles & Hungerman, 2018). Distribution of free condoms, starting with counselling at school, highlights how condoms can effectively avoid the incidence of STIs (Buckles & Hungerman, 2018). However, unlike condoms, emergency contraception such as morning after pills is strongly related to the higher prevalence of STIs among school adolescents (Buckles & Hungerman, 2018).

At the societal level, sexual relationships under a gender imbalance and a vulnerable socio-economic conditions put young women at high risks of acquiring HIV and other STIs (Han et al., 2021). Community violence in daily life and a belief that sex can be used as stress relief has significantly contributed to the youth's risk of acquiring and transmitting STIs (Dolwick Grie, Bergstein, Griffin, & Jennings, 2019). In addition, youth who experience an adverse childhood – such as violence from guardians/peers/community, family dysfunction, and exposure to war, have a higher likelihood of engaging in HIV risky behaviour, which is commonly found among youths who live in an environment of forced migrants (Naserirad, 2020).

2.2.8 Knowledge of HIV-related Preventive Practices

Adequate knowledge about HIV and its prevention is critical in giving protection to the youth, who are one of the most vulnerable groups at risk of getting HIV (Badru et al., 2020). Yet they engage in risky sexual behaviour (Jennings, Chen, Glaude, & Guidry, 2021; Pharr et al., 2017). Inadequate knowledge about HIV transmission reduces the likelihood of engaging in preventative health behaviour (Okumu et al., 2017). In addition, youth who do not have comprehensive knowledge of HIV and perceive themselves not at risk of getting HIV tend to develop an attitude of stigma towards people living with the disease (Badru et al., 2020). However, a comprehensive knowledge about HIV does not always translate into a practice of protective behaviours, particularly among women who were being physically abused and are powerless to negotiate with the partner regarding condom use (De Wet, Akinyemi, & Odimegwu, 2019).

At an individual level, there are demographic factors which can explain the differences in HIV knowledge among the youth. For example, a high level of HIV-related knowledge is more likely to be found among female youth (Ankunda & Asiimwe, 2017; Okumu et al., 2017; Shokoohi et al., 2016) and those who live in an urban area (Faust, Yaya, & Ekholuenetale, 2017; Fenny, Crentsil, & Asuman, 2017; Shokoohi et al., 2016) due to being more exposed to HIV in-depth knowledge compared to rural residents (Chirwa, 2020). The mass media is also a source of HIV knowledge among the youth (Chirwa, 2020), especially among those who prefer to use printed media, television, Whatsapp and radio (Shamu et al., 2020). Higher knowledge of HIV has also been proven to be concentrated among male youth (Fenny et al., 2017; Jennings et al., 2021; Shamu et al., 2020), older youth compared to adolescents (Jennings et al., 2021; Shokoohi et al., 2016), youth from the upper wealth quintile compared to less wealthy (Chirwa, 2020; Faust et al., 2017; Fenny et al., 2017), literate youth – especially those with formal education (Faust et al., 2017; Fenny et al., 2017) and youth who have intentions to engage in sexual intercourse in the future (Faust et al., 2017; Jennings et al., 2021). Further, a low level of HIV-related knowledge is found among youth who have a negative attitude toward people living with HIV/AIDS (Chirwa, 2020), and youth with either skilled or unskilled employment (De Wet et al., 2019; Fenny et al., 2017). At a relationship level, comprehensive and accurate knowledge of HIV is prevalent among youth who are in-union/dating relationships (Badru et al., 2020; De Wet et al., 2019; Fenny et al., 2017), youth who have more than three lifetime sexual partners (Shamu et al., 2020), and youth who have an HIV-infected friend/family member (Alwafi et al., 2018). The likelihood of possessing adequate HIV/AIDS knowledge is found to be higher among youth who are eager to care for family members suffering from HIV/AIDS (Fenny et al., 2017). Furthermore, discussion on HIV/AIDS between youth and their parents/guardian has a strong relationship with possession of a high level of HIV-related knowledge (Badru et al., 2020).

In the community/school context, being HIV-tested is strongly related with getting comprehensive HIV knowledge which, in turn also leads to having a higher positive attitude towards people living with HIV/AIDS (PLWHA) (James & Ryan, 2018). A higher level of HIV knowledge is also positively and significantly influenced by the availability of interactive online training modules about HIV/AIDS (Nelson, Perry, Stout, Dunsiger, & Carey, 2021), communication with community health workers (Sanni Yaya, Bishwajit, Danhoundo, & Seydou, 2016), HIV educational campaigns across urban areas (Shokoohi et al., 2016) and free condom counselling at school (Buckles & Hungerman, 2018). Adolescents who receive knowledge of HIV at school had more comprehensive HIV-knowledge than those who did not (Badru et al., 2020) or who have such knowledge from other sources (Córdova et al., 2018). This fact is there is evidence that education is a key factor for HIV awareness among adolescents. In the rural setting, school-based programs based on a peer-approach to educate students about sexuality and reproductive health proved to be effective in improving the rural students' awareness and knowledge of HIV transmission and prevention (Krugu, Mevissen, Van Breukelen, & Ruiter, 2018). In the same way but in a different setting, effective communication between clinicians and adolescents in primary health care centres encourage the development of the youth's knowledge about HIV transmission and encourage adolescents ameliorating HIV-risk behaviour (Córdova et al., 2018).

At a societal level, negative perceptions and public stigma shown by society towards people living with HIV/AIDS, such as in the form of blaming the sufferers and keeping them at a distance – both socially and physically, usually results from misconceptions and misinformation about HIV (James & Ryan, 2018). This stigma and discrimination is powering the escalation of the HIV-epidemic and complicates healthcare workers in providing health care for HIV patients (Jin, Meng, Du, Pei, & Li, 2020). When youth are positively confident about accessing local HIV services in society due to good primary healthcare services, the likelihood of getting a higher level of HIV-related knowledge is greater (Carter, Woodward, Ohmit, Gleissner, & Short, 2021).

2.3 A Proposed Conceptual Framework for the Current Research

Blum and Mmari (2005, p. 1) in their article stated "To optimise youth reproductive health outcomes, we need to know both those factors that predispose to risks and those that are protective".

Blum and Mmari (2005) conclude that while globalisation has had an increasing influence on youth attitudes and behaviour, changes at the national and community levels, school/workplace level, family level and individual level, can have enormous influence on youths when it comes to reproductive health behaviour. They state that the environments represented by these different levels serve many factors that may trigger the youth to act and interact in specific ways, which can become **"risk factors"** if they lead to an increase in the likelihood of negative health behaviour, or **"protective factors"** if they lead towards positive health behaviour or outcomes by youths. Reproductive health outcomes introduced by Blum and Mmari (2005) are explained in terms of the Socio-Ecological Model formulated by Urie Bronfenbrenner in 1979 to describe four levels of environment where factors affecting youth reproductive health outcomes exist (Blum & Mmari, 2005). Adapted from Blum and Mmari's framework of youth's reproductive health, the eight variables of reproductive health discussed in this research are reviewed based on the level of environment where youth are living, namely: individual level, relationship level, and community/societal level.

The conceptual framework developed for the present study is adapted from Blum et al. (2005) for study on youth's reproductive health to organise, analyse and present the findings originally developed using Bronfenbrenner's social-ecological model. Basically, the socio-ecological model acknowledges the relationship between the environment and the people who live in it (Blum & Mmari, 2005).

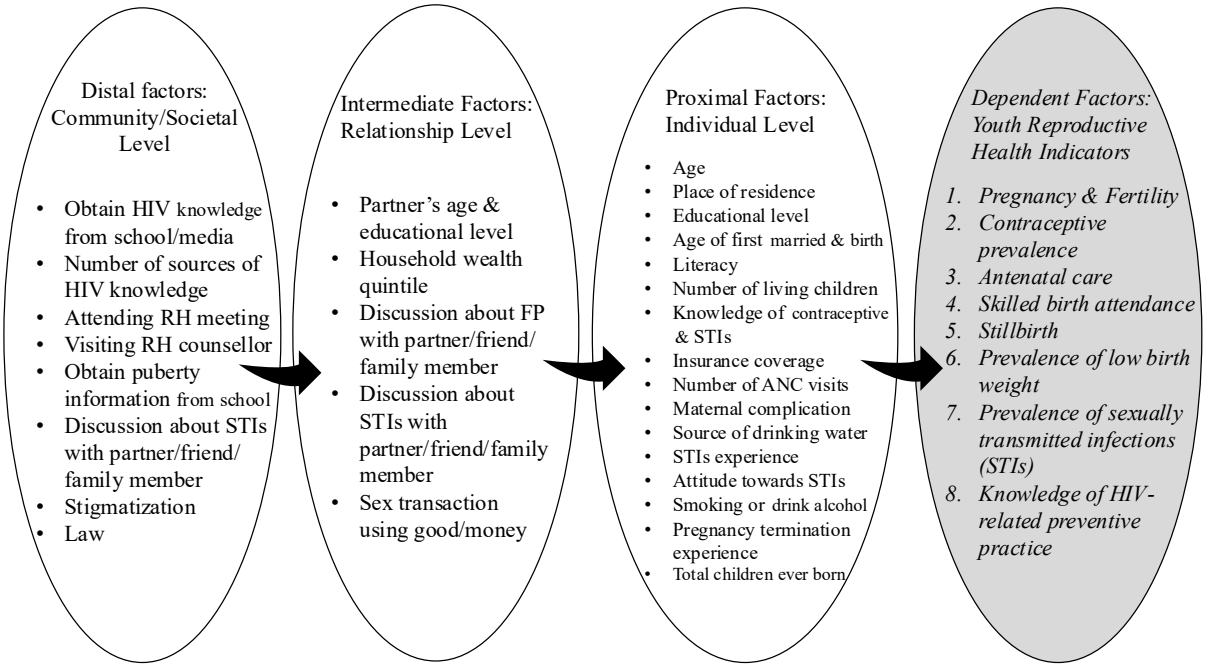
Blum's framework recognises that personal attitudes and behaviours are influenced by multiple factors across different interacting domains, inside 1) individual level; 2) peer level; 3) family level; 4) school/work level; 5) community level; and 6) macro/institutional level.

Adapting Blum's framework, the framework for this study has only three levels as a result of some merged levels as follows:

1. Individual level, consists of: biological factors, socio demographic factors, risky behaviour, attitude and knowledge of the youth;
2. Relationship level, consists of family factors, peers/friends factor, and partners factor;
3. Community/societal level, consists of: school factors, community and society factors.

Selected from a total of 17 reproductive health outcomes introduced by WHO (2006), the proposed framework for the present study focuses only on eight available variables relevant to youth reproductive health outcomes from the 2017 IDHS datasets. They are pregnancy and fertility, contraceptive use, antenatal care, skilled birth attendance, stillbirth, prevalence of low birth weight, prevalence of STIs, and knowledge of HIV/AIDS prevention. The independent variables consist of several factors for which data are available in three levels of the environment where the youth live: individual level, relationship level, and community/societal level. All independent variables are expected to have a direct effect on the dependent variables, either as risk or protective factors, on youth reproductive health among youth in Indonesia.

Figure 2.1 Proposed Theoretical Framework from The Social-ecological Model



Source: modified by the author based on Blum et al (2005)

Figure 2.1 illustrates the framework that shows factors affecting youth reproductive health. The outer loops contain distal factors while the inner loops contain proximal factors. According to Arah, Westert, Delnoij, and Klazinga (2005), in population health the distal factors refer to determinants which give indirect effects on health while proximal factors give direct effects on health.

2.4 Conclusion

This chapter has introduced some literature related to risk and protective factors affecting youth reproductive health in the context of different countries. Although a considerable amount of literature from various countries has been written, literature on the Indonesian context is extremely limited. Though all the gathered information from the review is crucial for this study, it is not sufficient for all the objectives set out for this research, as mentioned in Chapter One. Analysis on the secondary dataset of 2017 IDHS and extensive fieldwork are needed to gain an In-depth understanding of factors affecting youth reproductive health in Indonesia.

3

RESEARCH METHODOLOGY AND DATA SOURCES

3.1 Introduction

The application of mixed methods in research exploring reproductive health and the evaluation of various interventions to improve reproductive health outcomes has been increasing in recent years. In community health research especially, a mixed-method facilitates researchers to collect In-depth information rather than collecting data by using two separate approaches (quantitative and qualitative) and trying to link them together (Creswell & Hirose, 2019). In addition, a mixed method provides a convergence function in which both methods enable the researcher to find answers for the same research questions either by comparing the results or by converting a data set from one type into another (Palinkas et al., 2011). In the present research both quantitative and qualitative methods have been used to generate a better comprehensive understanding of youth reproductive health in Indonesia.

3.2 Background of the Use of the 2017 Indonesia Demographic and Health Survey (2017 IDHS)

A major part of this thesis relies on quantitative data collected at the 2017 Indonesia Demography and Health Survey (IDHS 2017). The IDHS 2017 was jointly conducted by the National Population and Family Planning Board (BKKBN), The Ministry of Health and Central Board of Statistics (BPS), Government of Indonesia in collaboration with the DHS Program ICF, United States. The survey itself is based on a two-stage stratified sampling design, in which the first stage involved the selection of 1,970 census blocks in urban and rural areas and the second stage involved the selection of 25 households by systematic sampling in each selected census block to obtain responses

from 59,100 women aged 15-49 years and 24,625 never-married men aged 15-24 years (BKKBN, BPS, Kemenkes, ICF, 2018)).

For the present thesis a subgroup of 13,988 females and 12,970 males aged 15 to 24 years have been selected for analysis. These women and men are classified as married/in-union and never-married. The selected dataset was downloaded from the program database of the Demographic and Health Survey under an authorisation letter from ICF no 131245 issued on 26 July 2019.

Table 3.1 presents the sample characteristics, sample sizes and the source of each dataset. All the data were extracted and cleaned before any analysis was carried out. By following the tutorial instructions in "Guide to DHS statistics" (Rutstein & Rojas, 2006), standard DHS sample weights by SPSS were applied to account for the unequal probability of selection in the sample and non-response. Thus, all figures and tables in the result and their explanations represent weighted numbers and percentages.

Table 3.1 Sources of Data

No.	Sample Characteristics	Sample size	Source (2017 IDHS dataset name)
1	Married/In-union women aged 15-24 years	4,017	IDIR71FL
2	Married/In-union men aged 15-24 years	358	IDMR71FL
3	Never-married women aged 15-24 years	9,971	IDIQ7AFL
4	Never-married men aged 15-24 years	12,612	IDML7AFL
	TOTAL	26,958	

Source: Prepared by the researcher based on 2017 IDHS datasets

These datasets were analysed using IBM SPSS Statistics Version 27.0.1.0 accessible to Higher Degree Research students at Flinders University. The analysis of data in the present thesis consisted of three steps. The first step defines the characteristics of youth aged 15-24 in Indonesia by using frequency tables to describe the proportions of all the respondents according to the given explanatory variables.

The second step examines the associations between each of the chosen reproductive health variables and independent variables by using bivariate Chi-square analysis. All the independent variables that showed statistically significant associations with the dependent variables at 5 per cent level ($p<.05$) are considered for the next step of analysis namely, multivariable logistic regression. The results are presented in terms of odds ratios (OR) with their corresponding 95 per cent confidence intervals (CIs).

Table 3.2 describes the dependent and independent variables as well as the operational definitions as a clear and concise detailed definition of the measurement used in the analysis of data.

Table 3.2 Operational Definitions

No	Variables	Operational Definition	Categories	Measurement Scale
	Dependent Variables			
1	Total children ever born	Respondent's total number of children ever born	No child =0 1 child=1 2-3 children=2	Ordinal
2	Age at first marriage /union	Respondent's age at first marriage or union	under-15 =0 15-19 =1 20-24 =2	Ordinal
3	Contraceptive Use	Respondent's current status of contraceptive use	Not currently using =0 Modern method =1 Traditional method =2	Nominal
4	Antenatal Visits	Number of ANC visit of respondent who had live birth in the 5 years preceding the survey	None=0 1 visit=1 2-3 visits=2 4 visits or more =4	Ordinal
5	Skilled Birth Attendance	SBA of respondent from live births in 5 years preceding the survey	Traditional/unskilled personnel =0 Skilled Birth Provider = 1	Nominal
6	Stillbirths	Respondent's experience to Stillbirth occurrence	Never =0 Ever =1	Nominal
7	Low Birth Weight	LBW occurrence among livebirths of respondents 5 years preceding the survey	Yes (Less than 2kg) =0 No (2.5kg or more) =1	Nominal
8	Sexually Transmitted Infections	Respondent's prevalence of having STDs or its symptom	never had=0 ever had =0	Nominal
9	Knowledge about HIV/AIDS	Respondent's score on questions of HIV/AIDS	Low =0 Middle=1 High =2	Ordinal
	Independent Variables			
10	Age	Respondent's current age in 5-years category	15 -19 = 0 20 – 24 = 1	Ordinal

11	Place of residence	Respondent's place of residence	Urban = 0	Nominal
			Rural =1	
12	Highest Education	Level of respondent's education attainment	No Education =0	Ordinal
			Primary =1	
			Secondary =2	
			Higher =3	
13	Literacy	Respondent's ability to read and write	Cannot read at all =0	Nominal
			Able to read only partly sentence =1	
			Able to read whole sentence =2	
14	Wealth quintile	Respondent's wealth in quintile category	Poorest=0	Ordinal
			Poorer =1	
			Middle =2	
			Richer =3	
			Richest =4	
15	Husband's Highest Education	Level of education attainment of respondent's partner	No Education =0	Ordinal
			Primary =1	
			Secondary=2	
			Higher=3	
16	Husband's Age	Current age of respondent's husband in 5-year category	15-19 =0	Ordinal
			1=20-24 =1	
			2=25 or more=2	
17	Number of living children	Number of children alive at the time of the survey who were given birth by respondent	No children=0	Ordinal
			1 child =1	
			2 children or more=2	
18	Knowledge of any method	Respondent's awareness of contraceptive method	Knows no method=0	Nominal
			Knows only traditional =1	
			Knows modern method=2	
19	Discussed about family planning with partner	Respondent's discussion about FP with their husbands	No=0	Nominal
			Yes=1	
20	Discussed about family planning with friends	Respondent's discussion about FP with their friends	No=0	Nominal
			Yes=1	
21	Covered by insurance	Respondent's insurance coverage	No=0	Nominal
			Yes=1	
22	Number of ANC visit	Number of ANC visit of respondents who had live birth in the 5 years preceding the survey	None=0	Ordinal
			1 visit=1	
			2-3 visit=2	
			4+ visit=3	
23	During pregnancy have complication	Respondent's experience of having complication during pregnancy	No=0	Nominal
			Yes=1	
24	Know that during labour and after delivery an excessive bleeding could happen	Respondent's knowledge that during labour and after delivery an excessive bleeding could happen	No=0	Nominal
			Yes=1	
25	Source of drinking water	Type of drinking water source	Treated water=1	Nominal
			Untreated water=2	
26	Ever had STIs	Respondent's experience of having STIs	No=0	Nominal
			Yes=1	

27	Ever received Tetanus toxoid injection	Respondent's experience of having Tetanus toxoid injection during pregnancy	No=0 Yes=1	Nominal
28	Told about pregnancy complications	Respondent's experience of being told by other people about pregnancy complication	No=0 Yes=1	Nominal
29	Smokes cigarette	Respondent's habit of smoking cigarettes	No=0 Yes=1	Nominal
30	Ever had a terminated pregnancy	Respondent's experience of having a terminated pregnancy	No=0 Yes=1	Nominal
31	Refuse having sex if do not want to	Respondent's refusal of having sex if do not want to	Not refuse=0 Refuse=1	Nominal
32	Ever heard about STI	Respondent's awareness about STIs	No=0 Yes=1	Nominal
33	Attitude toward wife justified to refuse having sex if husband has sex with other women	Respondent's attitude toward wife justified to refuse having sex if husband has sex with other women	Disagree=0 Agree=1	Nominal
34	Attitude toward wife justified to refuse having sex if husband has STIs	Respondent's agreement toward wife justified to refuse having sex if husband has STIs	Disagree=0 Agree=1	Nominal
35	Attitude toward wife can ask husband to use condom if he has STI	Respondent's agreement toward wife can ask husband to use condom if he has STIs	Disagree=0 Agree=1	Nominal
36	Sex transaction using money or goods	Respondent's experience of having a sex transaction using money or good	No=0 Yes=1	Nominal
37	Discussed about HIV/AIDS prevention with partner	Discussion about HIV/AIDS prevention between respondents and their partner	No=0 Yes=1	Nominal
38	Number of sources of HIV/AIDS knowledge	Number of sources which respondent obtained HIV/AIDS knowledge	None=0 1-3 sources=1 4 or more sources=2	Nominal
39	Ever obtained HIV/AIDS knowledge from health provider/teacher	Respondent's experience of obtaining HIV/AIDS information from health provider/ teacher	No=0 Yes=1	Nominal
40	Ever obtained HIV/AIDS knowledge from mass media	Respondent's experience of obtaining HIV/AIDS information from mass media	No=0 Yes=1	Nominal

Source: prepared by the researcher based on 2017 IDHS dataset

3.3 Collection of Qualitative Data through Fieldwork in Aceh Province

3.3.1 Information Collected for Qualitative Data

Aceh province is chosen as the focus for the primary data collection for a number of reasons. As explained earlier in Chapter one, recently some deterioration in youth reproductive health indicators were found in Aceh province. Data from the 2017 IDHS found that the Total Fertility Rate (TFR) of

Aceh province in 2017 is higher than Indonesia's TFR, more females aged 19 years have started childbearing, there was a higher percentage of low birthweight babies among under-20 year-old mothers compared to the older, decreased level of contraceptive and STIs knowledge among youth, and higher STIs incidents among female youth (National Population and Family Planning Board (BKKBN)., (BPS)., et al., 2018; National Population and Family Planning Board (BKKBN). et al., 2013).

In addition, as the only province that applies Sharia law in Indonesia (Afrianty & Mann, 2020) Aceh has been faced with a situation where westernisation and the morality idealised by Islamic values in the society regarding adolescent reproductive health and rights has subjected young women and men to a mutually conflicting state (I. D. Utomo & McDonald, 2009) and has led to duality of behaviour among the youth. Thus, collecting data in the province with this special characteristic may enrich the discussion of sexual and reproductive health issues in Islamic societies that are rarely discussed and considered sensitive subjects.

Primary, qualitative data focusing on Aceh province were collected through focus group discussions and In-depth interviews at five selected sites in the province.

Questions asked of the participants of FGDs and In-depth interviews invited information on personal and/or sensitive matters. The personal information consists of identification particulars, such as name, place of residence, age, education and sex. However, the names of the participants were deleted and replaced with numbers when data were entered into computers in digital form. The sensitive information that was obtained consists of opinions, attitudes or views of the FGD participants about youth reproductive health outcomes in Aceh province, such as contraceptive use, pregnancy and fertility, sexually transmitted infections, knowledge about HIV/AIDS, premarital sexual initiation, low birth weight, stillbirths and antenatal care among young mothers. Such information was collected with the undertaking (promise) that

it would be kept strictly confidential, used only for research purposes and would not be identifiable with any individual.

The data collection in Aceh province was approved by the Flinders University Human Research Ethics Committee, on 22 February 2021 under Project No.2650 and Project Title: "Risk and Protective factors affecting youth reproductive health in Indonesia with the focus on Aceh province". A copy of the approval is given in the Appendix 1.

3.3.2 Recruitment of Participants of Focus Group Discussions and In-depth Interviews

In this qualitative research 98 participants aged 20-24 years were recruited for ten focus group discussions (FGD), with nine or ten participants in each group. Further, 20 community members were recruited for In-depth interviews. The selected group of community members for In-depth interviews consisted of family planning/health workers, religious leaders, heads of subdistricts, and heads of schools. The selection of the five districts and participants in this field work was purposive. Emmel (2013) suggested some key points as reasons of purposive sampling in qualitative research:

1. Purposive sampling aims to choose cases that enrich the usable information and provides the best perception in answering the research questions to convince the audience of the research.
2. The researchers select the subjects who they consider are the key informants of the research topic.
3. Purposive sampling enables the practical side to qualitative enquiry as researchers seek to address real-world problems.

The implementation of purposive sampling in this qualitative method takes into consideration the criteria recommended by Emmel (2013), mentioned above. All participants were recruited from five representative districts of Aceh province, namely West Aceh, Central Aceh, South Aceh, East Aceh and North Aceh. Map of the districts shown in Appendix 2. Names of potential

participants were available in the lists of the Centre for Youth Reproductive Health Information and Counsellors (Principals and Peer Educators/Counsellors), Religious and Community Leaders, and Family Planning/Health Workers databases maintained at the National Population and Family Planning Board (NPFPB) of Aceh provincial office. The provincial office oversees the five district offices mentioned earlier, thus the complete database is stored at the provincial level in Aceh province. A permission letter was sent to the office in order to have access to the database. The database was ready to be utilised as the provincial office sent back the approval letter under the signature of Head of the Office of NPFPB Aceh no.1394/PL.101/J5/2020 on 3 December 2020 (Appendix 3) and mentioned that people in the database have consented to their data information being used for research and policy purposes. The recruitment took place from early to mid of May 2021.

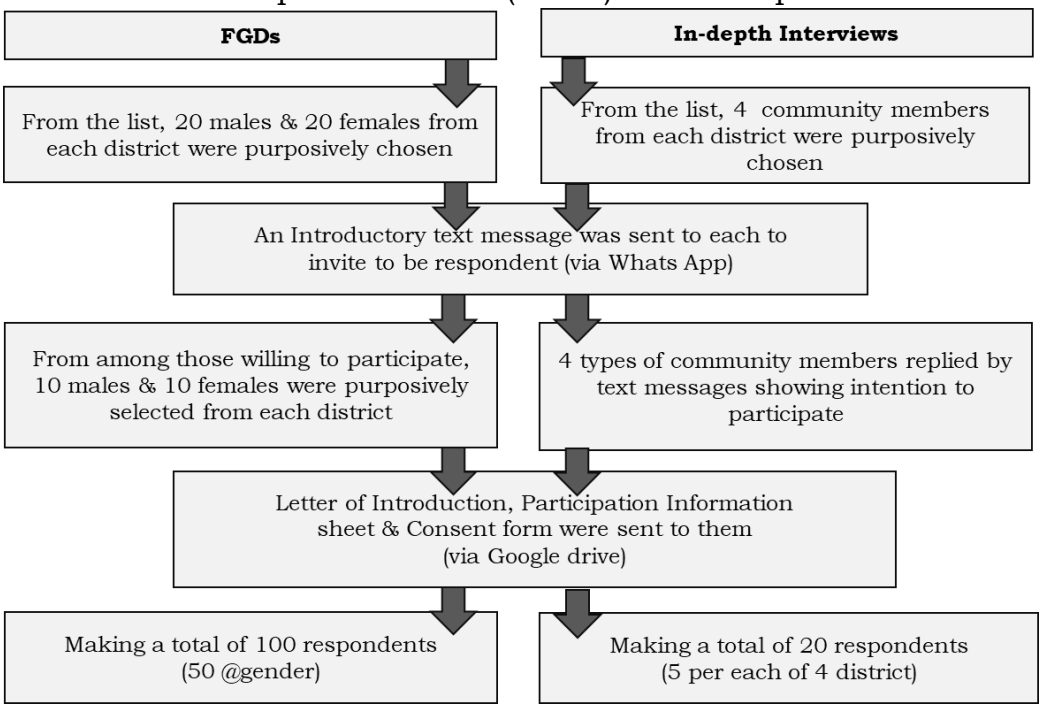
For the FGDs, initially 20 female and 20 male participants were chosen from the list of youth in the NPFPB Aceh provincial database for each district mentioned above. The initial selection of 20 females and 20 males in each district was done in order to ensure the final selection of ten participants of each sex in each district. Text messages, using WhatsApp mobile phone applications were sent to the selected participants introducing the student researcher, the purpose of the student's research and seeking the participants' consent to participate in the focus group discussions. From among those participants who expressed their willingness to participate in the FGDs, ten female and ten male participants were selected purposively and invited to participate in the FGDs. There should have been ten female and ten male participants in an FGD in each district but two male participants withdrew by being absent on the day of the FGDs. Thus, there were a total of 98 focus group participants (50 females and 48 males).

The In-depth interviews were conducted in each of the five selected districts, but at a sub-district level, the sub-district being selected purposively. In each selected sub-district, introductory e-mails were sent to four community

members comprising the Head of the sub-district, a religious leader, head of the school and one family planning/health worker. These community members were asked to reply to the email-messages with their voluntary consent or refusal to participate in the In-depth interviews.

Finally, the participants who expressed their willingness to participate in the FGDs or In-depth interviews were sent several documents consisting of (i) a letter signed by the student's supervisors introducing the student, (ii) a Participant Information sheet and (iii) Consent form to confirm their participation in the FGDs/In-depth interviews. The Participation Information Sheet and Consent Form is attached in Appendix 4. Finally, there were 100 participants selected for the FGDs and 20 for In-depth interviews. The various stages of recruitment of participants for the FGDs and In-depth interviews are displayed in Figure 3.1.

Figure 3.1 Stages of Participant Recruitment
for Focus Group Discussions (FGDs) and In-depth Interviews



Source: Prepared by the researcher, 2021

3.3.3. Remote Management of Focus Group Discussion in Aceh Province

Focus group discussions are an appropriate method of collecting qualitative data in family planning and reproductive health research as they work best for gathering information on topics that people do not talk about to each other in their everyday lives. Focus group discussions provide a forum where participants who share certain characteristics such as gender, age, socio-economic status and community belonging, feel comfortable in discussing sensitive issues with a range of viewpoints that do not arise in their everyday interaction (Teijlingen & Pitchforth, 2006).

The FGDs in Aceh province were originally planned to be conducted by the researcher in person as the principal researcher. However, due to Covid-19 travel restrictions to Indonesia (and most other countries) they had to be managed remotely from Adelaide, Australia. The travel restrictions, which began in early 2020 and continued through 2021, put this research at a great disadvantage and made it highly challenging at times. Considering this, a back-up plan was put in place in consultation with PhD supervisors to continue collecting the primary data in Aceh. The plan essentially consisted of replacing the on-field FGDs with remotely-managed FGDs by employing four research assistants (RAs) who were capable of facilitating the FGDs on site. In preparing for the FGDs the participants and RAs were recruited remotely and managed by the researcher. Prior to conducting the FGDs, the RAs were trained online by the researcher on 3 April 2021 using WebEx video conferencing tool about the organisation of the FGDs and the questionnaires. Subsequently, the RAs organised the date, location and times of the FGD sessions for five districts which was conveyed to the participants by the researcher. The RAs conducted the FGDs on-site supervised live by the researcher on conferencing platform WebEx. The RAs were informed in advance of the web-link to join the meetings on specific dates and times. Aceh province has good internet coverage down to the sub-district level from where the participants were selected. A total of ten FGDs were conducted with youth aged 19--24 years in each of the five regions of Aceh province from April 2021

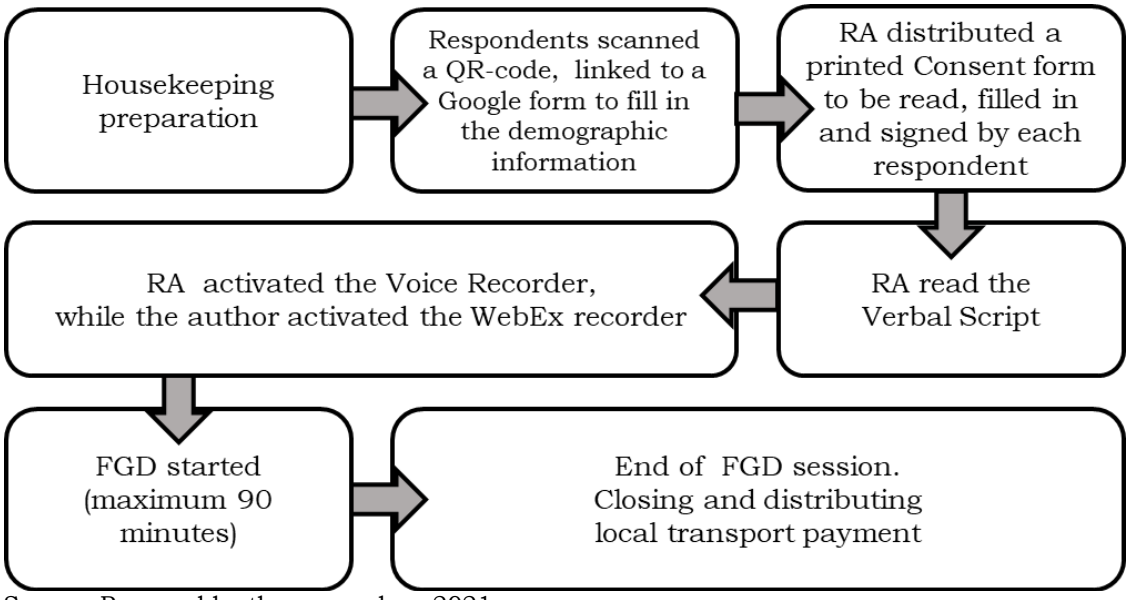
to early June 2021. The FGDs were conducted separately for males and females with ten participants each. The sessions lasted up to 90 minutes each, and there were no extensions or follow-up meetings. Prior to starting the FGDs, a printed Consent Form was required to be signed by each participant, which was sent to the researcher by the RAs as pdf files.

