ADOLESCENT PREGNANCY: A COMMUNITY ENGAGED PARTICIPATORY APPROACH TO DESIGN AND IMPLEMENT AN EDUCATIONAL INTERVENTION

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ABSTRACT

Millennium Development Goal (MDG) 5 focuses on improving maternal health, due to global acknowledgment that no woman should have to die as a result of complications during pregnancy and childbirth. Adolescents have an increased risk of maternal death compared with older women. Adolescent pregnancy also poses a threat to the empowerment of young girls by mitigating their physical, educational, social, and economic development. In this context, maternal health promotion strategies which inclusively target adolescents are crucial, not only in improving maternal health outcomes, but also in optimising the overall transition of adolescent girls to adulthood.

This study was a first time collaborative partnership of the Faculty of Pharmacy and Community Engagement Office of Rhodes University with the Angus Gillis Foundation (a non-profit community development organisation), and community participants of Glenmore and Ndwayana, two rural communities in the Eastern Cape. The aim of this study was to identify the maternal health issue of most concern to community participants and to design and implement an appropriate educational intervention for a suitable target group.

During the baseline phase of this study, ten focus group discussions (FGDs) were conducted with 76 community stakeholders. Semi-structured interviews (SSIs) were conducted with two Sisters-in-Charge from each Primary Health Care (PHC) facility in the study setting. Data on the stock status of World Health Organization (WHO) identified lifesaving priority medicines for women's health was also collected at both PHCs. Thereafter, pre- and post-educational interventions SSIs with female adolescent participants were conducted. The

educational intervention was followed up with the development of a booklet on reproductive health.

FGD participants identified adolescent pregnancy as the maternal health issue of most concern. They also highlighted challenges in service delivery of ambulance services for expectant mothers in urgent need of transportation to a referral hospital. A majority of pre-intervention SSI participants indicated coercion from both younger and older men as a factor influencing early sexual debut amongst adolescent girls in their communities. Despite availability in the PHCs, challenges in accessing contraceptives were highlighted by the participants. Additionally, a number of sexually active adolescent girls defaulted on their next allocated visit to the PHC due to myths regarding use of oral and injectable contraceptives.

During the educational intervention sessions, participants recognised knowledge gaps regarding reproductive health issues and the influence of peer pressure as constraining factors in preventing adolescent pregnancy. During the post-intervention phase, participants highlighted that the educational intervention of this study had provided a forum to discuss ways of preventing adolescent pregnancy. The educational booklet developed is intended to serve as a resource tool of the educational programme on prevention of adolescent pregnancy, which is expected to be incorporated into the Angus Gillis Foundation's existing 'Positive Health' Programme.

The results of this study show that community-based participatory research facilitated the identification of the maternal health issue of most concern to these communities. Working

synergistically with key stakeholders in designing and implementing an educational intervention for preventing adolescent pregnancy provides a good foundation for future up scaling and sustainability of this educational programme.

DEDICATION

This thesis is dedicated to my beloved family

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LIST OF ACRONYMS

AGF	Angus Gillis Foundation
CAH	Child and Adolescent Health and Development
CARMMA	Campaign for Accelerated Reduction of Maternal and Child Mortality in Africa
CBPR	Community-Based Participatory Research
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CGE	Commission for Gender Equality
CHW	Community Health Worker
CSG	Child Support Grant
DHS	District Health System
EML	Essential Medicines List
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GII	Gender Inequality Index
HBM	Health Belief Model
HCP	Health Care Professional
HDI	Human Development Index
HEI	Higher Educational Institution
HEW	Health Extension Worker
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ICPD	International Conference on Population and Development
IHDI	Inequality adjusted HDI
IMCI	Integrated Management of Childhood Illnesses
KAP	Knowledge, Attitudes and Practices
MCWH	Mother, Child and Women's Health
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
NAFCI	National Adolescent Friendly Clinic Initiative
NCCEMD	National Committee on Confidential Enquiry into Maternal Deaths
NDoH	National Department of Health
NSDA	Negotiated Service Delivery Agreement
PAHO	Pan American Health Organization
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	Primary Health Care
PMTCT	Prevention of Mother to Child Transmission
RSA	Republic of South Africa
RMNCH	Reproductive, Maternal, Newborn and Child Health
SA	South African
SADHS	South African Demographic Health Survey
SSI	Semi-Structured Interview

STG	Standard Treatment Guidelines
STI	Sexually Transmitted Infection
TB	Tuberculosis
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency of International Development
WHO	World Health Organization
YDI	Youth Development Index

CHAPTER 1: INTRODUCTION

1.1 Background to Research

The severity of maternal mortality as the main cause of death in women of reproductive age led to the United Nations (UN) General Assembly prominently situating maternal health as part of the international development agenda at the Millennium Summit. [1] Incidences of preventable maternal mortality often arise where there is a failure to give effect to women's rights to health, equality and non-discrimination, and recurrently signify a violation of a woman's right to life. [2] Emphasis has been placed by the UN Human Rights Council on the need to increase accountability on governments worldwide, including participation by stakeholders in policy and service development towards reducing maternal mortality. [3]

The *Lancet Neonatal Survival Series* and the World Health Organization (WHO) *Making every mother and child count, 2005 Report* highlight that:

> The principle of the 'continuum of care' for reproductive, maternal, newborn and child health (RMNCH) means that health care has to be provided as a continuum throughout the lifecycle, including adolescence, pregnancy, childbirth and childhood. It also indicates that care has to be provided in a seamless continuum that spans the home, the community, the health centre or primary health facility and the referral hospital. [4, 5]

In this perspective, the continuum of care over time includes health care before pregnancy, which involves family-planning services, education, and empowerment for adolescent girls. For the duration of pregnancy, childbirth and the days immediately afterwards, mothers and babies are at highest risk of death: over half of all maternal and neonatal deaths occur during this period. [6] Thus, an efficient continuum would ensure that appropriate health care is available wherever it is needed, and linked, where necessary, to other levels of health care. [7]

Additionally, WHO's Family, Women's and Children's Health Cluster advocates that maternal mortality could be prevented if mothers could access a basic set of medicines and health resources. Therefore, the inclusion of crucial reproductive and maternal health commodities and health interventions on national essential medicines lists must be prioritised under the

health policy of all nations. [8] Initiatives such as 'Stand Up for African Mothers', an international awareness and fundraising campaign spearheaded by Graça Machel which runs from 2012 to 2015, greatly emphasise the necessity of addressing the predicament faced by African mothers in getting the basic medical care they need during pregnancy and childbirth. Through the mobilisation of global citizens, the campaign is aimed at the promotion and training of 15,000 midwives by 2015 in order to decrease maternal deaths on the African continent by 25%. [9] Another initiative, the Campaign for Accelerated Reduction of Maternal and Child Mortality in Africa (CARMMA), draws attention to the importance of community participation in the attainment and dissemination of health information. [10]

1.2 Field of Research

This study falls under the field of research of Pharmacy Practice. Existing challenges in maternal health provide vast opportunities for pharmacists in developing countries such as South Africa. In addition to traditional roles, pharmacists can contribute towards initiating new roles that result in community engagement and health promotion. [11, 12] Working in health initiatives in remote and previously disadvantaged areas is inclined to have a meaningful impact on the health and well-being of the community, as well as positively influencing the practice of other health initiatives countrywide. This learning experience stems from recognition that as long as health policies, research and other institutions focus on a unidirectional, downward approach of policy and decision making, a gap between theory and practice will continue to exist. [13] Increasing advocacy to ensure community involvement in processes that shape research and intervention approaches through partnerships between academic, health services and community-based organisations is one effective means of addressing this gap. [14]

Studies have been conducted to examine the negative impact of knowledge gaps in scientific literature with regard to maternal mortality. From the literature, emphasis has been given to the clinical reasons for maternal mortality, such as obstructed labour, unsafe abortion and haemorrhage. [15] However, it is important to note that addressing both medical and non-biomedical aspects plays a critical role in the success of health interventions to reduce maternal mortality. [16]

1.3 Overview of Chapters

Chapter 2 is a brief overview of the literature related to maternal health. Maternal health is highlighted in various international statutes and human rights instruments. Proposed targets to improve maternal health are explored, including the underlying factors which facilitate or constrain the improvement of maternal health both globally and in South Africa.

Chapter 3 describes the theoretical framework of this study.

In Chapter 4, details of the study setting including the role of the Angus Gillis Foundation (AGF) and its involvement as one of the stakeholders in this study are described.

The aims and objectives of the study are presented in Chapter 5.

Chapter 6 presents the methodology of this study, including both the baseline and educational intervention phase of the study. A brief description of the analysis of data collected from both phases of this study is also presented.

The results from this study are presented in Chapter 7.

Chapter 8 involves a discussion of the results, including the strengths and limitations of this study.

Chapter 9 presents conclusions to the study along with recommendations and suggestions for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 The Right to Health

The right to health is a fundamental part of human rights and for the facilitation of a dignified life. Internationally, the right to heath was first articulated in the 1946 Constitution of the World Health Organization (WHO), whose preamble defines health as "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." [17] In addition, the preamble further states that, "The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, and political belief, economic or social condition." [17]

Subsequently, in 1948, member states of the UN General Assembly adopted the Universal Declaration of Human Rights (UDHR), which in Article 25 reiterated:

> Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including medical care and necessary social services and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

Part two of Article 25 further states that, "Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection." [18]

The UDHR forms part of the International Bill of Human Rights and since its adoption, the right to health has been included in other legally-binding international and regional human rights treaties. Examples of legal documents that recognise the right to health are Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) [19], Article 24 of the Convention on the Rights of the Child (CRC) [20] and Article 12 of the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). [21] The above mentioned legal documents recognise the rights of specific groups such as women and children.

The right to health is also highlighted in the Constitution of South Africa, Act 108 of 1996, which specifically recognises the right of access to health care. Section 27 of the Bill of Rights of the Constitution states that

> Everyone has the right to have access to health care services, including reproductive health care; and that the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights. [22]

2.2 Declaration of Alma Ata

A significant declaration relating to health is the Declaration of Alma Ata which was affirmed in 1978 at the International Conference on Primary Health Care in order to address the need for imperative action by all governments, all health and development workers, and the world community, "To protect and promote the health of all people of the world." [23]

The Declaration of Alma Ata defines Primary Health Care (PHC) as

> Essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. PHC is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process. [23]

Part five of the above-mentioned declaration states that,

> Governments have a responsibility for the health of their people which can be fulfilled only by the provision of adequate health and social measures. A main social target of governments, international organizations and the whole world community in the coming decades should be the attainment by all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. Primary health care is the key to attaining this target as part of development in the spirit of social justice. [23]

2.3 Millennium Development Goals

Approaching the year 2000, challenges in attaining the objectives of 'health for all' by this envisioned timeframe led to the adoption of eight millennium development goals (MDGs). Following the endorsement of 189 United Nations member states at the 2000 Millennium Summit, these MDGs were measured in terms of progress since 1990 and were set to be achieved by 2015. [15] The MDGs adopted are intended as global framework to assess progress in countries and regions, thus signifying the commitment of countries to address global poverty and ill health. [24]

2.3.1 Health-Related Millennium Development Goals

Of the eight MDGs, five are health goals: MDG 4 is to reduce child mortality; MDG 5 is to improve maternal health; MDG 6 is to combat Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS), malaria and other diseases; MDG 7 is to ensure environmental sustainability and MDG 8 is to develop a global partnership for development, involving provision of access to affordable essential medicines in developing countries. [25, 26] These MDGs are monitored through health-related indicators which are underlying factors for health. Ultimately, all MDGs are interconnected in addressing the social determinants of health. [27]

2.3.2 The Post-2015 Sustainable Development Agenda

Massive progress has been made towards achieving the MDGs on a global scale. Global poverty continues to decline, more children than ever are attending primary school, access to safe drinking water has been greatly expanded, and targeted investments in fighting malaria, AIDS and tuberculosis have saved millions. [28] Observing beyond the MDGs, much remains to be done to maintain the improvements that have been achieved to date. Gaps still remain in areas such as poverty, hunger, health, gender equality, water, sanitation and many other issues which will require attention beyond 2015. [29] With 2015 approaching, it is likely that some of the MDGs will not be achieved in Sub-Saharan Africa within this targeted time frame. [30, 31]

The UN System Task Team was established by the UN Secretary-General in September 2011 to support UN system-wide preparations for the post-2015 UN development agenda, in

consultation with all stakeholders. [32, 33] As the 2015 target timeframe for achieving the MDGs approaches, there is extensive debate as to what development goals the global community should establish for the post-2015 agenda. These discussions have been supported by the UN Development Group through a series of international themed sessions and conferences. [34]

2.4 Millennium Development Goal Five and Targets

MDG 5 identified two targets for assessing progress in improving maternal health: reducing the maternal mortality ratio (MMR) by three-quarters between 1990 and 2015, and achieving universal access to reproductive health by 2015. [15] Table 2.1 highlights the indicators assigned for targets 5A and 5B. [35]

Table 2.1: Targets and Indicators of MDG 5: Improve maternal health [35]

MDG 5 Targets	Indicators for monitoring progress
Target 5.A: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio	5.1Maternal mortality ratio 5.2 Proportion of births attended by skilled health personnel
Target 5.B: Achieve, by 2015, universal access to reproductive health	5.3 Contraceptive prevalence rate
	5.4 Adolescent birth rate
	5.5 Antenatal care coverage
	5.6 Unmet need for family planning

2.4.1 Global Causes of Maternal Mortality

Maternal mortality is defined as “the death of a woman while pregnant or within 42 days of termination of pregnancy, regardless of the site or duration of pregnancy, from any cause related to or exacerbated by the pregnancy or its management.” [36] MMR portrays the risk of maternal deaths relative to the number of live births and is represented as the number of maternal deaths per 100,000 live births. [37] Figure 2.1 displays the leading causes of maternal deaths worldwide. [38] Essential medicines are critical to reducing the MMR, and are identified as one of the important constituents of PHC. [23]

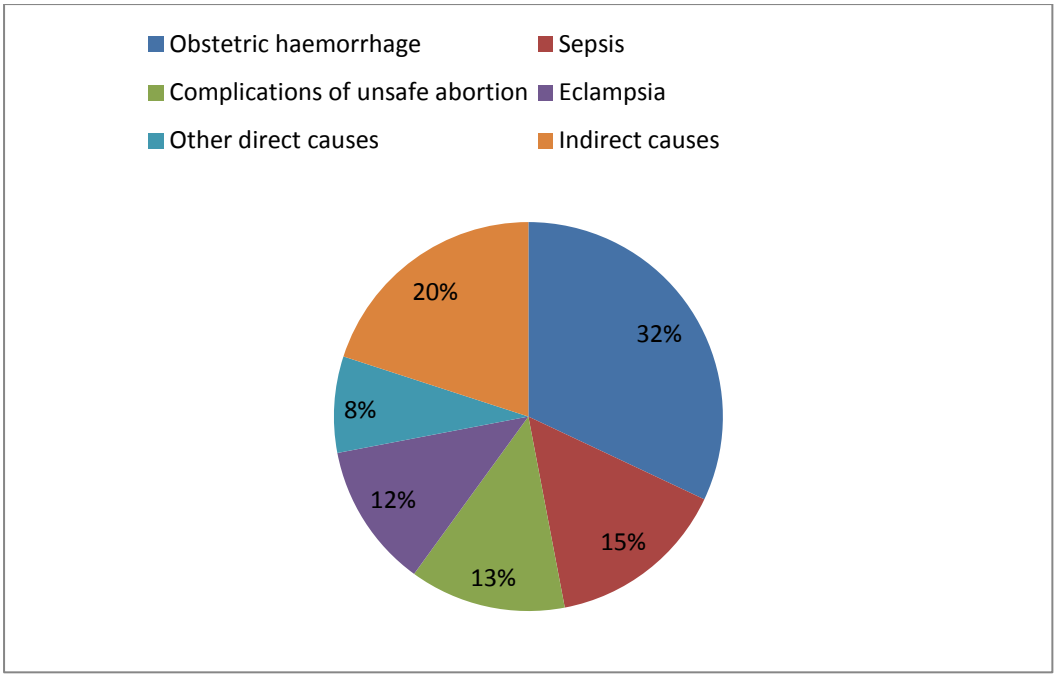

Figure 2.1: Global Causes of Maternal Mortality [38]