Furthermore, a verbal script was prepared by the researcher which was used by the RAs when initiating the focus groups to produce a uniform introduction to each session. Following is the verbal script used:

> Hello, my name is (RA's name). I am the Research Assistant of Yuniarini, PhD student at Flinders University, Adelaide, South Australia. The research she is undertaking for her PhD thesis is titled: "The Risk and Protective factors affecting youth reproductive health outcomes in Indonesia with a focus on Aceh province". I seek your help in answering and discussing some questions that are required to fulfil her research objectives. Please read the letter of introduction and the information sheet, and then, if you agree to participate, please sign the consent form which I have given you with the letter and information sheet. You are free to ask any question at any time during the discussion and, if at any time you do not wish to continue, please ask me to stop. You are free to withdraw from the research project at any point without penalty and discomfort. Your responses will be used only for research purposes and none of your responses will be used in any way that identifies you.

The participants were asked to join the FGD by opening a Google form by scanning a printed QR-code and filling up a form to provide their demographic data. The Google forms are so designed that the response pages can only be accessed by the researcher. In addition, as mentioned earlier the FGD participants were informed that the session they were involved in was remotely supervised by the researcher. The RAs also explained to each participant prior to a session that they were free to withdraw from the research project at any point without penalty and discomfort. An audio-recording was made during each session with the permission of the participants. Details of the conduct of the sessions are presented in Figure 3.2.

Figure 3.2 The Conduct of the FGDs Session Assisted by the RAs



Source: Prepared by the researcher, 2021

Table 3.3 also shows the focus group details in terms of the location, date, time and name of Research Assistants as discussion facilitators.

Table 3.3 Place, Date, Location and Time of Focus Group Discussions in Aceh Province, Indonesia (April-June 2021)

FGD No.	District	FGD details				
		Date	Location	Time	Group	Research Assistant as FGD facilitator
1	West Aceh	Fri, 9 Apr 2021	University of Teuku Umar campus, Meulaboh	09.00 - 11.00	Male	Zach
				14.00 - 16.00	Female	Fin
2	North Aceh	Mon, 26 Apr 2021	Malikussaleh University campus, Lhokseumawe	09.00 - 11.00	Male	Mar
				13.15 - 15.15	Female	Zen
3	East Aceh	Tues, 27 Apr 2021	University of Samudra campus, Langsa	09.30 - 11.30	Male	Mar
				14.00 - 16.00	Female	Irma
4	Central Aceh	Wed, 28 Apr 2021	University of Gajah Putih campus, Takengon	08.00 - 10.00	Female	Mar
				10.30 - 12.30	Male	Mar
5	South Aceh	Mon, 7 Jun 2021	Southern Aceh Polytechnic campus, Tapak Tuan	08.00 - 10.00	Male	Zach
				10.30 - 12.30	Female	Zach

Source: Prepared by the researcher, 2021

3.3.4 Online In-depth Interviews in Aceh Province

The In-depth interviews were conducted at the same places where the FGDs were conducted, i.e., at sub-district level in each of the five selected districts. Some sub-districts are located in remote areas, thus the sub-districts that were chosen in this study were those located near to the headquarters of the district where the internet is commonly easier access. As mentioned earlier, the participants to In-depth interviews in each selected sub-district consisted of: (i) one head of sub-district, (ii) one religious leader, (iii) one head of school, and (iv) one family planning/health worker. Thus, there were 20 In-depth interviews in total from the five selected sub-districts. These participants were interviewed using a semi-structured questionnaire, a copy of which is given in the appendix.

The 20 In-depth interviews originally planned were conducted between May 2021 and February 2022. Each In-depth interview took between 50 and 60 minutes, the details of which are presented in Table 3.4. Prior to starting the interviews, the participants were sent a WebEx/Zoom link to fill out their demographic data in a cloud Google form. The response pages of the Google form are accessible only to the researcher. The participants were also asked to sign a soft copy of the Consent Form and send it to the researcher via e-mail as a pdf document. Finally, a verbal script was delivered by the researcher before initiating the interview sessions to produce a uniform introduction in each session. The exact wording of the verbal script used in the In-depth interviews is as follows:

> Hello, my name is Yuniarini. I am a PhD student at Flinders University in Adelaide, Australia. The title of the research I am undertaking for my PhD thesis is "*The Risk and Protective Factors affecting Youth Reproductive Health Outcomes in Indonesia with a Focus on Aceh Province*". I am seeking for your help in answering and discussing some questions that will advance my research. Please read the letter of introduction and the information sheet, and then, if you agree to participate please sign the consent form which I have given you with the letter and information sheet. You are free to ask any question at any time during the discussion/interview and, if at any time you do not wish to continue please ask me to stop. You are free to withdraw from the research project at any point without penalty and discomfort. Your answers will be used only for

research purposes. None of your responses will be used in any way that identifies you.

Since not all the participants speak English, communication took place in Bahasa Indonesia or Acehnese, the local language of Aceh province, both of which the researcher is fluent in. Prior to each interview session, participants were also informed that they would be free to withdraw from the research project at any point without penalty and discomfort. The researcher took notes and recorded the focus group discussions on audio tapes with due permission of the participants.

Table 3.4 Place, Date, Location and Time of In-depth Interviews in Aceh Province, Indonesia (May 2021- February 2022)

No.	Locus Target	In-depth Interview details			
		FP/Health Workers	Religious Leader	Head of Subdistrict	Head of School
1	West Aceh	Participant-1	Participant-13	Participant-17	Participant-5
		27-May-21	2-Dec-21	10-Jan-22	31-May-21
		Zoom meeting	Zoom meeting	WebEx meeting	WebEx meeting
2	North Aceh	Participant-9	Participant-15	Participant-20	Participant-11
		18-Nov-21	10-Dec-21	1-Feb-22	29-Nov-21
		Zoom meeting	Zoom meeting	WebEx meeting	Zoom meeting
3	East Aceh	Participant-2	Participant-8	Participant-3	Participant-14
		27-May-21	4-Jun-21	28-May-21	6-Dec-21
		Zoom meeting	Zoom meeting	WebEx meeting	Zoom meeting
4	Central Aceh	Participant-6	Participant-12	Participant-18	Participant-7
		2-Jun-21	29-Nov-21	18-Jan-21	2-Jun-21
		Zoom meeting	Zoom meeting	WebEx meeting	Zoom meeting
5	South Aceh	Participant-4	Participant-16	Participant-19	Participant-10
		28-May-21	2-Jan-22	28-Jan-21	28-Nov-21
		WebEx meeting	WebEx meeting	WebEx meeting	Zoom meeting

Source: Prepared by the researcher, 2021

3.3.5 Difficulties Encountered During the Fieldwork

As questions on reproductive matters can be sensitive at times, the researcher and RAs ensured that discussion of sensitive issues was kept at an appropriately minimum level.

In addition, a significant health risk during the Covid-19 pandemic posed a challenge for the RAs, especially during the FGD sessions. To address this issue, the RAs managed to conduct the sessions in the university campus areas where it was ensured that the Aceh Governor Regulation No. 51/2020 about Law Enforcement of Covid-19 Health Protocols in Aceh province was strictly observed. Since 2020, the regulation has obliged all indoor activities to apply the World Health Organisation health protocols for the Covid-19 pandemic.

3.3.6 Data Storage and Access

Privacy and confidentiality are always assured in this research. Some of the initial research findings have been presented at conferences[8] but the privacy and confidentiality of the participants have always been protected. The participants were not named, and their personal information was not identifiable in any research findings. Confidentiality of the participants is very important as the misuse of their faces and usernames can be used to construct a facial image dataset, which contains personal details such as gender and age (Kagan, Alpert, & Fire, 2020).

The audio/video recordings of the focus group discussions and In-depth interviews were stored in mp3 format on Flinders One Drive cloud storage under the researcher's account until they were transcribed. The transcription was expected to be completed within six months to one year of the recordings. During this period, access to the folder on One Drive was e-shared with the researcher's PhD Supervisors. The transcribed, raw data collected at the FGDs and In-depth interviews were stored securely on password protected computer files on the Flinders University server throughout the study. Any identifiable data were de-identified for data storage purposes. Finally, all data collected at the FGDs and In-depth interviews will be securely transferred and stored at

[8] a) CHASS-PA Conferences at Flinders University 2020; b) The 5th Virtual Asian Population Association Conference 2021

Flinders University for at least five years after publication of the results. Following the required data storage period, all data will be securely destroyed according to Flinders University protocols.

3.3.7 Analysis of the Qualitative Data

The primary raw data collected at FGDs and In-depth interviews were analysed using the latest version of the software NVivo (QSR International Pty Ltd., 2020) that is available under licence to Flinders University students. Thematic analysis, which is a method for systematically identifying, organising, and offering insights into patterns of meaning (themes) across a data set (Braun & Clarke, 2012) was chosen to analyse the qualitative data collected in this research. According to Sivakumar (2020), thematic analysis can be applied to recognise a phenomenon by collecting a participant's value, experience, knowledge or opinion through audio/video recorded versions of personal interviews, policy documents, and case studies.

Specifically, the present thesis used the 2006 updated Braun and Clarke's Thematic Analysis popular version, which is popularly known as Reflexive Thematic Analysis (RTA) (V. Braun, Clarke, Hayfield, & Terry, 2019). RTA emphasises the accountability of the researcher for the data at hand, followed by their active role in the activity of producing knowledge originating from the data. The RTA consists of six phases: (1) Familiarisation with the data; (2) Creation of codes; (3) Construction of potential themes; (4) Reviewing the potential themes; (5) Defining and naming the themes; and (6) Producing the report.

The first phase of analysing qualitative data involves the researcher being *familiar* with the data. This is a process that aims to make the researcher get close to and engaged with the data by transcribing and repeatedly reading the data, as well as by making notes on their earliest ideas (Virginia Braun & Clarke, 2006). In the present research the act of familiarisation with the data

included reading/watching/listening to, the data according to its format, such as video, audio or text (V. Braun et al., 2019).

In the second phase, the researcher *creates codes for the data.* This involves a process that makes sense of the data by putting information with similar meanings into one group (Campbell et al., 2021). In this research, the analytical process started with doing the coding inductively in which the data were used as the starting point of analysis, instead of doing the coding deductively where theories/concepts were used to start the analysis (V. Braun et al., 2019).

Thirdly, *constructing potential themes* (is conducted by gathering codes into potential themes. Potential themes present insightful narratives coherently regarding the relationship between the data and the research question (V. Braun et al., 2019).

Next, as suggested by Virginia Braun and Clarke (2006) the *potential themes are reviewed*, to switch them from "prototype" into "final themes". This action includes removing some potential themes that are weak, conceptually confused or look similar to each other.

The review of themes is followed by, *defining and naming themes* in the next stage. As suggested by Braun and Clarke (2012) and Campbell et al., (2021), appealing names are given to the themes at this stage. The names that can either be lengthy or a single word, produce clear meanings about the data and its connection with the research question (V. Braun et al., 2019).

The last stage involves the *production of the report*. In this stage, a scholarly report is produced as a product of selected extracts of themes by drawing the flow of the story provided by the data that relate to the literature and the research questions (V. Braun et al., 2019). Table 3.5 presents how these stages work with features in NVivo.

Table 3.5 NVivo Utilisation Process Based on Reflexive Theme Analysis

No.	Stage of RTA (Braun & Clarke 2019)	Execution in NVivo	
		Menu from Taskbar	**Menu from Left Sidebar**
1.	**Familiarisation**		
	a. Data Immersion	**IMPORT *Files*** of FGDs and In-depth interviews transcription documents and raw video recording. Files are named by participant's initial, sex and age (i.e. RR female 18 year-old)	
		CREATE *cases* to group the unit of analysis by copy and pasting all the files and **CREATE *Cases classification*** to group them as FGDs and In-depth Interview participants.	
	b. Transcription and Effective Reading	Open **MODULES *Transcription*** to transcribe some of the video recording that is later saved as documents. **CREATE *Files Classification*** to group FGDs and In-depth Interview documents.	Open the **DATA *Files*** of transcription and read them multiple times effectively.
	c. Note-taking according to research questions	**CREATE *Memo***, name it and fill in with important information, or, open **CASES** and highlight important statements then choose New Annotation by right-click.	Read the **NOTES *Memos*** & ***Annotation*** to catch interesting features found in transcriptions, systematically.
2.	**Generating codes** Labelling some pieces of data and put them inside meaningful groups	**CREATE *Code*** and name it uniquely. Create several different codes, and, open **NOTES Annotations** and do some other highlights on <u>important quotes</u> nearby the annotated, then by right click choose code selection and put into the suitable codes that are available in the list.	Open **CODING *Codes*** to check one by one the specific participant's quote contain in each ***Code***
3.	**Constructing candidate themes** Gathering codes into potential themes	**CREATE** several new ***Code*** and give name as candidate themes.	Open **CODING *codes*** and drag one by one the previous codes prepared in stage 2 into candidate theme code. Codes now are grouped.
4.	**Revising theme** Removing candidate themes that were weak, conceptually confused or overlapped with each other		Open **CODING *codes*** and drop down all the candidate theme codes continued with colliding some codes with similar nature into one code and removing other confused theme codes.
5.	**Defining and naming themes** Appealing names were given to the final themes to produce clearer meaning		Open **CODING *codes*** of final themes and double-clicking to give a meaningful "catchy" name to each theme.
	Producing report		

6.	Produce a scholarly report to draw the flow of the story and its link to research question		Open **CODING** ***codes*** of final themes and write down and explain the pointers code inside. Open **Visualisation** and **Queries** to produce more visualised analysis.

Source: developed by the researcher as the protocol to RTA analysis using NVivo specifically for this study, 2021

3.4 Summary

This chapter describes why and how various research methods were applied in this study. As suggested by Palinkas et al. (2011), this research used mixed-methods as a research tool that aims to deeply explore the unique experience of young people that is not normally available in the secondary data. In relation to this study, the answers to the research questions and investigating the research objectives have immensely benefited through adopting this approach.

In this research, quantitative data of a subgroup of 26,957 youths aged 15 to 24 years has been selected for analysis. The data was collected at the 2017 Indonesia Demography and Health Survey (IDHS 2017). IBM SPSS Statistics Version 27.0.1.0 was used for the statistical analysis. Further, the qualitative data was obtained from ten focus group discussions (FGDs) and In-depth interviews, making a total of 118 participants from five districts in Aceh province. The latest version of the software Nvivo was used to analyse the raw qualitative data obtained from the FGDs and In-depth interviews.

Due to Covid-19 travel restrictions to Indonesia, the FGDs in Aceh province originally planned to be conducted in person by the researcher, had to be managed remotely from Adelaide, Australia by employing four research assistants (RAs) who were capable of facilitating the FGDs on site. To address a significant health risk during the Covid-19 pandemic, the FGD sessions were conducted in the university campus areas where it was ensured that the Aceh Governour Regulation No. 51/2020 about Law Enforcement of Covid-19 Health Protocols in Aceh province was strictly observed. Further, the In-depth

interviews were conducted online by the researcher by using virtual platforms Zoom and WebEx.

The audio/video recordings of the focus group discussions and In-depth interviews were stored in mp3 format on Flinders One Drive cloud storage under the researcher's account. Access to the folder on One Drive was e-shared with the researcher's PhD Supervisors.

4

SOCIO-DEMOGRAPHIC CORRELATES AND PREDICTORS OF REPRODUCTIVE HEALTH OUTCOMES OF YOUTH IN INDONESIA 2017: A STATISTICAL ANALYSIS

4.1 Introduction

The main objective of this chapter is to examine reproductive health (RH) outcomes of youth in Indonesia. Two of the four research objectives of the thesis, namely: (i) To identify and analyse the factors influencing youth reproductive health indicators for which data are available, such as fertility/pregnancy, contraceptive prevalence rate, stillbirth rate, antenatal care, prevalence of low birth weight babies, and the prevalence of sexually transmitted infections (STIs) among the youth in Indonesia; and (ii) To analyse the knowledge of HIV-related preventive practices among the youth in Indonesia are considered.

In this chapter, the outcome variables are treated as dependent variables, i.e. the variables that are being investigated in the research objectives while socio-demographic variables which influence the dependent variables are treated as independent or predictor variables. The analysis is based on different datasets for married and never-married female youth corresponding to which reproductive health outcome is being analysed. The data concerning indicators of the dependent variables are available in the secondary datasets of the 2017 Indonesia Demography and Health Survey (IDHS) in four subgroups of respondents aged 15 to 24 years: i) married/in-union female, ii) married/in-union male, iii) never-married female, and iv) never-married male. The RH indicators covered in each dataset are as shown in Table 4.1 with tick marks (✓).

The data have been tested using three steps. The first is to define the characteristics of youth aged 15-24 years in Indonesia using frequency tables. The second examines associations between each dependent variable with its respective independent variables through bi-variate statistical analysis. Thirdly multivariate statistical analysis using either Binary logistic regression or Ordinal logistic regression is used to examine the predictors of the dependent variables after excluding the independent variables with which the association of the dependent variable is found to be statistically not significant in the bivariate analysis.

Table 4.1 Dependent Variables Analysed for Sub-groups of Youth, Indonesia 2017

No.	Datasets / RH Indicators	Married/In-union female N= 4,017	Married /In-union male N= 358	Never-married female N= 9,971	Never-married male N= 12,612
1	Children ever born	√			
2	Age at first birth	√			
3	Contraceptive use	√			
4	Antenatal care	√			
5	Skilled Birth Attendance	√			
6	Stillbirths	√			
7	Baby Birth Weight	√			
8	Sexually Transmitted Infections	√	√		
9	Knowledge of HIV/AIDS prevention	√	√	√	√

Source: prepared by the author from 2017 IDHS data

4.1.1 Basic Characteristics of Youth in Indonesia

Table 4.2 shows the proportion of married/in-union youth in Indonesia according to socio-demographic characteristics. More than 90 per cent are aged 20-24 years, more than 60 per cent reside in rural areas, nearly 74 per cent have had secondary or Higher education and around 97 per cent are literate with the ability to read whole sentences. More than half of the male respondents and nearly a half of female respondents belong to households that are classed as poorer or poorest.

Table 4.2 Proportion of Married/In-union Youth by Socio-demographic Characteristics, Indonesia 2017

Characteristics	Proportion of youth by characteristics	
	Female (N=4,017)	Male (N=358)
Age in 5-year groups		
15-19	17.4	8.1
20-24	82.6	91.9
Place of residence		
Urban	40.6	36.6
Rural	59.4	63.4
Level of education		
No Education	0.7	1.4
Primary	19.7	24.8
Secondary	72.5	68.1
Higher	7.1	5.7
Literacy		
Cannot read at all	1.4	2.2
Able to read only partly sentence	1.3	1.1
Able to read whole sentence	97.3	96.7
Household wealth quintile		
Poorest	23.3	25.2
Poorer	25.2	28.1
Middle	23.1	22.3
Richer	18.4	14.3
Richest	9.9	10.1

Source: computed by the author from 2017 IDHS data

Table 4.3 shows the proportion of never-married female youth in Indonesia according to socio-demographic characteristics. In contrast to ever married youth, the never-married female youth are younger with more than 60% aged 15-19 years, more urbanised with 50% or more residing in urban areas, and proportionately more (90% or more) with Secondary or Higher education, levels. However, like ever married respondents, the ability to read and write whole sentences is almost universally prevalent, with 99% of the female youth and 97% male youth being literate to this level. Also, in contrast to ever married female youth, proportionately many more never-married female youth belong to the middle, richer and richest households. Information on household wealth quintile for never-married male youth is not available.

Table 4.3 Proportion of Never-married Youth by Socio-demographic Characteristics, Indonesia 2017

Characteristics	Proportion of youth by characteristics	
	Female (N=9,971)	Male (N=12,612)
Age in 5-year groups		
15-19	67.9	61.2
20-24	32.1	38.8
Place of residence		
Urban	59.1	54.5
Rural	40.9	45.5
Level of education		
No Education	0.3	0.5
Primary	3.4	9.5
Secondary	72.4	77.1
Higher	23.8	12.9
Literacy		
Unable to read at all	0.6	1
Able to read only partly sentence	0.3	1.5
Able to read whole sentence	99.1	97.4
Household wealth quintile		
Poorest	14.1	Data not available
Poorer	17.7	Data not available
Middle	19.8	Data not available
Richer	21.8	Data not available
Richest	26.7	Data not available

Source: computed by the author from 2017 IDHS data

4.2 Youth Pregnancy and Fertility

Table 4.4 shows the pregnancy experience of never-married and married female youth in Indonesia which includes the indicators for female youth who 1) are pregnant at the time of the survey (2017 IDHS); 2) have ever had an unwanted pregnancy; 3) have ever had a miscarriage, abortion, or stillbirth; and 4) have ever had a live birth. The sample consists of 13,998 female youth aged 15-24 years, of which the never-married youth comprise the majority (71.3%) and the married youth comprise the minority (28.7%).

Table 4.4 Pregnancy Experience Among Female Youth, Indonesia 2017

Characteristics		Distribution of female youth by pregnancy experience			
		never-married female		married female	
		N=9,971	%	N=4,017	%
Currently pregnant	Yes	4	0.04	609	15.16
	No	9,967	99.96	3,408	84.84
Ever had an unwanted pregnancy	Yes	19	0.19	0	0
	No	9,952	99.81	4,017	100
Ever had a miscarriage, abortion, or stillbirth	Yes	4	0.04	305	7.59
	No	9,967	99.96	3,711	92.38
Ever had a live birth	Yes	10	0.1	2,939	73.16
	No	9,961	99.9	1,078	26.84
Total		**9,971**	**100**	**4,017**	**100**

Source: prepared by the author from 2017 IDHS data

4.2.1 Pregnancy Experience of Married Female Youth

Among the married female youth 73% had experienced a live birth 7.6% a miscarriage/abortion/stillbirth, and 15% were pregnant at the time of the survey (Table 4.4). No one reported having had an unwanted pregnancy.

Table 4.5 shows data about complications during pregnancy or labour experienced by 2,705 married female youth who had a live birth during the five years preceding the survey. A woman may have experienced more than one complication during labour, therefore the percentages in Table 4.5 could add to more than 100. The table shows that nearly one half (46.8%) of these young mothers reported experiencing prolonged labour. Nearly a fifth reported breaking water too early (i.e. more than six hours before delivery). Smaller proportions reported experiencing excessive vaginal bleeding (7.4%) and convulsions (1.3%). Among associated conditions during labour, nearly 59% reported feelings of anxiety, while others said they did not have enough strength to push the baby during delivery, which may be due to their anaemic condition, and just under a tenth (9.1%) said they had fever and foul-smelling vaginal discharge, which may be related to urinary tract infections.

Table 4.5 Complications and Associated Conditions During Labour among Married Female Youth who Had a Live Birth During the Five Years Preceding the Survey, Indonesia 2017

Type of complication	Percent of women experiencing the complication (N=2,705)
Prolonged labour	46.8
Excessive vaginal bleeding	7.4
Fever and foul-smelling vaginal discharge	9.1
Convulsions	1.3
Water broke more than 6 hours before baby was born	18.8
No strength to push	12.4
Feeling anxious	58.6

Note: It is not clear whether "Fever and foul-smelling vaginal discharge" is a pregnancy complication, but this symptom is included in the list of complications recorded in the survey.
Source: computed by the author from 2017 IDHS data

4.2.2 Pregnancy Experience of Never-married Female Youth

The univariate analysis of data about never-married female youth shows that only a very small proportion (<0.5%) were pregnant, had an unwanted pregnancy, ever had a miscarriage, abortion or stillbirth or had a live birth at the time of the survey (Table 4.4). However, it is not known whether those never-married female youth who were currently pregnant, had a miscarriage, abortion or stillbirth, or who had had a live birth, experienced these events from a wanted or an unwanted pregnancy.

4.2.3 Childbearing Experience of Married Female Youth

Table 4.6 shows the distribution of married female youth according to the number of children ever borne (CEB). About a quarter of these women have not yet borne a child, and 12.4% have borne two or more children, but the majority (60.7%) have so far borne only one child. Overall, the average number of children ever born by the married female youth is less than one (0.87).

Table 4.6 Distribution of Married Female Youth Aged 15-24 Years by Number of Children Ever Born, Indonesia 2017

Number of children ever born	Age 15-19		Age 20-24		Total Age 15-24	
	Number	%	Number	%	Number	%
0 child	359	51.4%	719	21.7%	1,078	26.8%
1 child	324	46.4%	2113	63.7%	2437	60.7%
2 children	15	2.1%	435	13.1%	450	11.2%
3 or more children	1	0.1%	50	1.5%	52	1.3%
Total					4,017	100.0%
Mean CEB					0.87	

Source: prepared by the author from 2017 IDHS data

The bivariate analysis of relationships between the number of children ever born (CEB) and socio-economic and demographic characteristics of married female youth shown in Table 4.7 reveals that CEB is statistically and highly significantly associated ($p < 0.001$) with age, household wealth quintile and Highest education of the women and that of their husbands. As expected, the 15-19 year-old youth have a larger proportion who have not had any children compared with 20-24 year-old Fertility appears to be inversely associated with household wealth quintile; for example married female youth belonging to the richest households show a larger proportion with no children ever born and this proportion gradually declines as household wealth quintile declines; except for the poorest quintile, which surprisingly shows a greater proportion of no children ever born compared to the “poorer” quintile. Expectedly, urban women, with a slightly larger proportion of no children ever born show lower fertility than rural women. Similarly, a negative association is observed between fertility and education of husband and education of the woman, and again the lowest education category appears to go against the trend of declining proportions of no children ever born with declining levels of education.

Table 4.7 Number of Children Ever Born to Married Female Youth by Background Characteristics, Indonesia 2017

Characteristics	Percentage of married women by CEB				Number of women (N=4,017)	Mean no. of children ever born
	No children	1 child	2 children	3 or more children		
Age in 5-year groups						
15-19	51.4	46.3	2.1	0.1	700	0.51
20-24	21.7	63.7	13.1	1.5	3,317	0.95
Chi.square value=288.591 DF= 3 Significance level<.001						
Household wealth quintile						
Poorest	24.3	58.6	14.3	2.8	937	0.96
Poorer	22.8	62.5	13.6	1.1	1,013	0.93
Middle	25.3	65.2	9.2	0.3	930	0.85
Richer	32.0	59.1	8.5	0.4	741	0.77
Richest	37.2	53.4	7.3	2.0	396	0.74
Chi.square value 96.641 DF=12 Significance level<.001						
Place of residence						
Urban	28.2	60.3	10.6	1.0	1,629	0.84
Rural	25.9	60.9	11.6	1.5	2,387	0.89
Chi.square value 4.981 DF=3 Significance level=.173						
Highest Education of the women						
No Education	35.7	28.6	25.0	10.7	28	1.15
Primary	21.1	61.5	14.7	2.7	790	0.99
Secondary	26.3	62.0	10.8	0.9	2,913	0.86
Higher	47.2	47.9	4.2	0.7	286	0.58
Chi.square value 129.344 DF=9 Significance level<.001						
Husband's highest Education						
No Education	34.9	32.6	30.2	2.3	43	1.02
Primary	20.9	63.2	13.6	2.3	1,034	0.98
Secondary	27.7	61.3	10.2	0.9	2,635	0.84
Higher	38.6	51.3	8.8	1.3	305	0.72
Chi.square value 77.88 DF=9 Significance level<.001						
Husband's age						
15-19	54.1	42.3	3.6	-	111	0.49
20-24	36.2	57.8	5.5	0.5	1,139	0.70
25 or more	21.9	62.6	13.8	1.7	2,767	0.96
Chi.square value 167.308 DF=6 Significance level<.001						

Source: Computed by the author from 2017 IDHS data

Table 4.8 shows the result of multivariate analysis to find the predictors of total children ever born among married female youth in Indonesia. The predicted response category of the variable 'Total Children Ever Born' in this analysis is 'Having 3 or More Children'. The result shows that age, household wealth quintile, woman's education and husband's education and age have statistically significant impacts on total number of children ever born (p-value <0.05). The value of the woman's age and husband's age coefficient is positive

(1.64 and 0.47, respectively), which suggests that as respondent's age as well as husband's age increases the likelihood of having three or more children will increase. To elaborate, a one-year increase in a women's age would increase the chance of her having three or more children by 1.4 times, all other predictors remaining constant. But, a one-year increase in a husband's age will increase the chances of the woman having three or more children by a much smaller amount (0.47 times), all other predictors remaining constant. In other words, woman's age has a greater impact on the chances of having three or more children. On the other hand, the coefficient (estimates) for household wealth quintile, women's education, and husband's education are all negative (-0.17, -0.45, and -0.19 respectively), which indicates that as wealth, educational level of both the women and their husband increases, the likelihood of having three or more children decreases.

Table 4.8 Predictors of Total Children Ever Born to Married Female Youth, Indonesia 2017

Predictors		Estimate	df	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Threshold (No. of children ever born)	No children	-0.63	1	<0.001	-0.972	-0.306
	1 child	2.60	1	<0.001	2.267	2.946
	2 children	5.05	1	<0.001	4.627	5.478
Location	Women's Age (5-year age group)	1.41	1	<0.001	1.238	1.599
	Household Wealth quintile	-0.17	1	<0.001	-0.226	-0.117
	Women's Highest Education	-0.45	1	<0.001	-0.595	-0.323
	Husband's highest education	-0.19	1	0.002	-0.317	-0.069
	Husband's age (5-year age group)	0.47	1	<0.001	0.350	0.605

Source: Computed by the author from 2017 IDHS data

4.2.4 Age at First Birth

The average age at which female youth gave birth to their first child was 19.2 years (Table 4.9). The data also show that female youth started childbearing at younger ages in recent times as indicated by a later age at first childbirth among the group.

Table 4.9 Age at First Birth of Married Female Youth by Present Age, Indonesia 2017

Present Age	Total Number of women		Mean age at 1st birth	min	max
	never gave birth	ever gave birth			
15-19	359 (51.3%)	341 (48.7%)	16.96		
20-24	719 (21.7%)	2,598 (78.3%)	19.44		
15-24	1,078 (26.8%)	2,939 (73.2%)	19.15	10	24

Source: Computed by the author from 2017 IDHS data

In addition, it is also found that the younger the age of first marriage the more likelihood there is to experience childbearing (Table 4.10).

Table 4.10 Age at First Birth of Married Female Youth by Age at First Marriage/In-union, Indonesia 2017

Age at first marriage/in-union	Total Number of women		Mean age at 1st birth	min	max
	never gave birth	ever gave birth			
under-15	38 (19.4%)	158 (80.6%)	13.29		
15-19	527 (20.1%)	2,091 (79.9%)	17.77		
20-24	514 (42.7%)	689 (57.3%)	21.09		
15-24	1,078 (26.9%)	2,939 (73.1%)	19.15	10	24

Source: Computed by the author from 2017 IDHS data

Furthermore, Table 4.11 shows that the average age at first marriage/in-union among female youth is 18.25. In addition recently younger youth began living together with their first partner 2.3 years earlier than older youth (16.28 versus 18.66).

Table 4.11 Age at First Marriage of Married Female Youth by Present Age, Indonesia 2017

Female Youth's Present Age	Age at first marriage/ in-union			Mean age at 1st marriage	min	max
	under-15	15-19	20-24			
15-19	74 (10.6%)	626 (89.4%)	-	16.28	10	19
20-24	122 (3.7%)	1,992 (60.1%)	1,203 (36.3%)	18.66	10	24
15-24	196 (4.9%)	2,618 (65.2%)	1,203 (29.9%)	18.25	10	24

Source: Computed by the author from 2017 IDHS data

Table 4.12 Age at First Birth by Background Characteristics Among Female Youth Who Ever Gave Birth, Indonesia 2017

Characteristics	Percentage of married women who ever gave birth by age of first birth			Mean age at first childbirth	Number of married women ever gave birth (N=2,939)
	under-15	15-19	20-24		
Mid-value	12.5	17.5	22.5		
Place of residence					
Urban	0.4	48.5	51.1	20	1,170
Rural	1.4	61.1	37.6	19.3	1,768
χ^2 value=56.303 DF= 2 Sig.level=.000					
Wealth quintile					
Poorest	2.3	68.9	28.8	18.8	708
Poorer	0.6	62.3	37.1	19.3	782
Middle	0.3	51.9	47.8	19.9	695
Richer	0.2	43.3	56.5	20.3	504
Richest	1.6	37.5	60.9	20.5	248
χ^2 value=162.42 DF=8 Sig.level=.000					
Woman's Highest Education					
No Education	22.2	66.7	11.1	16.9	18
Primary	2.6	72.2	25.2	18.6	622
Secondary	0.4	54.1	45.5	19.8	2,147
Higher	0	17.2	82.8	21.6	151
χ^2 value=286.67 DF=6 Sig.level=.000					
Husband's educational level					
No Education	3.6	71.4	25	18.6	28
Primary	2.1	69.4	28.5	18.8	817
Secondary	0.6	52.8	46.6	19.8	1,906
Higher	0.5	28.2	71.3	21	188
χ^2 value=154.3 DF=6 Sig.level=.000					

Source: Computed by the author from 2017 IDHS data

Since there were several variables which were found to be statistically significantly associated with the age at first birth (Table 4.12), some or all of which might be simultaneously influencing this characteristic, a multivariate statistical analysis was the most appropriate method for examining the effects of one variable by keeping the effects of the other variables constant. In this multivariate analysis, age at first birth is taken as the dependent variable and the socio-economic variables (the background variables in Table 4.12) are the independent or predictor variables. The dependent variable in this case is formulated as an ordinal categorical variable, where the categories are age 10-14, and age 15-19. As such the appropriate multivariate analysis was ordinal

logistics regression. The predicted response category of the dependent variable 'Age of first birth' in this analysis is 'Age 20-24'. The result in Table 4.13 shows that educational level, household wealth quintile, husband's educational level, and place of residence have statistically higher significant association with age at first birth (p-value <0.001). The coefficient value of the educational level, wealth quintile, and husband's educational level are positive (0.85, 0.18 and 0.41, respectively), which suggests that as educational level, wealth quintile, and husband's educational level increase, the likelihood of giving birth at the age range between 20 to 24 will increase. The value of place of residence (Urban) is also positive (0.286), which suggests being an urban resident, the likelihood of first birth at ages 20 to 24 will also increase

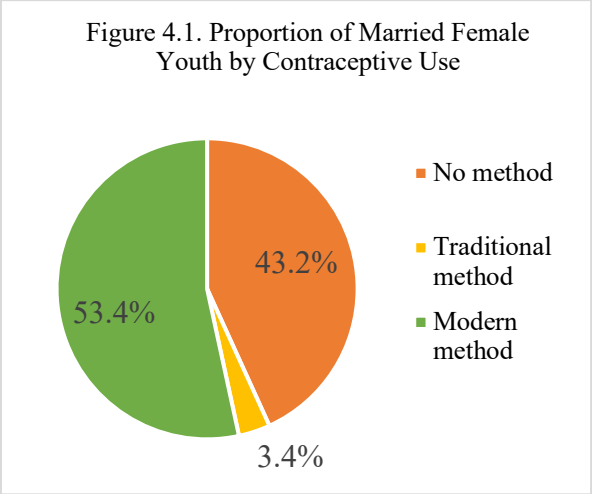
Table 4.13 Predictors of Age at First Birth of Married Female Youth, Indonesia 2017

Parameter Estimates		**Estimate**	df	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Threshold*	Age 10-14	-2.150	1	0.000	-2.619	-1.681
	Age 15-19	3.040	1	0.000	2.671	3.410
Location	Educational level	0.857	1	0.000	0.677	1.037
	Wealth quintile	0.188	1	0.000	0.118	0.259
	Partner's education level	0.415	1	0.000	0.261	0.569
	Residence (Urban)	0.286	1	0.001	0.120	0.453
	Residence (Rural)	0[a]	0			

*indicate where the latent variable is cut to make the groups that observed in the data.
Source: Computed by the author from 2017 IDHS data

4.3 Contraceptive Use Among Married Female Youth in Indonesia

Figure 4.1 shows that in 2017, 53.4% of the married female youth in Indonesia were using a modern contraceptive, 3.4% were using traditional contraceptives and 43.2% were not using any contraception. Thus, the contraceptive prevalence rate (any method) was 56.8%. Modern methods consist of sterilisation, intrauterine device, pill, implants, injectables, condom, diaphragm, and lactational amenorrhea method. Traditional methods include rhythm, withdrawal and other traditional.



Source : Computed by the author from 2017 IDHS data

Table 4.14 shows that contraceptive use among married female youth is positively associated with age, Highest educational level, household wealth quintile, number of living children, knowledge of contraceptive methods, husband's Highest education level, and discussion about family planning with friends and partner. These associations are statistically highly significant with p-values less than 0.01. The prevalence of contraceptive use among married female youth increased with age, number of living children, discussion about family planning with partner or friends, and knowledge of family planning methods. For example, 59% of the married female youth aged 20-24 years were using contraceptives as opposed to 45% of those aged 15-19. Nearly three quarters of the married female youth who have two or more children were using contraceptives compared to only about a tenth of those who had no children. Of course, the older married female youth were also more likely to have a larger number of living children. It is also seen that discussion about family planning with partner or friends, and having knowledge of family planning methods, was likely to increase the chances of using contraceptives. The associations of education of the married female youth and their husbands and that of household wealth with contraceptive use were, however, found to be somewhat parabolic. Of the five household wealth categories, namely poorest, poorer, middle, richer and richest, contraceptive prevalence was the highest among women living in poorer households and declined thereafter as household wealth increased. Similarly, of the four categories of education of

the women and their husbands, namely No education, Primary, Secondary and Higher, contraceptive prevalence was the highest among primary educated women or women with primary educated husbands but declined thereafter as education of the women or their husbands increased. It is quite likely that women or men with Higher education belonged to the younger age-cohort of married female youth, who are found to have lower contraceptive prevalence. Interestingly, married youth living in rural areas showed a higher contraceptive prevalence than those living in urban areas.

Unmet need for family planning is more prevalent among females who lived in urban areas, knew no contraceptive method, neither partner being educated, and never having a family planning discussion with partner/friend/family (Table 4.14).

Table 4.14 Need and Demand for Family Planning Among Married Female Youth by Background Characteristic, Indonesia 2017

Characteristics	No need for FP (N= 1.362)	Demand for Family Planning (N=2.655)				FP Total demand (Unmet + Met need)	No. of women (N= 4.017)	% demand satisfied (Met Need / Total Demand)
		Unmet Need		Met Need (currently using)				
		Spacing	Limiting	Spacing	Limiting			
Age in 5-year groups								
15-19	46.40%	7.00%	1.40%	43.10%	2.00%	62.00%	700	72.8
20-24	31.30%	8.70%	0.70%	53.00%	6.30%	78.20%	3316	75.8
		χ^2 value=1.07 Sig. level=.000						
Place of residence								
Urban	34.40%	10.20%	1.20%	47.70%	6.60%	77.00%	1630	70.5
Rural	33.60%	7.20%	0.70%	53.60%	4.90%	74.30%	2388	78.8
		χ^2 value=15.64 Sig. level <.001						
Highest Education								
Primary&below (includes No Education)	64.25%	17.40%	3.85%	34.85%	10.85%	88.20%	817	69.8
Secondary	32.70%	8.80%	0.90%	52.10%	5.40%	77.00%	2913	74.7
Higher	52.10%	9.80%	0.70%	35.30%	2.10%	58.40%	286	64.1
		χ^2 value=29.08 Sig. level <.001						
Wealth quintile								
Poorest	32.90%	9.20%	0.70%	52.20%	5.00%	77.10%	937	74.2
Poorer	29.90%	8.20%	1.00%	53.40%	7.60%	79.30%	1014	76.9
Middle	32.30%	6.50%	1.20%	54.40%	5.70%	75.30%	929	79.7
Richer	38.00%	9.70%	0.10%	48.10%	4.10%	71.90%	740	72.6
Richest	42.90%	9.30%	1.50%	42.40%	3.80%	67.90%	396	68
		χ^2 value=11.10 Sig. level=0.025						

Number of living children								
No children	85.90%	4.70%	0.20%	9.20%	0.00%	19.00%	1106	48.6
1 child	14.80%	9.50%	0.70%	71.40%	3.60%	95.30%	2458	78.7
2 children or more	10.40%	11.50%	3.30%	44.90%	29.90%	104.40%	452	71.6
		χ^2 value=64.91 Sig. level<.001						
Knowledge of any method								
Knows no method	79.30%	13.80%	6.90%	0.00%	0.00%	41.40%	29	0
Knows only traditional	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0	0
Knows modern method	33.60%	8.40%	0.80%	51.60%	5.60%	75.60%	3987	75.7
		χ^2 value=36.10 Sig. level <.001						
Partner's education Level								
No education	20.50%	29.50%	2.30%	34.10%	13.60%	111.40%	44	42.9
Primary	29.10%	7.70%	0.80%	54.90%	7.40%	79.40%	1034	78.6
Secondary	34.40%	8.00%	0.90%	51.60%	5.00%	74.60%	2634	75.9
Higher	47.50%	10.50%	0.00%	38.40%	3.60%	63.00%	305	66.7
		χ^2 value=29.19 Sig. level <.001						
FP discussion with partner								
No	38.10%	8.70%	0.90%	46.90%	5.40%	71.50%	2988	73.1
Yes	21.60%	7.40%	0.80%	64.10%	6.10%	86.60%	1027	81.1
		χ^2 value=11.83 Sig. level<.001						
FP discussion with friends								
No	44.70%	9.70%	0.70%	39.20%	5.70%	65.70%	1561	68.4
Yes	27.00%	7.60%	0.90%	58.90%	5.50%	81.50%	2455	79
		χ^2 value=23.87 Sig. level<.001						
TOTAL	33.90%	8.4	0.9	51.3	5.6	66.2	4017	86

Source: Computed by the author from 2017 IDHS data

Since contraceptive prevalence among married female youth (the dependent variable) was found to be associated with a number of background or socio-economic and demographic variables (predictor or independent variables), some or all of which were seen to be simultaneously influencing contraceptive prevalence, a multivariate statistical analysis was chosen as the most appropriate analytical method to examine the influence of each predictor variable on the dependent variable. The dependent variable was conceptualised as a binary variable, namely contraceptive use or no contraceptive use. Therefore, a binary logistic regression was the most appropriate method of multivariate analysis to find the predictors of contraceptive use among married female youth in Indonesia by including all significant variables from the bivariate analysis. The result of the binary logistic regression can be seen in Table 4.15. Of the nine predictor variables considered in Table 4.14, only five emerged as statistically significant covariates ($p<0.05$) in the binary logistic regression. The odds ratios (Exp B)

in Table 4.15 indicate that there is a negative relationship between women's age and husband's education with contraceptive use as shown by the odds ratios of 0.76 and 0.85 respectively. This suggests that as the age of the women and their husband's education increases, the likelihood of using contraceptives decreases. However, the predictors with odds ratios greater than 1 indicate that as the value of the predictor increases so does the likelihood of using contraceptives. The number of living children is associated with the highest likelihood of using contraceptives, in fact the chances of women using contraceptives becomes almost ten times higher as their number of living children increases. Discussion about family planning with the husband or friends also emerged as a statistically significant predictor of contraceptive use. Women who have had such discussion were about 1.7 times more likely to use contraceptives than women who have not had such a discussion.

Table 4.15 Predictors of Met Need or Contraceptive Use among of Married Female Youth, Indonesia 2017

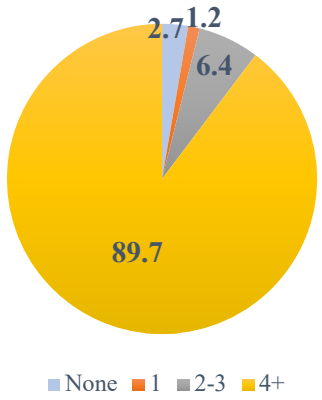
Covariates	Exp(B) Odds Ratio	Sig.	95% C.I.for EXP(B)	
			Lower	Upper
Age in 5-year groups	0.758	0.009	0.615	0.934
Type of place of residence (ref=*Urban*)				
Rural	1.147	0.103	0.973	1.352
Highest educational level	0.897	0.199	0.76	1.059
Household Wealth quintile	1.006	0.853	0.94	1.078
Number of living children	9.747	0.000	8.224	11.552
Knowledge of any method (ref=*Knows no method)*				
Knows only traditional method	1.531	1.000	0	
Knows modern method	453.7	0.997	0	
Husband/partner's education level	0.851	0.035	0.733	0.989
Discussed practice of family planning with husband (ref=*No*)				
Yes	1.728	0.000	1.447	2.064
Discussed practice of family planning: friends (ref=*No*)				
Yes	1.682	0.000	1.443	1.962

Source: Computed by the author from 2017 IDHS data

4.4 Antenatal Care Visits by Married Female Youth According to Background Characteristics

In this section, antenatal visits by 2,705 married female youth, who had had a livebirth in the five years preceding the 2017 survey has been analysed according to various socio-demographic variables. It is seen in Figure 4.2 that nearly 90% of married female youth giving birth in the last five years in Indonesia had at least four ANC visits.

Figure 4.2. Proportion of Married Female Youth by Number of ANC Visit



Source: Computed by the author from 2017 IDHS data

Table 4.16 shows the number of ANC visits by married female youth according to their socio-economic and demographic characteristics. The number of ANC visits is statistically and high significantly associated with age, education level, husband's education level, discussion of family planning with partner, household wealth quintile and place of residence. The prevalence of at least four ANC visits was found to increase with age, Highest educational level, husband's educational level, and household wealth quintile. 91.2% of 4+ ANC visits compared to those with No education who had only 37.5% with 4+ ANC visits. Married female youth who live in urban areas also had a higher prevalence of 4+ ANC visits (Table 4.16).

Table 4.16 Number of ANC Visits by Married Female Youth who had had a Live Birth in the Past Five Years by Background Characteristics, Indonesia 2017

Characteristics	Percentage of married female youth by number of ANC visit				Number of female (N=2,705)
	None	1	'2-3	4+	
Age in 5-year groups					
15-19	6.5	1.2	10.6	81.8	341
20-24	2.2	1.1	5.8	90.9	2,365
χ^2 value=33.015 DF= 3 Sig.level=.000					
Level of Education					
No education	37.5	6.3	18.8	37.5	16
Primary	5.2	2.2	5.4	87.2	541
Secondary	1.8	0.9	6.6	90.7	2,002
Higher	1.4	0.7	6.8	91.2	148
χ^2 value=110.91 DF=9 Sig.level=.000					
Husband's education Level					
No education	12.0	0.0	16.0	72.0	25
Primary	4.4	1.4	6.5	87.7	724
Secondary	2.1	1.1	6.2	90.7	1,772
Higher	0.5	1.1	6.6	91.8	183
χ^2 value=27.546 DF= 9 Sig.level=.001					
Discussed about family planning with husband					
No	3.2	1.5	7.2	88.2	1,970
Yes	1.5	0.5	4.5	93.5	795
χ^2 value=18.190 DF= 3 Sig.level=.000					
Household Wealth quintile					
Poorest	6.3	2.3	10	81.3	647
Poorer	2.1	2.1	5.8	90.0	713
Middle	1.9	0	5.9	92.3	646
Richer	0.9	0.2	4.3	94.6	464
Richest	0.9	0.4	3.4	95.3	235
χ^2 value=95.569 DF=12 Sig.level=.000					
Place of residence					
Urban	1.6	1	4.3	93.0	1,091
Rural	3.4	1.3	7.8	87.5	1,614
χ^2 value=22.619 DF= 3 Sig.level=.000					

Source: Computed by the author from 2017 IDHS data

To calculate the predictors of antenatal care visits, which is in ordinal scale, among married female youth who had a live birth five years preceding the survey in Indonesia, ordinal regression was used as multivariate analysis by including the significant variables on the bivariate analysis (Table 4.17). The predicted response category of the variable 'number of ANC visits' in this analysis is '4+ visits'. The result shows that age, wealth quintile, having No education and having no discussion about family planning with husband have a statistically highly significant impact on the number of antenatal care visits (p-value <0.001). The value of the woman's age and wealth quintile coefficient

are positive (0.71 and 0.36, respectively), which suggests that as age and wealth quintile of the young mother increases the likelihood of having at least four ANC visits will also increase. This means a one-year increase in a woman's age would increase the chance of her having four ANC visits by 0.7 times, all other predictors remaining constant. Similarly, a one-level increase of household wealth quintile would increase this by 0.36 times. On the other hand, the coefficient (estimates) for having No education and having no family planning discussion with husband are negative (-2.05 and -0.58, respectively) which indicates that married female youth with No education and who have never discussed family planning with their husband are less likely to have their pregnancy checked at least four times.

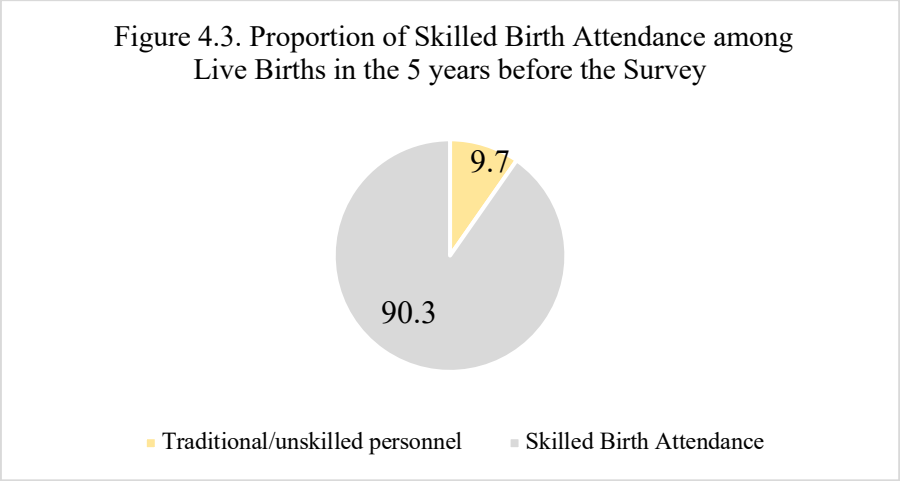
Table 4.17 Predictors of Antenatal Care Visits Among Married Female Youth who Had a Live Birth in the Preceding Five Years, Indonesia 2017

Parameter Estimates		Estimate	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Threshold	ANC visits (None)	-2.603	0.000	-3.515	-1.692
	ANC visits (1 visit)	-2.215	0.000	-3.118	-1.312
	ANC visits (2-3 visits)	-1.126	0.013	-2.017	-0.235
Location	Age in 5-year group	0.713	**0.000**	0.397	1.029
	Wealth quintile	0.365	**0.000**	0.235	0.494
	Husband's educational level	-0.014	0.910	-0.262	0.234
	Place of residence (Urban)	0.275	0.072	-0.025	0.574
	Place of residence (Rural)	0[a]			
	Educational Level (No education)	-2.053	**0.000**	-3.208	-0.898
	Educational Level (Primary)	0.315	0.364	-0.365	0.994
	Educational Level (Secondary)	0.389	0.215	-0.225	1.003
	Educational Level (Higher)	0[a]			
	Discussed about family planning with husband (No)	-0.586	**0.000**	-0.906	-0.267
	Discussed about family planning with husband (Yes)	0[a]			

'a= this parameter is set to zero because it is redundant.
Source: Computed by the author from 2017 IDHS data

4.5 Skilled Birth Attendance among Young Mothers in Indonesia

Among female youth in Indonesia who had a live birth in the five years preceding the survey, 90% were assisted by skilled health providers which includes obstetricians, midwives, and nurse (Figure 4.3)



Source: Computed by the author from 2017 IDHS data

Table 4.18 shows choice of the type of birth attendant by married female youth in this category according to various background characteristics. These characteristics are age, place of residence, woman and husband's level of education, household wealth quintile, health insurance coverage, insurance coverage, number of living children, number of ANC visits, previous pregnancy complications, knowledge about maternal bleeding during childbirth and discussion of family planning with husband/partner/ friends/neighbours, all of which have statistically significant associations with the choice of the type of birth attendant. Table 4.18 also shows that among the background characteristics given in the binary category older age of the female youth, urban residence, having health insurance coverage, having a previous pregnancy complication, having knowledge of maternal bleeding during childbirth and having discussions about family planning with husbands/partners and friends/neighbours, are more likely to be associated with deliveries by a skilled birth attendant. Among the background characteristics given in multiple categories, Higher levels of education of both the female youth and their husbands, richer levels of household wealth quintile, greater number of living children and higher frequency of ANC visits are associated with more frequent use of skilled health providers at birth.

Table 4.18 Choice of the Type of Birth Attendant by Married Female Youth who had had a Live Birth in the 5 Years Before 2017 According to Various Background Characteristics, Indonesia 2017

Characteristics	Percentage of married women by Skilled Birth Attendance		No. of women (N=2,705)
	Traditional/ unskilled personnel	Skilled Birth Provider	
Age in 5-year groups			
15-19	12.9%	87.1%	341
20-24	9.3%	90.7%	2,365
χ^2 value=4.508 DF=1 Sig.level=**0.034**			
Place of residence			
Urban	6.0%	94.0%	1,091
Rural	12.2%	87.8%	1,614
χ^2 value=28.107 DF=1 Sig.level**<0.001**			
Woman's Level of Education			
No education	66.7%	33.3%	15
Primary	20.1%	79.9%	541
Secondary	7.1%	92.9%	2,002
Higher	1.3%	98.7%	149
χ^2 value=150.197 DF=3 Sig.level<**0.001**			
Household wealth quintile			
Poorest	21.7%	78.3%	646
Poorer	10.9%	89.1%	713
Middle	4.6%	95.4%	647
Richer	2.6%	97.4%	464
Richest	1.3%	98.7%	235
χ^2 value=171.376 DF=4 Sig.level**<0.001**			
Covered by health insurance			
No	12.0%	88.0%	1,242
Yes	7.7%	92.3%	1,463
χ^2 value=14.073 DF=1 Sig.level**<0.001**			
Number of Living Children			
No children	25.9%	74.1%	27
1 child	7.7%	92.3%	2,234
2 or more children	18.9%	81.1%	444
χ^2 value=61.277 DF=2 Sig.level**<0.001**			
Number of ANC visits			
None	50.7%	49.3%	73
1	34.4%	65.6%	33
2-3	22.1%	77.9%	172
4+	7.3%	92.7%	2,427
χ^2 value=207.946 DF=3 Sig.level**<0.001**			
Have any complication during pregnancy			
No	10.7%	89.3%	2,296
Yes	4.4%	95.6%	409
χ^2 value=15.548 DF=1 Sig.level**<0.001**			
Knowledge about maternal bleeding			
No	12.2%	87.8%	1,618
Yes	6.0%	94.0%	1,087
χ^2 value=29.006 DF=1 Sig.level**<0.001**			
Husband's age			
15-19	16.0%	84.0%	51
20-24	8.6%	91.4%	701

25 or more	9.9%	90.1%	1,953
χ^2 value=3.432 DF=2 Sig.level=0.180			
Husband's education Level			
No education	40.0%	60.0%	26
Primary	17.0%	83.0%	724
Secondary	6.8%	93.2%	1,772
Higher	4.4%	95.6%	183
χ^2 value=92.283 DF=3 Sig.level**<0.001**			
Discussion of family planning with husband or partner			
No	10.7%	89.3%	1,909
Yes	7.3%	92.7%	796
χ^2 value=7.606 DF=1 Sig.level=**0.006**			
Discussion of family planning with friends/neighbours			
No	10.5%	89.5%	1,478
Yes	8.8%	91.2%	1,227
χ^2 value= 2.169 DF=1 Sig.level=0.141			

Source: Computed by the author from 2017 IDHS data

The previous table (Table 4.18) shows the association of the choice of skilled birth attendant (SBA) at delivery with a number of background characteristics of the female youth taken one at a time. However, it is possible that more than one background characteristic simultaneously influences the choice of SBA. This possibility is addressed by performing a multivariate statistical analysis of the choice of SBA by a female youth with several background variables taken together. For the multivariate analysis, the dependent variable is the choice of SBA while the independent or predictor variables are the background variables that have shown statistically significant associations with the dependent variable in Table 4.18. The results of the multivariate analysis are shown in Table 4.19. The predictor variables that have statistically significant relationships with SBA attendant ($p \leq 0.05$) and the odds ratios of such relationship are described as follows. Every level of increase in women's education would increase her choice SBA by a factor of 2, all other predictors remaining constant. But, a one level increase in husband's/partner's education would increase the likelihood of the woman choosing SBA by a much smaller amount (1.3 times). In other words, woman's educational level has a larger impact on the chances of choosing SBA, which is as it should be. Every level of increase in household wealth quintile enhances the chances of a married female youth choosing SBA by 1.8 times. Having insurance coverage increases the chances of a married female youth choosing SBA by a factor of

1.3. An increase of one living child reduces the likelihood of choosing SBA by 34%. Each unit of increase in the number of ANC visits almost doubles the likelihood of choosing an SBA. Female youth who had a complication during their last pregnancy are 1.8 times more likely to choose SBA compared with those who did not have any prior pregnancy complication. And finally, women who are aware about the possibility of excessive bleeding during labour are 1.4 times more likely to choose SBA than those women who did not have such awareness.

Table 4.19 Predictors of the Choice of Skilled Birth Attendance among Married Female Youth, Indonesia 2017

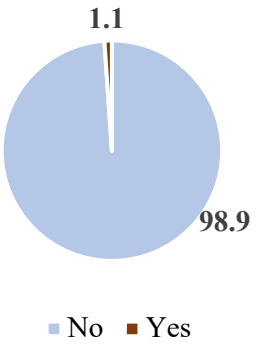
Covariates	Sig.	Exp (B)	95% C.I.for EXP(B)	
			Lower	Upper
Current age	0.833	1.008	0.934	1.088
Type of place of residence (ref=*Urban*)				
Rural	0.980	0.996	0.715	1.387
Highest educational level	0.000	**1.985**	1.502	2.623
Wealth quintile	0.000	**1.759**	1.496	2.067
Insurance coverage (ref=*No*)				
Yes	0.049	**1.328**	1.002	1.761
Number of living children	0.003	**0.665**	0.508	0.869
Number of ANC visits	0.000	**1.918**	1.624	2.264
Had complication during pregnancy (ref=*No*)				
Yes	0.034	**1.733**	1.041	2.884
Know that during labour and after delivery an excessive bleeding could happen (ref=*No*)				
Yes	0.045	**1.381**	1.007	1.894
Husband's education level	0.030	**1.341**	1.029	1.748
Discussed practice of family planning with husband (ref=*No*)				
Yes	0.384	1.160	0.830	1.621

Source: Computed by the author from 2017 IDHS data

4.6 Stillbirth among Young Mothers in Indonesia

Figure 4.4 shows that 1.1 per cent of married female youth in Indonesia had had a stillbirth as of the time of interview. However, this small percentage accounts for 44 respondents and this number is considered sufficient in size for an analysis of association.

Figure 4.4. Proportion of Stillbirth among Married Female Youth in Indonesia



Source: Computed by the author from 2017 IDHS data

The proportion of stillbirths among married female youth in Indonesia by background variables is shown in Table 4.20. Seven out of the 15 variables are found to have a statistically significant association with the incidence of stillbirths at 95% or more confidence level ($p<0.05$). However, the strength of association in each case is very weak as indicated by the low values of χ^2 Chi-square, even among the associations that are statistically significant. This could be a function of the relatively small sample size, but it is worth mentioning that the incidence of stillbirth among the married female youth is inversely associated with educational level, number of children ever born, number of ANC visits, and discussion of family planning with friends/neighbours/relatives. Women living in households with untreated drinking water were also slightly more prone to have had a stillbirth.

Table 4.20 Stillbirths Among Married Female Youth by Background Characteristics, Indonesia 2017

Characteristics	Proportion of Stillbirths				Number of women (N=4,017)
	Yes		No		
	f	%	f	%	
Age in 5-year groups					
15-19	5	0.7	695	99.3	700
20-24	39	1.2	3.278	98.8	3,317
χ^2 value=1.136 DF=1 Sig.level=.286					
Highest Education					
Primary and below	15	1.80%	803	98.20%	818
Secondary & Higher	29	0.90%	3,170	99.10%	3199
χ^2 value=5.170 DF=1 Sig.level= .023					
Wealth quintile					
Poorest	15	1.60%	922	98.40%	937
Poorer	11	1.10%	1,003	98.90%	1014

Middle	11	1.20%	919	98.80%	930
Richer and higher	7	0.60%	1,130	99.40%	1137
χ^2 value=4.693 DF=3 Sig.level=.196					
Place of residence					
Urban	17	1.00%	1,612	99.00%	1629
Rural	27	1.10%	2,361	98.90%	2388
χ^2 value=0.068 DF=1 Sig.level=0.795					
Husband's highest Education					
Primary and below	12	1.10%	1,065	98.90%	1077
Secondary & Higher	32	1.10%	2,908	98.90%	2940
χ^2 value=0.005 DF=1 Sig.level= .945					
Total children ever born					
No children	25	2.30%	1,053	97.70%	1078
1 child	17	0.70%	2,420	99.30%	2437
2 or more children	2	0.40%	500	99.60%	502
χ^2 value=20.712 DF=2 Sig.level= **<.001**					
Source of drinking water					
Treated water	11	0.70%	1,583	99.30%	1594
Untreated water	33	1.40%	2,389	98.60%	2422
χ^2 value=4.011 DF=1 Sig.level= **.045**					
Ever had STIs					
No	37	1.10%	3,231	98.90%	3268
Yes	7	0.90%	742	99.10%	749
χ^2 value=0.220 DF=1 Sig.level= .639					
Had any complication during pregnancy					
No	38	1.10%	3,569	98.90%	3607
Yes	6	1.50%	404	98.50%	410
χ^2 value=.571 DF=1 Sig.level= .450					
Ever received Tetanus toxoid injection					
No	13	1.00%	1,241	99.00%	1254
Yes	31	1.10%	2,732	98.90%	2763
χ^2 value=.058 DF=1 Sig.level= .810					
Number of ANC visits (N=2,706)					
3 or fewer visits	5	1.80%	273	98.20%	278
4 or more	13	0.50%	2,415	99.50%	2428
χ^2 value=6.023 DF=1 Sig.level= **.014**					
Discussed about family planning with friends /neighbors/ relatives					
No	27	1.70%	1,534	98.30%	1561
Yes	17	0.70%	2,438	99.30%	2455
χ^2 value=9.473 DF=1 Sig.level=**.002**					
Told about pregnancy complications					
No	30	1.30%	2,264	98.70%	2294
Yes	14	0.80%	1,709	99.20%	1723
χ^2 value=2.227 DF=1 Sig.level= .136					

Source: Computed by the author from 2017 IDHS data

There were seven variables which had statistically significant associations with the possibility of a married female youth to have had a stillbirth. Since all these seven variables appear to simultaneously influence the occurrence of stillbirths and since the influence of each variable can only be examined one at a time in a bivariate analysis, a multivariate analysis is needed. However,

in view of the fact that the sample of married female youth who had a stillbirth is very small and that all of the statistically significant associations observed in the bivariate analysis (Table 4.20) are very week a multivariate analysis of this sample of observations is not deemed necessary.

4.7 Low Birth Weight of Reported Birth among Young Mothers in Indonesia

Among live births to young mothers that occurred in the five years preceding the 2017 survey, 88% had a reported birth weight from either a written record or the mother's recall (Figure 4.5). Among infants with a reported birth weight, 4.6% had a low birth weight (Figure 4.6).