2.4.2 Access to Essential Medicines

According to WHO,

> Essential medicines are those that satisfy the priority health needs of the population. They are selected with due regard to disease prevalence, evidence of efficacy and safety, and comparative cost-effectiveness. Essential medicines are intended to be available within the context of functioning health systems at all times in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford. The implementation of the concept of essential medicines is intended to be flexible and adaptable to many different situations; exactly which medicines are regarded as essential remains a national responsibility. [39, 40]

WHO introduced the concept of essential medicines in 1977, producing the publication of the first WHO *Model List of Essential Medicines*. [41] In 1978, the Declaration of Alma-Ata identified the "provision of essential medicines" as one of the eight elements of PHC. [23] Initially envisioned for developing countries, the concept of essential medicines has been progressively seen as relevant for middle and high income countries as well. WHO has propagated the concept of essential medicines for more than 35 years and updated the *Model List of Essential Medicines* on average every two years. [42] Positive advancement,

such as countries developing and implementing their national pharmaceutical plans through national lists of essential medicines and national medicines policy, are evident. [43]

Since 2011, WHO has recognised priority medicines for maternal health as a vital constituent for combating maternal health complications. Therefore, accessibility of these medicines to the population in acceptable quantities, dosages and quality, and at affordable prices is crucial to reducing maternal mortality. [44] Deplorably, there are drawbacks for maternal patients in developing countries who rely on medicine supplies from the public sector. WHO highlights that an estimated average of 1,000 women per day, mostly from developing countries are at risk of dying due to complications during pregnancy or childbirth. Many of these deaths could be prevented with access to simple and affordable medicines. [45] Availability of these priority medicines may be compromised by several factors such as poor medicine supply and distribution systems, insufficient health facilities and staff, as well as low investment in health and the high cost of medicines due to global recession. [46] An estimated 39% of patients in low-income countries, 24% in middle-income countries and less than 1% in high-income countries fail to obtain the medication they need to prevent or treat a medical condition. [47] According to WHO, approximately a third of the world's population does not have regular access to essential medicines. Studies conducted in over 70 low-to-middle income countries revealed that availability of essential generic medicines was at an average of 42% in the public sector. [48, 56] Although over the years essential medicines have become increasingly available, the challenge of reaching the marginalised groups still threatens many lives. [48]

2.4.2.1 Essential Medicines and the Right to Health

A dearth of priority medicines and other health commodities has a direct impact on the health of mothers and children including their human rights and social justice. [49] The *UN General Assembly Resolution 64/25* acknowledged access to medicines as a core component of the right to health, which still remains a detached and remote goal, especially for those living in poverty. [42, 50] In order to promote universal access to medicines, implementation of a human rights approach in national programmes is fundamental. [51] In 2008, national jurisdiction of access to essential medicines as part of the right to health became a WHO indicator to assess country progress. [52] As a result, a high number of national

constitutions included provisions for access to essential medicines as part of the right to health. [52] Where this right was not implemented, litigation by some affected patients ensued, leading to "the inclusion and compensation of deprived groups in their public service systems." Financial support in the instigation of many of these court proceedings was obtained from public interest nongovernmental organisations. [53]

2.4.2.2 Global Partnership for Development

Based on a review of publications, it is evident that more research and contributions to manuscripts carried out by developing countries, in the field of access to medicines can advocate for increased access to medicines in these regions. [54] Complex and interconnected multi-layered factors in the health system influence access to medicines. Hence, a wider and more adaptive health system perspective is required in addressing barriers to access to essential medicines in developing countries. [55] A number of health programmes have associated the insufficient supply, distribution and misuse of medicines with the lack of pharmaceutical professionals, who represent the third largest health care professional group in the world. [55] Poor medicine availability, especially of generic medicines, is one of the key barriers to access to medicines in the public sector. Surveys of medicine prices and availability conducted by WHO-Health Action International have provided the evidence for the issues, as well as policy options available to increase the availability and affordability of medicine. [48, 56] In an effort to increase availability of medicines in developing countries, the UN agreed upon achieving a Global Partnership for Development by 2015. This partnership aimed to increase aid to developing countries through a direct assistance programme. Efforts made included increasing accessibility and availability of essential medicines as costs continued to be unaffordable. [49] With a third of the world's population lacking access to essential medicines, improvements in increasing their access is dependent upon attaining a global partnership for development by 2015, which is articulated in MDG 8. In this context, MDG 8's fifth target of co-operation with pharmaceutical companies promotes provision of access to affordable, essential medicines in developing countries. [49]

2.5 Global Development in Maternal Mortality

Global progress towards meeting MDG 5 has been acknowledged in the *MDG 2012 Report* which estimates a global decrease of 34% in maternal deaths from 546,000 in 1990 to 368,000 documented in 2009. [57] Further progress has been made to reduce maternal deaths, with more recent estimates from the *MDG 2013 Report* highlighting a 47% decline in maternal deaths from 546,000 since 1990 to 287,000 in 2010. [58] This substantial reduction in maternal death shows a global rate of decline in the maternal mortality ratio of 3.1% per annum over the same period. [59] Maternal mortality is an extremely rare event in developed countries because of factors that contribute to reducing maternal mortality, such as improved social conditions, better medical care in cases of severe complications, and access to reproductive health services which include family planning. [60]

2.6 Maternal Mortality in Sub-Saharan Africa

Of great concern is that, although some regions have shown progress since 1990 in reducing maternal deaths, maternal mortality ratios in sub-Saharan Africa have remained very high, with little evidence of improvement in the past 20 years. [61] In sub-Saharan Africa, where the burden is highest, the lifetime risk of dying from maternal causes is about 1 in 22, which contrasts sharply with a risk of 1 in 7,300 for women from the developed regions. [62] The proportion of maternal deaths occurring in developing countries accounts for 85% of the global burden, with 56% occurring in sub-Saharan Africa and 29% in South Asia. Notwithstanding this, other developing regions such as Eastern Asia had the lowest level, of 37 maternal deaths per 100,000 live births. [57] WHO statistics from 2008 show the differences in MMR in Italy, Egypt, South Africa, Zimbabwe, Lesotho, and Afghanistan were estimated at 4, 43, 237, 624, 964 and 1, 595 respectively. [63] Such variations in maternal health outcomes further highlight significant disparities between developed and developing countries. A number of middle-income countries have made good progress, and Egypt, for example, has already attained its MDG 5A goal. However, South Africa has unfortunately seen an increase in maternal mortality. [63, 64]

2.7 Maternal Mortality in South Africa

Regrettably, South Africa features amongst 74 priority countries with a high and increasing level of the maternal mortality rate as highlighted by the *Countdown to 2015 Accountability Report for Maternal, Newborn and Child Survival.* [65] The WHO Health Profile for South Africa for 2011 also reports a high country MMR average of 300 maternal deaths per 100,000 live births. [66]

South Africa is classified as a middle-income country by the World Bank [67] and generates a Gross Domestic Product (GDP) of US$ 10,856 per capita with 8.7% allocated towards health expenditure, which fast approaches that of established market economies. [68] This is a generous amount in view of the fact that WHO recommends that countries reserve a minimum of 5% of their national GDP towards health expenditure. [69] Additionally, considering South Africa's status as a middle-income country with a metropolitan infrastructure, a well-developed private sector and stable macro-economy, the paradox of a high rate of maternal mortality is a cause for concern. [64] In comparison to other sub-Saharan countries, South Africa is less dependent on foreign aid; therefore improvements in maternal health outcomes are dependent on government and other stakeholders' initiatives in mobilising the nation's resources. [70] However, taking into account the colonial and apartheid history of South Africa, the country has undergone a prolonged health transition with universal access to quality health care remaining a challenge. [71]

2.8 Development Indices in South Africa

2.8.1 Human Development Index

The Human Development Index (HDI) Report provides a collective assessment of three basic components of human development: health, education and income. South Africa's HDI is 0.619, which puts it 123rd out of 187 countries. [72] The HDI value should be closer to 1 as an indication of the level of progress achieved. The Inequality adjusted HDI (IHDI) shows HDI values adjusted for inequalities in the three basic dimensions of human development. [73] The IHDI accounts for inequalities in HDI dimensions by "disregarding" each dimension's average value according to its level of inequality, and is acknowledged as showing the actual level of human development when inequality is taken into account, while the HDI can be

viewed as an index of the "potential" human development that could be achieved if there was no inequality. When there is no inequality amongst people, the IHDI value is equal to the HDI but as inequality increases the IHDI value falls further below the HDI. The IHDIs for South Africa with regard to health and education is 0.370 and 0.558 respectively. No statistics are displayed under the income component. [72, 73] The low IHDI value where health is concerned highlights large disparities in access to health care which may potentially contribute to the high MMR in South Africa.

2.8.2 Youth Development Index

The Youth Development Index (YDI) defines youth development as

> Enhancing the status of young people and empowering them to build on their competencies and capabilities for life. It will enable young people to contribute and benefit from a politically stable, economically viable, and legally supportive environment, ensuring their full participation as active citizens in their countries. [74]

The scope of the domains is education, health and well-being, employment, political participation and civic participation. South Africa has a youth development index of 0.58, ranking it at position 100 out of 170 countries. South Africa's ranking of 0.58 places it in the medium youth development category. In the domain of education, South Africa ranks 16th out of 52 countries, while ranking 40th out of 54 countries in the domain of health and well-being. In the domain of employment, South Africa ranks 32nd out of 46 countries. [74] According to the *South African Statistics Report* for 2010, while attendance at educational institutions is higher than 90% for 14-16 year olds, it sharply declines to 70% by age 18 years and to 10% by the age of 24 years. [71]

2.8.3 Gender Inequality Index

The Gender Inequality Index (GII) helps to facilitate the acknowledgement of the broader problems and interconnections that are important in conceptualising the association of maternal health, women's education and economic growth. [75] Furthermore, there are disparities which occur between genders concerning key issues affecting determinants of women's development in the dimensions of reproductive health, empowerment and participation in the workforce which are represented by the GII. South Africa's GII is 0.49,

placing it at position 94 out of 149 countries. [75] The reproductive health dimension is measured by two indicators: MMR and the adolescent fertility rate. [76] Evidently, South Africa's high MMR echoes the challenges of female disempowerment and discrimination which erode development towards achieving national progress on improving maternal health. [10] Gender disparities and upholding societal customs which are discriminatory to women contribute significantly to high MMRS, while inhibiting affected individuals' full participation in socio-economic development. [77]

2.9 The 'Three Delays' Framework

The prevention of maternal mortality can be targeted at three levels: prevention of pregnancy, prevention of obstetric complications, and prevention of maternal death once complications have arisen. [78] WHO highlights that various determinants of health, such as the social, economic and physical setting, along with individual characteristics and behaviours, merge together in affecting the maternal health of women in communities. [79] Thaddeus and Maine [80] introduced the 'three delays' framework which holds that delay in the decision to seek health care, delay in accessing health care, and delay in receiving quality health care on reaching health care facilities contribute to poor maternal health outcomes which may lead to maternal mortality. [80] A delay in the decision to seek health care is often due to reasons such as failure to recognise complications and social barriers such as lack of decision-making abilities, lack of resources and the cultural beliefs and practices surrounding childbirth and delivery as preference may be given to consulting a local traditional healer. [81] A delay in accessing health care can be influenced by factors such as poor roads and transport systems. A delay in receiving quality health care is often due to inadequate health care facilities, supplies of pharmaceuticals and equipment, finances and training of health personnel. [82]

2.10 Health Coverage to Improve Maternal Health Outcomes

Countdown to 2015 raises the question of the extent to which progress has been deliberated and if the track of progress is adequate to meet the two targets for maternal health. One of the central aims of the countdown concerns coverage for effective interventions in reducing maternal, newborn and child deaths. Coverage is defined as "the proportion of the population who can benefit from an intervention who receives it." [38]

Implementing 'essential' evidence-based interventions by Health Care Professionals (HCPs) at community, primary and referral level is expected to have a significant impact on maternal survival. [83] An 'essential' intervention is the provision and delivery of indispensable and priority health services which involves promoting inclusive maternal health programmes, such as the provision of quality antenatal care, care during childbirth and post-natal care, as well as intensifying the number of skilled birth attendants. [38, 84] Many life-threatening conditions, such as haemorrhage, sepsis and eclampsia, can be prevented or managed through the administration of inexpensive interventions by skilled HCPs. However, the lack of essential interventions and workforce often contribute to high indices of maternal and infant mortality. [85] The reinforcement of reproductive health systems through joint effort and cooperation with HCPs, such as midwives and nurses, is of principal importance in order to accelerate the progress of reaching the maternal health targets by 2015. [86] Furthermore, as reiterated by Mr Ban Ki-Moon, who is the eighth and current Secretary-General of the UN, "Only functioning health systems can deliver an integrated package of essential interventions and services needed by women and girl children and to be able to make a difference, they must reach them at the right place and time." [86]

2.11 Maternal Health and Human Rights

The maternal health indicators of a nation echo its hard work and ethos to advocate and protect women's dignity and basic human rights. Therefore, a high incidence of maternal mortality indicates a breach of international legal obligations to protect women's most important human rights: their rights to life, health, reproductive autonomy, equality and non-discrimination. [87] Improving maternal health as a human right is also necessitated by the fact that an immense number of maternal deaths are preventable. [2] Failure to disseminate information, services and conditions to help women protect their reproductive health therefore constitutes gender-based discrimination and a violation of women's rights to health and life. [88]

2.11.1Education and Women Empowerment

MDG 3 focuses on promotion of gender equality and empowerment of women. [24] According to the *MDG 2013 Report*,

> Whether it is in the public or private sphere, women continue to be denied opportunities to participate in decisions that affect their lives. The suppression of women's voices in many spheres, whether deliberate or resulting from long-standing discriminatory social and cultural norms, contributes to the persistence of gender inequality and limits human development. [58]

A literate and educated female has better aptitude to obtain respectable employment, resulting in an enhanced standard of living. [70] Moreover, low female education and female literacy rates are strongly correlated to high rates of maternal mortality around the world. Lack of education adversely affects women's health by also limiting, among other aspects, their knowledge about nutrition, birth spacing and contraception. [89] The dearth of legal accountability for maternal deaths caused by health system malfunction, socio-economic inequality and discriminatory societal customs negatively influences the successful reduction of maternal mortality. Therefore, maternal deaths not only involve a tragic loss of life, but also collectively represent profoundly ingrained gender discrimination and social injustice. [90]

2.11.2 Maternal Health and Women Empowerment

Maternal deaths and pregnancy-related conditions cannot be eliminated without the empowerment of women. In order to improve maternal health and reduce maternal mortality, issues such as child marriage, female genital cutting, dietary restrictions, and all other forms of violence and discrimination against women must be addressed. [91] More can and must be done to save women's lives and prevent maternal complications that could permanently alter a woman's life and her family's future. This is especially true given the increasing number of young women entering their prime reproductive years in low- and middle-income countries which are already hard pressed to meet current demands for improved maternal and reproductive health care. [92] Additionally, the risk of maternal mortality is highest for adolescent girls between 15 and 19 years old, with complications in pregnancy and childbirth as the leading causes of death among adolescent girls in most developing countries. [93] Moreover, in many countries there is more attention on reproductive health services which focus on married women while overlooking the needs of adolescents and unmarried women. The United Nations Population Fund (UNFPA) highlights the importance of role of HCPs at all levels of health services in ensuring that the specific

health needs of both women and girls are not neglected regardless of age and marital status. [94]

The UNFPA promotes protection and respect for human rights, including gender equality and freedom from stigma and discrimination, especially for the most vulnerable and most at-risk populations. Amongst its areas of focus, UNFPA advocates for elements of a comprehensive approach in promoting delay in sexual debut for young people, decreasing the number of sexual partners, providing and promoting correct and consistent use of male and female condom as well as providing HIV testing and counselling services including services for the treatment of STIs. [96] WHO and the UNFPA both highlight prevention of adolescent pregnancy as an important and cost-effective intervention which contributes towards attaining MDG 5. [95, 96] Apart from provision of health services at health care facilities, the dissemination of accurate reproductive health information through educational interventions to women of all ages, particularly adolescent girls, is an imperative aspect of reproductive health rights. [97] UNFPA supports implementation of comprehensive prevention packages for young people and key populations, including development of national and provincial social behaviour change programmes. [98] Adolescent girls with low levels of education and from marginalised communities are the most vulnerable group, facing the greatest barriers in accessing reproductive and maternal health services, as well as a higher risk of maternal mortality and disability, and of low birth weight and mortality among newborns. [99]

2.11.2.1 Women's Rights Treaties

CEDAW is the most comprehensive international agreement on the basic human rights of women which was initially adopted by the UN in 1979, and has been ratified by 186 countries as of 2010. [21] However, some states became signatories of CEDAW with "reservations", on the basis that their national law, tradition, religion or culture conflicts with particular articles. CEDAW is the key international instrument on women's rights and consists of a preamble and 30 articles, of which Article 12 and Section e of Article 16 relate to women and their health.