Figure 4.5. Proportion of Birth Weight Report among Young Mothers

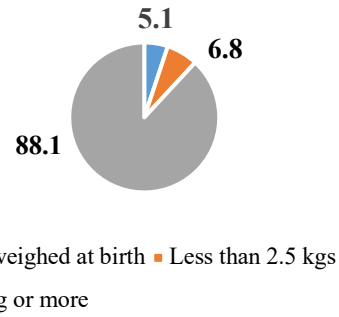
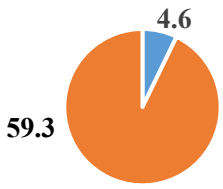


Figure 4.6. Proportion of Baby Birth Weight among Live Birth that Reported the Birth Weight 5 years Preceding the Survey



Source: computed by author from 2017 IDHS data

Table 4.21 explains baby birth weight among married female youth by their background characteristics. Mother's age at birth, number of ANC visits, and having a pregnancy complication, have a statistically significant impact on baby birth weight. The prevalence of LBW is higher among births to mothers who gave birth before 15 years of age, mothers who did not have an ANC visit and mothers who had a complication during their previous pregnancies.

Table 4.21 Birth Weight among Married Female Youth by Background Characteristics, Indonesia 2017

Characteristics	Percentage of married female youth who have baby birth weight reported		Number of female (N=2,569)
	Less than 2kg	2.5kg or more	
Age at birth			
Under-15	23.1	76.9	13
15-19	7.7	92.3	1,299
20-24	6.5	93.5	1,257
Chi.square value 6.247 DF= 2 Sig. level=**.044**			
Smokes cigarette			
No	7.2	92.8	2,545
Yes	0	100	24
Chi.square value 1.791 DF= 1 Sig. level=.181			
Informed about pregnancy complication			
No	7.8	92.2	898
Yes	6.9	93.1	1,671
Chi.square value 0.729 DF= 1 Sig. level=.393			
Having ANC during pregnancy			
None	17.1	82.9	41
1 time	8.7	91.3	23
2-3 times	16.2	83.8	155
4+ times	6.4	93.6	2,350
Chi.square value 27.333 DF=3 Sig. level=**.000**			
Wealth quintile			
Poorest	8.9	91.1	559
Poorer	7.6	92.4	681
Middle	6	94	635
Richer	7	93	459
Richest	5.5	94.5	235
Chi.square value 5.158 DF= 4 Sig. level=.271			
Place of residence			
Urban	6.7	93.3	1,072
Rural	7.5	92.5	1,497
Chi.square value 0.647 DF= 1 Sig. level=.421			
Highest Education			
No education	0	100	6
Primary	8	92	486
Secondary	7	93	1,932
Higher	6.2	93.8	145
Chi.square value 1.246 DF=3 Sig. level=.742			
Having complication during pregnancy			
No	6.6	93.4	2,171
Yes	10.3	89.7	398
Chi.square value 6.774 DF=1 Sig. level=**.009**			
Ever had a terminated pregnancy			
No	7.4	92.6	2,388
Yes	3.9	96.1	180
Chi.square value 3.124 DF=1 Sig. level=.077			

Source: Computed by the author from 2017 IDHS data

Table 4.22 shows the multivariate analysis to find the predictors of baby birth weight born to female youth who had a live birth in the five years preceding the survey and gave a baby birth weight report, by excluding the non-

significant variables on the bivariate analysis. The predicted category of the dependent variable in this analysis is 'birth weight 2.5kg or more'. The results show that: each increase of ANC visit during the last pregnancy of the female youth, increases the chances of the baby having a birth weight of 2.5kg or more. Married female youths who were free from any pregnancy complications are more likely to have a baby birth weight of 2.5kg or more compared to women who had complications.

Table 4.22 Predictors of Baby Birth Weight among Married Female Youth that had had Livebirth Within 5 Years Preceding the Survey, Indonesia 2017

Parameter Estimates		Estimate	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Threshold	Birth weight (less than 2kg)	-0.760	**0.033**	-1.456	-0.063
Location	ANC visit	0.492	**<.001**	0.274	0.709
	During pregnancy having complication (No)	0.508	**0.007**	0.140	0.875
	During pregnancy having complication (Yes)	0[a]			

Source: Computed by the author from 2017 IDHS data

4.8 Sexually Transmitted Infections (STIs) Among Married Youth in Indonesia

Figures 4.7 and 4.8 show that 18.6% of married female youth and 4.1% married male youth reported having an STI or STI symptoms.

Figure 4.7.
STIs among Married Female Youth

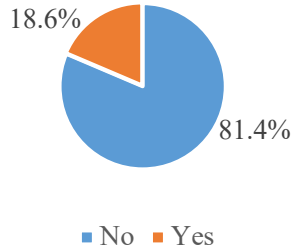
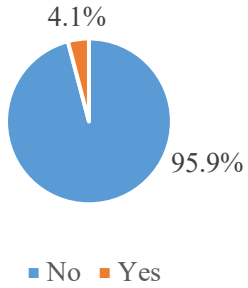


Figure 4.8.
STIs among Married Male Youth



Source: Computed by the author from 2017 IDHS data

Once again, the sample of married female and male youth experiencing STIs is small but deemed large enough for simple statistical analysis. However, as shown in Table 4.23, only a few background variables show a statistically

significant association with the experience of having STI. These variables are household wealth quintile among married male youth (p ≤0.05) and husband's educational level, attitude towards refusing sexual intercourse and ever heard about STIs for married female youth (p ≤0.05). Most of the STI cases were found among the married male youth that came from the highest household wealth quintile. STI experience is also more prevalent among females whose husband had a Secondary education, as well as among females who agreed that women should refuse to have sex if they do not want it. It is also higher among married female youth who had ever heard about STI compared to those had not.

Table 4.23 Experience of STI Among Married Youth by Background Characteristics, Indonesia 2017

Characteristics	Percentage of married youth by STI experience and characteristic background					
	Female			Male		
	Never had	Ever Had	N=4017	Never had	Ever had	N=358
Age in 5-year groups						
15-19	81.0	19.0	700	100.0	0.0	29
20-24	81.5	18.5	3,317	95.5	4.5	330
	χ^2 value 0.080 DF= 1 Sig. level=.777			χ^2 value 1.376 DF=1 Sig. level=.241		
Wealth quintile						
Poorest	83.5	16.5	937	98.9	1.1	90
Poorer	79.7	20.3	1,014	97.0	3.0	100
Middle	81.9	18.1	929	96.3	3.8	80
Richer	80.6	19.4	741	98.0	2.0	51
Richest	80.8	19.2	396	86.1	13.9	37
	χ^2value 5.171 DF=4 Sig. level=.270			χ^2 value 12.947 DF= 4 Sig. level=.**012**		
Place of residence						
Urban	80.5	19.5	1,630	94.7	5.3	131
Rural	82.0	18.0	2,388	96.5	3.5	227
	χ^2 value 1.363 DF=1 Sig. level=.243			χ^2 value 0.685 DF= 1 Sig. level=.408		
Highest Education						
No education	96.4	3.6	28	100	0	5
Primary	81.5	18.5	790	94.3	5.7	88
Secondary	81.1	18.9	2,914	96.3	3.7	244
Higher	82.1	17.9	285	100	0	21
	χ^2 value 4.447 DF=3 Sig. level=.217			χ^2 value 1.779 DF= 3 Sig. level=.619		
Number of unions						
Once	81.4	18.6	3,846	100	0	7
More than once	81.2	18.8	171	95.7	4.3	351
	χ^2 value 0.005 DF= 1 Sig. level=.946			χ^2 value 0.311 DF=1 Sig. level=.577		
Partner's age						
15-19	77.3	22.7	110	95.5	4.5	110
20-24	82.7	17.3	1,139	95.4	4.6	218
25 or more	81.0	19.0	2,768	100	-	31
	χ^2 value 2.858 DF=2 Sig.level=.239			χ^2 value 1.480 DF=2 Sig.level=.477		
Husband's educational level						
No education	88.6	11.4	44			

Primary	81.8	18.2	1,034			
Secondary	80.5	19.5	2,635			
Higher	86.6	13.4	305			
	χ^2 value 8.533 DF=3 Sig.level=**.036**					
Refuse having sex if do not want to						
Not agree	83.3	16.7	1,740			
Agree	79.9	20.1	2,276			
	χ^2 value=7.773 DF=1 Sig.level=**.005**					
Ever heard about STI						
No	84.4	15.6	692	97.9	2.1	47
Yes	80.7	19.3	3,325	95.5	4.5	311
	χ^2 value=5.089 DF= 1 Sig.level= **.024**			χ^2 value=.573 DF= 1 Sig.level= **.**449		
Attitude toward wife justified to refuse having sex if husband has sex with other women						
Disagree	80.2	19.8	731	97.1	2.9	102
Agree	81.6	18.4	3,286	95.3	4.7	257
	χ^2 value=.834 DF= 1 Sig.level= .361			χ^2 value=.545 DF= 1 Sig.level= .461		
Attitude toward wife justified to refuse having sex if husband has STI						
Disagree	81.9	18.1	833	98.5	1.5	67
Agree	81.2	18.8	3,183	95.2	4.8	292
	χ^2 value=.172 DF= 1 Sig.level= .678			χ^2 value=1.48 DF= 1 Sig.level= .223		
Attitude toward wife can ask husband to use condom if he has STI						
Disagree	81.9	18.1	833			
Agree	81.2	18.8	3,183			
	χ^2 value=.172 DF= 1 Sig.level= .678					
Sex transaction using money or goods						
No				96.2	3.8	341
Yes				93.8	6.3	16
				χ^2 value=.241 DF= 1 Sig.level= .623		

Source: Computed by the author from 2017 IDHS data

Because of the small sample sizes, a multivariate analysis of STI among married youth has not been carried out.

4.9 Knowledge of HIV/AIDS Prevention Among Youth in Indonesia

In the 2017 IDHS questionnaire, there are 12 questions related to knowledge of HIV/AIDS transmission and prevention. To measure the level of knowledge, a score of 1 was given for each favourable answer. An index of comprehensive knowledge was created based on the number of correct responses. The total score could therefore range between 0 to 12. The total score is divided into three categories: Inadequate (total score between 0 and 4), Average (total score between 5 and 8) and Comprehensive (total score between 9 and 12). Figures 4.10 and 4.11 show the level of HIV/AIDS knowledge according to the categories of total scores among married and never-married youth by sex. It

is interesting to note that inadequacy of knowledge about HIV/AIDS prevention is more prevalent among married youth of both sexes. Average knowledge about is more prevalent among married and never married male youth, while comprehensive knowledge of the subject is more prevalent among married and never-married female youth.

Figure 4.9. Knowledge of HIV/AIDS Prevention among Married Youth

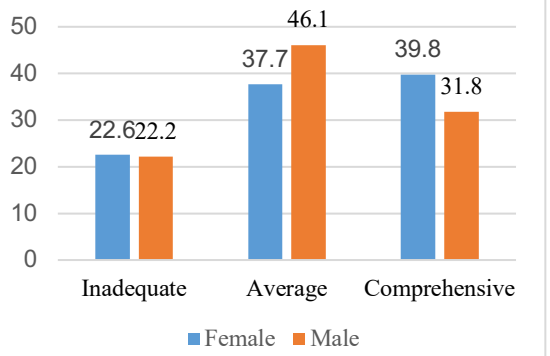
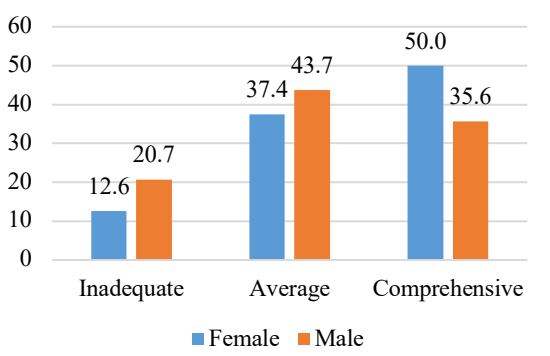


Figure 4.10. Knowledge of HIV/AIDS Prevention among Never-married Youth



Source: Computed by author from 2017 IDHS data

Table 4.24 shows the proportion of married youth by level of HIV/AIDS-related knowledge and background characteristics. Age, household wealth quintile, level of education, number of sources of HIV/AIDS related knowledge, discussion about of HIV/AIDS prevention with partner, and having HIV/AIDS knowledge from health provider and mass media have a positive and statistically significant association with the level of knowledge about HIV/AIDS prevention. It is also seen that living in urban areas is associated with better knowledge among married female youth but most urban male youth have average knowledge instead.

Table 4.24 Proportion of Married Youth by Level of HIV/AIDS Knowledge Preventions and Background Characteristics, Indonesia 2017

Characteristics	Percentage of married youth by level of knowledge about HIV/AIDS prevention							
	Female				Male			
	Inadequate	Average	Compre hensive	N = 4,017	Inadequate	Average	Comprehensive	N = 358
Age group (years)								
15-19	34.7	37.7	27.6	700	51.7	24.1	24.1	29
20-24	20.0	37.7	42.3	3,317	19.5	48.0	32.5	329
	χ^2 value 86.948 DF= 2 Sig.level=**.000**				χ^2 value 16.465 DF= 2 Sig.level=**.000**			
Household wealth quintile								
Poorest	44.0	32.7	23.4	937	35.6	45.6	18.9	90
Poorer	22.4	42.2	35.4	1,013	25.0	50.0	25.0	100
Middle	17.3	37.6	45.1	930	17.5	47.5	35.0	80
Richer	11.1	38.7	50.2	741	7.8	39.2	52.9	51
Richest	6.3	36.1	57.6	396	11.1	41.7	47.2	37
	χ^2 value 429.909 DF=8 Sig.level=**.000**				χ^2 value 32.427 DF=8 Sig.level=**.000**			
Place of residence								
Urban	15.2	35.9	48.9	1,630	13.0	47.3	39.7	131
Rural	27.6	38.9	33.5	2,388	27.3	45.4	27.3	227
	χ^2 value 126.201 DF=2 Sig.level=**.000**				χ^2 value 11.804 DF2 Sig.level=**.003**			
Level of Education								
No education	86.2	10.3	3.4	29	75.0	0.0	25.0	4
Primary	51.7	29.0	19.3	789	46.1	42.7	11.2	89
Secondary & Higher	8.8	34.6	56.6	3,200	10.1	39.9	50..0	265
	χ^2 value 661.7 DF= 6 Sig.level=**.000**				χ^2 value 61.790 DF=6 Sig.level=**.000**			
Discussed about HIV/AIDS prevention with partner								
No	28.8	36.4	34.8	3,095	27.1	45.1	27.8	288
Yes	1.6	42.0	56.4	921	1.4	50.0	48.6	70
	χ^2 value 321.34 DF=2 Sig.level**<.000**				χ^2 value=24.731 DF=2 Sig.level**<.000**			
Number of sources of HIV/AIDS knowledge								
None	99.7	0.3	0.0	724	100.0	0.0	0.0	59
1-3 sources	6.2	47.8	46.1	2,988	7.2	55.8	37.1	278
4 or more sources	0.0	27.5	72.5	305	0.0	47.6	52.4	21
	χ^2 value=3090.03 DF=4 Sig.level**<.000**				χ^2 value=251.662 DF=4 Sig.level=**.000**			
Ever obtained HIV/AIDS knowledge from health provider/teacher								
No	24.5	38.5	37.0	3,684	27.1	47.9	25.0	288
Yes	1.5	28.5	70.0	333	1.4	38.6	60.0	70
	χ^2 value=162.866 DF=2 Sig.level**<.000**				χ^2 value=39.52 DF=2 Sig.level=**.000**			
Ever obtained HIV/AIDS knowledge from mass media								
No	49.9	29.3	20.7	1,592	56.1	30.9	13.0	123
Yes	4.6	43.1	52.2	2,425	4.7	54.0	41.3	235
	χ^2 value=1162.92 DF=2 Sig.level**<.000**				χ^2 value=125.34 DF=2 Sig.level=**.000**			

Source: Computed by the author from 2017 IDHS data

Table 4.25 shows the proportion of never-married youth by level of knowledge about HIV/AIDS prevention and background characteristics. All of the background variables, namely age, current school attendance, place of residence (urban residence), level of education, number of sources of HIV/AIDS knowledge, attending community based meetings about

reproductive health (RH) meetings, obtaining HIV/AIDS information from school and visiting designated places to obtain information and counselling about RH have statistically significant and positive association with the level of knowledge about HIV/AIDS prevention.

Table 4.25 Proportion of Never-married Youth by Level of HIV/AIDS Knowledge and Background Characteristics, Indonesia 2017

Characteristics	Percentage of never-married youth by Knowledge of HIV/AIDS							
	Female				Male			
	Inadequate	Average	Comprehensive	N = 9,971	Inadequate	Average	Comprehensive	N = 12,612
Age in 5-year groups								
15-19	15.6	40.5	44.0	6,768	24.1	45.9	30.0	7,713
20-24	6.5	30.9	62.6	3,203	15.3	40.1	44.6	4,899
	χ^2 value 346.111 DF=2 Sig.level=**.000**				χ^2 value 313.567 DF=2 Sig.level=**.000**			
Currently attending school								
Yes	10.5	38.8	50.6	6,114	17.1	46.2	36.7	5,868
No	15.9	35.2	48.9	3,857	23.8	41.4	34.8	6,744
	χ^2 value 64.242 DF=2 Sig.level=**.000**				χ^2 value 87.529 DF=2 Sig.level=**.000**			
Place of residence								
Urban	9.0	35.9	55.1	5,890	14.7	43.6	41.6	6,868
Rural	17.8	39.6	42.5	4,081	27.8	43.8	28.5	5,744
	χ^2 value 232.757 DF=2 Sig.level=**.000**				χ^2 value 408.796 DF=2 Sig.level=**.000**			
Level of Education								
No education	78.6	7.1	14.3	29	54	25.4	20.6	63
Primary	69.8	20.4	9.4	341	59.7	28.7	11.6	1,195
Secondary	13.3	42.2	44.5	7,224	18.8	47.3	33.9	9,727
Higher	1.5	25.6	72.9	2,377	1.9	33.7	64.4	1,627
	χ^2 value 1790.7 DF= 6 Sig.level =**.000**				χ^2 value 1922.255 DF= 6 Sig.level**=.000**			
Number of sources of HIV/AIDS knowledge								
None	99.8	0.0	0.2	820	36.9	41.0	22.1	1,769
1-4 sources	5.5	43.7	50.7	7,662	18.4	44.6	37.0	9,373
5 or more sources	1.2	25.4	73.4	1,489	15.8	41.2	43.0	1,470
	χ^2 value 6401.89 DF=4 Sig.level =**.000**				χ^2 value 391.17 DF=4 Sig.level =**.000**			
Ever attended community sponsored meeting about RH								
No	13.8	38.7	47.5	8,865	21.9	44	34.1	11,594
Yes	3.4	27.1	69.4	1,106	7.3	39.7	53	1,017
	χ^2 value=213.04 DF=2 Sig.level =**.000**				χ^2 value=193.54 DF=2 Sig.level =**.000**			
Ever obtained HIV/AIDS information from school								
No	54.7	29.9	15.4	1,561	57.7	28.7	13.6	3,301
Yes	4.8	38.8	56.4	8,409	7.6	49	43.5	9,311
	χ^2 value=3065.04 DF=2 Sig.level =**.000**				χ^2 value=3796.15 DF=2 Sig.level =**.000**			
Ever visited an RH club to obtain RH information and counselling								
No	13.1	38.1	48.8	9,532	21.1	43.7	35.1	12,303
Yes	2.3	23	74.8	440	2.3	40.9	56.8	308
	χ^2 value=121.54 DF=2 Sig.level <**.001**				χ^2 value=91.996 DF=2 Sig.level **<.001**			

Source: Computed by the author from 2017 IDHS data

Tables 4.26 and Table 4.27 show the results of multivariate logistic regression analysis of the predictors of the level of knowledge about HIV/AIDS prevention among married and never-married youth respectively by including the background variables shown in Table 4.24 and Table 4.25 that have a statistically significant associations with HIV/AIDS knowledge. Knowledge about HIV/AIDS prevention has been classified as a binary variable, where i) Inadequate knowledge and Average knowledge = 0; ii) and iii) Comprehensive knowledge = 1. The results of the logistic regression analysis for married youth are presented in Table 4.26 and those for never-married youth are shown in Table 4.27. Only the statistically significant ($p \leq 0.05$) logistic regression coefficients are discussed below.

Among married youth (Table 4.26), younger women are less likely to have comprehensive knowledge about HIV/AIDS prevention compared to their older counterparts. For married male youth age does not appear to have a statistically significant influence (odds ratio 1.08) on comprehensive HIV/AIDS knowledge. The relationship between comprehensive HIV/AIDS knowledge and household wealth is not significant for either female or male married youth, but there is some indication from this particular dataset that married women and men living only in the poor and poorer households have a lower likelihood of possessing comprehensive HIV/AIDS knowledge. Surprisingly, living in rich and richer households does not appear to have any influence on having comprehensive HIV/AIDS knowledge for the married female and male youth. In terms of education, only the Primary and Secondary education for women and Primary education for men show statistically significant relationships with the odds of possessing comprehensive HIV/AIDS knowledge. Married female youth living in urban areas are about one and a half times more likely to possess comprehensive HIV/AIDS knowledge, but place of residence has no statistically significant influence on possession of comprehensive HIV/Aids knowledge. Both married female and male youth with No education, Primary education or Secondary education have a much smaller likelihood of possessing comprehensive HIV/AIDS knowledge compared to women and men with higher education, although the likelihood

is statistically significant only for primary and Secondary education for women and Primary education for men. Married women or men who have not discussed ways of preventing HIV/AIDS virus with their partner are much less likely to have comprehensive knowledge about HIV/AIDS compared to those who have had such discussion, but this likelihood is statistically significant only for married female youth. Compared to four or more sources, fewer sources of HIV/AIDS knowledge provide much less likelihood of acquiring comprehensive knowledge of HIV/AIDS prevention; however, this is statistically significant only for 1-3 sources for women. Both the married female and male youth who have not received HIV/AIDS knowledge from health provider/teacher or mass media are much less likely to possess comprehensive HIV/AIDS knowledge compared to those women and men who have obtained knowledge from either of these sources, and all these odds ratios are statistically significant. An increase in married youth's household wealth quintile would increase the youth's comprehensive HIV/AIDS-related knowledge.

Table 4.26 Predictors of the Level of HIV/AIDS Preventions Knowledge Among Married Youth, Indonesia 2017

Predictors	Married Youth							
	Female				Male			
	Sig.	Exp (B)	95% C.I.for EXP(B)		Sig.	Exp (B)	95% C.I.for EXP(B)	
			Lower	Upper			Lower	Upper
Age in 5-year groups(ref=20-24)								
-15-19	0.017	0.78	0.779	0.636	0.899	1.08	0.343	3.380
Wealth index combined (ref=Richest)								
-Poorest	0.053	0.75	0.746	0.554	0.094	0.41	0.141	1.165
-Poorer	0.116	0.80	0.804	0.612	0.114	0.46	0.174	1.206
-Middle	0.852	1.03	1.026	0.785	0.687	0.82	0.316	2.136
-Richer	0.813	1.03	1.033	0.788	0.529	1.37	0.510	3.703
Type of place of residence(ref=Rural)								
-Urban	0.000	1.45	1.446	1.240	0.693	0.89	0.496	1.595
Highest educational level (ref=Higher)								
-No education	0.261	0.27	0.275	0.029	0.205	10.93	0.271	440.060
-Primary	0.000	0.41	0.413	0.291	0.035	0.26	0.073	0.906
-Secondary	0.000	0.54	0.540	0.405	0.241	0.53	0.186	1.527
Discussed about ways to prevent getting the virus that causes AIDS with partner (ref=Yes)								
-No	0.001	0.76	0.757	0.644	0.152	0.64	0.351	1.177

Number of sources of HIV/AIDS knowledge category (ref=4+ sources)								
-None	0.989	0.00	0.000	0.000	0.997	0.00	0.000	
-1-3 sources	0.000	0.50	0.501	0.380	0.405	1.56	0.548	4.437
Ever obtained HIV/AIDS knowledge from health provider/teacher(Ref=Yes)								
-No	0.000	0.46	0.462	0.355	0.000	0.27	0.138	0.523
Ever obtained HIV/AIDS knowledge from mass media (radio, tv, magazine, poster)(Ref=Yes)								
-No	0.000	0.64	0.643	0.544	0.020	0.42	0.198	0.872

Source: Computed by the author from 2017 IDHS data

Table 4.27 shows that compared to both the never-married female and male youth of the older age-category (20-24 years), the never-married youth aged 15-19 years have a much smaller likelihood of possessing comprehensive knowledge about HIV/AIDS prevention and these are statistically significant in both cases. Both never-married women and men living in urban areas have higher likelihood of possessing comprehensive HIV/AIDS knowledge compared to rural dwellers, and this relationship is statistically highly significant. Compared to the Highest education level, Primary and Secondary education accords far lower odds of possessing comprehensive HIV/AIDS education to both the never-married women and men at statistically highly significant levels. For both the never-married female and male youth, compared to four or more sources of HIV/AIDS knowledge category, fewer sources provide far lower odds of possessing comprehensive HIV/AIDS knowledge at statistically highly significant levels. Interestingly, the never-married female and male youth who are not attending school are more likely to possess comprehensive knowledge about HIV/AIDS prevention compared to the never-married youth who are attending school, and these likelihoods are statistically significant. Finally, not obtaining HIV/AIDS knowledge from school, not visiting a reproductive health (RH) information centre or counsellor and not attending community-sponsored RH meetings are associated with a much lower likelihood of possessing comprehensive knowledge about HIV/AIDS prevention for both the never-married female and male youth compared to the respective contrary situations, all at statistically significant levels.

Table 4.27 Predictors of the Level of HIV/AIDS Preventions Knowledge Among Never-married Youth, Indonesia 2017

Predictors	Never-married Youth							
	Female				Male			
	Sig.	Exp (B)	95% C.I.for EXP(B)		Sig.	Exp (B)	95% C.I.for EXP(B)	
			Lower	Upper			Lower	Upper
Age in 5-year groups(ref=20-24)								
-15-19	0.000	0.79	0.701	0.892	0.000	0.68	0.614	0.751
Type of place of residence(ref=Rural)								
-Urban	0.000	1.33	1.214	1.450	0.000	1.36	1.258	1.478
Highest educational level (ref=Higher)								
-No education	0.780	1.23	0.292	5.146	0.054	0.53	0.281	1.010
-Primary	0.000	0.33	0.213	0.520	0.000	0.24	0.186	0.301
-Secondary	0.000	0.45	0.395	0.509	0.000	0.41	0.360	0.467
Number of sources of HIV/AIDS knowledge category (ref=4+ sources)								
-None	0.000	0.00	0.001	0.014	0.000	0.56	0.477	0.662
-1-3 sources	0.000	0.52	0.461	0.597	0.008	0.85	0.756	0.959
Currently attending school (Ref=Yes)								
-No	0.013	1.14	1.028	1.272	0.007	1.15	1.039	1.268
Obtained HIV/AIDS knowledge from school (Ref=Yes)								
-No	0.000	0.36	0.308	0.433	0.000	0.29	0.253	0.322
Ever visited RH information and counsellor (Ref=Yes)								
-No	0.000	0.55	0.432	0.693	0.002	0.68	0.530	0.866
Ever attended RH community sponsored-meeting (Ref=Yes)								
-No	0.000	0.647	0.559	0.750	0.000	0.66	0.575	0.761

Source: Computed by the author from 2017 IDHS data

4.10 Discussion

The results of this analysis show that age of youth plays an important role in some of the youth reproductive health indicators. These RH indicators are full antenatal care (ANC) and the choice of skilled birth attendance (SBA), both of which increase with increasing age. These findings are in line with those of previous studies in low/middle-income countries reviewed by Singh et al. (2021) that found older women were more likely encouraged by their experience, knowledge, autonomy to decide getting maternity care as well as childbirth care. Obviously, the present study also found that within the limits of age defined for youth, early age at marriage, associated as it is with a longer

exposure to youth childbearing experience results in a larger number of children ever born. This finding is supported by what Bitew et al. (2021) also found that early married female youths had their first child birth sooner than those who delayed marriage. Further, being a mother who gave birth before 15 years old also proved to be a significant cause of the prevalence of low birth weight in this study. This is in line with other studies in Eastern Ethiopia (Mezmur et al., 2021) and could be explained by the fact that adolescent mothers experience more stressful life events compared to older age-groups who commonly had their pregnancy planned (Hacker et al., 2021). Further, the analysis in this chapter shows that traditional birth is common among births to under-20 mothers compared to older youth. One of the reasons for this could be that adolescent women, especially during their first childbirth face barriers including financial problems to access healthcare services, as well as stigmatisation and negative attitude shown by some health workers towards adolescent pregnant women (Budu et al., 2021), as well as belonging to the culture/tradition that affects their own attitudes and practices (Atinge, Ogunnowo, & Balogun, 2020). Further, this shows that as age increases among female youth, the likelihood of their having comprehensive knowledge of HIV-related prevention also increases. This finding is in line with those of previous studies (Jennings et al., 2021; Shokoohi et al., 2016). This could be explained by the fact that older youth are more literate (Fenny et al., 2017) and develop intentions to engage in safe sexual intercourse (Faust et al., 2017; Jennings et al., 2021).

Place of residence of young women also plays a role in reproductive health. The present study found that being an urban female youth is a protective factor of four ANC visits and SBA. Geographically, some rural areas in Indonesia which fall in the category of isolated or remote areas that are difficult to reach because of limited means of road and public transportation show more extreme variability (Laksono, Rukmini, & Wulandari, 2020). An imbalanced distribution of health workers and facilities, as well as a transportation barrier in remote areas of a country might be attributable to geographic conditions (Mati et al., 2018). The present study found that being

an urban youth is a protective factor for having a comprehensive knowledge of HIV-related prevention possibly due to the knowledge resources limitation and limited access to health support in the rural areas (Jose et al., 2021). Living in urban areas can also be related to a postponement of first birth until after the 20th birthday. The possible explanation for this is that women who live in urban areas are more likely to be educated or to have had educated parents who motivate and mentor their youth in terms of their reproductive health (Bitew et al., 2021). This study also found that rural female youth are less likely than urban women to use contraceptives. Lack of knowledge in safe sex, geographic isolation, false interpretation of religious beliefs (i.e. using condom means killing the sperm) are some of the reasons why rural youth fail to use contraceptives (Barral et al., 2020). Rural women also prefer to have traditional births. A study in six low-middle income countries found that young rural women put greater trust in traditional birth attendants as they share similar culture and language, as well as to save money and to prevent themselves from having long trips to health care centres (Garces et al., 2019). The use of traditional birth attendants is encouraged by relatives for their less costly services (Bhowmik et al., 2019).

The present study shows that Higher education give the youth better odds of giving birth only after age 20, having at least four ANC visits, getting skilled birth attendance (SBA), and having comprehensive knowledge of HIV/AIDS prevention. According to Singh et al. (2021), educated women have the capability to access health care information and are more aware of the negative consequences of not practicing maternity care services. For instance, a study in Guinea showed that women who had at least Secondary level of education have a higher likelihood of using both ANC and SBA services compared to their counterparts with lower levels of education (Ahinkorah et al., 2021). In the Indian context, educated women have a higher likelihood of having access to health care information and awareness of the negative consequences of the absence of maternity health care (Singh et al., 2021). The present study also found that as level of education increases, the odds of having three or more children decline. This finding is in line with what

Ahinkorah et al. (2021) explained: that women's education develops health literacy which in turn builds positive health outcomes. Higher education empowers women to make proper decisions for their health, use of health care and the number of children they wish to have (Singh et al., 2021). Studies in 32 South/South-East Asia countries have found that in addition to making their own health care decisions educated women are more likely to be firm and reject traditional child delivery methods to lower their risk of maternal death (Bhowmik, Biswas, & Ananna, 2020).

The present study found that household wealth has a significant impact on several reproductive health outcomes. As household wealth quintile increases, the odds of having ANC, SBA and the mean age at first birth among young females, also increases. This is in line with a study by Quinlivan et al. (2004) that being in a low family income group has a significant association with teenage motherhood and a study by Masruroh et al. (2021) which found that incomplete ANC visits were dominantly made by the poorest women.

This research also showed that an increased household wealth quintile meant the married female youth have a tendency to experience STIs. This finding is similar with that of a study in Uganda (Anguzu et al., 2019) that shows that mobility among richer women facilitates them expanding their social network and building multiple sexual relationships. The result also shows that female youth whose households had access to treated water for drinking are less likely to have had a stillbirth compared to those who have access to untreated water for drinking. This is in line with a study in the African Great lake region that shows stillbirths more likely happen among mothers who drank water from untreated sources (i.e. natural spring, and unprotected dug wells) due to chemical contamination (Akombi, Ghimire, Agho, & Renzaho, 2018). Chemicals that contaminate drinking water and contribute to the incidence of stillbirths are monobromoacetic acid, chloroform, bromodichloromethane, dibromochloromethane, bromoform, haloacetic acid and trichloro acetic acid (Rivera-Núñez, Wright, & Meyer, 2018).

It was found that the poorer the household, the more children women are likely to bear. This is supports findings in Bangladesh (Kiser & Hossain, 2018). This could be explained by the evidence of previous studies that financial challenge among youth in poor families prevents them from using contraceptives (Bain et al., 2021). The present study's findings showed that women in the lowest wealth quintile commonly utilise traditional birth attendants (TBA), which is similar to findings in a study in India showing that poor women use the services of TBA to save money (Garces et al., 2019).

An increasing number of living children tends to make a married female youth more likely to use contraceptives. This finding could be explained by the evidence that married couples in Indonesia are strongly supported in terms of free contraceptive services by the government for the success of the family planning program (Budiharsana, 2017). In addition, when there is no sex preference of children, and when the number of living children is considered ideal according to the couple, women tend to use contraceptives more (Nasution et al., 2021). This research found that for a unit increase in the number of living children, the likelihood of choosing skilled birth attendants (SBA) decreases among female youth. The most prevalent SBA utilisation is found among young women who already had at least one child. This is related to evidence which shows that the use of SBA is much lower among young women with the third or fourth order births compared to first or second order births (S. Yaya et al., 2021). However, the present study also shows that the smaller the number of children ever born higher is the proportion of stillbirths. In particular, the proportion of stillbirths is the highest among women with no children ever born. This finding could be explained by the evidence by Dandona et al. (2019) which shows that in the context of many developing countries significantly higher likelihood of stillbirth were documented for first born with boy babies reported to be at a higher risk of stillbirths than girl babies.

It is clear that knowledge is a strong predictor of contraceptive use, SBA use and even for incidence of sexually transmitted infections (STIs). For instance,

women who have knowledge about the possibility of excessive bleeding or other pregnancy complications are more likely to choose SBA. According to Bhowmik et al. (2020), an educated woman is more likely to choose SBA for being aware of the consequences of using traditional medicines/services, such as traditional birth attendants, that might be associated with pregnancy complications. The present study also found that being familiar with modern contraceptive methods would encourage young women to use contraceptives. When young people are well-educated in terms of contraception, they seem fairly content with their choices and sexual autonomy (Lys et al., 2019) as they become aware of any fallout from unprotected sex (Aventin et al., 2021). Further, this study shows that having awareness of STIs increases the likelihood of youth to report STIs or symptoms compared to those who are not so aware. According to Sinha and Siddhanta (2017), young people who have low awareness about STIs may also have misconceptions and inaccurate information regarding STIs and even some of the young people who received sex and family life education from reliable sources were more likely to report STI problems.

This research found that married female youth who agree that having a positive attitude towards women's ability to refuse sex are more likely to report having had STIs compared to those who disagreed. Studies in Cambodia, Nepal and Nigeria show that women who have the ability to refuse sex are women who have autonomy on household decision making, especially their own health (Sano, Sedziafa, Vercillo, Antabe, & Luginaah, 2018). But it could be argued that when attenuated with lower socio-economic status, women became less powerful and less autonomous, i.e. using condoms becomes a decision only taken by the partner, due to their economic dependence (Sano et al., 2018).

Those female youth who had a pregnancy complication during their last pregnancy have a higher likelihood of utilising SBA than those who did not have any such complication. On the other hand, female youth who were free from any pregnancy complications during their last pregnancy are also more

likely to have a baby with a birth weight of 2kg or more compared to those female youth who had such complications. This finding agrees with that of S. Yaya et al. (2021) who found that young women put their highest trust in the advice of skilled health professionals that pregnancy and delivery complications are preventable and treatable by timely detection and management of obstetric complications as the most effective ways of saving new born and maternal lives.

The present study shows that an increased number of ANC visits among female youth would significantly affect the increased probability of utilising SBA and having babies with a birth weight of 2.5kg or more. Good quality of antenatal care improves maternal health and reduces the incidence of low birth-weight (LBW) babies (Siramaneerat, Agushybana, & Meebunmak, 2018). Antenatal care also has a significant association with the choice of SBA among female youth, indicating the positive role of ANC visits in facilitating skilled health care from pregnancy to delivery (Bhowmik et al., 2019). A smaller number of ANC visits among female youth is also shown to affect an escalation of the likelihood of having a stillbirth. According to Roberts et al. (2021), lack of prenatal care, along with early maternal age and high parity is a known risk factor for stillbirths and infant deaths, especially in the context of low-and middle-income countries. In addition, avoiding medical advice on prenatal care due to an adherence to traditions becomes a primary cause of stillbirths (Harpur et al., 2021).

The present study shows that female youth who are covered by health insurance are wealthier than those who do not have health insurance, and the wealthier are more likely to choose SBA. This is in line with the findings in Togo, U.S.A (Mati et al., 2018).

With respect to partners, the present study shows that as partner's education level increases, the likelihood of the female youth having full ANC and SBA also increases. The partner's level of education is also associated with an increase in the female youth's mean age of first birth and having fewer

children. This could be explained by the fact partners, with at least Primary education are more likely to encourage their young wives to use full ANC and SBA (A. Banke-Thomas et al., 2017), and that more educated couples are well informed about alternative methods of contraception and more aware of not continuing childbearing as they get older (Adjiwanou, Bougma, & LeGrand, 2018). The present study also shows the husband/partner's age is associated with an increase in the likelihood of having three or more children among female youth. According to a study of 15 African and Asian countries by Onagoruwa and Wodon (2018) young brides are sometimes put under pressure by older husbands or their family to become pregnant early and reject the use of contraceptives. This could also happen due to the husband's desire for more children and son preference which causes rapid and repeated child births (Onagoruwa & Wodon, 2018).

Married female youth who discussed family planning with friends/relatives are more likely to use contraceptives. It is found that the opinions of friends and family members might influence adolescents' own willingness to consider contraception. It is possible that having friends and family who dislike certain contraceptive methods is significantly associated with low personal method acceptability, particularly for IUDs and implants (Hoopes, Teal, Akers, & Sheeder, 2018). Women who discuss family planning with their partners/husbands have an increased likelihood of having full antenatal care, SBA and contraceptive use. This evidence is supported by that of several studies which have shown the role of a husband/partner in providing support for a woman's healthy lifestyle, which indeed improves women's health status (Laksono et al., 2020).

Youth who did not have a comprehensive knowledge about HIV/AIDS are more likely to be found among those who have not discussed HIV/AIDS prevention with their partners. In line to what De Wet et al. (2019) suggest sexually active youth who are either dating, cohabiting or in married relationships are more likely to have accurate knowledge of HIV/AIDS due to having active discussions The absence of family planning discussion between youth and

partner/friends/relatives is found to be a significant predictor of the occurrence of stillbirths. This could happen especially among rural and uneducated young women who have a bad relationship, i.e. intimate partner violence, that is shown to be significantly associated with abortion and miscarriage (Afiaz, Biswas, Shamma, & Ananna, 2020).

Never-married youth who are currently not attending school are less likely to have comprehensive HIV/AIDS-related knowledge compared to the more educated youth. This could be explained by the fact that chances to obtain knowledge about HIV are extremely limited for young people who are not attending school (Ankunda & Asiimwe, 2017) because, since HIV emerged three decades ago the schools and media have been proved to be effective media for HIV-prevention education (Shamu et al., 2020).

Youth who have never visited a reproductive health counsellor or attended any reproductive health meetings are less likely to have a comprehensive HIV/AIDS-related knowledge. According to Carter et al. (2021), youth who are positively confident about accessing local reproductive health and HIV services in society due to good primary healthcare services are likely to have greater higher level of HIV-related knowledge. Youth in this study who obtained HIV knowledge from school, health provider, and mass media are most likely to have comprehensive knowledge of HIV. As evidence Gyasi and Abass (2018) suggest HIV campaigns through billboards, posters, television/radio and healthcare professionals have proven effective in HIV awareness building among the youth.

4.11 Conclusion

The results presented in this chapter address two out of the four research objectives of the study, namely: (i) To analyse the factors influencing youth reproductive health indicators for which data are available, such as contraceptive prevalence rate, stillbirth rate, antenatal care, prevalence of low birth weight babies, and the prevalence of sexually transmitted infections

(STIs) among the youth in Indonesia; and (ii) To analyse the knowledge of HIV-related preventive practices among the youth in Indonesia.

The analysis has identified a number of socio-economic and demographic variables that can be classified as either a protective factor or a risk factor for reproductive health outcomes of the youth in Indonesia as of 2017. Table 4.28 summarises these factors with their roles in protecting or posing a risk to youth reproductive health outcomes in Indonesia.

Table 4.28. Protective or Risk Factors of Youth Reproductive Health Outcome, Indonesia 2017

Reproductive Health outcome	Protective Factors	Risk Factors
Total Children Ever Born	Increased level of highest education	Increased age of women
	Increased household wealth quintile	Increased age of partner
	Increased level of partner's highest education	
Age at 1st Birth	Being an urban resident	
	Increased level of highest education	
	Increased household wealth quintile	
	Increased level of partner's highest education	
Contraceptive Use	Increased number of living children	Increased age of women
	Having discussion about FP with husband	Increased level of partner's highest education
	Having discussion about FP with friends/neighbours	
ANC Visits	Increased age of women	Having No education
	Increased household wealth quintile	Having no discussion about FP with husband
Skilled Birth Attendance	Increased level of highest education	Increased number of living children
	Increased household wealth quintile	
	Covered by insurance	
	Increased number of ANC visits	
	Being aware that during labour/after delivery, excessive bleeding could happen	
	Having complication during pregnancy	
	Increased level of partner's highest education	
Stillbirth		Having No education
		Having a Primary education
		Decreased no. of total children ever born
		Having three or fewer visit of ANC
		Having untreated water as source of drinking

		Having no discussion about FP with friends/neighbours
Low Birth weight	Increased number of ANC visit	
	Having no pregnancy complication	
Sexually Transmitted Infections		Ever heard about STI among married women
		Agree toward idea that women could refuse having sex if do not want to (among married women)
		Having husband with a Secondary level of education
		Increased household wealth quintile among married male
Level of HIV/AIDS prevention knowledge	Currently not attending school (among never-married youth)	Being aged 15-19 years (among never-married youth, and married female)
		Being urban residents (among never-married youth, and married female)
		Having a Primary/Secondary education when compared with Higher education
		Having no sources of HIV/AIDS knowledge
		Having 1-3 sources of HIV/AIDS knowledge (among never-married youth, and married females)
		Having no discussion about HIV/AIDS prevention with husband
		Never obtained HIV/AIDS knowledge from health provider/teacher among married youth
		Never obtained HIV/AIDS knowledge from mass media among married youth
		Never attended community sponsored meeting about RH among never-married youth
		Never obtained HIV/AIDS knowledge from school among never-married youth
		Never visited the place to obtain RH information and counselling among never-married youth

Source: Prepared by the researcher based on the analysis in this chapter

5

A FEMALE YOUTH REPRODUCTIVE HEALTH INDEX FOR INDONESIA AND PROVINCES

5.1. Introduction

The main objective of this chapter is to construct a Female Youth Reproductive Health Index (FYRHI) for Indonesia and its provinces. This addresses the third research objective of this thesis. A composite indicators measure is used for developing this index due to its flexibility in its adaptation across various levels of government, such as localities or provinces (Saisana & Tarantola, 2016). It is envisaged that such an index would assist health professionals in mounting comprehensive youth reproductive health interventions, particularly in Indonesia where, to our knowledge interventions based on a composite measure of reproductive health have not been made.

5.2. Methods

5.2.1 Selecting the Indicators for a Composite Index

The selection of potential indicators for a composite index of female youth reproductive health is based on the literature review conducted in Chapter Two of this thesis. Accordingly, a list of issues related to the youth reproductive health in Indonesia is drawn up. The criteria of the composite index developed in this chapter is based on the ideal indicators developed by Etches, Frank, Ruggiero, and Manuel (2006). According to these criteria, the indicators should be:

i. valid,
ii. built on consensus,
iii. based on a conceptual framework,

iv. sensitive,
v. specific,
vi. feasible,
vii. reliable and sustainable,
viii. understandable,
ix. timely,
x. comparable, and
xi. flexible for use at different organisational levels.

For the purposes of the present thesis, 50 indicators are selected that can be grouped into four categories of youth reproductive health:

1) Enabling Factors (13 indicators);
2) Sexuality and HIV/AIDS-related knowledge (18 indicators);
3) Sexual Activity and Family Planning (11 indicators); and
4) Fertility and Maternal Health Care (8 indicators).

Table 5.1 presents the four categories of indicators of female youth reproductive health which comprise 50 selected indicators and their operational definitions obtained from Individual Recode (IR) file of the 2017 Indonesia Demographic and Health Survey. For purposes of index construction, the unit of analysis has been specifically case-selected as female youth aged 15-24 years.

Table 5.1 Selected Indicators (shown in percentages) for FYRHI from 2017 IDHS

No	Variable name*	Variable Label	Type of answer that is given a score of 1
	ENABLING FACTORS		
1	V106	Female youth currently attending or has attended at least primary school	Yes
2	V155	Female youth who is literate	Yes
3	V157-159	Female youth who is exposed to at least one mass media at least once a week	Yes
4	V481	Female youth who has health insurance coverage	Yes
5	V743A	Currently in-union female youth who participates themselves (or with partner) in decision making about her own health care	Yes

6	S1501G	Never-married female youth who has ever had discussions about sexual matters with health service provider	Yes
7	S1504A	Never-married female youth who has received information about human RH from school	Yes
8	S1504B	Never-married female youth who has received information about birth control from school	Yes
9	S1504C	Never-married youth female who has received information about HIV/AIDS from school	Yes
10	S1504D	Never-married female youth who has received information about other STIs from school	Yes
11	S1506	Never-married female youth who has ever attended an RH community-sponsored meeting	Yes
12	S1607	Never-married female youth who consume alcohol	No
13	S1614	Never-married female youth who has used drugs	No
	SEXUALITY AND HIV/AIDS-RELATED KNOWLEDGE		
14	V217	Female youth who knows that fertile period is halfway between two menstrual periods	Yes
15	V301	Female youth who knows about modern contraceptive methods	Yes
16	V750	Female youth who has ever heard about STIs	Yes
17	V754CP	Female youth who knows that using condom could prevent HIV transmission	Yes
18	V754DP	Youth female who knows that limiting sexual intercourse to one uninfected partner may prevent HIV transmission	Yes
19	V754JP	Female youth who says one can get HIV from mosquito bites	No
20	V754WP	Female youth who says that a person can become infected by sharing food with an HIV-infected person	No
21	V756	Female youth who says that a healthy-looking person can have HIV	Yes
22	V774A	Female youth who knows that HIV can be transmitted from mother to child during pregnancy	Yes
23	V774B	Female youth who knows that HIV can be transmitted from mother to child during delivery	Yes
24	V774C	Female youth who knows that HIV can be transmitted from mother to child by breastfeeding	Yes
25	V823	Female youth who says that HIV can be transmitted by supernatural means	No
26	S1006A	Female youth who says that a person can get HIV-infection by sharing unsterilised needles/syringes	Yes
27	S1309	Never-married female youth who knows about risks of pregnancy after one-time sexual intercourse	Yes
28	S1310B	Never-married female youth who knows that using contraception can avoid pregnancy	Yes
29	S1312A	Never-married female youth who knows that condom can prevent pregnancy	Yes
30	S1313	Never-married female youth who has ever heard about anaemia	Yes
31	S1314 A&B	Never-married female youth who identifies anaemia as low haemoglobin and/or iron deficiency	Yes
	SEXUAL ACTIVITY & FAMILY PLANNING		
32	V3A03	Modern contraceptive user female youth who is informed of side effects by health/FP workers	Yes
33	V395	Non-user female youth who has visited health facility and told about family planning	Yes
34	V501	Female adolescent aged 15–19 years who is currently married or in union	No
35	V511	Married female aged 20–24 years who is married or in union at age 18 or under	No
36	V626A	Married female youth whose demand for contraception is satisfied	Yes
37	V744D	Female youth who agrees that wife-beating is justified if wife refuses to have sex with husband	No
38	V763A	Female youth with an STI in the past 12 months	No
39	V763B	Female youth with a genital sore or ulcer	No
40	V763C	Female youth with an abnormal (or bad-smell) genital discharge	No

41	V770	Female youth with an STI or STI symptoms who has sought advice or treatment from a health provider	Yes
42	V822	Female youth who agrees that a wife is justified in asking husband to use condom if he has STI	Yes
	FERTILITY AND MATERNAL HEALTH CARE		
43	V201	Female adolescent aged 15-19 years who has child ever born	No
44	V212	Married female youth aged 15-24 who have ever given birth and who had their first birth at age 18 years or more	Yes
45	V213	Female adolescent aged 15-19 years who is currently pregnant	No
46	B11$1	Most recent second or higher order live birth that had an interval of at least 24 months since the preceding birth	Yes
47	M3ABCDE $1	Most recent live birth of female youth that has been attended by a skilled health personnel	Yes
48	M14$1	Female youth receiving at least four antenatal care visits during last pregnancy of their livebirth	Yes
49	M19$1	Most recent baby born to female youth with birth weight 2.5 kg or more	Yes
50	S413C $1	Most recent births for which the mother had pregnancy complications	No

*The variable names are taken from the SPSS data file of the 2017 IDHS.
Source: Prepared by the author based on variables available in the 2017 IDHS dataset (BKKBN et. al, 2018).

All of these indicators are common measures of population sexual reproductive health (SRH) as shown in Blum and Mmari (2005) and WHO (2006), suggesting that they are built on consensus and meet the criteria for content validity. To ensure that the index that is constructed is specific, sensitive, and understandable, its component indicators included in reproductive health outcomes are chosen with equal weights. All indicators are included in the WHO surveillance and vital statistics reports (WHO, 2019a, 2019b, 2019d, 2020) that are regularly updated and reported by the Department of Sexual and Reproductive Health and Research of the World Health Organisation (2022) in their website. This ensures that the index can be updated regularly to maintain timeliness and can be computed for many levels of environment such as cities or provinces ensuring feasibility, comparability, and flexibility. However, as mentioned previously in Chapter Two, Indonesian statistics do not collect data on all of the indicators recommended by the WHO.

5.2.2 Measures and Index Construction

The index, FYRHI has been developed by using micro-level data collected at the 2017 Indonesia Demographic and Health Survey obtained for research

purposes by special permission from the DHS website referring to Croft et al. (2018). Data are presented by provinces of Indonesia.

All 50 indicators have been uniformly transformed into favourable or positively-worded questions followed by creating a standardised score by taking the average of the observed values of each indicator for a given province. The value of each indicator is measured as the proportion of female youth who answered each positively-worded question in the affirmative. Some examples of favourable answers are given below:

- Variable V212 (No. 44, Table 5.1) shows that among married female youth aged 15 to 24 years who have ever given birth in Aceh province, 81.8 per cent had their **first birth at 18 years or more** (giving birth under age 18 year-old is unfavourable).
- Variable V3A03 (No. 32, Table 5.1) for North Sumatra province shows that 3.3 per cent of married female youth who used modern contraceptives were **informed of side effects by health/FP workers** (having no information of side effect is unfavourable).

For the cases mentioned above, the proportions of women giving favourable answers to these respective indicators, namely 81.8 and 3.3 become the scores of those variables for Aceh and North Sumatra respectively. The calculation of an overall Female Youth Reproductive Health Index (FYRHI) is done in two steps as follows:

a. Step 1. Category Level. For each province the scores of an indicator pertaining to each category of Female Youth Reproductive Health (Table 5.1) have been calculated. These scores are the percentages of women providing affirmative answers with respect to each variable. A simple average is taken of the scores (percentages) of each variable, which becomes the score of that category.
b. Step 2. Calculation of the Score – the FYRHI. A simple average of the scores of each category is taken as the overall Female Youth Reproductive Health Index (FYRHI).

As can be seen from the steps described above, each variable and each category are assigned the same weight in the calculations. This has been done because it is assumed that each variable in any category and each category in the overall index is equally important in determining the state of female youth reproductive health in Indonesia and its provinces.

The score calculation method is based on an adaptation of approaches used in calculating the Reproductive Health Index by PAI (2015), the Economic Hardship Index by M. Wilson, Tailor, and Linares (2019) and the SRH Burden Index by Rosentel, VandeVusse, and Schuh (2021).

Since the scores are percentages, the minimum and maximum scores (of each variable, category and overall) are 0 and 100 respectively. The possible index range is divided into quintiles that breaks up a data set into five parts (S. M. Ross, 2014). Provinces are categorised in which quintile their calculated index score falls by using the category used in the Reproductive Health Index by PAI (2015). The groups of index score are:

a) High (80 to 100);
b) Mid-High (60 to 79);
c) Middle (40 to 59);
d) Low (20 to 39); and
d) Lowest (0 to 19)

5.3 Internal Reliability and Validity of the FYRHI

To evaluate the consistency measure and the accuracy measure of the FYRHI, the following tests were conducted:

(i) Tests of internal reliability of the scores of each indicator and index scores for each province; by using Cronbach's Alpha (Bonett & Wright, 2015); and
(ii) Spearman's bivariate correlation tests for examining the relationship between FYRHI scores and each SRH indicator score. Spearman's test has also done to see the relationship between SRH indicators. This test is conducted to see whether the two variables have a statistically significant

causality to each other or not (Dancey & Reidy, 2004, p. 515). In this research, for example, the test was done to examine whether the Enabling Factors and Sexual Activity & Family Planning factors have a monotonic relationship (the movement of one variable that effects the movement of another variable).

According to Dancey and Reidy (2004), Spearman's strength of a correlation coefficient is classified into four groups, namely:
(a) No relationship (coefficient between 0.01 and 0.19);
(b) Weak relationship (coefficient between 0.20 and 0.29);
(c) Moderate relationship (coefficient between 0.30 and 0.39);
(d) Strong relationship (coefficient between 0.40 and0.69); and
(e) Very strong relationship (coefficient between 0.70 and 1.00).
The statistical analysis were conducted in SPSS Version 27 (IBM Corp, 2021).

To measure internal consistency between items in the index, Cronbach's Alpha was tested (Pallant, 2020). Cronbach's Alpha for the FYRHI was α = .856, indicating excellent internal reliability of the FYRHI according to Cronbach's Alpha rule of thumb (Cronbach, 1951). In addition, inter-item correlation between all indicators showed positive values between 0.607 to 1.000, which means that all the questions in the index have been proved to be worded in the same way (favourable) and all items are correlated to a greater extent (Pallant, 2020).

Moreover, bivariate analysis among the FYRHI indicators demonstrates significant and positive correlations between most of the indicator pairs as well as between the individual indicators and the overall index when tested with Spearman's correlation, as seen in Table 5.2. The value of the correlation coefficient between two indicators shows the strength of the monotonic correlation either in positive correlation (as value of one variable increase, the value of another tends to increase) or in negative correlation.

Table 5.2 Bivariate Correlations of FYRHI Scores and Individual Indicator Scores

No	Indicator groups	Indicator Scores				
		1	2	3	4	5
		FYRH Index	Enabling Factors	Sexuality & HIV /AIDS-related Knowledge	Sexual Activity & Family Planning	Fertility & Maternal Health Care
1	FYRH Index	-				
2	Enabling Factors	0.845**	-			
3	Sexuality & HIV /AIDS-related Knowledge	0.948**	0.770**	-		
4	Sexual Activity & Family Planning	0.842**	0.607**	0.744**	-	
5	Fertility & Maternal Health Care	0.865**	0.630**	0.717**	0.706**	-

**p <.01
Source: Calculated by the author based on calculations from the IDHS 2017

Following the Spearman's rank correlation strength category suggested by Dancey and Reidy (2004), the results are as follows:

- FYRHI was very strongly correlated with all individual indicators (0.842 < r < 0.948).
- Enabling factors of female youth reproductive health was strongly correlated with their Sexual Activity and Family Planning, as well as with their Fertility and Maternal Health Care (0.607 and 0.630, respectively). It is also found very strongly connected with Sexuality and HIV/AIDS-related Knowledge among female youth.
- Sexuality & HIV/AIDS-related Knowledge of female youth is found very strongly correlated with sexual activity and family planning, as well as with female youth's fertility and maternal care (0.744 and 0.717, respectively).
- Sexual Activity and Family Planning among female youth is very strongly correlated with youth's Fertility and Maternal Health Care outcome (r=0.706).

5.4 Results

5.4.1 FYRH Index Scores

The score for each indicator and FYRHI score for each province are presented in Table 5.3 in descending order. Figure 5.1 provides a better visual picture of the FYRH indexes by province. Following the categories used in the Reproductive Health Index by PAI (2015), Bali has the highest scores on the FYRHI at 78.7 while in contrast, the lowest scoring province is Papua with a score of 58.5. However, calculations of the FYRHI scores mostly do not reveal ranged variations across the provinces of Indonesia. According to the index score classification, 33 out of 34 provinces fall into the Mid-High group (scores range from 64.8 to 78.7). On the other hand, Papua that has the lowest score is the only province that falls into the Middle group.

Table 5.3 FYRHI Scores and Individual Component Scores by Provinces in Indonesia, 2017

Province	FYRH Index	Indicator Scores			
		Enabling Factors	Sexuality & HIV /AIDS-related Knowledge	Sexual Activity & Family Planning	Fertility & Maternal Health Care
Bali	78.70	73.40	77.10	71.70	92.50
Yogyakarta	77.90	77.80	72.70	72.60	88.50
Riau Islands	75.80	73.80	69.20	73.60	86.60
Jakarta	75.60	71.30	73.90	68.10	89.00
Central Java	75.50	72.80	69.90	67.60	91.80
East Java	74.60	72.40	69.20	68.50	88.50
East Kalimantan	73.80	73.40	66.50	67.10	88.10
Banten	73.00	70.10	64.70	68.10	89.10
West Java	72.70	69.90	65.20	67.10	88.50
West Sumatera	72.40	69.90	65.50	69.30	85.00
West Nusa Tenggara	72.00	67.60	65.00	67.20	88.00
South Kalimantan	72.00	68.30	65.30	69.20	85.30
Central Kalimantan	71.90	71.50	64.00	66.30	85.70
Bangka Belitung	71.80	71.00	63.60	65.70	86.80
Lampung	71.40	69.30	61.50	65.50	89.20
Riau	71.00	69.50	59.90	67.70	86.80
Jambi	70.70	69.80	60.10	65.00	87.90
Aceh	70.50	70.30	57.20	67.20	87.40
South Sulawesi	70.40	71.50	59.80	66.90	83.50
Gorontalo	70.40	68.30	58.60	67.60	87.10
North Sulawesi	70.20	67.80	63.60	65.00	84.50
North Sumatera	69.40	67.00	58.60	66.60	85.30
Central Sulawesi	69.10	68.40	60.70	65.00	82.50
South Sumatera	68.90	68.70	53.60	66.10	87.10
North Kalimantan	68.80	70.70	58.30	62.30	84.00
Southeast Sulawesi	68.80	69.60	57.50	65.20	82.90
Bengkulu	68.40	69.00	57.20	63.20	84.20
West Sulawesi	67.80	65.90	53.00	67.10	85.00
West Papua	66.90	72.10	56.20	62.50	76.70
East Nusa Tenggara	66.70	65.30	53.80	65.50	82.10
Maluku	66.00	66.60	58.10	63.40	75.90
North Maluku	64.90	68.10	49.70	62.30	79.70
West Kalimantan	64.80	62.40	48.40	65.70	82.60
Papua	58.50	58.50	45.90	59.80	69.90
Indonesia	**70.00**	**70.10**	**64.00**	**61.00**	**84.80**

Source: Calculated by the author based on calculations from the IDHS 2017 data.

Five provinces namely Bali, Yogyakarta, Riau Islands, Jakarta and Central Java stand out with FYRHI scores above 75. The rest of the provinces except Papua form a plateau in terms of their FYRHI (Figure 5.1).

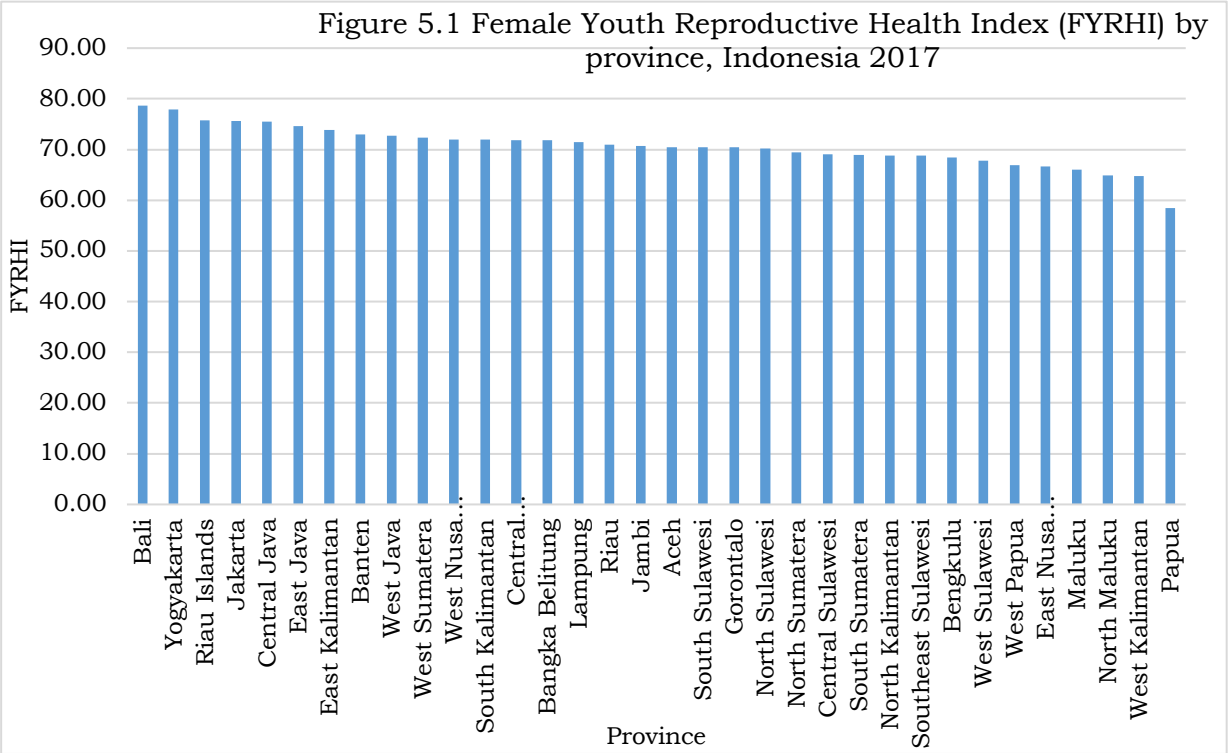
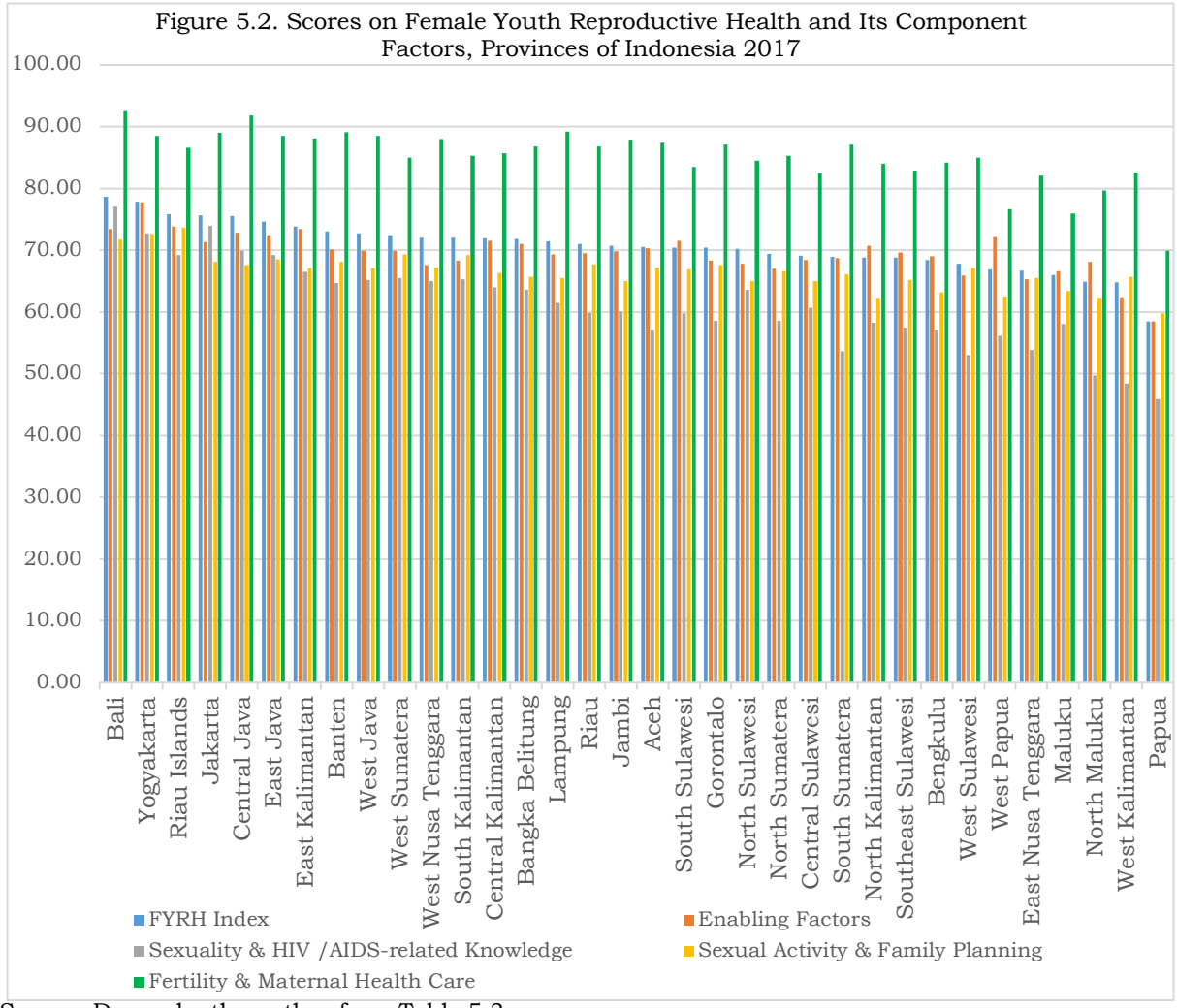


Figure 5.1 Female Youth Reproductive Health Index (FYRHI) by province, Indonesia 2017

Source: Drawn by the author from Table 5.3

In addition to the overall FYRHI, the scores of the provinces with respect to their scores on the components of FYRHI show that for all the provinces the scores on the group of factors called “Fertility and Maternal Health Care” contribute the most to the overall FYRHI.