Article 12 states that

> 1. States Parties shall take all appropriate measures to eliminate discrimination against women in the field of health care in order to ensure, on a basis of equality of men and women, access to health care services, including those related to family planning. 2. Notwithstanding the provisions of paragraph 1 of this article, States Parties shall ensure to women appropriate services in connection with pregnancy, confinement and the post-natal period, granting free services where necessary, as well as adequate nutrition during pregnancy and lactation.

Article 16 (e) states that

> States Parties shall take all appropriate measures to eliminate discrimination against women in all matters relating to marriage and family relations and in particular shall ensure, on a basis of equality of men and women the same rights to decide freely and responsibly on the number and spacing of their children and to have access to the information, education and means to enable them to exercise these rights.

South Africa became a signatory of the CEDAW on 29th January 1993 and ratified this agreement without "reservations" in December 1995. [100] The Commission for Gender Equality (CGE) is an independent state institution which focuses on a broad mandate to promote respect for gender equality and the protection, development and attainment of gender equality in South Africa. One of the capacities of the CGE's mandate is to monitor South Africa's conformity with international agreements that impact directly or indirectly on gender equality which includes CEDAW amongst others. [101]

2.12 South Africa and Millennium Development Goal Five

As previously highlighted in section 2.7, South Africa has a high and increasing burden of maternal deaths. South Africa's MMR is much higher than that of countries of similar socio-economic development. [63, 66] WHO's reported MMR country average of 300 deaths per 100,000 live births for South Africa is close to the estimated 310 deaths per 100,000 live births for 2008 reported by the South Africa's Health Data Advisory and Co-ordination Committee. [102] Nonetheless, the level of maternal mortality remains a concern to the South African government as expressed in the *Negotiated Service Delivery Agreement* (NSDA) of 2010-2014. [103] The NSDA is a "charter that reflects the commitment of key

sectoral and inter-sectoral partners linked to the delivery of identified outputs as they relate to a particular sector of government." [104]

In May 2011, South Africa's National Department of Health (NDoH) announced a new policy on the re-engineering of the PHC system and the overhaul of the health system. [105] The new policy is committed to four strategic outputs that the health sector must achieve, with the second output focusing on decreasing maternal and child mortality. [106] The vision set by the NDoH is to reduce the MMR to 100 per 100,000 live births and less than 10 deaths per 1,000 births for babies by 2014, through the implementation of PHC and a functional referral system to responsive support system of hospitals. [107] In this context, maternal health care has become one of the priority reproductive health issues that have been identified as requiring urgent attention in South Africa by the National Maternity Guidelines Committee in its manual for clinics, community health centres and district hospitals. [108]

2.12.1 Maternal Mortality as a Notifiable Condition

In 1997, the government of South Africa made maternal death a notifiable condition. South Africa is one of the few less developed countries that have introduced a system of confidential enquiry into maternal deaths. The formation of the National Committee on Confidential Enquiry into Maternal Deaths (NCCEMD) and the designation of maternal deaths as a notifiable condition have demonstrated dedication to improving maternal health. [109] The NCEEMDs key recommendations concern main areas such as knowledge development, quality of care and coverage of reproductive health services, establishing norms and standards, as well as community involvements. An important aim of the NCCEMD's *Saving Mothers: Report on Confidential Enquiries into Maternal Deaths In South Africa* for 2008-2010 was to update and strengthen the guidelines on the management of conditions which commonly result in maternal deaths and have these guidelines distributed countrywide. [110] According to the aforementioned NCCEMD report, there were 4,867 maternal deaths entered on the database for 2008-2010, showing an overall increase in the MMR in comparison with statistics from 2005-2007 and previous years. [110] The NCEEMD highlights the top five conditions accounting for 86.5% of maternal deaths in South Africa (Figure 2.2). [110] Additional assessment by the NCCEMD estimated that 38.4% of the deaths were clearly avoidable within the health care system. Complications of hypertension,

obstetric haemorrhagic, pregnancy-related sepsis and non-pregnancy related infections were responsible for four out of five avoidable deaths. [111, 112] The aforementioned report provides accurate information on the causes of maternal deaths and quality of care in maternity wards within the health institutions. [109, 110]

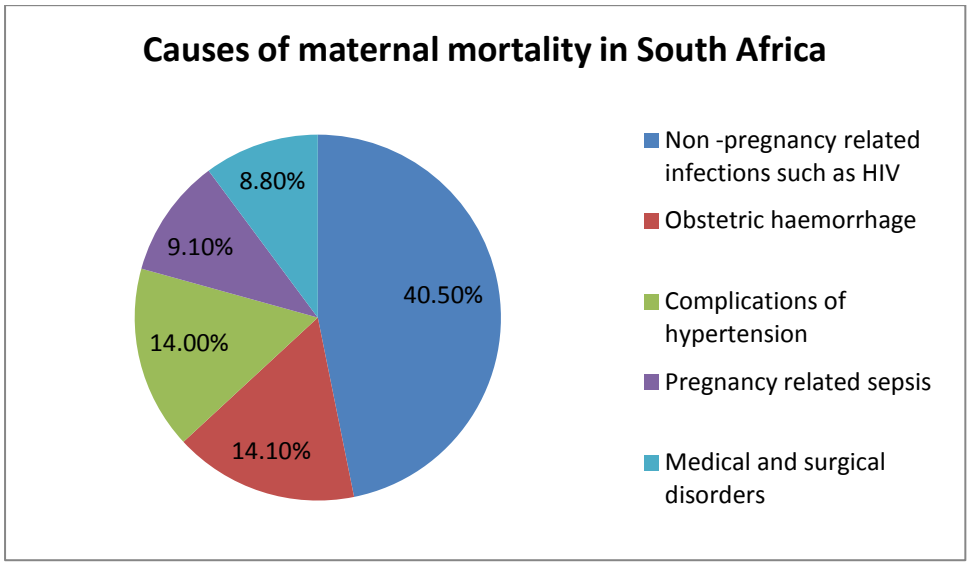

Figure 2.2: Causes of maternal mortality in South Africa [110]

2.12.2 Documentation of Maternal Mortality Outside of Health Institutions

It is important to note that the MMR entered into the database represents only maternal deaths occurring in institutional health facilities. Maternal deaths that occur outside of health institutions are not reported to the NCCEMD. As a result, there is an unknown but significant degree of underreporting of maternal deaths, especially home deaths. The NCCEMD can only provide facility-based MMR estimates for South Africa with an estimated proportion of between 20% and 66% of maternal deaths occurring in health institutions in rural areas. [113] Additionally, there is known missed reporting of maternal deaths that occur within the health institutions but outside of the maternity wards including, but not limited to, abortions. [114]

2.12.3 Standardised Maternity Case Record

The maternity case record is used for pregnant women requiring general admission and those in labour. A discharge summary is also provided on this record, after childbirth. [115] Among other factors, enquiries into maternal deaths in South Africa have also revealed problems such as non-utilisation of the partogram and incomplete assessment of maternal patients by medical personnel. It was also noted that in some health facilities, the partogram was not part of the maternity case record and this resulted in the loss of useful information. [116] The use of different maternity case records within different provinces led to the development of a standardised maternity case record by South Africa's NDoH in 1999. This served to surmount the problem of variations noted in existing maternal records while providing uniform and comprehensive records across the nation. [64]

2.12.4 Proportion of Births attended by Skilled Health Personnel

The causes of maternal mortality and morbidity result mainly from the inability of a health system to deal effectively with complications during delivery and the immediate post-partum period. [5, 117] One of the critical interventions for safe motherhood is to ensure thorough care provided by skilled professionals during pregnancy and childbirth. Thus, the reinforcement of reproductive health systems through joint effort and cooperation with HCPs such as midwives and nurses is of prime importance in order to accelerate the progress of reaching the maternal health targets by 2015. [65, 118]

The South African government has regulations set in place to make internship and community service an obligatory requirement for all HCPs to qualify for registration under their respective statutory health professional councils. Placement for internship in the public sector is controlled by South Africa's NDoH, resulting in allocation of a significant number of HCPs to rural areas. [120] According to the *WHO South Africa Health Profile* for 2009, 85% of births were attended by skilled health personnel in rural areas in comparison to 94% in urban areas, showing progress in narrowing the margin of this disparity. [121] However, despite these strategies South Africa faces shortages due to movement from PHC facilities to private health facilities, and to international health and development organisations. [118]

Table 2.2: Health profile of South Africa [121]

Selected Indicators (2009)	**South Africa**
Location	WHO African region
Total population	50,110,000
Life expectancy at birth m/f (years)	54/55
Gross Domestic Product (GDP) per capita	US$ 9790
Total expenditure on health as % of GDP (2009)	8.5
Maternal mortality ratio per 100,000 live births	Country: 410 Regional: 620 Global: 260
Prevalence of HIV per 1,000 adults	178
Health workforce: (number per 10 000 population) Nurses and midwives Physicians	 Country: 40.8 Regional: 10.9 Country: 7.7 Regional: 2.3
Births attended by skilled health personnel (%)	Country: 91 Regional: 49
Health service utilisation for birth attendants by skilled health personnel (%):	Rural: 85 Urban: 94
Antenatal Care (4 + visits) (%)	Country: 56 Regional: 44
Contraceptive prevalence	Regional: 26

2.13 South Africa's Health Care System

Four levels of care within the South African health care system have been established for maternal, neonatal and child health: community level services, primary level services, district hospital level, and regional hospital level services. [122] At all levels of the health system, South Africa has health service packages throughout the life cycle as a continuum of care for women before pregnancy, during pregnancy and for mothers, babies and children. [7] To support antenatal care coverage, antenatal clinics are widely distributed within PHC facilities or hospitals. [123]

2.13.1 Challenges in Health Care

South Africa has a great inequity in its distribution of human and financial resources between the public and the private health sector. According to the *South African Health Review* for 2008, inequalities have been observed in the allocation of health resources across population groups, urban and rural, and educational levels. [124] South Africa's public sector health care system supports 80% of the population while the private sector provides services for 20% of the population, of which 18% are on medical aid. [125] Additionally, despite the low proportion of people receiving health care, the private sector employs about 70% of the country's health care specialists [125, 126], and accounts for approximately 60% of the total expenditure allocated to health care. [126] Thus, the South African government contributes approximately 40% of the total expenditure of health to cater for the health care needs of the larger percentage of the population which is highly dependent on the public health care system and suffers from a shortage of HCPs. [125] Findings from a previous study in South Africa show that HCPs have stressful working environments due to increasing numbers of patients and staff shortages. [127]

2.13.2Challenges with Health Workforce Shortages

South Africa's health workforce shortage poses a significant challenge in implementing access to health care. [128, 129] The *World Health Statistics* for 2011 show that the density per every 10,000 population in South Africa is 40.8 for nursing and midwifery personnel, 7.7 for physicians and a very low 2.8 for pharmaceutical personnel. [130] The dire shortage of professionals in the pharmaceutical workforce directly affects the development, manufacture, distribution and proper use of essential medicines, including the supportive

functions of regulation and operational research. The successful implementation of these responsibilities by competent pharmaceutical personnel is thus required for the existence of a strong health system in order to avoid negative implications for the country's maternal and infant population. [131]

2.13.3 Eastern Cape and Millennium Development Goal Five

The Eastern Cape is one the nine provinces in South Africa and forms the setting of this study (Chapter4). Comparison of the average MMR for the Eastern Cape between 2005-2007 and 2008-2010 indicates an increase from 133 to 193 maternal deaths per 100,000 live births respectively. Notwithstanding that this increase in MMR is below the country average of 300 maternal deaths per 100,000 live births the Eastern Cape reports the third highest number of maternal deaths in the country after the KwaZulu-Natal and Gauteng. [110] Social determinants of health, such as poverty, and lack of access to health services and resources, have potentially contributed to the upsurge in maternal mortality in the Eastern Cape. The Eastern Cape is the second poorest province in South Africa [132] and, due to such a low ranking at the provincial level, rural communities in the Eastern Cape are almost positioned at the level of low-income countries, although technically South Africa is a middle income country. From the more recent NCCEMD report, the Amathole district of the Eastern Cape accounted for the second highest MMR in the province, reported as 212 per 100,000 live births between 2008 and 2010. Such alarming statistics are considerably higher than the Cacadu district, also situated in the Eastern Cape, which reported the lowest MMR of 60 deaths per 100,000 live births. [110]

2.13.3.1 Primary Health Care Challenges in the Eastern Cape

Health systems are greatly challenged by shortage of HCPs and inadequate infrastructure, supplies and equipment. [133] Not withstanding these challenges, the principles of PHC are still very applicable, highlighting a critical need for accountability of all stakeholders concerned. [23, 134] In this regard, prominence is placed on the community-based health workforce approach in strengthening existing health systems and providing resources in support of local action. By centering on this approach, community health workers (CHWs) can play a significant role in improving the health outcomes of the communities which they serve. Community participation, which is also articulated in the Declaration of Alma Ata and

the consequent community empowerment, is a cost-effective approach to improve maternal health outcomes especially in remote underserved communities. [135]

2.13.4 Role of Community Health Workers

CHWs initially gained global support at the 1978 International Conference on Primary Health Care. They were seen as a key element of the strategy to achieve WHO's goal, set in 1975, of "Health for All by the year 2000." Many CHW programmes were established in the 1970s in low- and middle-income countries. [136] CHWs are a heterogeneous group of lay health workers who have no formal professional training or degrees and are based in the communities which they serve. They may be chosen or may volunteer within a community to perform responsibilities related to healthcare advocacy. CHWs provide the preventive and promotion aspects of health care to the community, often forming the liaison between the community HCPs at the PHC facility. [137, 138]

In 1994, South Africa adopted the district health system (DHS) as the foundation of its national health plan without the inclusion of CHWs. Thereafter, there has been increasing advocacy towards CHWs as a prospective solution to permeate existing shortfalls in human resources for health in different settings, mainly within healthcare for people living with HIV/AIDS. [139, 140] As a way forward, as part of re-engineering PHC in South Africa, the NDoH has established a CHW structure to guide the development of a national CHW programme. This framework will also serve to develop continuity between old and new CHW community-based organisations [105]

2.14 Universal Access to Reproductive Health

As previously mentioned (Section 2.11.1) maternal health is closely related to the right to the highest attainable standard of health which includes access to goods and services, including reproductive health care and information. [92] Reproductive health was initially recognised on the global agenda and articulated in the Programme of Action of the International Conference on Population and Development (ICPD) in 1994. [141] One of the goals adopted in this programme was that of ensuring universal access to reproductive health by 2015. However, the concept remained outside the scope of the MDGs until the 2005 UN World Summit. At this assembly world leaders supported the integration of the

aforementioned goal as an MDG target. [142] Following another endorsement by world leaders at the UN General Assembly's 61st session in 2006, the Secretary-General took note of the recommendation to include an additional target of universal access to reproductive health within the MDG framework. In this context, 'Achieve by 2015, universal access to reproductive health' was officially ratified as the second target of MDG 5 of improving maternal health and became effective as of January 2008. [35]