Figure 5.2. Scores on Female Youth Reproductive Health and Its Component Factors, Provinces of Indonesia 2017



Source: Drawn by the author from Table 5.3

5.4.2 Approximate Validation of FYRHI scores

In the calculation FYRHI scores there is an implicit assumption that the various factors or components of FYRHI used in the calculation are given equal weights. It may be argued that these factors could have been given differential weights by analysing them by elaborate statistical methods like Factor Analysis. However, even with a simple calculation by using equal weights for all the component factors of FYRHI, the ranking of the 34 provinces appear to be reasonable in terms of each province's ranking with respect to other socio-economic indicators. Thus, in order to validate the calculations of FYRHI the ranking of the provinces according to this index is compared with their

ranking according to two socio-economic indicators that do not form any part of the FYHRI, namely the Human Development Index (HDI) and the Household Wealth Index, shown in Tables 5.4 and 5.5 below.

Table 5.4 Indonesia's Human Development Index by Provinces

No	Province	2016	2017	2018	2019	2020	2021
1	Aceh	70.00	70.60	71.19	71.90	71.99	72.18
2	North Sumatera	70.00	70.57	71.18	71.74	71.77	72.00
3	West Sumatera	70.73	71.24	71.73	72.39	72.38	72.65
4	Riau	71.20	71.79	72.44	73.00	72.71	72.94
5	Jambi	69.62	69.99	70.65	71.26	71.29	71.63
6	South Sumatera	68.24	68.86	69.39	70.02	70.01	70.24
7	Bengkulu	69.33	69.95	70.64	71.21	71.40	71.64
8	Lampung	67.65	68.25	69.02	69.57	69.69	69.90
9	Bangka Belitung Islands	69.55	69.99	70.67	71.30	71.47	71.69
10	Riau Islands	73.99	74.45	74.84	75.48	75.59	75.79
11	DKI Jakarta	79.60	80.06	80.47	80.76	80.77	81.11
12	West Java	70.05	70.69	71.30	72.03	72.09	72.45
13	Central Java	69.98	70.52	71.12	71.73	71.87	72.16
14	Di Yogyakarta	78.38	78.89	79.53	79.99	79.97	80.22
15	East java	69.74	70.27	70.77	71.50	71.71	72.14
16	Banten	70.96	71.42	71.95	72.44	72.45	72.72
17	Bali	73.65	74.30	74.77	75.38	75.50	75.69
18	West Nusa Tenggara	65.81	66.58	67.30	68.14	68.25	68.65
19	East Nusa Tenggara	63.13	63.73	64.39	65.23	65.19	65.28
20	West Kalimantan	65.88	66.26	66.98	67.65	67.66	67.90
21	Central Kalimantan	69.13	69.79	70.42	70.91	71.05	71.25
22	South Kalimantan	69.05	69.65	70.17	70.72	70.91	71.28
23	East Kalimantan	74.59	75.12	75.83	76.61	76.24	76.88
24	North Kalimantan	69.20	69.84	70.56	71.15	70.63	71.19
25	North Sulawesi	71.05	71.66	72.20	72.99	72.93	73.30
26	Central Sulawesi	67.47	68.11	68.88	69.50	69.55	69.79
27	South Sulawesi	69.76	70.34	70.90	71.66	71.93	72.24
28	South East Sulawesi	69.31	69.86	70.61	71.20	71.45	71.66
29	Gorontalo	66.29	67.01	67.71	68.49	68.68	69.00
30	West Sulawesi	63.60	64.30	65.10	65.73	66.11	66.36
31	Maluku	67.60	68.19	68.87	69.45	69.49	69.71
32	North Maluku	66.63	67.20	67.76	68.70	68.49	68.76
33	West Papua	62.21	62.99	63.74	64.70	65.09	65.26
34	Papua	58.05	59.09	60.06	60.84	60.44	60.62
	Indonesia	70.18	70.81	71.39	71.92	71.94	72.29

Source: https://www.bps.go.id/indicator/26/494/1/-metode-baru-indeks-pembangunan-manusia-menurut-provinsi.html

For purposes of the present calculations, the provincial HDI for the year 2017 is chosen. The data on household wealth quintile collected at the 2017 Indonesia Demographic and Health Survey is shown in Table 5.5.

Table 5.5 Distribution of Provinces According to Household Wealth Index 2017 IDHS

	Province	Percentage of households according to wealth quintile						Percent Richer & the Richest
		Poorest	Poorer	Middle	Richer	Richest	Total	
1	Aceh	32.5	25.1	18.7	12.7	11.0	100.0	23.7
2	North Sumatera	27.3	20.6	21.1	18.4	12.7	100.0	31.1
3	West Sumatera	26.4	24.8	21.2	15.8	11.8	100.0	27.6
4	Riau	18.2	25.9	24.2	16.2	15.4	100.0	31.7
5	Jambi	25.1	23.8	22.7	15.5	12.9	100.0	28.4
6	South Sumatera	24.7	23.9	19.4	17.9	14.1	100.0	32.0
7	Bengkulu	28.6	28.6	18.6	12.5	11.7	100.0	24.2
8	Lampung	23.8	25.1	19.5	17.2	14.4	100.0	31.6
9	Bangka Belitung	11.8	19.6	23.6	23.9	21.1	100.0	45.0
10	Riau Islands	10.8	13.3	22.2	24.4	29.2	100.0	53.7
11	Jakarta	3.2	7.9	16.4	30.1	42.5	100.0	72.6
12	West Java	16.0	18.4	21.0	22.1	22.5	100.0	44.6
13	Central Java	19.3	23.1	21.9	20.4	15.3	100.0	35.7
14	Yogyakarta	15.8	20.8	19.4	18.7	25.3	100.0	44.0
15	East Java	16.6	21.2	21.0	20.3	20.8	100.0	41.2
16	Banten	14.8	12.0	17.7	26.6	28.9	100.0	55.5
17	Bali	15.9	15.8	20.4	22.4	25.5	100.0	47.9
18	West Nusa Tenggara	34.7	27.6	16.3	11.6	9.8	100.0	21.4
19	East Nusa Tenggara	79.4	10.6	4.7	3.2	2.1	100.0	5.3
20	West Kalimantan	38.3	21.2	18.8	12.7	9.0	100.0	21.7
21	Central Kalimantan	37.3	23.3	16.8	11.4	11.2	100.0	22.6
22	South Kalimantan	29.5	24.2	20.5	14.1	11.7	100.0	25.8
23	East Kalimantan	9.8	20.8	26.5	24.1	18.8	100.0	42.9
24	North Kalimantan	24.4	25.6	22.0	14.6	13.4	100.0	28.0
25	North Sulawesi	27.1	26.9	18.1	14.6	13.2	100.0	27.8
26	Central Sulawesi	44.5	22.1	12.3	11.1	10.0	100.0	21.1
27	South Sulawesi	33.2	23.2	17.4	13.5	12.7	100.0	26.2
28	Southeast Sulawesi	42.0	20.8	14.0	12.3	11.0	100.0	23.3
29	Gorontalo	38.3	24.5	12.8	10.7	13.8	100.0	24.5

30	West Sulawesi	49.8	21.2	11.3	10.3	7.4	100.0	17.7
31	Maluku	53.1	21.1	12.5	9.4	3.9	100.0	13.3
32	North Maluku	56.1	20.6	11.7	8.3	3.3	100.0	11.7
33	West Papua	43.4	20.8	16.0	13.2	6.6	100.0	19.8
34	Papua	59.7	15.6	9.5	9.5	5.6	100.0	15.2
	Indonesia	22.3	20.5	19.8	19.2	18.3	100.0	37.4

Source: Downloaded by the author from the 2017 Indonesia Demographic and Health Survey Dataset (IDHR71FL)

The ranking of the provinces according to these two indicators (HDI and percentage Richer and Richest) are sorted in descending order. In this manner, the correlation between the ranks of the provinces according to FYRHI and HDI and the correlation between the ranks of the provinces according to FYRHI and percentage Richer and Richest are calculated.

The rank correlation coefficient between FYHRI and HDI is found to be 0.54 and the rank correlation coefficient between FYRHI and percentage of households classified as richer and richest is found to be 0.57, indicating a moderate positive correlation between the ranking of the provinces according to their rank by FYRHI and HDI, and FYRHI and highest wealth quintile.

It should be remembered in interpreting the correlations shown above that the .HI pertains to women aged 15-24 years, while both the HDI and the wealth quintile index pertain to the entire population of males and females of all ages. This might explain the moderate, and not strong correlation of ranks observed above.

Nevertheless, both the level of human development and wealth quintile can be seen to influence women's reproductive health of which female youth reproductive health is a part. But even a moderate concordance among the ranks of the provinces according to the three indicators can be seen to validate the FYRHI calculated in this chapter.

5.5 Conclusion

This chapter presents the construction of the Female Youth Reproductive Health Index (FYRHI) for Indonesia and its provinces by using a composite indicators measure obtained from the 2017 Indonesia Demographic and Health Survey (2017 IDHS) dataset.

The ranking of the provinces according to the FYRHI was compared to their ranking according to published 2017 Indonesia's Human Development Index (2017 HDI) of the provinces issued by the Indonesia Statistics Bureau (2021) and 2017 Indonesia Household Wealth Index of the provinces obtained from the 2017 IDHS dataset. The rank correlation coefficient between FYHRI and HDI, as well as between FYRHI and percentage of households classified as richer and richest, is found to be a **moderate positive.** It should be remembered in interpreting the correlations shown above that the FYRHI pertains to women aged 15-24 years, while both the HDI and the wealth quintile index pertain to the entire population of males and females of all ages. This might explain the moderate, and not strong correlation of ranks observed above.

The FYRHI produces a practical and repeatable measure to assess female youth reproductive health's disparities at the provincial-level. As the analysis suggests excellent measures of internal reliability and validity, the FYRHI could be eligibly adopted as a tool by either health professionals or researchers to aim at health resources for young people. This Index is also functional to investigate how interventions are customised to different geographic circumstances.

6

REPRODUCTIVE HEALTH OF YOUTH IN ACEH PROVINCE, INDONESIA: RESULTS OF QUALITATIVE ANALYSIS

6.1 Introduction

The main objective of this chapter is to examine some reproductive health outcomes of youth in Aceh province by using a reflexive thematic analysis of primary data collected through focus group discussions and In-depth interviews in selected regions of the province. The results of the qualitative data analysis address two out of four research objectives, namely: (i) to identify and analyse the factors influencing youth reproductive health indicators for which data are available, such as pregnancy/fertility, contraceptive prevalence rate, stillbirth rate, antenatal care, prevalence of low birth weight babies, and the prevalence of sexually transmitted infections (STIs) among the youth in Indonesia; and (ii) to analyse the knowledge of HIV-related preventive practices among the youth in Indonesia. Both these objectives were analysed through the qualitative research with a focus on Aceh province to supplement what has been found earlier in Chapter Four. The FGD guide and the interview guide are attached in Appendix 5 and Appendix 6.

Ten focus group discussions (FGDs) were conducted from early April to early June 2021, while twenty In-depth interviews were carried out from May 2021 to early February 2022. The methodology and the organisation of the FGDs and In-depth interviews are presented earlier in Chapter Three. As stated in the methodology (Chapter Three), the FGDs and In-depth interviews were carried out by four Research Assistants (RAs) on the ground in Aceh province appointed by the researcher, who was also involved in the FGDs via video calls from Adelaide using platforms such as Zoom or WebEx because of travel restrictions due to Covid-19. The In-depth interviews and FGDs were

conducted in Bahasa Indonesia and audio-recorded with the permission of the participants. The audio recordings were sent by the RAs to the researcher via e-mail. Both the recorded FGDs and recorded interviews were transcribed by the researcher and translated into English for inclusion in the thesis. All attempts were made to ensure anonymity, confidentiality and good quality of the information collected. Copies of questions asked at the FGDs and In-depth interviews are given in Appendix 5 and Appendix 6.

6.2 Results of Reflexive Thematic Analysis of the FGDs and In-depth Interviews

Table 6.1 presents the socio-demographic characteristics of FGDs respondents. The median age of the youth engaged in the FGDs in this study is 21 years. All of the participants are never-married youth and currently studying bachelor's degrees. Most of the participants are currently not working. Men and women have an almost balanced representation in the sample. More participants reside in rural area (55%) than in urban areas.

Table 6.1 Characteristics of FGD Participants in Aceh province, Indonesia 2021

Participants s Characteristics (FGDs)	N=98
Age in years (Median age=21 years)	
19	15
20	31
21	33
22	14
23	3
24	2
Sex	
Male	48
Female	50
Marital status	
Married	0
Never-married	98
Place of residence	
Urban	44
Rural	54

Education attainment	
High school graduate	86
Diploma	12
Current education	
Bachelor	98
Current Activity	
Currently not working	81
Being an entrepreneur, while studying	2
Working for other, while studying	15

Source: Table prepared by the author from data collected in Aceh, 2021

Table 6.2 presents the socio-demographic characteristics of the In-depth Interview Participants.

Table 6.2 Characteristics of In-depth Interview Participants in Aceh province, Indonesia 2021

Characteristics of In-depth interview Participants	N=20
Age (years)	
30-39	3
40-49	7
50-59	6
60+	4
Sex	
Male	13
Female	7
Marital status	
Married	20
Never-married	0
Place of residence	
Urban	9
Rural	11
Educational attainment	
High school graduate	3
Diploma/Bachelor degree	10
Master Degree	7
Role in the community	
Head of School	5
Religious Leader	5
Family Planning officer/ Health provider	5
Head of Subdistrict	5

Source: Table prepared by the author from In-depth interviews, Aceh 2021-2022

The participants in the In-depth interviews consist of community members such as Heads of Schools, Religious Leaders, Family Planning/Health Providers, and Heads of Subdistricts, with equal numbers each (5). The median age of the participants engaged in the In-depth interviews is 49.5 years. All the In-depth interview participants are married, and most are male, reside in rural areas and have diploma/bachelor degrees.

Nine key themes are identified from the FGDs and In-depth interviews. These themes pertain to risk and protective factors affecting youth reproductive health in Aceh province. The nine themes are organised as 1) Proximal factors, 2) Intermediate factors and 3) Distal factors of a socio-ecological model developed by Blum and Mmari (2005) as shown in Figure 6.1.

(1) Proximal factors – at the individual level:

- Youth's Physical and Mental Condition;
- Youth's Attitude and Knowledge towards Reproductive Health; and
- Risky Reproductive Behaviour;

(2)) Intermediate factors – at a relationship/family level

- Family Influence
- Peer Influence;

(3) Distal factors – at the Community/Societal level

- Community Influence and Government Program;
- Social Norms;
- Accessibility and Health Care Provider as key access points to reproductive health service;
- Exposure to social media and modern technologies of communication.

6.2.1 Proximal Factors. Theme 1: Youth's Physical and Mental Condition

Youth's Physical and Mental Condition is presented under two subthemes- *Female Youth's Biological condition*, and *Youth's mental health and wellbeing.*

The biological condition of female youths has been perceived by the participants of this study in varied forms as factors affecting particular reproductive health outcomes. For example, malnourishment among young mothers is believed to be a product of poverty and lack of care of family members resulting in low birth weight (LBW of babies born to women). According to one participant:

> *"Low birth weight can be caused by the malnutrition of the mother during her pregnancy because she didn't intake a proper food at that time. The attention of the husband also plays an important role during the pregnancy of a young woman."* . (FGD Participant-6, 20 year-old male student).

Reproductive system immaturity and body weakness of young mothers has also been perceived as a risk factor of LBW. A very young woman is believed to have an immature reproductive system and prone to diseases during her pregnancy. This is reflected in the statement of one participant:

> *"One of my distant adolescent cousins had a low birth weight baby. She had a stomach disease at that time when she was pregnant that caused an earlier labour. I do believe that a very young pregnant mother also might have a weak physical condition compared to older youth, they are physically not ready to carry a baby inside the womb due to immature reproductive organs."* (FGD Participant-39, 20 year-old male student).

Further, hormonal imbalance is another biological condition that is perceived as a risk factor of reproductive health, specifically as a cause that stops young women from using contraceptives. One of the participants stated:

> *"I know some young women that do not use contraceptives due to bad experience of bleeding and getting fat after contraceptive injection. They prefer to do traditional way to prevent pregnancy. But in case they get pregnant, they said they will be ready (for childbirth)."* (FGD Participant-81, 24 year-old female student)

The findings from FGD suggest that a young biological age can arouse a high level of curiosity among the youth about new topics such as reproductive health. This curiosity is perceived by some participants as a facilitator for the youth to get a comprehensive knowledge of HIV-related prevention. To quote one participant:

> *"It is good to introduce to a teenager to knowledge about how to deal with HIV AIDS prevention because we are young people and we have a big curiosity about sex education. It will be easy for us to understand the content because we are excited to learn about it"* (FGD Participant-77, 21 year-old male student).

The mental health wellbeing of youths has also been identified by the participants as a factor affecting one of the reproductive health outcomes, which is LBW. Findings from the FGD shows that the stressful condition of a young mother is believed to be a factor that disturbs the health of the foetus leading to LBW. This mental health problem has several causes such as unwanted pregnancy and mental unpreparedness to become a mother. According to one of the participants:

> *"Being mentally unprepared to play a mother's role is one of the reasons for some girls to get stressed, especially among those who have an unwanted pregnancy. Stressed mothers might ignore their own health and give birth to low weight babies.*" (FGD Participants-1, 20 year-old male student).

6.2.2 Proximal Factors. Theme 2: Youth's Attitude and Knowledge towards Reproductive Health

Attitude and knowledge of the youth towards reproductive health is presented under a number of subthemes - *attitude towards reproductive health*, and *knowledge related to particular reproductive health indicators*.

Attitude towards Reproductive Health has been perceived by the participants of this study in varied forms as factors affecting particular reproductive health outcomes. For example, a youth's attitude towards *"happy young life*" protects the youth, especially an adolescent from early pregnancies. This is reflected in the statement of one of the participants:

> *"Being an adolescent is the period for a teen to be happy and enjoy life. I am sure that an early pregnancy will remove this happiness. It is also against Islamic norms if it is premarital. I cannot describe an adolescent pregnancy in the context of the medical and health sciences. But I believe that many teens do not want to lose their happy young life by getting pregnant early."* (FGD Participants-78, 21 year-old male)

Further, youth's support towards the government family planning program is another positive attitude that is perceived as a protective factor on their reproductive health, specifically that encourage youth to be an active contraceptive user. To quote one of the participants:

> *"More millennials family recently use contraceptive to support the slogan 'two children are better' that campaigned by local family planning officers. They become aware that small family is easier to maintain."* (Interview Participant-6, 42 years-old female, a health provider)

*Knowledge related to particular reproductive health indicator*s has also been identified by the participants of this study as either a key or a protective factor affecting reproductive health outcomes. The finding of FGD suggest that lack of sexual and reproductive health (SRH) knowledge is a risk factor for early pregnancy, as well as for sexually transmitted infections (STIs). This statement is supported by following participant:

> *"Some teenage wives have no idea that their pelvis has not grown enough to be able to deliver a baby. They think they are ready anytime. So, some of the teenage brides do not postpone getting pregnant. I wish many teens knew about it."* (FGD Participants-2, 20 year-old female student).

Lack of SRH knowledge, especially in knowledge of genital hygiene is perceived as a risk factor for STIs, as stated by one of the participants:

> *"I notice male youths are more prone to have a sexually transmitted infection. They lack sex education but engage in sexual activity. Some males do not clean or maintain good hygiene of their genital organs after having sex. These males do not know that it is very dangerous."* (FGD Participants-3, 20 year-old male student).

Being a young mother with low levels of education is also believed by the community to be a risk factor for her to deliver a LBW baby because of her limited knowledge of nutrition:

> *"A baby born with a very low birth weight is an indirect effect of the low education of the mother because, as we know even though she may come from a rich family, not being well educated on matters related to pregnancy, harms the baby. For example, if she would not know what to eat during her pregnancy."* (Interview Participant-15, 63 year-old male, a religious leader)

Nevertheless, having a proper source of SRH information is perceived as a protective factor to youth reproductive health outcomes, especially in terms of the utilisation of skilled birth attendants (SBA). This also appears to be the case in an urban area as one participant noted:

> *"In urban areas, it is very rare to see some young mothers using traditional*

midwives. They have been exposed to much appropriate information about the benefits of utilising skilled health providers as SBA." (FGD Participant-5, 20 year-old female student)

6.2.3 Proximal Factors. Theme 3: Risky Behaviour

Risky Behaviour is presented under two subthemes-*non-sexual risky behaviour,* and *SRH risky behaviour.*

Non-sexual risky behaviour has been perceived by the participants of this study as risk factors of particular reproductive health outcomes, specifically of LBW and the occurrence of stillbirth. For example, excessive physical activity during pregnancy is perceived as a risk for a young mother to have an LBW baby. One of the participants showed her view as thus:

> *"Adolescent mothers in villages perform excessive physical activities by doing hard physical work. Too much mobility during pregnancy renders adolescent mothers at a risk of having an underweight baby. Their young body should need to save energy"* (FGD Participant-70, 23 year-old female student).

In addition, being a smoker (including a passive smoker) or an alcoholic has also been perceived as a risk factor of LBW:

> *"Alcoholic and smoker young mothers are the reasons behind low birth weight of babies. Those harmful additives they consume are very dangerous to the development of the foetus."* (FGD Participant-71, 22 year-old female student)

Similarly, eating an unhealthy diet during pregnancy has been perceived to be a factor that disturbs the development of the foetus, and it even leads to stillbirth. A community member added:

> *"In Islam, taking care of a pregnancy is a compulsory task of a pregnant woman. Eating the wrong diet by consuming non-nutritious food has been proved to be harmful to pregnant mothers, especially adolescent mothers. I have watched some such cases in my surroundings. Some young women deliver stillborn babies, just because of this ignorance."* (Interview Participant-16, 55 year-old male, a religious leader)

Similar to non-sexual risky behaviour, *some sexual and reproductive health behaviours* have also been perceived as risk factors of a few reproductive health outcomes. For example, FGD findings reveal the belief of participants that a failed abortion continues to develop the life of the foetus that ends up

in a stillbirth due to the intake of hazardous substances. Two young male students shared their views based on cases they witnessed:

> *"I witnessed a case of my adolescent friend who tried to abort her premarital pregnancy by consuming some traditional pills and herbs. She thought that such methods might terminate the foetus, yet the pregnancy continued with a stillborn baby."* (FGD Participant-73, 24 year-old male student)

And:

> *"There was a case about my friend that she had been raped by her uncle. She was pregnant and I knew that she tried to abort her pregnancy by consuming traditional pineapple juice, or something like that. And can you imagine that a 15 year-old girl would know how to abort a pregnancy? She's quite little and at that time I suggested her to report the case to the Children Protection Commission but later I heard the baby died inside the womb."* (FGD Participant-42, 21 year-old male student)

Further, the FGD participant believed that infrequent pregnancy check-ups are considered as catalysts for LBW among young pregnant women. Lack of antenatal care during pregnancy leads to unsupervised foetal development. One of the participants gave her view on this:

> *"It is not easy being a young mother. One of my friends was too lazy to visit the health care centre during her pregnancy for many reasons, she in fact harmed the development of the baby. She thought that the baby would be alright, in fact it was underdeveloped and born premature with low birth weight."* (FGD Participant-79, 19 year-old female student)

In addition, having multiple sex partners as well as the absence of condom use are two SRH risky behaviours that are perceived to facilitate STI among the youth. A female health provider gave her view on it as follows:

> *"Cases of sexual infection, like Syphilis are often found among young men who have multiple sexual partners. We sometimes need to ask the patient about it very carefully so that they would not feel insecure. Some say that it is true that they have another sexual partner. Some just keep silent, so we have no idea what happens behind the STIs that occur to them"* (Interview Participant-2, 52 year-old female, a health provider)

And a young male student added his perception:

> *"According to my experience, I have some friends who had had premarital sexual intercourse without using condoms in order to get more sexual pleasure. It is very dangerous because as I know some of them later had problems with their genitals. The infections that they should have prevented."* (FGD Participant-1, 19 year-old male student)

Lastly, this study also found that premarital sexual intercourse has been perceived by the participants as SRH risky behaviour that can lead to one of adverse reproductive health outcomes, such as early pregnancy among adolescents. Cases of early pregnancies lead to other issues such as bleeding from pregnancy and neglect of babies. To quote a community member:

> *"Despite the observance of Islamic law in Aceh, I observe that there are still many young people who commit to premarital sexual intercourse. There is news of cases about the neglect of unwanted babies of unmarried young women. Other news shows a female high school student had bleeding in the class room due to her pregnancy, another student even delivered a baby in the toilet of the school. It happened even in my subdistrict. Some tourism spots had to be closed down by the local government because they became places for dating among young people".* (Interview Participant-12, 62 year-old male, a religious leader).

6.2.4 Intermediate Factors. Theme 4: Family Influence

Family influence is presented under three subthemes-*Family's norm and culture,* and *Family's affection, care and support.*

Family norms and culture have been perceived by the participants of this study as influencing factors of particular reproductive health outcomes. For example, a family preference to have a grandchild encourages a young daughter-in-law to get pregnant very soon. A female student participant shared her perception that earlier pregnancy among young women is under the control of the extended family, as she explained:

> *"But I witnessed that some adolescent bride is forced by their parents or in laws to have a baby very soon. To the family, no matter how old the bride is as long as she is married she is considered ready to be a mother. That is the culture of a family."* (FGD Participant-57, 20 year-old female student)

Another family norm that is perceived to influence youth reproductive health is the family's reliance on traditional birth attendants. This is commonly a hereditary reliance which still exists in some rural areas of Aceh. This is disadvantageous for SBA utilisation among the youth. To quote one of the participants:

> *"Some families in remote villages still have higher trust in a traditional midwife and reject using SBA to assist a family member's labour. They follow what their big family had done for centuries."* (FGD Participant-50, 21 year-old female student).

Further, the participants of this study also gave their opinion that parents who consider discussions about HIV and other STIs as taboo and not important would keep the youth living in the family with inadequate knowledge of HIV-related prevention. A community member stated:

> *"Many teenagers do not know about HIV and AIDS prevention. It happens just because they did not have any permission to learn about this knowledge from their parents. Many parents would say that learning about HIV and AIDS will create bad attitudes and behaviours. Or simply they think that discussion about sexual diseases might attract their children to try out some sexual behaviour."* (Interview Participant-11, 48 year-old male, a head of school)

Besides a family's norms, *a family's affection, care and support* are also perceived as factors affecting reproductive health among youth. For example, this study found that participants believed that the absence of a parental figure or older person in the family is perceived as a risk factor of adolescent premarital pregnancy. Lack of control from family members leads the youth to feel free to have sex as reflected in the following statement:

> *"To my knowledge, lot of premarital pregnancies happen among female high school students who have no parents. Relatives who are not in the same household with them have no power to control their sexual behaviour."* (Interview Participant-18, 45 year-old female, a head of sub-district).

Further, the lack of attention of the family has also been perceived as giving a large effect of STIs incidence among youth:

> *"In my opinion, females are more commonly victims of sexual infections. It starts when parents do not exert enough control on their young daughters. Parents who do not give attention -- to my knowledge -- have daughters who engage in free sexual behaviour which resulted in getting the sexual infection."* (Interview Participant-10, 45 year-old male, a head of school)

In addition, family's inability to afford good food has also been viewed as having a bad effect on reproductive health, especially resulting in pregnancy malnourishment and LBW.:

> *".. another reason is when a mother comes from a poor family they cannot afford good and proper food; it may affect their health as well as that of the baby inside the womb. Through my observation, many underweight babies as well as stunting kids are born in a poor family."* (FGD Participants-10, 23 year-old female student)

6.2.5 Intermediate factors. Theme 5: Peer Influence

Peer influence is presented under two sub-themes-*Friends' unfavourable advice related to reproductive health,* and *lessons learned from a friend's bad experience.*

Friends' unfavourable advice on reproductive health has been perceived by the participants in this study as factors affecting particular reproductive health outcomes. For example, false sexual and reproductive health information from a friend can facilitate a youth to have STIs. One of the participants stated:

> *"I heard some stories that some youth got the sexual infection just because they follow their friends' suggestion not to use condom during intercourse for greater sexual pleasure. And when something bad happens, they again follow their friend's advice to just have traditional medication."* (FGD Participant-4, 22 year-old male student).

The incorrect advice from friends in terms of antenatal check-ups has also been perceived to discourage young mothers from having the full ANC of four visits during pregnancy. Women may avoid a full ANC because of a fear of being judged by the health worker. A community member stated:

> *"In my community, I found adolescent mothers do not go to a midwife when they are pregnant just because they are informed by a peer who has been pregnant about how shameful it is to see the doctor for having an ANC. They believe they will be judged by the health worker for being pregnant at such a young age."* (Interview Participant-8, 62 year-old male, a religious leader)

The other sub-theme**,** *lessons learned from a friend's bad experience* is perceived by the study participants to be protective of SBA and knowledge of HIV-related prevention among the youth. For example, learning from an adolescent friend's bad experience regarding early pregnancy encourages the youths to have their child's birth attended by an SBA. In this connection a community member stated:

> *"Having a peer that had a bad labour experience assisted by a traditional midwife would lead young mothers to go to the midwife for labour. I know they understand that it is so scary to have a similar bad experience under the hand of traditional birth attendant."* (Interview Participant-13, 64 year-old male, a religious leader).

Further, a discussion about HIV/AIDS with knowledgeable friends has also been perceived as a facilitator of increased knowledge of HIV-prevention among the youth.

> *"I know that some high school students understand better about how to protect themselves from HIV because they discuss a lot with their friends who had good knowledge about it. Making friends with peer educators also gives some benefits."* (Interview Participant-4, 53 year-old female, a Family Planning officer)

6.2.6 Distal factors. Theme 6: Community Influence and Government Program

Community Influence and Government Program are presented under two sub-themes-*School/ community influence,* and *Government Program.*

School/ community influence is perceived as a factor affecting particular reproductive health outcomes. For example, participants of this study perceived that a school teacher's feeling of embarrassment in discussing reproductive health directly with the students is a risk factor for the youth's comprehensive knowledge of HIV-related preventive. A female student gave her opinion thus:

> *"Some teachers at school even feel shy to explain about anything related to sex,, also about HIV AIDS. No wonder some students know very little about HIV prevention "* (FGD Participant-85, 20 year-old female student).

Further, the regulation in some schools to admit only never-married students is good for youth reproductive health, in that this can protect the youth from early marriage or pregnancy. As a head of a school stated:

> *""In addition to being at a high risk of maternal mortality, being an adolescent mother also has a high risk of school dropout, especially for girls who are getting very close to graduating from high school. Fortunately, many schools in Indonesia require the students to not get married before finishing senior high school. At least many young girls*

protect themselves from "seks bebas" or free sex. However, one of my adolescent students became pregnant, apparently from "seks bebas" (free sex) while still a student, and she had to drop out from school. Her family was also ashamed." (Interview Participant-14, 47 year-old male. A head of school)

Schools and communities which provide reproductive health peer-educator and counsellor clubs are also perceived to help the youth in improving their SRH knowledge and protect them from engaging in risky sexual behaviour. The following two statements show the perceptions of two community members:

"Nowadays many adolescents, especially those who are attending school join peer-educator and peer-counsellor clubs. They learn many things related to reproductive health and sexually transmitted infections from their peers. Such peer education and peer counselling makes it more understandable because it is not formal. Every student is keen to learn new things so they are quite good in any information about reproductive health." (Interview Participant-17, 42 year-old male, a head of sub-district)

And:

"In Indonesia generally, youth community members under the Ministry of Health Management, (locally known by its name in Bahasa Indonesia Pelayanan Kesehatan Peduli Remaja or PKPR) usually visit local schools to give RH orientations to the pupils. They write monthly reports and update RH posters that can be used during the orientation. PKPR also manages the Posyandu Remaja (i.e. Integrated Service Post for the youth) for pupils at high schools." (Interview Participant-9, 55 year-old male, a health provider).

The other sub-theme, *Government programs* is perceived as a protective factor for reproductive health such as early pregnancy and LBW. The program of *"Pre-marriage Training"* conducted by the Office of the Ministry of Religious Affairs increases awareness among the youth to postpone pregnancy until they are age 20 years. Attending the training has been perceived as a protective factor among youth to understand how important it is to postpone a pregnancy especially by adolescent brides. This is reflected in the following statement:

"Yes, I agree that a girl should not have a child before she is 20 year-old. Many friends of mine attended the program of "Pelatihan Pranikah" (pre-marriage training) conducted at sub-district levels by the Office of the Ministry of Religion to introduce reproductive health to

> *couples who wish to get married. They have interesting media to introduce it. I am sure that is why even though many of them marry young, they commit to postpone their pregnancy to later ages. I myself will attend that training too, someday."* (FGD Participant-95, 20 year-old male student).

Another government program called *"Isi piringku" or "my meal plate*" has encouraged young pregnant women to understand a balanced diet during their pregnancy to prevent them from having an LBW baby. This program has also encouraged pregnant women to regularly come to Posyandu[9] (community based integrated service post providing five services at one spot – child health, nutrition, family planning, immunisation and antenatal care) to have their healthy *"my meal plate"* to be consumed on site as well as to have their ANC visits. In this connection a family planning officer stated her view:

> *"The Indonesian Ministry of Health has a program named "My meal plate" about balanced nutrition that supports pregnant women, especially young mothers to avoid having an underweight baby. Young mothers also need to maintain good hygiene, remain stress-free, and have fewer complaints about pregnancy symptoms. Posyandu, as a community health care program with the utilisation of village funds also allows pregnant women and young children to have nutritious supplemental food. This regular activity has also encouraged pregnant women to come to have their pregnancy check-ups."* (Interview Participant-1, 30 year-old female, a Family Planning officer).

6.2.7 Distal Factors. Theme 7: Social Norms

Social Norms are presented under two sub-themes, namely *social conformity* and *Islamic Sharia* law.

Social conformity is perceived by the participants of this study as risk factors affecting particular reproductive health outcomes, such as STIs, ANC visits, adolescent pregnancy, contraceptive use and LBW. For example, participants perceive that social stigma about STIs has been seen to discourage the youths from seeking medical treatment for STIs. The stigma on premarital pregnancy is also viewed as discouraging young mothers from having full ANC visits. Youth who are discouraged from seeking treatment for STIs or from making full ANC visits have similar concerns about being embarrassed by

[9] (Indriani, Dewi, Murti, & Qadrijati, 2018)

unfavourable judgements from care providers. Both of these perceptions are reflected in the following quotes:

> *"Knowledge about STI is still low in Aceh. If there is a case of sexually transmitted infection, it should be kept a secret because it is considered sinful to have a disease like this. Also, I know of some cases of people who have sexually transmitted infections, but they try to treat themselves by using traditional methods because of a feeling of embarrassment."* (Interview Participant-5, 35 year-old female, a head of school)

And:

> *"Actually, it is no different between young mothers or adult mothers to have a good service for labour or pregnancy check at a health facility. But many young teenage mothers prefer to stay at home and not visit the village health centre for pregnancy check-ups. They are afraid of being asked many questions. In addition, a child of an adolescent mother may also face a stigma from the society."* (FGD Participant-47, 22 year-old male student)

Further, social approval for early marriage facilitates the prevalence of adolescent pregnancy, especially in rural areas where it is better for a girl who has just graduated from school to get married very soon. To quote a participant:

> *"In the village that I live in, cases of teenage pregnancies occur to young women who have just finished senior high school. They are about 18 year-old. They are proposed to by local men and married very soon after that. So, it is common to see that some pregnant women are teenagers."* (FGD Participant-47, 22 year-old male student)

In addition, it is widely considered in society that the use of contraceptives is a woman's responsibility, which becomes a risk factor of contraceptive use among the youth. A male student expressed his view on this:

> *"Often, contraception becomes the young mother's responsibility. Even if their partners were willing to use a condom, the woman is the one who needs to go out and get the condom to prevent a pregnancy. And when the woman lacks access to the source of the contraceptive, she would risk becoming pregnant."* (FGD Participants 89, 20 year-old male student).

Myth and culture in the society are also viewed as factors affecting reproductive health: for example in a remote village in Aceh some pregnant women are restricted from consuming certain good foods that are believed to

contain bad spirits. This myth results in LBW babies born to these young mothers. To quote one of the FGD participants:

> *"I saw my sister was restricted by my mother to take some particular food that was believed to be harmful to pregnant women. For example, my sister could not consume fish from our village river because my mother believed that fish is a symbol of evil. She was malnourished. My sister's baby was born with a very low birth weight."* (FGD Participant-52, 22 year-old female student).

In contrast, the *Islamic Sharia* law, which is enforced in Aceh province, has been perceived as a protective factor affecting reproductive health outcomes. For example, *Islamic Sharia* law is believed by some participants to indirectly reduce teenage pregnancy and the incidence of STIs because such a law ensures fewer premarital activities. The youth nowadays protect themselves from *"Zina"* (sin from premarital sexual intercourse) to avoid a deterrent effect of punishment by caning applied to people who do *"Zina"*. Both of the following two statements show the perception of two sub-district head participants:

> *"Because Aceh applies Islamic law, many teens tend not to have premarital sexual intercourse. In Islamic law, it is allowed to give caning punishment to people who do "Zina" as well as people who provide special place to do "Zina". That is why STI proportion is quite low, I believe. It is good to be applied in Aceh because we follow Sharia law."* (Interview Participant-19, 49 year-old male, head of a sub-district)

And:

> *"Caning punishment prevents youth from committing premarital sexual activities because they like to avoid the embarrassment effect. Hotels in Aceh follow strict regulations regarding marital status of hotel guests. Guest couples are especially asked to show their marriage certificate before being allowed to check in."* (Interview Participant-3, 50 year-old male, head of a sub-district)

6.2.8 Distal factors. Theme 8: Accessibility and Health Care Provider as a Key Access Point to Reproductive Health Service

Accessibility and Health Care Provider as key access points to reproductive health services are presented under two sub-themes-*Accessibility,* and *Health Care Provider.*

Accessibility is perceived by the participants of this study as a factor affecting ANC visits and contraceptive use among the youth. For example, free contraceptives in Aceh province are available only to married couples. This is typical for a province like Aceh where the *Islamic Sharia* law is applied, under which unmarried people are prohibited from having sexual intercourse, and not given access to free contraceptives. Thus, unmarried female youth run the risk of being exposed to an early pregnancy due to difficult access to contraceptives. In this connection, a female student participant stated:

> *"In Aceh province, the free contraceptive access is available to married couples. Thus, it is not usually possible for unmarried youth to buy condoms or other contraceptives due to cultural concerns and Islamic law. But those who engage in premarital sexual intercourse, risk getting pregnant though."* (FGD Participant-29, 22 year-old female student).

However, access to contraceptives is better for married young persons who live in urban areas. The study participants perceive that being an urban resident is advantageous in terms of the availability of a wide range of contraceptives in pharmacies. To quote one participant:

> *"I think urban people are more likely to use contraceptives because they can find various types of contraceptives in city-pharmacies, such as flavoured condoms or other types of spirals (intra-uterine device) for women."* (FGD Participant-56, 20 year-old female student).

But lack of accessibility is also perceived as a risk factor for full ANC visits when it becomes difficult to reach a health clinic due to the location of the pregnant young women in remote areas:

> *"Some people do not go for ANC because they cannot access a health clinic due to long distances and transportation problems. Some others have their own reason, such as not having any money to go to the doctor."* (FGD Participant-80, 24 year-old female student)

Health Care Provider is perceived by the participants of this study as one of the protective factors of ANC visits and choice of SBA among the youth. The participants believed that in Aceh province, ANC costs less in public clinics. This enables young pregnant women to have their ANC visits in sub-district health centres for example:

> *"In fact, now many pregnant women are advantaged by visiting public health clinics free of charge to have pregnancy checks. Many public hospitals and Puskesmas offers free ANC."* (FGD Participant-93, 21 year-old female

student).

In addition, the availability of at least one skilled midwife in every village in Aceh province (as in other provinces of Indonesia) facilitates young women to utilise ANC and SBA. The main task of those village midwives is to monitor and report routine antenatal care of pregnant women in the village they are working in. They also need to make sure that any pregnant woman utilises SBA in labour and childbirth. This is reflected in a statement by the head of a sub-district:

> *"Every village in Aceh province now has at least one village midwife. Currently pregnant young women are encouraged by them to have at least four ANC visits and satisfy the 10 Ts (10 steps of pregnancy check) program every month during pregnancy at the integrated community health care (Posyandu) or by village midwives. In Posyandu, they are served with nutritious food. This is also the reason behind why nowadays many young mothers utilise skilled birth assistants. These village midwives compulsorily make monthly reports of the data about ANC visits and use of SBA by pregnant women in their working area"* (Interview Participant-20, 50 year- old male, head of a sub-district)

6.2.9 Distal factors. Theme 9. Exposure to Social Media and Modern Technologies of Communication

Exposure to social media and use of modern technologies are perceived by the study participants as protective factors of ANC, SBA, STIs, and other reproductive health outcomes. For example, villagers who are now exposed to modern technology are more knowledgeable about STIs and antenatal care. The likelihood of choosing SBA has also increased as the knowledge about it has increased:

> *"But nowadays even those who live in rural areas, are exposed to modern technology and are more knowledgeable; they understand better about sexually transmitted infections, they know the benefits of pregnancy check-ups and they have more choice of skilled health providers during birth. The awareness to of their reproductive health is created by being exposed to modern technology of communication and information." (FGD* Participant-*91, 20 year- old male student).*

Online reliable sources of information about HIV/AIDS are also perceived as enabling factors for the youth to gain comprehensive knowledge of HIV-related prevention. Such sources could be in the form of popular health clubs or other reliable health applications that appear in the social media. A head of school stated her view as follows:

> *"Nowadays, many reproductive health clubs are available on the internet in which youth could receive counselling about anything including HIV and AIDS. Recently, many youths found that HIV/AIDS talks are no longer inappropriate. So those online platforms or youth clubs are really beneficial."* (Interview Participant-7, 37 year-old female, head of a school).

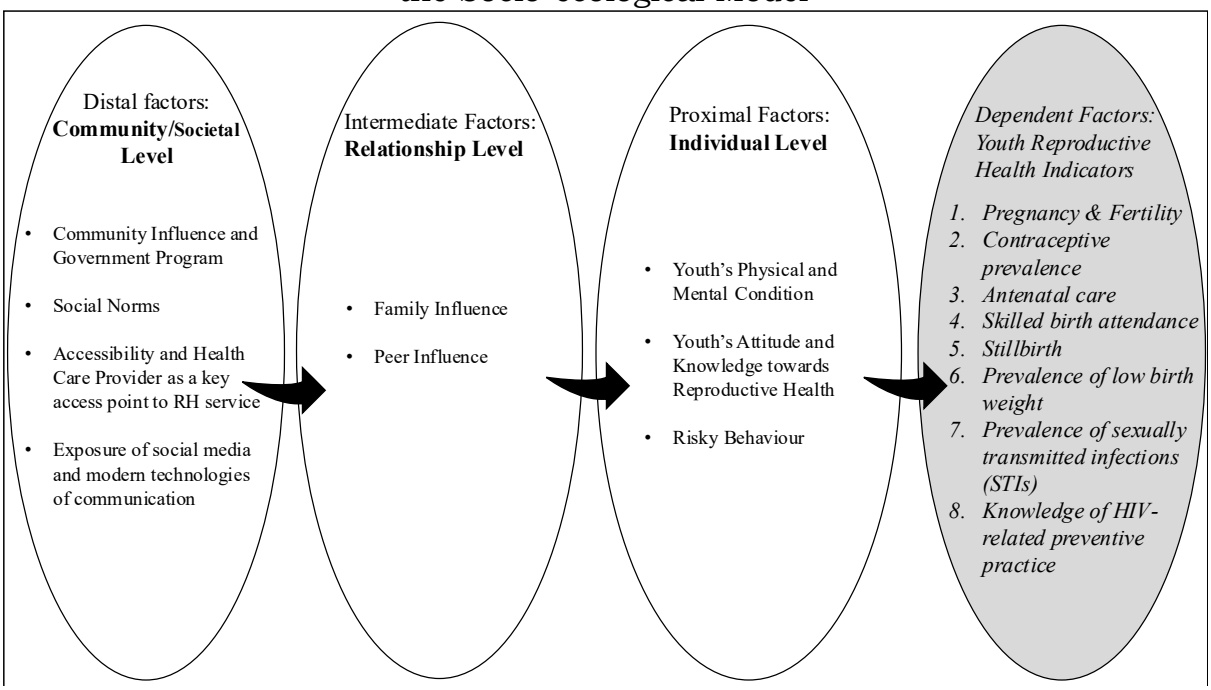
Similarly, the availability of online platforms related to reproductive health improves the knowledge of young mothers about pregnancy and advantages of having a full ANC. A female student stated:

> *"Luckily, nowadays we have Instagram in our hand that provides many health accounts related to young reproductive health that have encouraged young mothers to keep updating information about pregnancy and being encouraged to check their pregnancy regularly."* (FGD Participant-9, 23 year- old female student).

6.3 Discussion

The findings of the FGDs and In-depth interviews can be summarised in the form of a conceptual model as shown in Figure 6.1. This model shows how a set of youth reproductive health indicators (YRHI) in Aceh province may be conceptualised as being influenced in sequence by a set of proximate factors at an individual level, which in turn may be seen to be affected by a set of intermediate factors at a family/relationship level, which, finally may be seen to be influenced by a set of distal factors at a community/society level.

Figure 6.1 Illustration of Themes at Various Levels of the Socio-ecological Model



Source: Figure is prepared by the author based on Social-ecological model adapted from Blum et al. (2005)

In Chapter Five, Table 5.2 shows that the province of Aceh ranks number 18 among the 34 provinces of Indonesia in terms of the Female Youth Reproductive Index (FYRHI). The overall FYRHI and the scores of its individual components are extracted from Table 5.2 and shown in Table 6.3 above. The results of In-depth interviews and FGDs conducted in Aceh are discussed in this section with reference to the scores shown in Table 6.3.

Table 6.3 Female Youth Reproductive Health Index and Individual Component Scores, Aceh Province 2017

Rank	Prov-ince	FYRHI (out of 100)	Indicator scores (out of 100)			
			Enabling Factors	Sexuality & HIV /AIDS-related Knowledge	Sexual Activity & Family Planning	Fertility & Maternal Health Care
18	Aceh	70.50	70.30	57.20	67.20	87.40

Source: Extracted from Table 5.2 of Chapter Five of this thesis.

The responses of participants of FGDs and In-depth interviews suggest that at a community/societal level, distal factors such as social approval, *Islamic*

Sharia law, school regulation, peer-educator clubs and existing government programs may restrict the propensity of youth from engaging in premarital sexual intercourse, which helps them avoid early pregnancy. Specifically, it shows that the *Islamic Sharia* law applied in Aceh province indirectly reduces teenage pregnancy and STI incidence due to much restricted premarital activity and thus prevents being "embarrassed" with eventual punishment by caning, given to people who commit *"Zina"* or sin. The FGDs and In-depth interviews also highlight that religious ideologies prohibiting 'sexual intercourse before marriage' are closely aligned with Islamic values as prescribed in the *Quran* (Islamic Holy Scripture), proclaiming '*…do not approach unlawful sexual relationship. Indeed, it is ever an immorality and is evil as a way [Surah Al-Isra (17:32)*'. This belief appears to be strongly entrenched among the youth of Aceh province (Astuti, Hirst, & Bharj, 2020).

A study by Muhibbuthabry et. Al (2023) shows that Acehnese youth are prevented from premarital sexual activities due to the implementation of the qanun, the Islamic Sharia law which shape the character of the Acehnese youth to carry out behaviours recommended in Islam, including preventing sexual acts that occur in various places. A region that includes in Muhibbuthabry's study (2023) which does not have qanun tend to have more unmarried youths engaging in sexual behaviour such as holding hands, hugging, kissing in malls, having overnight in beaches and hotels, and parents who supports dating children.

Further, favourable attitudes towards premarital sex might be considered as socially deviant or immoral in the Indonesian culture and are deemed inappropriate according to Indonesian social norms (Berliana, Utami, et al., 2018). Moreover, according to the opinions of the participants of FGDs and In-depth interviews, school regulations allowing only never-married students to enrol in schools protects the youth from early marriage or pregnancy. The Government of Indonesia, through Marriage Law No. 16 of 2019, has specified the minimum legal age at marriage as 19 years for both women and men (Murni, 2020b). By 19 years of age, everyone should have normally completed their three year senior secondary school (grades 10-12) (Muttaqin, 2018). Attending *"Pre-marriage Training"* programs conducted by the Office of the Ministry of Religious Affairs also increases the awareness of a young bride in Aceh to postpone their pregnancy until age 20 years. Such training in Aceh

province, according to Jamaluddin et al. (2018) is conducted with the aim of helping the bride and groom to understand marital law, functions of the family and reproductive health. Similar pre-marriage training programs are conducted in other countries as well. For example, pre-marriage training in Iran provides would be brides and grooms with the knowledge of the dangers of adolescent pregnancies, proper nutrition in pregnancy, lactation and vaccination (Mehrolhassani, Yazdi-Feyzabadi, & Rajizadeh, 2018). However, in the opinion of FGD and In-depth interview participants, despite all these laws and programs in Aceh there may be instances adolescent premarital pregnancy which suggest the absence of parental figures or older persons in the family who could control an adolescents' sexual behaviour. According to Mkwananzi (2017) adolescent pregnancy is found to be connected especially with the absence of a biological father. Parental discomfort in discussing sexual matters with young family members leads to an absence of any guidance on contraceptive use by sexually active youth (Aventin et al., 2021). But with reference to family norms, the FGD and In-depth interview participants believe that early pregnancy is related with family preferences to have a grandchild that encourages a young daughter-in-law to get pregnant very early. This may happen due to pressures from the extended family, especially in rural areas where it is common to find social approval for a girl who has just graduated from school to get married early. This is in line with a study in Java that early marriages are strongly encouraged by the family to respect cultural and religious expectations or to take corrective action for their children's immoral behaviour by forcing the couple to an early marriage and show their responsibility as parents (to be accepted again in the society)[10] (Astuti et al., 2020). A study of young mothers in the Islamic context, by Hutchinson and O'Leary (2016), shows that religious processes which may be protective can be misunderstood and adapted by local culture and customs,

[10] Early marriage before the minimum legal age at marriage is considered as a violation of the Law on Sexual Violence Crimes no.12/2022 (the updated law). But marriage dispensation for under-19 could be applied to the Court under the Regulation of the Supreme Court of the Republic of Indonesia Nu. 5/2019

for example, many references in Islamic teaching that promote how to take care of pregnant women and babies are often not well recognised and widely understood. Further, according to Rizkianti et al. (2020), some parents, upon finding their daughters getting sexually mature as they grow older, consider it better to impose serious restrictions on their daughters rather than give them much independence. The views of the FGD and In-depth interview participants mentioned above appear to provide further insight into the low scores of Aceh province, particularly with respect to *Sexuality & HIV/AIDS-related Knowledge* and *Sexual Activity & Family Planning* (Table 6.3).

The utilisation of full ANC and SBA by the youth of Aceh province is influenced by health care accessibility, availability of health care providers, government programs and freely available information on the internet. The views expressed by the research participants suggest that in Aceh province ANC costs less in public clinics, and the availability of at least one skilled midwife in every village of the province facilitates young women to utilise ANC and SBA. It is important to also note that midwives are preferred by the women as they believe that midwives pay attention to their needs during pregnancy or labour (Agus, Horiuchi, & Iida, 2018). According to the views of participants pregnant women regularly attend *Posyandu* to have their healthy "*my meal plate*" to be consumed on site at the time of their monthly ANC visit schedule.

The "My Plate Program" has been proven to meet the Balanced Nutrition Guidelines (*Pedoman Gizi Seimbang*) on daily food requirement of nutrients by type and amount according to one's body's needs, adjusted for age and activity load (Khairunnisa, Nurcahyani, Samsudin, & Martiyana, 2022). In addition, women who make a timely visit to the health facility for ANC have a better opportunity for dietary counselling and iron and folic acid supplementation, adequate time for iron absorption from the gastrointestinal tract, and timely detection and treatment of different infections (Bekela et al., 2020). However, in Aceh there is still a lack of full ANC attendance by those young mothers who live in remote areas where a village midwife does not stay. The difficult access of health clinics due to pregnant women's remote location poses a

barrier to full ANC and SBA. Rural areas in Indonesia, classified as remote or isolated zones, have insufficient public transport and limited road connection (Laksono et al., 2020), which accounts for unequal distribution of healthcare providers and facilities to particular areas (Mati et al., 2018). In addition, the opinions of FGD and In-depth interview participants also suggest that young women, especially in rural areas who live in families that for generations have trusted traditional birth attendants would prefer not to use SBAs. The participants think incorrect advice from friends on antenatal check-ups also discourages young mothers from having full ANC visits during their pregnancy. A study in six low-middle income countries found that traditional birth attendants (TBAs) are chosen by rural women as they share similar culture and language (Garces et al., 2019). TBAs are also often referred by friends and neighbours in the interests of money saving that could be financially traded-off for basic necessities such as food and clothing in the context of Bangladesh (Bhowmik et al., 2019). But for some young villagers in Aceh province who have been exposed to modernisation, for example through access to online platforms/mass media related to reproductive health, the pregnancy knowledge increases and so does the likelihood of having full ANC and SBA. Apart from Higher education, the awareness of pregnancy care for some people is simply gained by listening to the radio, watching television, or reading the newspaper at least once a week that makes women more confident to make proper health care decisions themselves (Ahinkorah et al., 2021). The views and opinions expressed by the FGD and In-depth interview participants provide further insights into why the youth of Aceh have scored relatively well in Enabling Factors (Table 6.3).

In terms of low birth weight, it is believed in Aceh province that myth and culture in the society as well as family's lack of ability to buy good food play roles as risk factors of LBW. These factors result in malnourishment among young pregnant women in Aceh province due to poverty or restrictions to consume certain types of food that may be beneficial in terms of nutrition, but are believed by culture and tradition to contain evil spirits. This could be explained by the fact that in Indonesia some cultures might treat young

mothers as “children” themselves who should be controlled by their parents’ disciplinary power in terms of maternal care and parenting practices (Astuti et al., 2020). Based on the opinion of participants, LBW is a product of an unmatured reproductive system, disease fragility, and stress due to unwanted pregnancy and mental unpreparedness of being a mother. Maternal height is a pre-disposing factor for LBW, which shows that Asian and African mothers whose height is less than 1.5metres are more likely to deliver low birth weight babies (Aboye, Berhe, Birhane, & Gerensea, 2018). Further, young women who have never borne any offspring are more likely to be affected by pre-eclampsia, and inadequate prenatal care could result in nutritional deficiency, insufficient weight gain during pregnancy, and untreated infections (Macedo et al., 2020). Further, stressful events such as disaster, grief during pregnancy, loss of a beloved, and divorce may disturb the activation of the hypothalamus pituitary adrenal axis during pregnancy that is believed to be responsible for low birth weight and even preterm babies (Lima et al., 2018). Excessive physical activity, unhealthy diet, and smoke exposure are other factors related to LBW among young women, as opined by the FGD and In-depth interview participants. Excessive physical activity might be found among lower educated women who work as farmers in rural areas and are exposed to pesticides which are risk factors of LBW and stilbirth (Qu et al., 2019). Similarly, micronutrient deficiencies during pregnancy are shown to have serious implications for foetal development so that young mothers with anaemia, for example, are more likely to deliver LBW babies and insufficient calcium during pregnancy is linked to hypertension (Aboye et al., 2018). Either active or passive, maternal smoking also deploys disturbing effects on the growth of the foetus, concerning neonatal birth weight and disturbing the main organ development i.e. brain (Dessì, Corona, Pintus, & Fanos, 2018). Besides LBW, stillbirth is also perceived by the study participants to be affected by risky behaviour as proximal factors, such as attempted abortion and unhealthy diet during pregnancy. In addition to having a pregnancy terminated, the foetus of a failed abortion which continues to develop in the mother’s womb can end up with foetal abnormalities or even stillbirth due to the intake of hazardous substances such as Aconitum plants in Chinese

herbal medicine or Piper retrofractum in Indonesian herbal medicine (well known as Jamu) (Jun, Rahmat, Han, Yang, & Kang, 2021). Malnourishment is usually the result of low intake of iron, animal-protein, fruits, and vegetables (Zerfu, Umeta, & Baye, 2016) which lead to inadequate development of the foetus, foetal distress, diabetes mellitus and a potential risk of stillbirth (Mali, Dalal, Khursheed, & Gan, 2021). The views of the FGD and In-depth interview participants mentioned above appear to provide further insight into the scores of Aceh province, particularly with respect to Fertility & Maternal Health Care (Table 6.3).

The study participants also believed that stigmatisation affects the knowledge of HIV-related prevention and STIs among youth in Aceh province. Social stigma about STIs has prevented Acehnese youth from seeking medical treatment for STIs for fear of being embarrassed and unfavourably treated by the health providers. Young women's willingness to seek medical treatment for STIs could be outweighed by their fear of being treated as shameless, immature and immoral; and of being disregarded by health care providers due to their young age (Sewpaul et al., 2021). At the school level, some teachers in Aceh province hesitate and feel embarrassed about discussing reproductive health directly with their students. This could be explained by the fact that a teacher is considered as a respectful model for pupils at school who are adolescents; in practice many schools are not ready yet to include sex education into the school curriculum (Siti, 2019). Similarly, at a family level, Acehnese parents who consider that discussion about HIV and other STIs is taboo and less important would contribute to inadequate knowledge of HIV-related prevention among the youth in the family. Many parents in Indonesia are also still unwilling to have topics on sexual issues on the discussion floor because they think that such topics are taboo (Siti, 2019). Topics related to sex are considered taboo in many parts of Indonesia, therefore parents hesitate to discuss this with their adolescent children (Rizkianti et al., 2020). Further, incorrect information about sex and reproductive health from friends influences the youth of Aceh province to imitate their friends' incorrect behaviour and have STIs themselves. This is especially true of adolescents

who lack information about sexual and genital hygiene. On the other hand, the participants in this study believed that discussions about HIV/AIDS with knowledgeable friends through peer-educator and peer-counsellor programs at school increases knowledge of HIV-related prevention among youth. Rizkianti et al. (2020) suggested that as peers are a source of emotional support among young people, they are potentially capable of promoting risky sexual behaviour if they provide incorrect information. On the other hand, adolescents who receive proper knowledge of HIV at school-based programs based on a peer-approach to educate students about sexuality and reproductive health are proved to be effective in improving the students' awareness and knowledge of HIV-related prevention (Krugu et al., 2018). The views of the FGD and In-depth interview participants mentioned above appear to provide further insight into the low scores of Aceh province, particularly with respect to *Sexuality & HIV/AIDS-related Knowledge* and *Sexual Activity & Family Planning* (Table 6.3).

Contraceptive use among the youth in Aceh province is connected with the application of *Islamic Sharia* law and local social norms. For example, free contraceptives in Aceh province are available only for married couples. This finding actually shows a two-faced coin of effect that youth in Aceh may face. Where unmarried people are prohibited to have sexual intercourse under Islamic Sharia law, depriving them of free contraceptives is done with the aim that they do not indulge in premarital sexual intercourse. But in terms of reproductive health, this is unfavourable to youth that may exposed to the risk of early pregnancy due to difficult access to contraceptives. A study of six Asian countries found that in general women aged 15–19 years are more likely to experience unintended pregnancies due to a lack of and misunderstanding about contraceptive use, especially among young women from rural areas (Sarder, Islam, Talukder, & Ahammed, 2021). The role of parents and guardians in providing sexual and reproductive health education could encourage youth in terms of supervising either the sexual behaviour of the youth or the contraceptive use to prevent themselves from having unintended pregnancies (Adam, Ganle, Asare, Baafi, & Letsa, 2021). It is also believed that

Acehnese married youth, especially in urban areas are supportive of the government's family planning program, which however, prevents the unmarried youth from using contraceptives. This attitude of the youth is supported by their awareness to have children after two years of marriage, or receiving proper information on family planning methods from Family Planning field officers (A. Z. Islam, 2018). Urban women are more likely to be educated or come from educated families who supervise their reproductive health and have a positive attitude towards postponement of the first birth until after their 20th birthday (Bitew et al., 2021). Lastly, the only risk factor to contraceptive use found in this study is that Acehnese youth who have a hormonal imbalance as an effect of contraceptive use would have stopped using it. According to Casado-Espada et al. (2019), hormonal contraceptives is responsible for a decrease of circulating androgen levels, and the inhibition of oxytocin functioning which can be translated into negative effects on the female sexual function, with reports of decreased libido, and changes in women pair bonding behaviour. The views and opinions expressed by the FGD and In-depth interview participants provide further insights into why the youth of Aceh have scored relatively well in *Sexual activity and Family Planning* indicator shown in Table 6.3.

6.4 Conclusion

This chapter has introduced the study findings from the analysis of qualitative primary data conducted in Aceh province, Indonesia. The study collected the perceptions of 198 youths and 20 community members regarding youth reproductive health in Aceh province. This chapter shows how distal factors, intermediate factors and proximal factors of youth affect their reproductive health outcomes in Aceh province based on the perception of FGD and In-depth interview participants. To show how the sequential nature of the three groups of factors works in a protective way, exposure to social media as distal factors - for example, has given the youth opportunities to join with online peer-educator clubs or other health communities which can increase their knowledge of reproductive health and develop positive attitudes towards

activities that are likely to support their reproductive health wellbeing. Further, to show an example how the concept works as a risk factor, social norms to have a freshly graduated senior high school girl get married has made parents/family members comply with the norms which in turn puts the married young girls into physical and mental unpreparedness to get pregnant which might result in risky outcomes of antenatal care, SBA or low birth weight babies.