2.14.1 Contraceptive Prevalence Rate and Unmet Need for Family Planning

Contraceptive prevalence is "the percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used. It is usually reported for married or women in union between 15 to 49 years of age." [143] Adolescents, both unmarried and married, face many sexual and reproductive health risks stemming from early, unprotected, and exploitative sexual activity. For that reason, there is a pressing need to implement programmes that meet the contraception needs of adolescents, while adequately addressing potential hurdles they may face in accessing reproductive health services. [144] Family planning or contraception helps in spacing pregnancies, which enhances women's health as well as child survival. Apart from these health benefits, limiting the size of a family has economic benefits of easing the stress on family finances, while potentially creating opportunities for women to seek paid employment. [145] Contraceptives have been added to the WHO updated list of priority lifesaving medicines for women and children. The provision of modern contraceptives is considered as one of the most effective strategies for reducing maternal deaths. [45, 146] Increasing the use of contraception and reducing the unmet need for family planning, both MDG 5B indicators, will lead to prevention of unwanted pregnancies and this is estimated to reduce maternal death by a third. [58]

2.14.2 Adolescent Birth Rate

WHO identifies adolescence as a transitional period between the ages of 10 to 19 which involves growth and development that occurs before adulthood. [147] Adolescence represents one of the critical transitions in the life span and is a stage of life that is shaped by a series of rapid and interconnected developmental processes. [148] While adolescents

are in general a healthy population group, they are prone to risky behaviour, sexual violence and sexual exploitation. [149] Adolescent girls are also vulnerable to early and/or unwanted pregnancies. Adolescent birth rate is one of the developmental indicators for MDG 5B and represents the number of births per 1000 girls between 15 and 19 years of age. [35] According to the *World Health Statistics* for 2013, adolescent births account for approximately 11% of all births worldwide, 95% of these births occurring in developing countries. [59] The *MDG 2013 Report* highlights that sub-Saharan Africa has made the least progress in decreasing the adolescent birth rate since 1990, reporting the highest birth rate of 118 births per 1,000 girls amongst girls aged 15 to 19. [58]

2.14.2.1 Reproductive Health Risks for Adolescents

Sexual activity during adolescence, within or outside marriage, puts adolescents at risk of sexual and reproductive health problems. These include early pregnancy, whether intended or otherwise, unsafe abortion, and sexually transmitted infections (STIs) including HIV, leading to poor health while perpetuating the cycle of poverty and illiteracy. [150] Pregnancy and childbirth are a leading cause of death among adolescent girls in this age group. Prenatal deaths are 50% higher among babies born to mothers under 20 years of age than among those born to mothers aged 20 to 29 years of age. [151] The neonates of adolescent mothers are also more likely to have a low birth weight, which may result in a higher rate of long-term health risks. [152] Adolescents' right to health is therefore dependent on health care that respects confidentiality and privacy and includes appropriate mental, sexual and reproductive health services and information. [148] In developing countries, 30% of girls get married before the age of 18, and close to 14% do so before they turn 15. [153] Delaying the age of marriage requires working with communities to question, challenge and change such norms. An empowered and informed girl needs an encouraging family and social environment to reach her maximum potential. [89]

2.14.2.2 Approaches to Reduce the Occurrence of Adolescent Pregnancy

In 1995, WHO, in conjunction with the United Nations Children's Fund (UNICEF) and the UNFPA, agreed on a common agenda for action in adolescent health and development which calls for the implementation of a package of interventions, adapted to meet the distinct needs and problems of adolescents. [154] Recommendations from *WHO Guidelines*

on The Prevention Of Early Pregnancy and Poor Reproductive Outcomes in Adolescents In Developing Countries, published in 2011, were also used to identify effective approaches to increase utilisation of contraceptives among adolescents and to increase community support for contraceptive provision to adolescents. [155] In 2004, the NDoH of South Africa adopted the "ABC approach" from the United States' President's Emergency Plan for AIDS Relief (PEPFAR), a reproductive health initiative, which highlights "A" for abstinence, "B" for being faithful and "C" for condom use. [156] The "ABC approach" uses interventions that are specific to different population groups. While all aspects of the ABC approach are deemed equally important, for adolescents the emphasis is on abstinence and delaying sexual debut until marriage. [157]

2.14.2.3 Initiatives to Improve Access to Reproductive Health for Adolescents

The National Adolescent Friendly Clinic Initiative (NAFCI) is an accreditation programme which was initiated in South Africa in 1999. NAFCI focuses on ensuring that reproductive services are more accessible and acceptable to young people. Implementation of this is through establishing national standards and criteria for adolescent health care in clinics throughout the country, and building the aptitude of health care workers to provide quality services. [158] In 2006, WHO's department of Child and Adolescent Health and Development (CAHD) published a systematic review of the effectiveness of interventions to improve the use of health services by adolescents in developing countries. [159]

A study conducted in South Africa in 2005 revealed that nearly one-third of 15 to 19-year-olds and almost two-thirds of 20–24-year-olds reported having been pregnant, with the overall rate for 15–19-year-olds being 15.5%. [160] Just as important is the finding that 66% of these young women reported that the pregnancy was unwanted. The study reported adolescents' knowledge of sexual and reproductive health as generally inadequate and a substantial number of these adolescents indicated a need for more information on such issues as pregnancy, relationships, and STIs. [161] In addition to a need for more information, there is clearly a need for youth-friendly services. In spite of the high prevalence of HIV, STIs and adolescent pregnancy, many young people do not use public health services in South Africa, and have reported barriers when they have attended clinics. [162, 163] The barriers reported by young people relate to access and quality, including the

attitude of staff, the time of the service, confidentiality, embarrassment at being seen in the clinic waiting room by adults from their community, and not understanding their diagnosis or treatment. [163]

2.14.3 Antenatal Care Coverage

Antenatal care is assigned as the fifth indicator to be monitored under MDG 5 Target 5B. The antenatal period is an important time for reaching women with interventions and information that foster their health, well-being and survival and that of their infants. [35] UNFPA and WHO recommend a minimum of four antenatal care visits during pregnancy as the basis needed to provide important maternal health services, such as management of hypertension to prevent maternal health complications, namely eclampsia. [164]

2.14.3.1 Antenatal Care Coverage in South Africa

According to the South African Demographic Health Survey (SADHS), antenatal care attendance in South Africa had remained over 90% since 1998. [122] Prioritisation of maternal health by South Africa's NDoH has led to the increase in construction of PHC clinics and the elimination of user fees for maternal and child services at the PHC and district hospital levels. [140] However, although attendance was high, the SADHS underlined that there was need for further evaluation and development in the quality of services. [122] According to South Africa's NDoH annual report for 2010, basic antenatal care services, which included HIV testing, were provided in 79.4% of public sector facilities, to facilitate progress on improving maternal health. [106] These services were provided for pregnant women presenting in public health facilities, with 96% of pregnant women agreeing to be tested for HIV. About 79% of those pregnant women who were eligible were placed on highly active antiretroviral therapy. This has been of great benefit in the extension of the Prevention of Mother to Child Transmission (PMTCT) programme, given that HIV and AIDS contribute to the non-pregnancy related causes accounting for over 40% of maternal deaths in South Africa. [110, 107] However, an area that requires programme expansion is the provision of post-natal care to new mothers and their babies. [165]

2.15 Success Stories about Improving Maternal Health in Other Developing Regions

According to the *MDG 2010 Report*, the global estimates of maternal mortality show that Eastern Asia, Northern Africa, South-Eastern Asia and Southern Asia have made the greatest strides in reducing maternal mortality. Between 1990 and 2008, 90 countries showed declines in their MMRs of 40% or more, while another 57 countries reported at least some improvements. [86] When development of efficient policies and strategies aimed at increased access to effective interventions, such as the prioritisation of a national Safe Maternal Initiative by both the government and donors, they focused on recruiting more doctors, nurses and trained birth attendants, and positive results were feasible in committed countries. [166] Such progress is evident from countries such as Bangladesh and Ethiopia, which have succeeded in reducing maternal mortality. [86, 166]

As a region, sub-Saharan Africa remains furthest from meeting the MDG of maternal health, whereas individual African countries, including low income countries such as Ethiopia, are making sufficient progress towards improving maternal health and other MDGs. [167] In some parts of Ethiopia, over half the girls are married by the age of fifteen with expectations of bearing children, and they have a high risk of encountering complications, often leading to maternal death. [167] However, targeted interventions by the Ethiopian Ministry of Health and its partners resulted in improving maternal health by training and deployment of more than 30,000 female health extension workers (HEWs) in order to provide maternal patients with health care and forefront referrals for patients with complications to health facilities, particularly in remote rural areas. [167] Due to these initiatives, maternal mortality in Ethiopia has decreased by almost 30% in the past 10 years. The *2010 MDG Review Summit* reported that maternal mortality has considerably declined over the last decade in Ethiopia, from 937 maternal deaths per 100,000 births in 2000 to 673 maternal deaths per 100,000 births in 2010. [62]

Before implementing the Safe Motherhood Strategy, Bangladesh was largely influenced by cultural practices, compounded by the relatively high cost of seeking obstetric health care, meaning that most women gave birth at home and relied on traditional birth attendants to assist during delivery. When the Safe Motherhood Strategy was implemented, the percentage of women using a health care facility to give birth increased to nearly 40%. The

percentage of births with a caesarean section to save the mother's life also increased, from nearly zero in the early 1990s to 5% or more in 2005. [168]

Countries such as Honduras, Nepal, Rwanda and Sri Lanka are some examples that point the way for other countries working to address maternal mortality. While these success stories continue to be 'work in progress', they demonstrate that MDG 5 is indeed within reach, particularly for a country that recognises the incalculable value of women. [62] Concerted efforts by the Honduras government produced a 40% decrease in Honduras' maternal mortality in less than a decade as a result of focusing on eradicating the key causes of maternal death, which were postpartum haemorrhage, pre-eclampsia, and obstructed labour. The government worked in collaboration with the United States Agency of International Development (USAID) and the Pan American Health Organization (PAHO) in improving efforts to reduce maternal mortality. Donor investment funded the increased supplies of blood and equipment in clinics and hospitals to treat haemorrhage, while paramedics provided pre-natal check-ups to monitor pre-eclampsia. [169]

Poverty in Rwanda is widespread, and the country has a large rural population, making access to health services challenging, particularly for women. Yet the Rwandan government has made improving family planning services a national priority by working with WHO in hiring and training CHWs, to provide family planning education and counselling to men and women throughout the country. As a result of reducing the number of pregnancies, Rwanda's maternal mortality ratio fell by more than 25% in five years. [170]

More than a third of Sri Lanka's population lives below the poverty line. However, political commitment to providing health care to women in clinics and hospitals, and in their homes, has resulted in the reduction of the country's maternal mortality rate by 87% in the past 40 years. [171] A dedicated group of midwives assigned to every district in Sri Lanka to provide basic home care for expectant and new mothers form the frontline of the maternal health system. In addition, the expansion of health facilities and encouragement of women to visit these facilities during pregnancy and for childbirth has led to 99% of pregnant women in Sri Lanka receiving four or more prenatal visits and giving birth at a health facility. [172] The progress made by the above-mentioned countries can be attributed to the influence of

modification in the knowledge, attitudes and practices of the relevant communities from which positive change with regard to improving maternal health was noted.

2.16 Health Promotion

Part of Section 3 under the declaration of Alma Ata states that, “The promotion and protection of the health of the people is essential to sustained economic and social development and contributes to a better quality of life and to world peace.” [23] Health promotion forms a part of PHC and involves empowering the community concerning prevailing health problems and the methods of preventing and controlling these problems, including promotion of maternal and child health care and provision of essential medicines**.** WHO defines health promotion as “The process of enabling people to increase control over their health and its determinants, and thereby improve their health.” [173] The concept of health promotion was endorsed in 1986 under the Ottawa Charter on Health Promotion which marked the first International Conference on Health Promotion. [174] The aforementioned conference benchmarked a series of seven global conferences on health promotion held between 1988 and 2009 and the most recent of these conferences, the 8th Global Conference on Health Promotion, was held in June 2013. [175] Each succession of these conferences served to reiterate the importance of health promotion and the participation of communities individually and collectively in planning and implementing their health care. [175]

The first International Conference on Health Promotion was a response to increasing outlook for new public health movement at a global level. The conference advocated for the promotion of health at all levels by supporting countries to set up policies and plans for health promotion. This conference also highlighted that health promotion is dependent on resourceful community participation in prioritising and implementing strategies to achieve health development. [174] The second International Conference on Health Promotion was held in Adelaide in 1988. The conference made strong recommendations towards reaffirming the commitment to a strong public health agreement that the Ottawa Charter represented. A challenge that was underlined was the need for individual nations and international agencies to develop collaborative partnerships for global development. [176]

The third International Conference on Health Promotion was the Sundsvall Conference held in Sweden in 1991, with participants from 81 countries. The focus of the conference was the endorsement of active engagement by the global community people in making environments more supportive to health. Social, political, economic and gender equity-centred dimensions acknowledging women in health promotion policies were highlighted as significant aspects that influenced a supportive environment for health. [177] The Fourth International Conference on Health Promotion was hosted in Jakarta in 1997. The Jakarta declaration on Health Promotion reiterated the significance of the agreement made in the Ottawa Charter, in order to reinforce the concept of health promotion in the 21st century. [178] The conference provided an opportunity for reassessment of the determinants of health and consideration on the progress on effective health promotion that had been achieved up to then. [179] Additionally, health promotion was emphasised as a priority which could be further reinforced by consolidation and expansion of partnerships with the private sector towards improved health in the 21st century. [179] The Fifth International Conference on Health Promotion was held in Mexico City in 2000. A ministerial statement was signed by signatory countries which affirmed among other key statements, the urgency to address determinants of health and strengthening collaborative mechanism to bridge gaps in equity across all sectors and levels of the world. [180]

The Sixth International Conference on Health Promotion was held in Thailand in 2005. Participants at this conference affirmed the 'Bangkok Charter for Health Promotion in a globalised world'. The Bangkok Charter asserted the need to increase community capacity, to facilitate empowerment of communities, and to secure a platform to realise health promotion. [181, 182] The Seventh International Conference on Health Promotion was held in Nairobi in 2009. The conference highlighted the need for health promotion focused on closing the implementation gap in health and development. Health promotion was further highlighted as facilitating the empowerment of communities. This was envisaged to enable communities to take ownership and control of their endeavours in all aspects that directly and indirectly impact on their health and well-being. [183] Deployment of existing resources to strengthen community participation within communities enhances community development and independence with regard to health issues. [184] The most recent Conference on Health Promotion held in Helsinki in June 2013. The contribution of health

promotion in the renewal and reform of primary health care was also an area of discussion. Among other aims, the conference facilitated discussion around progress, impact, lessons learnt, and accomplishment of health promotion since the Ottawa Conference to date. [185]

2.16.1 Health Literacy

According to WHO,

> Communication plays a vital role in ensuring community empowerment. Participatory approaches in communication that encourage discussion and debate result in increased knowledge and awareness, and a higher level of critical thinking. Critical thinking enables communities to understand the interplay of forces operating on their lives, and helps them take their own decisions. [186]

Positive outcomes in behaviour modification are facilitated by the effective communication with members of the public. In this way, health promotion is enhanced through relaying reliable health information by HCPs so as to ensure that community is enabled in making informed health choices. [187] Acknowledgement and efforts to address communication barriers such as literacy, language, level of education and cultural differences amongst other factors is important prior to embarking on any health promotion intervention. [187, 188]

Literacy is the ability to read and use the alphabet and numerical numbers and broadens to the ability to use media as well as electronic text for one's personal improvement. [189] According to WHO, health literacy is defined as

> The cognitive and social skills which determine the motivation and ability of individuals to gain access to understand and use information in ways which promote and maintain good health. Health Literacy means more than being able to read pamphlets and successfully make appointments. By improving people's access to health information and their capacity to use it effectively, health literacy is critical to empowerment. [190]

Literacy affects the level of health literacy particularly where the communication occurs in a written medium. Individuals with low literacy levels are less likely to access preventative health care, leading to poor maternal health outcomes and increased use of emergency obstetric services. [191, 192] However, higher literacy levels do not necessarily ensure

adequate health literacy as a highly educated individual from a non-health related field may also face challenges in health literacy. [193]

Reasons for lack of understanding of information given to patients, or a particular target population during health promotion, may be increased due to the use of medical jargon by HCPs. [193] As a result, recall of information of a medical condition is likely to be affected by forgetting or confusing terms and concepts leading to inaccurate information. [194] For the facilitation of successful educational interventions, it is beneficial for the target audience to engage with the topic of discussion and are not just passive recipients in a didactic approach. In addition, positive reinforcement of new information results in a better response of recall in comparison to correction of existing knowledge or beliefs. [194] While methods of communication such as traditional folk media, drama and theatre are valuable, face-to-face communication fosters a more interactive approach to health promotion. Additionally, the use of both written and verbal communication to disseminate health information strengthens the quality of recall regarding a particular health condition. [195] Appropriate printed materials that are developed while taking cognisance of a low-literate target audience can be an effective reference tool to reinforce messages presented verbally during interpersonal contacts. Additionally, these materials provide a means for conveying uniform information to an audience outside of the setting of the initial recipient of the information. [196]

2.16.1.2 Developing Material for Low-Literate Readers

The ability for low literates to comprehend a health based message is influenced by the simplicity of the materials developed for the target audience. A commonality amongst the public is that most readers of printed health promotion information prefer messages that are conveyed in a simple and clear manner. [197] In instances where there are readers who want more detailed information, they can be directed to the relevant sources for more comprehensive information. [198] A formal method that can be used to guide the development of material for low literates is through the use of baseline investigations to ascertain the information needs of the target audience. Additionally, it is essential to determine the key information points which are necessary to enable the reader to make an informed decision regarding behavioural modification. [199]

The US National Cancer Institute has developed guidelines materials for low-literate readers. The aforementioned source has highlighted that an assessment of the appropriateness and effectiveness of print as a communication medium to serve the information needs of the target audience is valuable in the development of materials for low literates. [200] In other sources, emphasis has been placed on presenting information in a format that is easy to read and understand, while the visuals used must relate to the text and be acceptable for the target population. [201] The combined use of verbal discussions with printed materials as a reference is useful in reinforcing health information. [202] Readability formulas such as SMOG (Simple Measure of Gobbledegook) can be used to test the readability level of written material. SMOG levels are calculated by choosing 10 sentences in the text and then detecting words containing three or more syllables. A review of the literature has noted that it is best to aim for a level that is two to five grades lower than the level of the highest average grade in the target audience, as this accounts for a possible decline in reading skills over time. [203]

2.16.2 Community Role in Health Promotion

One of the definitions for community engagement is "The process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people." [204] Collaboration is exchanging information, sharing resources and enhancing the mutual capacities for a common purpose, while partnerships are reciprocal associations among the above mentioned stakeholders. [205, 206] Communities are made up of diverse groups with different histories, social organisation, value systems, and cultural perception of civilisation. [207] To foster a successful community engagement process, it is essential to be culturally sensitive. Additionally it is advantageous to form a good rapport with members of the community and their leaders. [208] Community mobilisation involves positively influencing community behaviour by establishing a platform for communities to take an active role to improve their well-being. In this regard, active community participation also serves as an important aspect in facilitating community empowerment. [209]

2.16.3 Community-Based Participatory Research

Community engagement in health promotion is mainly rooted in the acknowledgment that standard of living, behaviours, and the prevalence of illness are all shaped by social and physical environments. [210, 211] Challenges such as a lack of awareness of the impact of an exacting health issue can be addressed through community-based participatory research (CBPR). This helps to develop, refine and give momentum to negotiate a mutual agenda between the stakeholders and communities involved. [212] CBPR is directed by the underlying values of collaboration and partnership, where research brings together community and academic expertise to investigate and initiate opportunities for social action and behavioural modification. [213] The process of CBPR allows marginalised communities to reflect upon the social conditions influencing health issues in their communities and thus facilitates empowerment to transform the influencing risk behaviours. [214] CBPR can take on many forms, such as associations amongst local organised groups within the community where participation by the local people at grassroots level involves them in the identification of their local needs and commencement and implementation of projects in order to develop the basic self-reliance in their immediate environment. [215] CBPR involves systems development using a cyclical and iterative process that includes partnership development and maintenance, community assessment, problem definition, use of developed research methods, data collection and analysis, interpretation of data, determination of intervention, dissemination of results and establishment of mechanisms for sustainability. [216] CBPR is distinct from community-based research in that it does not involve merely conducting research geographically in a community set-up with limited, if any, involvement of community members. In contrast, CBPR involves conducting research that recognises the community as a social and cultural entity with the active engagement and influence of community members in all aspects of the research process. [216]

Partners contribute their expertise and share responsibilities and ownership to increase understanding of a given phenomenon, and incorporate the knowledge gained with action to enhance the health and well-being of community members. [217] As a research methodology, CBPR accentuates the participation and influence of non-academic researchers in the process of investigating knowledge and behavioural modification. Moreover, the term ‘participatory’ aligns CBPR with its roots in participatory research

approaches, focusing on three interconnected elements: participation, research and action. [218] CBPR recognises community as a unit of identity. The concept of community as a characteristic of collective and individual identity is fundamental to CBPR. Units of identity — for example, membership in a family, friendship network, or geographic neighbourhood — are all socially constructed dimensions of identity, created and recreated through social interactions. [219] The partnerships involved in CBPR focus on issues and concerns that are identified by community members who are participants in the research. [220] CBPR seeks to support the already existing social structures and processes that contribute to the community members' ability to work together to improve health. Resources, strengths and skills which exist in community-based organisations, such as supportive interpersonal relationships, can be engaged in addressing problems and promoting health and well-being. [221] In this regard, the strengths and resources of the community are built upon to support and reinforce knowledge, skills and social structures in the community. [222] Information is gathered to inform interventions which help facilitate participants' reflection on understandings that emerge from the interventions conducted. CBPR addresses health from models that emphasise physical, mental and social well-being. [223]

2.16.4 Community Engagement and Higher Educational Institutions

The World Declaration on Higher Education states that there is a need for Higher Educational Institutions (HEIs) to reinforce their role of service to society, especially in its activities aimed at eliminating negative influences of factors such as poverty and diseases which are powerful social determinants of health. [224] In support of this notion, the first official document of commitment to strengthening the civic role and social responsibility of HEIs, the *Talloires Declaration on the Civic Roles and Social Responsibilities of Higher Education* was signed by representative signatories at an international conference held in Talloires, France in September 2005. [225] Several universities pledged to promote shared universal human values by engaging in strengthening and serving the societies of which they form a part. [225] The HEIs that signed this declaration formed a network to facilitate the exchange of ideas and insights in community engagement. [226] Since May 2012, the Talloires Declaration has been signed by more than 430 university presidents and chancellors at HEIs in over 40 countries across the globe, suggesting a growing recognition

of the importance of expanding civic engagement and social responsibility programmes in an ethical manner, through research, teaching and public service. [227]

2.16.5 Endorsement of Community Engagement in South Africa

The 1997 *White Paper on Transformation on Higher Education* denotes community engagement as one of the three founding principles of the post-apartheid reconstruction of the Higher Education System of South Africa in conjunction with research and teaching. [228] The Council of Higher Education of South Africa also reiterates the importance of community engagement

> As a process of creating a shared vision among the community, partners, provincial and national government, non-government organisations, and HEIs as equal partners resulting in a long term collaborative program of action with outcomes that benefit the whole community equitably. [229]

There are 23 HEIs that have adopted the principle of community engagement and are members of the South African Higher Education Community Engagement Forum. [230] South Africa drafted the *White Paper on Public Service Transformation* in 1997. This draft provides a guideline for health providers in public service delivery, which serves to improve the value of delivering services that meet the basic needs of all South Africans. The *White Paper on Public Service Transformation* further calls upon policy-makers to identify and make available services that redirect resources to communities that are underserved. [231] In 1997, a set of transformation priorities were established which set out to transform public service delivery into a more community-orientated approach, in which the community is aware of their health rights at every level of health services they acquire. These were termed the eight Batho Pele principles. [232]

2.16.6 Examples of Community Engagement in South Africa

For community engagement in health promotion, the use of local knowledge in defining and understanding the health problems within the community is central in involving community members in the research process. This is particularly important where questions formulated without the input and involvement of community stakeholders can undermine the research and its chances of success from the beginning. [233] An example is highlighted in a study initially aimed to be on cervical cancer that was conducted by Mosavel *et al*. [233] in Cape

Town in the Western Cape Province in South Africa. After using focus groups and informal interviews during data collection, it was gathered that the interest on the risk factors of cervical cancer be modified to more detailed focus on cervical health. In this context, acknowledgement of the different factors which influence women's health in the study setting facilitated redefining of the research question. [233]

Without question, the connection between health and culture is closely linked, as culture influences perceptions of poor health and suffering, procedures of disease prevention, remedies for ill health, and use of health services. [234] Additionally, for community engagement to be effective, it must be mutually beneficial and of relevance to the community where it is being conducted. An example of a successful collaboration towards community engagement which generated similar lessons and examples that can be used globally is the initiation of community partnerships in various provinces of South Africa with funding from the W. K. Kellogg Foundation between 1991 and 1994. [235] These partnerships involved local and regional health service providers, the local communities and Oxford Brookes University as the HEI in collaboration to determine the priority-health issues in each community. [235]

2.16.7 Community Engagement and MDG 5 in South Africa

In the apartheid era, South Africa faced significant disparities in unequal allocation of resources in the areas of education, health services and general facilities. Subsequently these geographical, social and political separations generated extreme consequences in development and health. [236] Targeting community engagement in maternal health promotion by stakeholders to the most vulnerable populations, such as women living in rural areas, is essential as a civic responsibility towards supporting progress in improving maternal health and saving women's lives. [237] The role of community engagement in health promotion and towards attaining MDG 5 can complement the critical role of HCPs in providing maternal health care services at public health facilities. As a result, an important component of community-oriented healthcare, empowering interventions targeting maternal and newborn health, can be initiated and sustained. [238] Thus, community engagement endeavours in this respect can help educate the communities concerned by initiating campaigns that raise awareness about preventing risk behaviours which contribute

to poor maternal health outcomes. [239] Furthermore, assessment of findings obtained from evaluation of these interventions can be useful in informing existing maternal health policies set by the government in order to strengthen maternal health system reforms. [240]

CHAPTER 3: THEORETICAL FRAMEWORK

3.1 The Knowledge, Attitudes and Practices Model

The Knowledge, Attitudes and Practices (KAP) model is very useful for assessing community knowledge, and permits rapid assessments in yielding qualitative and quantitative data. The KAP model recognises that increased knowledge leads to new attitudes and therefore changed practice. [241] Knowledge is assessed in order to see how far community knowledge corresponds to concepts under enquiry. Characteristic questions include knowledge about causes on the subject area under study. [242] In the KAP model, questions related to practices usually enquire about the use of preventive measures or different health care options. [243]

Understanding the knowledge, attitudes and practices of the target group helps facilitate the determination of the goals and scopes of a health promotion intervention while establishing the context of the risky behaviours which are to be targeted. [244, 245] Beliefs and attitudes influence an individual's responses regarding the health information provided to them. [246] Arden *et al*. [247] highlight the importance of evaluating the perceptions, attitudes, beliefs, and outcome expectations of individuals in order to understand practical behaviours and to guide behavioural change. [247] However, there are limitations to the KAP model as knowledge, beliefs and attitudes, though interrelated, do not necessarily result in similar actions. [248] This can be due to the influence of factors described in the health belief model below.

3.2 The Health Belief Model

Understanding human behaviour is a prerequisite for positively influencing behaviour and improving health practices. [249] Experts in health interventions and health policy have become increasingly aware of human behavioural factors in quality health care provision. [250] In order to respond to community perspectives and needs, the World Bank has emphasised the need for health systems to modify their strategies, taking into account the findings from behavioural studies. [250] In the 1950s, researchers at the United States Public Health Service developed the Health Belief Model (HBM), inspired by a study investigating why medical screening for tuberculosis had a low success rate. [251] The

underlying concept is that health behaviour is influenced by perception of a disease or health condition and the strategies that are available to reduce its occurrence. The HBM consists of the following main variables: perceived seriousness, perceived susceptibility, perceived benefits, and perceived barriers in predicting health behaviour. [251]

3.2.1 Perceived Susceptibility

Perceived susceptibility involves feelings of personal vulnerability to a condition. Thus, this aspect refers to one's subjective perception of the risk of contracting a disease or health condition. The first crucial step taken by individuals to reduce the threat of contracting the disease or health condition is acceptance and recognition that their probability and vulnerability of contracting a disease is high. The HBM infers that if an individual's knowledge, attitude and perceptions are positively altered and reinforced, the individual's perceived susceptibility towards a disease becomes high, resulting in the individual adopting positive health-related actions towards that disease. [244]

3.2.2 Perceived Severity

Perceived severity has to do with the feelings concerning the consequences of contracting an illness, such as death, disability and pain, including possible social consequences such as stigmatisation within the community. [251] Perceived susceptibility is very closely linked to perceived severity and usually individuals are unable to separate the two when they are considering potential threats. [252] According to the HBM, acknowledging the potential threat of a health condition is seen to be a vital cognitive process in adopting health-related behaviours.

3.2.3 Perceived Benefits

Perceived benefits involve the acceptance of personal susceptibility to a condition which one believes to be serious enough to elicit a behavioural change. However, it does not define the particular course of action that is likely to be taken. [253] Perceived benefits refer to the positive consequences of adopting a certain health-related behaviour and action. The perceived benefits represent the components of the value outcomes of the HBM and refer to the positive consequences of adopting a health-related behaviour. [252]

3.2.4 Perceived Barriers

Perceived barriers are the potential negative aspects of a particular health action which may act as impediments to undertaking the recommended behaviour. [254] According to Johnson *et al*., the factors that are related to the adoption of a healthy behaviour which are perceived by the individual as negative, in the sense that they may be expensive, unpleasant or painful, could act as barriers to a desired action. [255]

According to the HBM, before making health decisions people assess both the health threat and the anticipated path of action. Therefore, the two constructs – perceived susceptibility and perceived severity – can motivate or demotivate individuals to act, whereas perceived benefits and perceived barriers inform their choices on the appropriate behavioural response. Attempts to improve the predictive validity of the HBM have resulted in additional components being added to the model since its inception in the 1950s. The additional components that have since been added to the original model are explained below.

3.2.5 Cues to Action: Cost Benefit Analysis

Cues to action are varied, subjective and often reliant on the nature or extent of a perceived threat to inspire action or the individual's motivation. A cost benefit analysis is assumed to occur where the individual weighs the action's effectiveness against perceptions that it may be expensive, dangerous, unpleasant, inconvenient, or overwhelming. [256] The four perception variables are influenced by other variables such as culture, past experience, educational level, motivation, and skill. Behaviour is also influenced by cues to action which are events, people or things that motivate people to change their behaviour. [257] As an example, cues to action in a campaign can be conveyed to the general public by showing images of people infected with a particular disease and the harmful effects it has on their bodies and lives. This may be result in a cue to action to motivate individuals to take up positive health-related actions to avoid such a health condition. [258]

3.4.6 Self-efficacy

The concept of self-efficacy was adopted from Bandura's Social Cognitive Theory [259] and incorporated into the Health Belief Model to take into account personal and social

determinants of health-related behaviour. [244] Bandura defines self-efficacy as the self-belief and confidence that an individual possesses to successfully adopt behaviour necessary to achieve a desired outcome. [259] The concept of self-efficacy is thus a crucial factor in creating and maintaining behavioural change, and this is shown by its incorporation into the growing body of research in health-related spheres such as dieting, drug addiction, and sporting. Thus, progressive self-confidence and a cognitive sense of self-belief are needed for the adoption of positive health-related behaviours. [258] If the individual sees the perceived benefits but is overwhelmed by the perceived barriers, then cues to action are not likely to be effected. [260] In this regard, empowerment of the individual assists the improvement of perception of self-efficacy.