7

CONCLUSION

7.1 Introduction

This thesis has examined youth reproductive health in Indonesia, where youth is defined as unmarried and married women and men aged 15-24 years (UNDESA, 2007). During 2012-2017, Indonesia faced several challenges with youth reproductive health, such as higher fertility and earlier adolescent childbearing, higher prevalence of sexually transmitted infections (STIs) among the youth higher incidence of low birth weight babies and stillbirth rates among mothers aged below 20 years and reduced prevalence of contraceptive use and antenatal care coverage among women aged 15-24 years. The challenges also include lower prevalence of knowledge about risks to pregnancy and HIV-related preventions practices.

With reference to the challenges mentioned above, this thesis aims to address the research question: “Why has the reproductive health (RH) situation of the youth in Indonesia, as implied by several RH indicators, deteriorated or not improved in recent years?”. This has been addressed by a number of objectives. The primary objective of this research is to identify and analyse the factors influencing youth reproductive health indicators for which data are available, such as, pregnancy/fertility, contraceptive prevalence rate, stillbirth rate, antenatal care, prevalence of low birth weight babies, and the prevalence of sexually transmitted infections (STIs). The second major objective of this study is to analyse the knowledge of HIV-related preventive practices among youth in Indonesia. These two objectives are addressed in Chapter Four and Chapter Six. Further. The third major objective of this study addressed in Chapter Five, is to construct a youth reproductive health index for Indonesia – the Female Youth Reproductive Health Index (FYRHI. The fourth and last

major objective of this study is to provide recommendations to the government regarding youth reproductive health in Indonesia, which is addressed in the present chapter.

7.2 The Main Findings of the Study

7.2.1 Factors Influencing Youth Reproductive Health Indicators in Indonesia

The various factors associated with youth reproductive health in Indonesia are presented by using terms like "risk factors" and "protective factors" following Blum and Mmari (2005) as explained in Chapter Two. To recall the two definitions, factors that trigger the youth to act and interact in specific ways that can lead to an increase in the likelihood of negative reproductive health behaviour are called *"risk factors"*, while the factors that trigger the youth to act and interact in specific ways that can lead to an increase in the likelihood of positive reproductive health behaviour, are called *"protective factors"*.

The findings of this study show that around 75 per cent of married female youth in Indonesia have had a live birth, with a majority having borne only one child as at the time of the survey. Fifteen per cent of married female youth were pregnant at the time of the survey. Prolonged labour and anxiety were two complications that were reported by most of the married female youth who had had a live birth during the five years preceding the survey. Among never married female youth only a very small proportion (less than 0.5%) were pregnant, had an unwanted pregnancy, had a miscarriage, abortion or stillbirth or a live birth at the time of the survey. The average age at first marriage or at first union among the married/in-union females is 18.25 years and the average age at which the female youth had their first live birth is 19.2 years, with urban young women having had their first birth later than their rural counterparts. Further, married female youth and their partners who have higher levels of education have older ages at first birth, fewer children ever born (CEB), and prefer to choose skilled birth attendance (SBA) at

delivery. But a higher level of partner's education is found to be a risk factor for married female youth's contraceptive use. Married female youth who have No education are also prone to having incomplete antenatal care (ANC) visits and deliver still born babies. Most of the married female youth who reported having STIs had partners with only secondary school education. Further, though married women's age is found to be a protective factor for full ANC visits (the higher the age, the higher is the likelihood of full ANC visits), higher age of the woman is associated with the likelihood of a larger total CEB (as expected) but lower contraceptive use. The association between age and larger total CEB is true also for the husbands/partners of the women (also as expected). In both these cases of higher age and lower CEB and higher age and lower contraceptive use, the logical line of action should be to encourage higher contraceptive prevalence among the youth, particularly the older youth, in order to control or limit the number CEB among the youth (and for women at older ages).

Among married female youth, increased household wealth quintile is found to be a protective factor of total CEB, age at first birth, completed number of ANC visits, and choice of skilled health personnel at birth (SBA). Among married male youth, increased wealth quintile is found to be a factor that facilitates sexually transmitted infection. For married female youth, having discussions about family planning, with either the husband or friends/neighbours is found to be a protective factor for women's contraceptive use. The absence of such discussions leads women to be less likely to have full ANC visits and be more likely to have stillbirth. Larger numbers of living children are found to be associated with increased use of contraceptives among married female youth. It is also found that a larger number of living children is associated with a lower likelihood of the young women to have SBA. In other words, having more children is a risk factor for skilled birth attendants. On the other hand, the fewer children a woman has ever borne, the less likely she would be to have a stillbirth, in which case fewer number of CEB is a protective factor for not having stillbirths.

Further, this study has also found that an increased number of ANC visits and the absence of pregnancy complications increase the likelihood of utilising SBA and reduce the chance for young women to have low birth weight babies. Having fewer than four ANC visits may also increase the likelihood for young women to experience stillbirths. Drinking untreated water is associated with the chances of having stillbirths, as untreated water (like that from unprotected dug wells or springs, surface water) is contaminated by chemical agents such as chloroform, bromo-dichloro-methane, etc. (Akombi, 2018; and Rivera, 2018). A woman's knowledge about bleeding during pregnancy is found to increase her likelihood of choosing SBA. Thus, knowledge about bleeding during pregnancy may be considered a protective factor for using skilled birth attendants at delivery. Further, young women with STIs who become aware about sexually transmitted infections agree that women should refuse to have sex with their partners if they do not want.

The findings from an analysis of qualitative data provide support in addressing the first objective of the thesis, which is to identify and analyse the factors influencing youth reproductive health indicators for which data are available. The opinions and views expressed in the focus group discussions (FGDs) and in-depth interviews provide the religio-cultural and socio-economic contexts in which the behaviours and actions of the youth may have contributed to the reproductive health outcomes analysed from quantitative data, at least for the province of Aceh.

The qualitative information collected in Aceh province also show the prevailing view that early pregnancy among adolescent and young women may result from factors such as absence of parental figures depriving the youth of vital advice on timings of marriage and childbearing, social approval of early marriage among rural people, and a family's desire to have a grandchild. But at the same time, the edicts of *Sharia Law* which prohibit sexual intercourse between unmarried women and men helps prevent pre-marital sexual intercourse and potentially contribute to preventing early pregnancies.

According to qualitative information collected in Aceh, many youths understand that having premarital sexual intercourse would make them liable for punishment by caning and embarrassment in the society. The participants to the qualitative survey also expressed the view that early pregnancies could be prevented by regulations in schools to admit only never-married students. The participants to the qualitative survey also thought that programs like *"Pre-marriage Training"* conducted by the Office of the Ministry of Religious Affairs are seen to increase young women's awareness about postponing pregnancies until the age of 20 years and that the peer health-educator and peer counsellor clubs help the youth in improving their knowledge of sexual reproductive health (SRH) and protect them from engaging in risky sexual behaviour.

According to the qualitative survey participants low birth weight babies (LBW) among young mothers in Aceh are caused by malnourishment due to poverty, lack of education, mental health problems, excessive physical activity, exposure to alcohol/tobacco smoke, infrequent pregnancy check-ups, and myth/deviant culture that disturb the health of the foetus, and that any disturbance in the development of the foetus, caused by unhealthy diet and intake of hazardous substances during pregnancy can end up in a stillbirth. The qualitative information endorsed the Government's program on nutrition called "*Isi piringku*", roughly translated as *"fill my plate*" conducted as a part of *Posyandu* (integrated service post) as a means of encouraging young pregnant women to understand the importance of balanced diets and pregnancy care to prevent them from having LBW babies.

The significance of access to a wide range of contraceptives in pharmacies for increasing the likelihood of contraceptive use among married female youth in urban areas of Aceh province is confirmed by the participants to the qualitative survey. The married youth's support of the government family planning program is another positive attitude and a protective factor for contraceptive use that is reflected in the qualitative information. However, the adoption of *Islamic Sharia* law in Aceh is seen to prevent unmarried youth

from accessing contraceptives through public shops or health centres because under this law contraceptives can only be accessed by married people. It follows from this that unmarried sexually active youth are at risk of being exposed to early pregnancies because of a fear of religious sanctions. The qualitative information also suggests that the youth's experience of hormonal imbalance as a side-effect would make them decide against continuing to use contraceptives. Further, in the eyes of the participants of the qualitative survey social conformity to the fact that only women should be responsible for ensuring contraceptive use is a risk factor of contraceptive use by the young women, more so when they lack access to contraceptives.

From information gathered in the qualitative survey, it appears that unmarried young women in Aceh tend to avoid making full ANC visits and from choosing skilled birth attendants (SBA) at delivery. The former, partly because of the perceived fear of stigma on premarital pregnancy from health care providers, and partly because of lack of access to ANC facilities due to remoteness, while the latter (avoidance of SBA) due to hereditary reliance on and loyalty to traditional birth attendants, which are still prevalent in rural areas. On the other hand however, factors such as having lower ANC costs in public clinics, the availability of at least one skilled midwife in every village in Aceh province (as in other provinces of Indonesia), lessons learned from an adolescent friend's experience regarding early pregnancy, and the availability of reliable, online health platforms encourage young women to utilise ANC and SBA.

Sexually transmitted infections (STIs) among youth in Aceh are also seen to result from a lack of correct sexual and reproductive health knowledge, multiple sex partners, absence of condom use, and lack of attention from the family. It is also believed that social stigma about STIs discourages the youths from seeking medical treatment for STIs, mainly due to receiving unfair judgements from healthcare providers. Fortunately, villagers are more knowledgeable about STIs because of their exposure to modern technology. In

addition, the injunctions of *Islamic Sharia* law indirectly reduce the incidence of STIs because of restrictions on premarital sexual activities.

7.2.2 Knowledge of HIV-related Preventive Practices among Youth in Indonesia

Knowledge of HIV-related prevention is found to be very low among youth who are aged 15 to 19 years and who are urban residents, except the married/in union male youth. Further, HIV-related prevention knowledge is found to be low among youth with low levels of education. The low level of HIV-related prevention knowledge, especially that among married youth is very likely caused by an absence of HIV/AIDS information that could have been obtained from mass media, health provider/teacher, or partner. Further, a low level of HIV-related prevention knowledge, especially among never-married youth is also likely to be caused by an absence of HIV/AIDS information that could have been obtained from schools, community-based health meetings, or reproductive health counsellors. On the other hand, this research found that, among never-married or married youth wider access to sources of HIV/AIDS information plays a significant role in having a comprehensive knowledge of HIV-related preventive practices. Parent's and teacher's negative attitudes toward HIV/AIDS discussions have also led to inadequate knowledge of HIV-related prevention among the youth. But nowadays, online and reliable sources of information about HIV/AIDS,, supported by their young biological age that arouses a high level of curiosity about new reproductive health topics have been enabling factors for the youth to gain comprehensive knowledge of HIV-related prevention. In contrast to a lack of discussion about HIV/AIDS with most of the parents and teachers, discussions of this subject with knowledgeable friends is found to facilitate an improvement in knowledge of HIV-prevention among youth in Aceh province.

7.2.3 The Female Youth Reproductive Health Index in Indonesia

The third major objective of this study is to construct a female youth reproductive health index (FYRHI) for Indonesia, based on information gathered through objectives 1 and 2. The ranking of the provinces according to the FYRHI has been compared to their ranking according to the 2017 Indonesia's Human Development Index (2017 HDI) of the provinces[11] and 2017 Indonesia Household Wealth Index of the provinces[12]. The rank correlation coefficient between FYHRI and HDI, as well as that between FYRHI and percentage of households classified as richer and richest, is found to be moderately strong and positive. The FYRHI produces a practical and replicable measure to assess the differentials in female youth reproductive health at a provincial-level. As the analysis in Chapter Six shows with excellent measures of internal reliability and validity, the FYRHI can be adopted as a tool by either health professionals or researchers to aim at health resources for young people. This index also allows investigations of how interventions are customised for different geographic circumstances.

7.3 Limitations of the Study and Suggestions for Further Research

Possible limitations of this study may be classified as (i) data limitations and (ii) limitations due to travel restrictions caused by Covid-19.

7.3.1 Data Limitations

The World Health Organisation recommends 17 reproductive health indicators for assessing the reproductive health of populations (WHO, 2006), but the 2017 Indonesia Demographic and Health Survey collected data on only 8 indicators, which limited the scope of assessing the reproductive health of the youth. Therefore, future surveys should collect data on as many more indicators as possible.

[11] The 2017 HDI was obtained from the Indonesia Statistics Bureau (2021).
[12] The 2017 Indonesia Household Wealth Index was obtained from the 2017 IDHS dataset.

The use of the 2017 IDHS as secondary data in this study may have some other limitations as well. Some variables can be accessed only for married youth, i.e. age at first cohabitation, that was not asked of the never-married respondents. Though some variables such as STI experience, currently pregnant status, and having living children were also given to never-married youth, most of the proportions of answers showing "Yes" were around zero per cent. This could possibly have happened due to untruthful answers given by never-married youth in Indonesia in view of social norms or stigma for having STIs. Thus, this study has limited number of indicators for a more comprehensive assessment of reproductive health for different marital status respondents. It is recommended that future adolescent reproductive health surveys be conducted with larger sample sizes and interviewers be trained more rigorously to collect the information as accurately as possible.

7.3.2 Limitations Due to Travel Restrictions Caused by Covid-19

Due to the COVID-19 pandemic travel restrictions to Indonesia (and most other countries), the In-depth interviews and FGDs had to be managed remotely from Adelaide, Australia, which required the appointment of Research Assistants (RAs) to conduct the interviews and focus groups. This could have introduced limitations in terms of the responses to FGDs because, although all the RAs had been trained online by the researcher about how to conduct FGDs, differences in approach and personalities of each RA may have resulted in different levels of openness of FGD respondents. Future similar research could consider using only one RA to facilitate all FGDs, but this could add to the time and travel costs.

Further, since the In-depth interviews were conducted by the main researcher (the author of the thesis) via telephone/video calls from Adelaide, the absence of face-to-face interaction and limitations of time could have affected the ability to of participants to provide frank and fair responses to the questions. They might also have been guarded in giving the answers in view of the

prevailing *Sharia Law*. Some or all of these limitations could be successfully handled by one-on-one interviews.

In addition, some in-depth interviews that were conducted online by phone between participants and the main researcher could have been intrusive in terms of inconvenience of time due to time differences between Adelaide and Aceh province, and interruptions of internet connections. Thus, participants might have given limited information to answer the questions because they did not want everyone around them to listen to what was being discussed, especially if the respondent was in a public place in his/her office when the interview was being conducted. For future research, such barriers could be addressed by letting the participants choose the time and place at their convenience, in a comfortable setting, and free from any potential disruption and noise. This could be managed with face-to face interviews for example, by conducting them in their own offices such as in the offices of heads of sub-districts where any possible disruption could be minimised.

7.4 Policy Implications and Recommendations

Notwithstanding the limitations mentioned above, the following recommendations are made based on this study. These recommendations fulfil the fourth major objective of the thesis namely "to provide recommendations to the government and concerned NGOs regarding youth reproductive health in Indonesia".

1) To minimise unfavourable effects of social/family norms towards youth reproductive health, such as parental pressures for early marriage and early childbearing, lack of knowledge about the transmission of STIs, HIV/AIDS and social stigma and unfair and judgemental treatment from healthcare providers on getting these diseases, it is recommended that the central and provincial governments should coordinate with religious leaders and traditional local leaders (*pemuka adat*) to design written handbooks based on local wisdom containing educational material, specific to the culture of each province on the transmission and prevention of such diseases directed

at parents, school teachers and the youth themselves. These should be followed by regular campaigns, workshops and when needed, one-on-one counselling sessions. Provincial governments could provide funds for these activities. The messages written in the handbook, in practice, could be delivered in many forms at occasion such as *Posyandu*, parent-teacher meetings at schools, health counselling and family planning counselling. The proper message delivery or advocacy would also be expected to educate the married youth who are prone to have incomplete ANC visits, have stillbirth and reject contraceptive use to understand maternal care and family planning. Such education is also expected to change partners' attitudes and behaviour to be more literate in terms of their young wives' reproductive health.

2) Further, as Indonesian schools do not have formal curricula on sex education, it is recommended that the school curricula should include comprehensive sex education material following The International Guidelines on Sex Education designed by UNESCO (2018). Sex education material should also be directed at high school teachers to implement a sex education curriculum.

3) In addition, it is recommended that the National Population and Family Planning Board of Indonesia should create appropriate media including posters, videos, and books to be used in peer-educator and peer-counsellor clubs related to reproductive health and STI/HIV-related information, including care, treatment, and removal of stigma towards people with STIs and HIV/AIDS. These could also be based on UNESCO (2018) guidelines.

4) The Government should set up "*mobile Posyandu*"[13] and make sure the young pregnant mothers in the remote areas have sufficient pregnancy check-ups by the health providers and utilise SBA. The "*mobile Posyandu*"

[13] *Posyandu* is community based integrated service post providing five services in one place – child health, nutrition, family planning, immunisation and antenatal care (Indriani et al., 2018)

could also include home visits to provide additional nutritional food, usually given to Posyandu visitors.

5) Lastly, in order to address the challenges of reproductive health in Indonesia, particularly among adolescents aged below 20 years, it is recommended that qualified health providers (doctors, midwives, nurses) in the Community Health Centres (locally known as *Puskesmas*) be given additional training in serving the reproductive health needs of adolescents such as counselling on reproductive health, providing antenatal and postnatal care, contraceptives, treatment of pregnancy complications, STIs, and proper nutrition during pregnancy to prevent low birth weight babies. Very importantly, such additional training should emphasise the need for healthcare providing staff to be friendly and sympathetic to adolescents and not be judgemental or stigmatise their young patients. This might not need additional resources. Rather, this recommendation could be adopted just by expanding the range of services provided by the existing Mother and Child Polyclinic (*Poli Ibu dan Anak)* in each *Puskesmas* to add the services recommended above and by calling them Mother-Child-Adolescent Polyclinic (*Poli Ibu-Anak-Remaja*).

7.5 Concluding Remarks

This thesis is the first systematic study of the reproductive health situation of youth in Indonesia. The identification of risk and protective factors of youth reproductive health and the construction of a composite index of youth reproductive health by provinces, together with recommendations for programs and data collection, provide a starting point for action towards improving the reproductive health of young women and men in Indonesia.

APPENDICES

Appendix 1:

Human Research Ethics Committee Approval Notice

22 February 2021

HUMAN RESEARCH ETHICS COMMITTEE

APPROVAL NOTICE

Dear Ms Yuniarini,

The below proposed project has been **approved** on the basis of the information contained in the application and its attachments.

Project No:	2650
Project Title:	Risk and protective factors Affecting youth reproductive health in Indonesia with the focus on Aceh province
Primary Researcher:	Ms Yuniarini
Approval Date:	22/02/2021
Expiry Date:	15/07/2023

Please note: *Due to the current COVID-19 situation, researchers are strongly advised to develop a research design that aligns with the University's COVID-19 research protocol involving human studies. Where possible, avoid face-to-face testing and consider rescheduling face-to-face testing or undertaking alternative distance/online data or interview collection means. For further information, please go to https://staff.flinders.edu.au/coronavirus-information/research-updates.*

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. **Participant Documentation**

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the HREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by Flinders University's Human Research Ethics Committee (Project ID 2650). If you have any complaints or reservations about the ethical conduct of this study, you may contact Flinders University's Research Ethics & Compliance Office via telephone on 08 8201 2543 or by email human.researchethics@flinders.edu.au.

2. **Annual Progress / Final Reports**

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research 2007 (updated 2018)* an annual progress report must be submitted each year on the anniversary of the approval date for the duration of the ethics approval using the HREC Annual/Final Report Form available online via the ResearchNow Ethics & Biosafety system.

Please note that no data collection can be undertaken after the ethics approval expiry date listed at the top of this notice. If data is collected after expiry, it will not be covered in terms of ethics. It is the responsibility of the researcher to ensure that annual progress reports are submitted on time; and that no data is collected after ethics has expired.

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please either submit (1) a final report; or (2) an extension of time request (using the HREC Modification Form). For student projects, the Low Risk Panel recommends that current ethics approval is maintained until a student's thesis has been submitted, assessed and finalised. This is to protect the student in the event that reviewers recommend that additional data be collected from participants.

Page 1 of 2

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- change of project title;
- change to research team (e.g., additions, removals, researchers and supervisors)
- changes to research objectives;
- changes to research protocol;
- changes to participant recruitment methods;
- changes / additions to source(s) of participants;
- changes of procedures used to seek informed consent;
- changes to participant remuneration;
- changes to information / documents to be given to potential participants;
- changes to research instruments (e.g., survey, interview questions etc);
- extensions of time (i.e. to extend the period of ethics approval past current expiry date).

To notify the Committee of any proposed modifications to the project please submit a Modification Request Form available online via the ResearchNow Ethics & Biosafety system. Please open the project, then select the 'Create Sub-Form' tile in the grey Action Menu, and then select the relevant Modification Request Form. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

4. Adverse Events and/or Complaints

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Yours sincerely,

Hendryk Flaegel

on behalf of

Human Research Ethics Committee
Research Development and Support
human.researchethics@flinders.edu.au

Flinders University
Sturt Road, Bedford Park, South Australia, 5042
GPO Box 2100, Adelaide, South Australia, 5001

http://www.flinders.edu.au/research/researcher-support/ebi/human-ethics/human-ethics_home.cfm

ResearchNow
Ethics & Biosafety

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Appendix 2:

Map of five representative districts of data collection in Aceh province, Indonesia (in red font)

Source: https://www.visitbandaaceh.com/aceh-indonesia-map/

Appendix 3:

Approval letter for Aceh's youth and community member database utilisation

bkkbn
Provinsi Aceh

Banda Aceh, 3 December 2020

1594 /PL.101/J5 /2020
Permission for Database Access

To.
Ms. Yuniarini
In
Adelaide

Dear Yuniarini,

With reference to your recent application, I am pleased to allow you access to the database of the Centre for Adolescent Reproductive Health Information and Counseling (Principals, Peer Educators, Peer Counsellors), Religious and Community Leaders, and Family Planning/Health Workers from five districts in Aceh province namely West Aceh, East Aceh, North Aceh, Central Aceh and South Aceh for your research in connection with your PhD studies on "Risk and Protective Factors on Adolescent Reproductive Health in Indonesia with a focus on Aceh Province", with the condition that you will use the data only for research purposes.

I also confirm that people in the database have consented to this information being used for research and policy purposes.

With best wishes,

Drs. Sakidah Kastri, M.Pd
Head, BKKBN, Aceh Province
Official ID: 19650301 1995031 002

National Population and Family Planning Board (BKKBN)
Office of Aceh Province

Appendix 4 :

The Participant Information Sheet and Consent Form

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PARTICIPANT INFORMATION SHEET AND CONSENT FORM

Title:
"Risk and protective factors Affecting youth reproductive health in Indonesia with the focus on Aceh province"

Chief Investigator
Ms. Yuniarini
College of Humanities, Arts and Social Science
Flinders University
Tel: 0411787964

Principal Supervisor
Associate Professor Udoy Saikia
College of Humanities, Arts and Social Science
Flinders University
Tel: 08 82012639

Associate Supervisor
Associate Professor Gouranga Dasvarma
College of Humanities, Arts and Social Science
Flinders University
Tel: 08 82012429

My name is Yuniarini and I am a Flinders University Phd student. I am undertaking this research as part of my degree. For further information, you are more than welcome to contact my supervisors. Their details are listed above.

Description of the study
This study is titled "Risk and protective factors Affecting youth reproductive health in Indonesia with the focus on Aceh province**".** This project aims to examine how individual characteristics and the broader socio-economic environment of the youth influence their reproductive health, defined by the World Health Organization as "the ability of people to have a satisfying and safe sex life and their capability to reproduce (have children) with the freedom to decide if, when and how often to reproduce". This project is supported by Flinders University, College of Humanities, Arts and Social Science

Purpose of the study
This project aims (1) to analyse the causes why youth contraceptive prevalence, stillbirth rate of young mothers, antenatal care among the youth, prevalence of low birth weight babies among the youth and the prevalence of sexually transmitted infections (STI) among the youth have deteriorated in Indonesia; (2) to examine the knowledge of HIV-related preventive practices among youth in

inspiring achievement

Indonesia; (3) to construct a youth reproductive health index (RHI) in Indonesia; (4) to provide recommendations to government regarding youth reproductive health in Indonesia.

Benefits of the study

The research will help to investigate youth reproductive health, particularly in Indonesia where the subject has not received much attention from researchers, but where the risk and protective factors of reproductive health exist in a multi-layered environment in which the youth live. In addition, as many people find the idea of a sexual or reproductive health as embarrassing, thus investigating it may gain the understanding to help people make informed choices about their sexual and/or reproductive health and the confidence to seek advice. Moreover, a research in sexual and reproductive health can help finding out ways to ease the burden of HIV and other Sexually Infected Diseases. This area also educates people about sexuality and fertility that may improve the lives of women and children especially for making a difference in developing countries.

Participant involvement and potential risks

If you agree to participate in the research study, you will be invited to attend a focus group discussion (FGD) or an in-depth interview with a researcher who will ask you a few questions regarding your views and attitudes about youth reproductive health outcomes. The FGD or interview will be audio recorded. Participation is entirely voluntary. The discussion will last for around 90 minutes and the interview will be around 60 minutes.

The researcher anticipates no risks from your involvement in this study apart from the inconvenience of giving up your time. The researchers do not expect the questions to cause any harm or discomfort to you. However, if you experience feelings of distress as a result of participation in this study, please let the research team know immediately. You can also contact the following services for support:

- HIMPSI, +6221 72801625, himpsi.or.id
- Psychology UNSYIAH, +62651 7555182, http://psikologi.fk.unsyiah.ac.id

Withdrawal Rights

You may, without any penalty, decline to take part in this research study. If you decide to take part and later change your mind, you may, without any penalty, withdraw at any time without providing an explanation. To withdraw, please contact the Chief Investigator or you may just refuse to answer any questions or leave the Focus Group discussion. Any data collected up to the point of your withdrawal will be securely destroyed.

Data recorded during focus group discussions may not be able to be destroyed. However, the data will not be used in this research study without your explicit consent.

Confidentiality and Privacy

Only researchers listed on this form have access to the individual information provided by you. Privacy and confidentiality will be assured at all times. The research outcomes may be presented at conferences, written up for publication or used for other research purposes as described in this information form. However, the privacy and confidentiality of individuals will be protected at all times. You will not be named, and your individual information will not be identifiable in any research products without your explicit consent.

No data, including identifiable, non-identifiable and de-identified datasets, will be shared or used in future research projects without your explicit consent.

Data Storage
The information collected may be stored securely on a password protected computer and/or Flinders University server throughout the study. Any identifiable data will be de-identified for data storage purposes unless indicated otherwise. All data will be securely transferred to and stored at Flinders University for at least five years after publication of the results. Following the required data storage period, all data will be securely destroyed according to university protocols.

Recognition of Contribution / Time / Travel costs
As the participation is entirely voluntary, there will be no recognition provided in contribution or participation time.

How will I receive feedback?
On project completion, a short summary of the outcomes will be provided to all participants via email or published on Flinders University's website.

Ethics Committee Approval
The project has been approved by Flinders University's Human Research Ethics Committee (no.2650)

Queries and Concerns
Queries or concerns regarding the research can be directed to the research team. If you have any complaints or reservations about the ethical conduct of this study, you may contact the Flinders University's Research Ethics & Compliance Office team via telephone 08 8201 3116 or email human.researchethics@flinders.edu.au.

Thank you for taking the time to read this information sheet which is yours to keep. If you accept our invitation to be involved, please sign the enclosed Consent Form.

CONSENT FORM

Consent Statement

- ☐ I have read and understood the information about the research, and I understand I am being asked to provide informed consent to participate in this research study. I understand that I can contact the research team if I have further questions about this research study.
- ☐ I am not aware of any condition that would prevent my participation, and I agree to participate in this project.
- ☐ I understand that I am free to withdraw at any time during the study.
- ☐ I understand that I can contact Flinders University's Research Ethics & Compliance Office if I have any complaints or reservations about the ethical conduct of this study.
- ☐ I understand that my involvement is confidential, and that the information collected may be published.
- ☐ I understand that I will not be identified in any research products.
- ☐ I understand that the information collected may be published and that my identity may be revealed.
- ☐ I understand that I will be unable to withdraw my data and information from this project. I also understand that this data **will be used** for this research study.

I further consent to:

- ☐ participating in an interview
- ☐ participating in a Focus Group discussion
- ☐ respecting other participants, paying attention, being open to what people have to say, being nonjudgemental and keeping all the information collected in the FGD confidential.
- ☐ having my information audio recorded
- ☐ my data and information being used in this project for an extended period of time (no more than 10 years after publication of the data)

Signed:

Name:

Date:

Appendix 5 :

The Focus Group Discussion Guide

No	ARH Indicators for which data available in Indonesia	Questions
1	Contraceptive use	Do youth (male or female) or young mothers aged 20-24 in Aceh have good access to family planning including contraceptives? If yes, do they use them?
2	Pregnancy and Fertility	What are your views or experiences related to youth pregnancy and childbearing in Aceh?
3	Sexually Transmitted Infections	Do you think sexually transmitted infection (STI) is common among youths in Aceh? Do male and female youth get STI to the same extent? If not, then which of female or male youth get it more than the other sex?
4	Knowledge about HIV/AIDS	How many of you have knowledge about HIV/AIDS? Do you think all youth in Aceh should get information about HIV/AIDS or other sexually transmitted infections? If yes, why?
5	Premarital Sexual Initiation	Can you please describe your views related to premarital sexual initiation or other sexual activities (such as lip kissing, intimate hugging, petting) among unmarried youth in Aceh?
6	Low birth weight	Babies born with a weight of less than 2.5 kilograms or babies with small sizes at birth are known as low birth weight babies. Do you know why some babies are born with low birth weight?
7	Antenatal Care	Do you think it is important for mothers (young and old) in Aceh to have their health care/check-up during pregnancy? If yes, how many times during a pregnancy should they have the check-up?
8	Skilled birth provider	Do you think it is necessary for a young mother to have a skilled health provider's assistance at the time of childbirth?
9	Marriage	What should be the ideal age of marriage for male (ideal age….) and for female (ideal age….)?
10	Childbirth	At what age should a female have her first baby?
11	General	Is dating (i.e., spending time together before marriage) common among youth in Aceh? Do you support it?
12	General	What do you think of punishment by caning that is applied in Aceh for having premarital sexual relations?
13	Stillbirth	Do you know why stillbirth happen?

Appendix 6:

The In-depth Interview Guide

No	ARH Indicators for which data available in Indonesia	Questions
1	Contraceptive use	Do you agree with giving youth access to family planning services including contraceptives? If you do, then do you think the youth in Aceh have adequate access to family planning services including contraceptives? If they are not getting adequate access, then how do you think their access can be improved? If contraceptive use among youth in Aceh is low, how do you think it can be increased?
2	Pregnancy and Fertility	Studies have shown that a woman should not have a child before she is 20 years-old. Do you agree with this finding? If yes, why do you think so, and how should a woman be encouraged to postpone her first pregnancy until she is at least 20 years-old?
3	Sexually Transmitted Infections	How to educate youth in Aceh so that they can prevent getting sexually transmitted infections?
4	Knowledge about HIV/ AIDS	Do you think youth in Aceh have enough information about HIV/AIDS or other sexually transmitted infections? If not, how do you think their level of knowledge can be improved?
5	Premarital Sexual Initiation	Do you approve/not approve of unmarried youth in Aceh to have premarital sexual initiation or other sexual activities (such as lip kissing, intimate hugging, petting)? If you do not approve, then how do you think they should be encouraged to not have such relations? Should there be any sanction for such relations? If yes, then what kind of sanction should there be?
6	Low birth weight	Babies born with a weight of less than 2.5 kilograms or babies with small sizes at birth are known as low birth weight babies. Data shows the proportion of low birth weight babies among under-20 years-old mothers is higher than older mothers. How should this issue be addressed?
7	Antenatal Care	Do you think young mothers in Aceh are getting the recommended antenatal care? If not, then how do you think this can be improved?
8	Skilled birth provider	Do you think young mothers in Aceh have assistance of a skilled health provider at the time of child birth? If not, then how do you think the likelihood of skilled birth provider's assistance can be improved?
9	Marriage	What is your opinion about early marriage of women (i.e., marriage before 18 years of age)? If you think it is not good, then what is your suggestion about preventing early marriage in Aceh?
10	General	As Aceh applies Islamic law, what is your opinion about punishment by caning for engaging in premarital sexual relations? In your opinion, what influence can such punishment have on the youth?
11	Stillbirth	How do you think the risk of Stillbirth among young women can be reduced or minimised?

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