The HBM identifies emphases on the individual's cognitive processes involved in behavioural determination. A main assumption is that individuals consider both the health and non-health-related consequences (such as social or economic) of their actions. One of the main challenges faced by the HBM is the apparent willingness of people to neglect the potential long-term consequences of their behaviours in support of more immediate apprehensions. The immediate benefits of any behaviour may exert a stronger influence than the delayed consequences, even though these might be serious, thus leading to reinforcement of maladaptive behaviours such as engaging in risky sexual activity. [261] An example within the context of preventing adolescent pregnancy is that an individual's concern about falling pregnant may be obscured by other more immediate needs, such as sexual gratification, the need for social approval, or peer pressure.

3.4.7 Limitations of the Health Belief Model

The HBM has been criticised for not accounting for the gap between intentions and actual behaviour, which, in most cases, is made up of a broad spectrum of social, emotional and physiological factors which influence health-related behaviour. A limitation of the model is that it does not focus on the influence of the social and economic environment in predicting and explaining behaviour but instead emphasises the cognitive processes of individuals. [244] In this context, cognitive processes involve the application of one’s understanding and reason in conceiving ways to cope with the health threat. [262]

3.3 Empowerment model

Gibson defines empowerment as a multi-dimensional process which helps people to assert control over factors that affect their lives. [263] Empowerment is a process that allows one to gain the knowledge, skill-sets and attitude needed to overcome perceived barriers within the changing world and the circumstances in which one lives. The empowerment model was designed in order to correct the limitations of the educational model and preventive model of health promotion. [264] The preventative model is aimed at urging and coercion of the individual, whereas the educational model focuses primarily only on providing information. [265] The empowerment model is based on the correlation between creating public health policy and influencing individual choices by building the individual's capacity to make choices and transform those choices into desired actions and outcomes. [264] This process conceives the ability for one to use these choices in one's life, community and society, while acting on issues that they define as important. The empowerment model simulates that having access to information and resources to make proper decisions is crucial in empowerment of a community. It also involves the ability to exercise assertiveness in collective decision-making. [265]

An example of where the empowerment model has been used is in empowerment of female CHWs to increase their awareness, capability and confidence in order for them to effectively increase acceptance of the use of contraceptive among the rural women of reproductive age group in Nepal, a South East Asian region. [266] As previously mentioned (Section 2.13.3.2) CHWs provide the preventive and promotion aspects of health care to the community, often forming the interface between the community and the health care professional at the public health care facility. [137, 138] The Government of Nepal initiated the Female Community Health Volunteer programme which involved training local community women and delegating to them the responsibility of providing maternal and child health and family planning services to their respective communities. The performance of the CHWs in making family planning services available to rural communities was ineffective due to failure to build a sense of ownership and commitment among the volunteers caused by a top-down approach and lack of active involvement in the identification of the needs of their communities. [267] After implementation of the empowerment model in a government funded programme targeted towards CHWs, it is

held that by increasing their consciousness about the problem of high fertility and its causes, and by enhancing their competence and confidence in the provision of contraceptive services, with time this brought about a sustainable change in their job performance related to promotion of contraceptive usage in the community. [267]

CHAPTER 4: STUDY SETTING

4.1 Location of study

The study setting of this research was two Eastern Cape rural communities: Glenmore and Ndwayana (Figure 4.1). Glenmore is situated 44 km north-west of Grahamstown, and Ndwayana is situated 45.6 km north-west of Grahamstown and neighbours the Glenmore industrial area. [268] Glenmore and Ndwayana villages both fall under the Amatole District and are located north of the Great Fish River in the former Ciskei homeland. Both villages face issues of poor infrastructure and limited services, including transport to the nearest cities which provide access to public sector health institutions upon which the majority of the local population is dependent. [269]

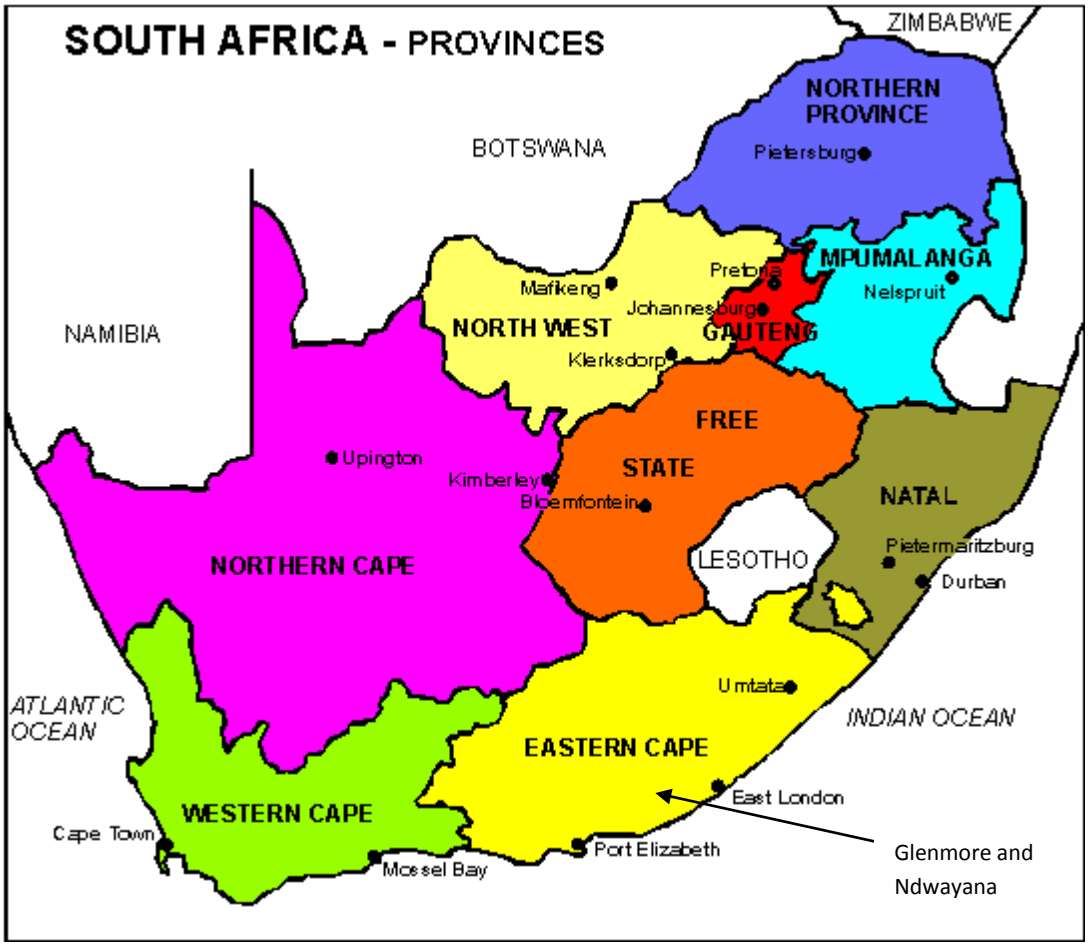

Figure 4.1: Location of study setting [270]

4.2 Access to the study setting

AGF is a non-profit organisation which was established in 2002 by the owners of Kwandwe Private Game Reserve using a Social Development Model. AGF was established due to concern around the lack of services and development opportunities for people living in the rural areas of the Eastern Cape. [271] AGF has been working with the Glenmore and Ndwayana communities focusing on facilitating programmes such as 'The Positive Health' programme designed to empower families to take active responsibility for their health and nutrition. [271] 'Positive Health Champions' – a term used by AGF – are members of the community who are trained and mentored by AGF to become resources for their community by assisting in the facilitation of health workshops and liaison between the community and the respective PHCs in each community. For the purpose of this research, AGF and the positive health champion facilitated access to the study setting.

CHAPTER 5: RESEARCH AIM AND OBJECTIVES

5.1 Aim of the study

The aim of this study was to identify the maternal health issue of most concern to the Glenmore and Ndwayana community participants, and to design and implement an appropriate educational intervention for the target group.

The study was carried out in two phases: the baseline phase and the educational intervention phase. A baseline phase facilitated the identification of the maternal health issue of most concern to community participants from the above mentioned communities. Following this phase the educational intervention phase facilitated the design and implementation of the educational intervention for the target group.

5.1.1 Objectives of Baseline Phase of Study

Title of Baseline Phase: *Maternal Health Assessment, Community Educational Intervention and Evaluation*

The baseline phase included the following objectives:

a. To contact key stakeholders i.e. HCPs, CHWs, positive health champions, community leaders and women's self-help groups from Glenmore and Ndwayana to introduce the project (see Appendix 2: Baseline Phase Participant Information Sheet) and to obtain their informed consent to voluntarily participate in this project (Appendix 3: Baseline Phase Participant Informed Consent Form).
b. To conduct pilot testing of research instruments with a suitable population group from Ndhlambe, which is a village neighbouring Ndwayana.
c. To conduct focus group discussions (FGDs) with the community leaders, three women's self-help groups and CHWs in each of the two rural communities (Appendix 6: Baseline Phase FGD Question Guide), which involved investigating the knowledge, attitudes and practices of the community's participants with regard to maternal health issues.
d. To conduct semi-structured interviews (SSIs) with the Sister-in-Charge at each PHC in Glenmore and Ndwayana (Appendix 5: SSI Question Guide for Sisters-In-Charge).

e. To collect data on the stock status of WHO identified priority medicines for women's health at each of the PHCs in Glenmore and Ndwayana (Appendix 4: Checklist for availability of WHO priority medicines for women's health).

5.1.2 Objectives of Educational Intervention Phase of Study

Based on the FGDs and SSIs conducted, the key maternal health issue identified from the baseline phase was the need to prevent adolescent pregnancy, and this formed the basis of the next phase of this study, which was to develop and implement an educational intervention.

Accordingly the title of this study was modified to: *Adolescent pregnancy: A community engaged participatory approach to design and implement an educational intervention.*

The educational intervention phase of this study included the following objectives:

a. To conduct a FGD to obtain feedback from positive health champions and representative/s of AGF regarding the acceptability and cultural sensitivity of the semi-structured interview (SSI) question guide (Appendix 11: Pre-Intervention SSI Question Guide).

b. To introduce the educational intervention (Appendix 9: Educational Intervention Phase Participant Information Sheet) to the target group and to obtain their assent and informed consent from their parents or guardians to voluntarily participate in the educational intervention (Appendix 10: Educational Intervention Phase Participant Informed Consent Form).

c. To conduct pilot testing of the SSI question guide (Appendix 11: Pre-Intervention SSI Question Guide) with a suitable population group from Grahamstown.

d. To conduct the pre-intervention phase using SSIs (Appendix 11: Pre-Intervention SSI Question Guide) regarding adolescent pregnancy amongst participants from the target group in the two communities who will participate in the educational intervention.

e. To design an educational intervention on the prevention of adolescent pregnancy incorporating key inputs from data collected in the pre-intervention phase.

f. To conduct a FGD to obtain feedback from positive health champions and representative/s of AGF regarding acceptability and cultural sensitivity of the proposed educational intervention.

g. To conduct the educational intervention that addresses ways of understanding prevention of adolescent pregnancy (Section 5.1.2.2 and Appendix 12: Booklet Developed from Educational Intervention).
h. To conduct the post-intervention phase using SSIs (Appendix 13: Post-Intervention Semi Structured Interview Question Guide) regarding adolescent pregnancy amongst the participants from the target group in each of the two communities, who will have participated in the educational intervention.

5.1.2.1 Objectives of Pre- and Post-Interventions Semi Structured Interviews

a. To determine the participants' understanding of the significance of puberty and adolescence.
b. To determine the participants' basic understanding of the menstrual cycle.
c. To determine the participants' understanding of the relationship between the menstrual cycle and falling pregnant.
d. To determine the participants' perceived severity of health risks associated with adolescent pregnancy.
e. To determine the participants' perceived severity of the health impact of adolescent pregnancy on the newborn infant.
f. To determine the participants' perceived benefits of abstinence and delay of sexual debut as a contraceptive method in preventing adolescent pregnancy.
g. To determine the participants' perceived barriers with regard to abstinence.
h. To determine the participants' knowledge on the forms of contraceptive methods.
i. To determine the participants' perceived barriers regarding use of contraceptives.
j. To determine the participants' cues to action regarding accessing reproductive health services at the PHC in their community.
k. To determine the participants self-efficacy with regard to preventing adolescent pregnancy.

5.1.2.2 Objectives of Educational Intervention Sessions

The first session of the Educational Intervention had the following objectives:

- To discuss the developmental changes during puberty and adolescence.
- To discuss the menstrual cycle.

- To discuss the relationship between the menstrual cycle and falling pregnant.
- To discuss participants' perceived benefits of preventing adolescent pregnancy.

The second session of the Educational Intervention had the following objectives:

- To discuss abstinence and delay of sexual debut as a way of preventing adolescent pregnancy.
- To discuss perceived barriers faced by adolescent girls with regard to abstinence.
- To discuss examples of methods of contraception.
- To discuss the perceived barriers for sexually active adolescent girls with regard to correct use of contraception.

The third session of the Educational Intervention had the following objectives:

- To discuss the negative impact of upholding myths in comparison to attaining correct reproductive health information.
- To discuss the importance of making informed decisions and choices with regard to reproductive health issues.
- To discuss the potential health risks of adolescent pregnancy such as
    - Potentially contracting STIs and HIV.
    - Complications during childbirth such as potential risk of uterine rupture due to cephalic pelvic disproportion.
    - The health impact of adolescent pregnancy on the newborn infant.

The fourth and final session of the Educational Intervention had the following objectives

- To discuss the meaning and significance of adolescents' health rights.
- To discuss adolescents' right to access to reproductive health services.
- To discuss cues to action with regard to seeking access to reproductive health services.
- To discuss the participants' self-efficacy with regard to preventing adolescent pregnancy.

CHAPTER 6: RESEARCH METHODOLOGY

6.1 Background

The overarching methodology for this research is community based participatory research (CBPR), initially referred to in Section 2.16.3. Social, economic and physical environmental factors, such as poverty, air pollution, poor housing and lack of income due to unemployment, significantly contribute to the disparities in health between urban and marginalised rural communities. [272] Recognition that health is influenced by other determinants which are embedded in social, political and economic structures has led to an emphasis on the need for translation and integration of basic intervention and applied research, which appeals for a more comprehensive and participatory approach to research. [273, 274]

The rationale for using CBPR is due to its effectiveness in integrating dialogue with the community participants through collaborative inquiry with the goal of improving community health. [14] CBPR has distinct advantages, such as improving the quality and validity of research by engaging local knowledge and local theory based on the experiences of the participants involved. [275] In addition, as a research methodology CBPR aims to improve health through examining and addressing identified needs. [276] CBPR is a collaborative partnership approach to research that equitably involves, for example, community members, organisational representatives and researchers in all aspects of the research process. [216] The partnerships involved in CBPR focus on issues and concerns that are identified by community members who are participants in the research. [222, 277] In this context, this research involves partnership with the Faculty of Pharmacy and Community Engagement Office of Rhodes University as the HEI, AGF as the organisational body, HCPs and community members of Glenmore and Ndwayana as community stakeholders.

6.2 Choice of Method

The use of qualitative methods involves seeking answers to questions that stress how social experience is created and given meaning. [278] In contrast, the use of quantitative method emphasises the measurement and analysis of causal relationships between variables and not processes. [279] A qualitative, interpretive approach allows acknowledgement of conflict, on-going struggle, tension and subjectivity, as well as the situated and coproduced

nature of accounts. Participants in qualitative studies are selected because of their familiarity or experience with the phenomenon of interest and are able to share that knowledge with the researcher. [280] In this context, the qualitative method using FGDs and SSIs was implemented in this study due to its ability to generate rich descriptions of maternal health issues from the participants involved through an in-depth investigation of the knowledge, attitudes and practices of the community concerning maternal health issues and thus facilitate in illuminating the experience and interpretations of events by research participants

6.3 Baseline Phase

6.3.1 Ethical Considerations

After obtaining ethical approval from the Faculty of Pharmacy's Ethics Committee, approval to conduct the baseline phase of the study was obtained from the Eastern Cape Department of Health (Appendix 1).

6.3.2 Timelines of Baseline Phase

The baseline phase was carried out from March 2012 to July 2012. The details are shown in Table 6.1 below.

Table 6.1: Timelines of Baseline Phase

March 2012	All key stakeholders were contacted to introduce this project and to obtain their voluntary consent to participate
April 2012	Research instruments were pilot tested
April to July 2012	FGDs were conducted
May 2012	SSIs were conducted
May 2012	Stock status of WHO-identified priority medicines for women's health were collected at the two PHCs in the respective communities

6.3.3 Eligibility Criteria

All participants had to be 18 years or older, and give informed consent to participate in the baseline phase of the study.

6.3.4 Pilot Testing of the Focus Group Discussion Question Guide

Pilot testing of the FGD Question Guide was carried out in Ndlambe, a village neighbouring Glenmore and Ndwayana.

6.3.5 Data Collection

6.3.5.1 Focus Group Discussions with Community Stakeholders

After obtaining participants' informed consent to voluntarily participate in the baseline study, FGDs were used as a data collection tool. A discussion guide with open-ended questions on maternal health issues was used for the participants to discuss amongst themselves (Appendix 6). Overall, ten separate FGDs were conducted with the village leaders, women's self-help groups and CHWs in each of the two villages. Among the women's self-help groups, three FGDs were conducted in each community: one each for elderly women (grandmothers), older women (experienced mothers), and young women (pregnant women and/or mothers with newborn babies). Each FGD had five to eight participants to facilitate group interaction. To ensure uniformity, all FGDs were moderated by the principal investigator, with the same positive health champion as the interpreter.

A tape recorder was used with the consent of the participants in order to record the information discussed during the FGDs. This was helpful in generating detailed verbatim transcriptions for use during data analysis. Participants in the FGDs were encouraged to talk to each other as a discussion instead of answering questions from the researcher, as the data would be generated mainly through communication between participants. Participants were also advised to allow one person to speak at a time in order for recording of the FGD to be effective.

All FGDs were conducted in isiXhosa, which is one of South Africa's eleven official languages and a commonly used language in the Eastern Cape. The discussions took place in a venue that was convenient for the community participants. Prior to initiation of each FGD, a brief

explanation of maternal health was given to ensure participants understood the topic of discussion. Participants were encouraged to speak freely while giving each person the opportunity to speak and elaborate on an issue.

6.3.5.2 Semi Structured Interviews with Sister-in-Charge at each PHC

SSIs were carried out with the Sister-in-Charge at the PHC in each village (Appendix 5). A tape recorder was utilised in both interviews, and both Sisters-in-Charge voluntarily signed the consent form. Questions used in the SSIs were in a systemic and consistent order but during the interview process the interviewee was allowed to further discuss issues that the interviewer may have probed. SSIs involving closed- and open-ended questions were used with the Sisters-in-Charge to gain insight into their perception about knowledge, attitudes and practices of the maternal health issues in Glenmore and Ndwayana villages. SSIs were conducted individually, in contrast to the group set-up of FGDs.

6.3.5.3 Stock Status of WHO Priority Medicines for Women's Health

Using the WHO list of priority medicines for women's health as a template, a survey of out-of-stock status of these essential medicines was carried out in the two rural PHCs of Glenmore and Ndwayana. The stock of priority list of essentials medicines was checked for a period of twelve months beginning May 2011 to May 2012 (Appendix 4).

6.3.6 Duration of Baseline Phase

The data collection process of the baseline phase was carried out from April to July 2012. Each FGD was approximately 45 minutes long. Thereafter, the FGDs were transcribed verbatim and then translated to English by language experts from the School of African Languages at Rhodes University.

6.4 Educational Intervention Phase

The key maternal health issue identified from the baseline phase was the need to prevent adolescent pregnancy and this formed the basis to design and implement an educational intervention in the next phase of this study.

6.4.1 Ethical Considerations

Approval to conduct the educational intervention phase of the study was obtained from the Rhodes University Faculty of Pharmacy's Higher Degree Committee (Appendix 7). Ethical Approval was obtained from the Rhodes University Faculty of Pharmacy's Ethics Committee (Appendix 8).

6.4.2 Timelines of Educational Intervention Phase

The pre-intervention, development and implementation of the educational intervention and the post-intervention phase were carried out over six months from June 2013 to November 2013 (Table 6.2).

Table 6.2: Timelines of Educational Intervention Phase

June 2013	FGD was conducted to obtain feedback from positive health champions and representative/s of AGF on cultural sensitivity and acceptability of SSI question guide
June 2013	Information on educational intervention was introduced to the target group
June 2013	The SSI Question Guide was pilot tested
June to July 2013	Pre-intervention SSIs were conducted
August 2013	Data analysis of SSIs was carried including completion of design of educational intervention
September 2013	FGD was conducted with AGF coordinator and positive health champions to assess cultural sensitivity and acceptability of educational intervention
September 2013 to October 2013	Educational intervention was implemented over four weekly sessions
October 2013 to November 2013	Booklet following Educational Intervention was developed and edited incorporating feedback from AGF coordinators
End of November 2013	Post-intervention SSIs were conducted

6.4.3 Eligibility criteria

Inclusion criteria

- All participants had to be between 12 and 19 years of age
- Assenting participants below the age of 18 were required to obtain written informed consent from their parent/ guardians to participate in the educational intervention phase of this study.

Exclusion criteria

- Pregnant adolescents
- Adolescent mothers

6.4.4 Pilot Testing of Pre-Intervention SSI Question Guide

Pilot testing of the pre-intervention SSI question guide was conducted in Grahamstown with a suitable target population.

6.4.5 Data Collection: Pre-Intervention Semi-Structured Interviews

Pre-intervention SSIs were conducted with 14 participants. Five participants were from Glenmore and nine participants were from Ndwayana. Permission to use a tape recorder was obtained from all participants prior to conducting the interviews. The details of the participants are included in Section 7.1

6.4.6 Duration of Educational Intervention Sessions

This educational intervention consisted of four weekly meetings with adolescent participants from Glenmore and Ndwayana. The venue for these meeting was a community centre in Ndwayana. Each session of the educational intervention was facilitated by the researcher and moderated by a positive health champion. To increase the rigour of the discussions during the educational intervention, resource tools from South Africa's NDoH, Medical Research Council, WHO and UNFPA were consulted. An overview of the details of the educational intervention sessions is included in Session 5.1.2.2 and Appendix 12. Educational intervention discussions commenced in the third week of September and lasted until the third week of October 2013. The first session was designed to establish a rapport

with the participants and involved a discussion on developmental changes during puberty and adolescence and a basic understanding of the menstrual cycle.

6.4.7 Data Collection: Post-Intervention SSIs with Participants

The post-intervention SSIs were conducted with 12 participants in the final week of November 2013 (Appendix 13).

6.5. Data Analysis

6.5.1 Thematic Analysis

Thematic analysis is an appropriate method of analysis in this study as it focuses on particular themes highlighted in the narratives given by the participants. [281] Emergent themes or categories analysed after data collection with the use of interviews can be described as an inductive process of data collection, whereby the interview transcripts are then filtered and re-examined in efforts to identify similarities, differences and links between the data. [282] Analysing data into themes supports the usage of high quantities of qualitative data which are increasingly possible to label code into diagrams or illustrations as a means of categorising, linking and assigning themes to the data. [282] Analysing the pre-intervention data into themes allowed the researcher to implement the educational intervention sessions with more clarity and increased knowledge of the topic at hand due to review of the existing literature as well as insight from the participants themselves. [283] Referring to participants' existing notions around the topic of adolescent pregnancy allowed the researcher to be open-minded and to engage the participants during the educational intervention sessions.

6.5.1.1 Analysis of Baseline Phase Data

Thematic data analysis was managed using the Nvivo© 10 data analysis computer software program. Transcripts from all ten FGDs and two SSIs were imported into the software and then categorised into themes. Navigation within the software facilitated extraction and linking of similarly related themes, a process referred to as coding. Thereafter, coded information was moved to folders which are called nodes. All coded data was compared within each node and further analysed to see if new themes emerged. Each set of emerging

themes was pooled with similar information within other nodes and then organised under a new resultant node.

6.5.1.2 Analysis of Educational Intervention Phase Data

Data recorded from the pre- and post-intervention phases was transcribed verbatim and translated after each phase by language experts from the School of African languages at Rhodes University. Data analysis was also managed using the Nvivo© 10 data analysis computer software program to import the transcribed data. The units of analysis under the educational intervention phase were knowledge, attitudes, practices, perceived seriousness, perceived susceptibility, perceived benefits, perceived barriers, cues to action and self-efficacy, and these were assigned as nodes. The units of analysis were derived from the constructs of the models incorporating the KAP and HB models which form part of the theoretical framework of this research (Section 3.1 and Section 3.2). More than one unit of analysis was used by the researcher due to acknowledgment of the influence of various factors on health outcomes. Comparison of themes using the units of analysis mentioned above was useful in contextualising the factors influencing reproductive health within the study setting. The results generated from qualitative analysis of data from the pre-intervention phase were used to guide the design of the educational intervention.

6.6 Reliability and Validity of Research Instruments

Guba and Lincoln propose four criteria for determining the soundness of qualitative research which give a better reflection of the underlying assumptions involved in qualitative research. [284] The four proposed factors that can be used to assess the rigour of qualitative studies are credibility, transferability, dependability, and conformability. The corresponding analogue in quantitative research for credibility is internal validity, for transferability is external validity, for dependability is reliability, and for conformability is objectivity.

6.6.1 Dependability/Reliability

Reliability is the uniformity of a test, survey, observation, or other measuring device to establish the dependability and consistency of the results obtained after testing and re-testing them on a different group of participants but with similar characteristics. [285] Dependability refers to the degree to which the reader can be convinced that the findings

obtained occur as the researcher says they did. In this regard, dependability and reliability are concepts associated with repeatability/consistency or the ability to replicate the study. Dependability of the data collection was increased through the use of FGDs and SSIs which made possible the collection of rich and detailed descriptions given by participants. [286] Among the women's self-help groups, FGDs were divided into three groups in order to be sensitive to group dynamics and cultural context such as age-related barriers. Such barriers could negatively influence the direction of the focus group if participants felt uncomfortable with regard to the depth of input they were willing to contribute in the presence of participants from other or older age groups. In addition, to establish the reliability of FGDs in the baseline phase, the information from the FGDs should reach a point of saturation where the information obtained remains similar. FGDs are usually planned to involve one time involvement by the participants. Reaching saturation means that data from informants is repetitive and new information is no longer forthcoming. [287] Five FGDs with different groups of five to eight participants were conducted in each community in order to increase the likelihood of achieving saturation. This aspect was achieved, as the themes mentioned during each FGD were similar to those repeatedly highlighted in the other FGDs during the baseline phase of this study.

6.6.2 Credibility/Internal Validity

Internal validity refers to the degree in which the research instrument used will actually measure what it was intended to measure and the credibility of the collected data. [282, 285] The term credibility is used to refer to the trustworthiness, authenticity and soundness of the argument and whether the findings are plausible. Credibility was ensured by the use of the same question guide for all FGDs and SSIs, allowing for the analysis of the similarities and differences between answers and experiences. The use of FGDs and SSIs is valid in that it is useful for investigating unquantifiable aspects such as the reasons 'why' and 'how' opinions or attitudes about maternal health issues are upheld or not recognised in the respective communities. [288] The FGD and SSI question guides were pilot-tested before initiating each phase of the study and this was useful in ascertaining internal consistency and reliability of each of the research methods used. [289] This study met the criteria of two other forms of measurement validity: face validity, which is the extent to which a research instrument appears to measure what the instrument purports to measure, and

content validity, which refers to the extent to which an instrument reflects the theoretical content of the phenomenon it claims to measure. Pilot testing was useful in identifying ambiguous and difficult questions that could be removed from the question guides.

6.6.3 External Validity/Transferability

The concept of external validity refers to the degree to which the results obtained from qualitative inquiry can be generalised to a wider population. [290] Qualitative research is not intended as a means of generalising theory across different contexts, but rather of focusing on individual perspectives and their related uniqueness. However, reference can be made to the level of transferability whereby the findings of one study carried out in a particular context is transferred to another context of similar characteristics. [291] FGDs and SSIs can provide such rich detail and context as they can be useful in describing processes and systems, integrating perspectives and viewpoints, and understanding how people interpret events. [290] Results generated from FGDs and SSIs provide insight into past, present, or future actions as well as the reasons behind those actions and the meaning that individuals assign to them. Information obtained from FGDs also complements quantitative research by illuminating existing data, or by generating ideas for new inquiry.

6.6.4 Conformability/Objectivity

The use of CBPR as a research methodology assisted in minimising the subjectivity of the researcher throughout the research process (Section 2.16.3). CBPR is applied in the identification of one maternal health issue that is of most concern in the community, using the consensus of the community representatives who took part in the FGDs and SSIs conducted during the baseline phase of this study. In addition CBPR was applied by obtaining feedback from stakeholders throughout the stages of this study. In this context CBPR facilitated equity and promoted a collaborative working partnership approach with all stakeholders in this study.

CHAPTER 7: RESULTS

7.1 Baseline Phase

7.1.1 Focus Group Discussion Participants in Baseline Phase

Overall, 67 women and 9 men participated in the FGDs. Table 7.1 shows the details of the FGD participants from Glenmore and Ndwayana.

Table 7.1: FGD participants from Glenmore and Ndwayana

FDG participant groups	Village	Number of male participants	Number of female participants	Total number of participants
Village leaders	Glenmore Ndwayana	3 6	4 1	7 7
Community health workers	Glenmore Ndwayana	0 0	8 7	8 7
Elderly women (grandmothers)	Glenmore Ndwayana	0 0	7 8	7 8
Older women (experienced mothers)	Glenmore Ndwayana	0 0	8 8	8 8
Young women (pregnant women and/or mothers with newborn babies)	Glenmore Ndwayana	0 0	8 8	8 8
Total number of participants	Glenmore Ndwayana	3 6	35 32	38 38

7.1.2 Challenges with Antenatal Care services

Similar information was obtained from FGDs conducted in both villages. Based on the FGDs conducted with the women's self-help groups, CHWs and village leaders from all ten FGDs, it was gathered that most pregnant women access the PHCs for antenatal care services but there are no resources to conduct delivery when an expectant mother is in labour, or if an obstetric emergency occurs. As a result, expectant mothers are referred to a public sector

hospital located approximately 45 kilometres away. This information was emphasised in the four FGDs conducted with the older women who are experienced mothers and young women who were either pregnant women and/or mothers with newborn babies. FGD participants mentioned that, in most instances, nurses at the PHC would not call an ambulance but would give them a referral letter and the maternal patient would have to make transport arrangements to get to the referral hospital. This proved to be a challenge for maternal patients who did not have money for transport to access the referral hospital. One of the FGD participants from Glenmore indicated that due to lack of comprehensive equipment at the PHC, the nurses were unable to detect why she had an abnormally large "belly" and assumed that it was amniotic fluid surrounding the baby. She opted to go to a public sector hospital located in the neighbouring city to get a second opinion, at which time it was detected that she was in fact pregnant with twins.

7.1.3 Ambulance Services

Most FGD participants in all ten FGDs highlighted that there were challenges with accessing ambulance services for women in labour. Participants stated that ambulances could take eight hours to arrive, or sometimes would not come at all. A few participants indicated that there were regulations set by South Africa's NDoH prohibiting pregnant women from giving birth at home, but the challenge with ambulance services arriving on time often led to the occurrence of emergency home births. Elderly women who were not health professionals but had experience in conducting home births would assist in such circumstances but were not allowed to cut the umbilical cord. As an alternative they would have to keep the "afterbirth" in a plastic bag while they waited for a qualified HCP to come and cut the umbilical cord. The ambulance and HCPs often arrived late and FGD participants expressed concern over the risks associated with this.

7.1.4 The unavailability of health care professionals during weekends

It was further expressed in eight of the ten FGDs that the unavailability of HCPs during weekends is a risk factor for expectant mothers who experience complications during this time and may need urgent medical attention and/or referral to a hospital. An example is the occurrence of emergency home births as mentioned in the previous paragraph.

7.1.5 Role of Community Health Workers

Participants from all ten FGDs highlighted the importance of CHWs as a liaison between the community and the PHC. The responsibilities of the CHWs ranged from home visits to promote use of antenatal care services at PHC and campaigns for immunisations.

7.1.6 Reproductive Health Services at PHCs

Regarding reproductive health services, FGD participants expressed that, although there is accessibility of bio-medical interventions such as oral, injectable contraceptives and condoms, there is a need to incorporate workshops on HIV/AIDS issues and adolescent pregnancy as part of the reproductive health services package. Most participants mentioned the need to promote abstinence as a choice of contraception as this would help in prevention of adolescent pregnancy and also against possible contraction of HIV and STIs. These sentiments were expressed by participants in nine out of ten FGDs.

7.1.7 Maternal Health Issue of Most Concern to Participants

The need to promote the prevention of adolescent pregnancy due to the high occurrence of adolescent pregnancies in both villages was highlighted in nine out of ten FGDs. The FGDs with the elderly women from both villages who are grandmothers expressed that they were concerned about the underdeveloped bone structure of the young girls in their community which increased the risk of complications during childbirth. From the four FGDs with elderly women and experienced mothers, there was concern that as mothers of the pregnant adolescent girls, they, rather than the adolescent mother, would often have to bear the responsibility of raising the newborn infant. Highlighted reasons for this included the adolescent mother needing to return to school or the neglect of the newborn infant by the adolescent mother, which most FGDs participants viewed as intentional. Other participants highlighted the concern they had with regard to pregnant adolescents having their educational development interrupted, and stated that most times they would not return to school.

7.1.8 Feedback from Semi Structured Interviews with Sister-in-Charge at each PHC

7.1.8.1 Stock status of WHO Priority Medicines for Women's Health

A copy of the South African Standard Treatment Guidelines (STG) was kept in the clinic and both Sisters-in-Charge used it as a guideline during consultations with patients. Other treatment guidelines that were used by the nurses were the HIV/AIDS and TB Guidelines. Additionally, all nurses at both PHCs were expected to refer to the national treatment guidelines and essential medicines list which resonated with the listed priority medicines that were on the WHO Priority List of medicines for maternal health. Regarding the availability of these priority medicines, feedback from both HCPs highlighted that neither of the PHCs had run out of these essential medicines in the past 12 months, from May 2011 to May 2012. The medicines that were not on the stock code were Quinine and Clindamycin. According to feedback from the HCPs these anti-malarial drugs were not included on the stock code at both PHCs as the Eastern Cape is a malaria-free region.

7.1.8.2 Implementation of Bin cards[1]

According to feedback from both Sisters in Charge, the use of bin cards was implemented on a daily basis whenever dispensing was carried out by all nurses at each PHC. The nurses who were trained by a pharmacist were responsible for updating the bin cards. Bin cards were updated on a daily basis when dispensing, during monthly stock-take, and when ordering from the medical depot which was done every third week of the month. The use of bin cards was viewed as being useful in keeping track of the available medicines and those that needed to be ordered before they run out of stock. Due to training on the use of the bin cards, both Sisters in Charge stated that they could use the bin cards effectively and did not need further training.

7.1.8.3 Expired medicines

A protocol on disposal of expired medicines was followed according to the South African pharmacy law regulations. A waste management company came to collect expired drugs each month. However, the likelihood of having expired medicines at both PHCs was reduced

[1] Bin card is a South African term for stock cards.

by the fact that the medicines would be lent to other neighbouring PHCs to avoid medicines reaching their expiry date.

7.1.8.4 Maternal health Services

According to both Sisters in Charge, consultation with patients was carried out following the Batho Pele principles. A poster which outlined the Batho Pele principles in both English and isiXhosa was visible in the waiting area at both PHCs. Both Sisters in Charge asserted that they followed these principles in providing health care services to all patients who accessed the PHC. Thursday was the assigned day for antenatal care services. However, nothing was mentioned regarding a designated date for women who had other health care needs. Regarding reproductive health services for adolescent girls, there was no date designated for them to access the PHC as they were allowed to access the PHC whenever they were free. No births were conducted at the PHC due to limited resources to conduct child births; therefore, all pregnant women were referred to the neighbouring hospital in Peddie which is 45 km away. Additionally, if there were complications out of the scope of practice of the nurses, they would use a referral system to the same hospital.

Both Sisters in Charge mentioned that there were no language barriers when communicating with patients as they all spoke the same language. Promotion of antenatal care outside of the PHC was often through liaison with community health workers and women's self-help groups.

7.1.8.5 Maternal health issue of most concern to Sisters-in-Charge

Both Sisters-in-Charge highlighted that no maternal deaths had occurred in either community. No registers were kept in the two clinics to record infant mortality rates. The maternal health issue that was raised was the concern over the prevalence of adolescent pregnancy. Both HCPs mentioned that their communities were facing challenges concerning the high occurrence of adolescent pregnancies. They expressed that, when asked by the nurses at the PHC why sexually active adolescent girls defaulted coming back to the clinic to get contraceptives, some young girls mentioned that their parents were unemployed and if they fell pregnant they would be eligible for the child support grant (CSG). There was general concern that falling pregnant at such a young age had consequences that went

beyond perceived advantages of the CSG, which was reported as R300 per month at the time of the study.

7.2 Pre-Intervention Phase

7.2.1 Participants in Pre-Intervention Phase

A total of 14 participants took part in the pre-intervention phase of the study.

Table 7.2: Participants in Pre-intervention Phase

	Participant identity	Educational level	Age
Glenmore	G1	Grade 8	13
	G2	Grade 8	13
	G3	Grade 9	16
	G4	Grade 11	17
	G5	Grade 12	18
Ndwayana	N1	Grade 9	15
	N2	Grade 9	15
	N3	Grade 9	15
	N4	Grade 9	16
	N5	Grade 9	16
	N6	Grade 10	17
	N7	Grade 10	17
	N8	Grade 11	17
	N9	Grade 11	18

7.2.2 Source of Information on Menstrual cycle

For 12 of the 14 participants, adolescence was marked by the onset of menstruation and becoming aware of oneself as more mature. Most participants showed knowledge of the menstrual cycle based on their own experiences of starting their menstrual period. The participants quoted that their main source of information was from the school teacher during life orientation class, or from their mother, or from a trusted female adult such as an

aunt or the nurse at the clinic. Figure 7.1 shows the sources from which participants received information.

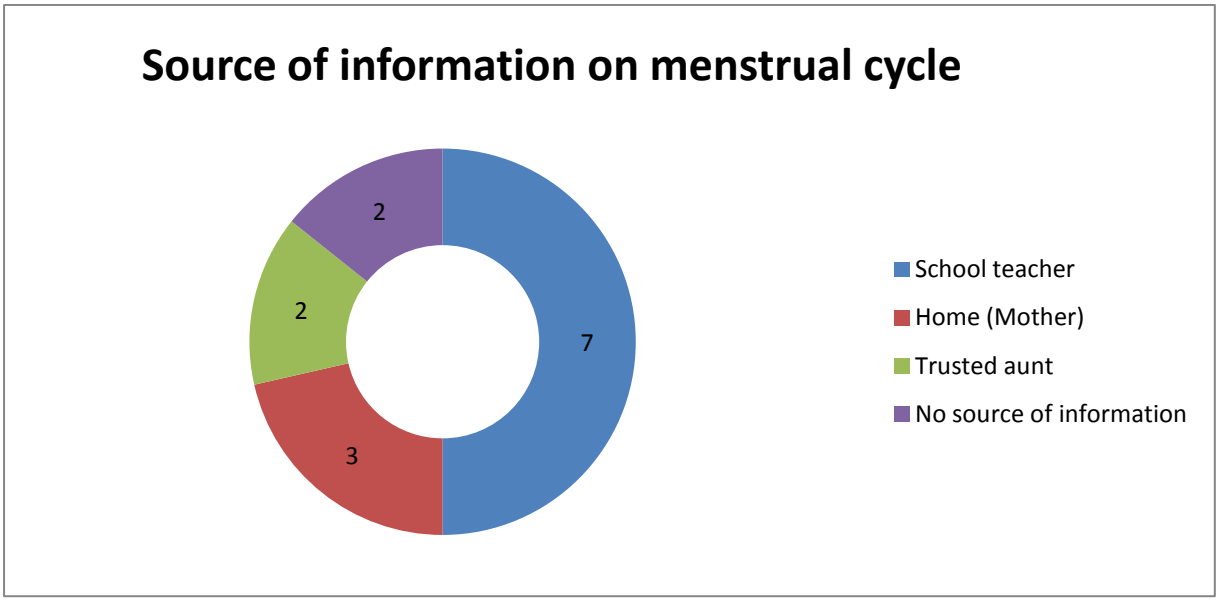

Figure 7.1: Source of information on menstrual cycle

The relationship between menstruation and conception if one engages in sexual intercourse was identified by 8 of 14 participants. Below is one of the verbatim responses from participant N1:

> …I understand that if you are a girl who is at menstruating stage or started periods, if you have sex with a boy you will get pregnant. …I got this information from my mother. (N1)

Participant N2 also related the risk of adolescent pregnancy if one becomes sexually active once they started their menstrual cycle. Her depiction of the causes of adolescent pregnancy was due to peer pressure:

> …Because they [adolescent girls] do not listen to their parents, some have friends that are older than them, who are already doing adult stuff, so they do

not listen to their parents; they listen to their friends...They go and meet with boys at certain places; they go there and end up falling pregnant. (N2)

7.2.3 Knowledge of Abstinence as a Contraceptive Method

Among a total of 14 participants, 9 were aware of the term abstinence. Abstinence was associated as being a measure of protection against preventing pregnancy and contracting sexually transmitted diseases.

> …I have heard that abstinence is not having sex. Older women in the community talk about abstinence. They say you must not be involved in a relationship until you get married. Young people do not want to abstain. They are influenced by friends; they see what their friends are doing and copy them. …I think when you abstain you will not get these diseases and you are not going to get pregnant before time. (G1)

> …Yes, they say to abstain is not to have sexual intercourse with a boy. Those that are in relationships with people that are the same age or older but most are older. You find that it was not their intention to sleep them, but they do because they are afraid of them so they give in. (N4)

7.2.4 Perceived Barriers to Abstinence

Figure 7.2 displays the emerging themes that were highlighted by participants as perceived barriers towards abstinence.

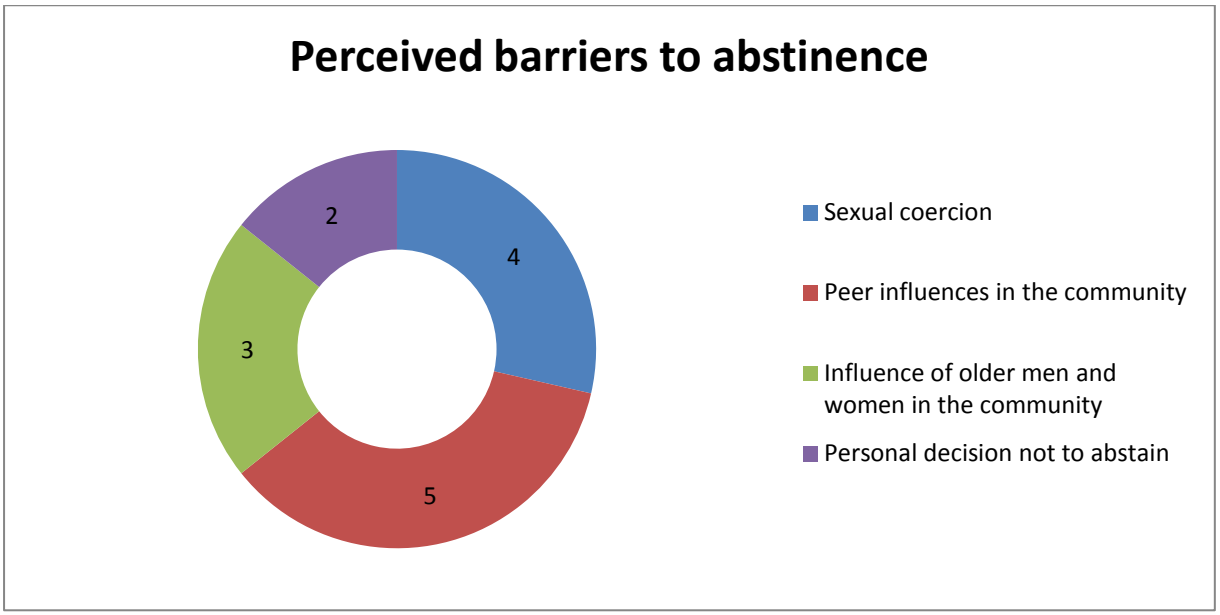

Figure 7.2: Perceived barriers to abstinence

7.2.4.1 Sexual Coercion

Some of the participants highlighted that it was a challenge for young girls who were involved in relationships with boys their own age or older men to negotiate abstinence. Other barriers to abstaining that were highlighted by one participant included being coerced into sex by older men due to fear of the relationship breaking apart. Some participants indicated that for some young girls the reason why they gave in to sexual coercion by older men was because they depended on them to buy extra things such as cell phones and fancy clothes. Additionally, there were participants who highlighted that some girls depended on older men so that they would buy them basic commodities such as food.

One participant did not understand the term abstinence. However, after the meaning of abstinence was explained to her she said the following:

> …It may not be easy to abstain because; maybe a girl may be abused by her uncle. Maybe sometimes her uncle is going to sleep with her, and then she tells

her friends, so friends will be like ok if you don't want to have sex with the uncle, take someone else, then she goes deeper and deeper. (N5)

…I also had a friend she came back and told me what happened and I told her to go and report this because this guy forced you, it's the same as being raped, then she said there is no problem and she left it like that. Even if it is your boyfriend that forced you to sleep with, it's still rape. (N7)

7.2.4.2 Peer Influences in the Community

From the feedback of one of the participants, abstinence is shunned by some non-school-going girls in the community. Her detailed thoughts on the perceived barriers to abstinence were the following:

…The ones who agree with abstaining are the ones who want to protect themselves, the ones who do not want to abstain if you talk about abstaining, they do not want to listen, they say that think we are clever, that we think that we are better but there is no such thing because at the end you are also going to do this thing [having sex] it's just that because now you are still at school, some are not at school [the ones who are saying this]. …It's because you are still at school that you want to abstain, as for us we don't want to abstain, they say it depends you can or cannot get diseases. However, the women in the community like the idea that we should abstain and I agree with them. (N2)

7.2.4.3 Influence of Older Men and Women in community

One participant gave the following account regarding the community beliefs of the men and women regarding reproductive health issues:

…Some of the women in the community say that if it is cold outside they should be with their boyfriends. The older men in the community love it because they love getting involved with teenage girls. The older women also involve themselves with younger men. (G2)

> …The men in the village say that abstinence is not right because once you abstain the sperms will go to your head and you will lose your mind. That you will go mad. …The older men and women, everyone says so. When the girls are abstaining there is nothing wrong with them, but it's when the men are abstaining, that men will go mad. (G2)

7.2.4.4 Personal Decision not to Abstain

Some participants mentioned that the appropriate age at which they thought one could engage in sexual activity was 18 or 21 years of age. Other participants expressed how they had already started engaging in sexual intercourse and therefore they were not going to consider abstinence as a contraceptive method.

> …My mother has advised me to abstain but I am already having sex so I cannot abstain. I make sure that I go to the clinic every month to get my injection. (N6)

7.2.5 Prevalence of Adolescent Pregnancy

All participants mentioned that adolescent pregnancy is a common occurrence at school. Most participants mentioned that there were three to four girls who had fallen pregnant at their school in the previous year. The ages of these girls were around sixteen to seventeen. However there had been some adolescent girls who had fallen pregnant as young as fourteen. Some participants also mentioned that there were some adolescents who fell pregnant to get incentives such as the child support grant.

7.2.6 Knowledge of Contraceptive Methods

Of the 14 participants, 12 were aware of contraceptive methods such as use of condoms, oral and injectable contraceptives. They mentioned that contraceptives were available at the PHC in their community. Another participant highlighted that using contraceptives would protect them from falling pregnant in the event that they were raped.

7.2.7 Misconceptions Regarding the Efficacy of Contraceptives

Figure 3 highlights the some participants' misconceptions regarding the efficacy of contraceptives

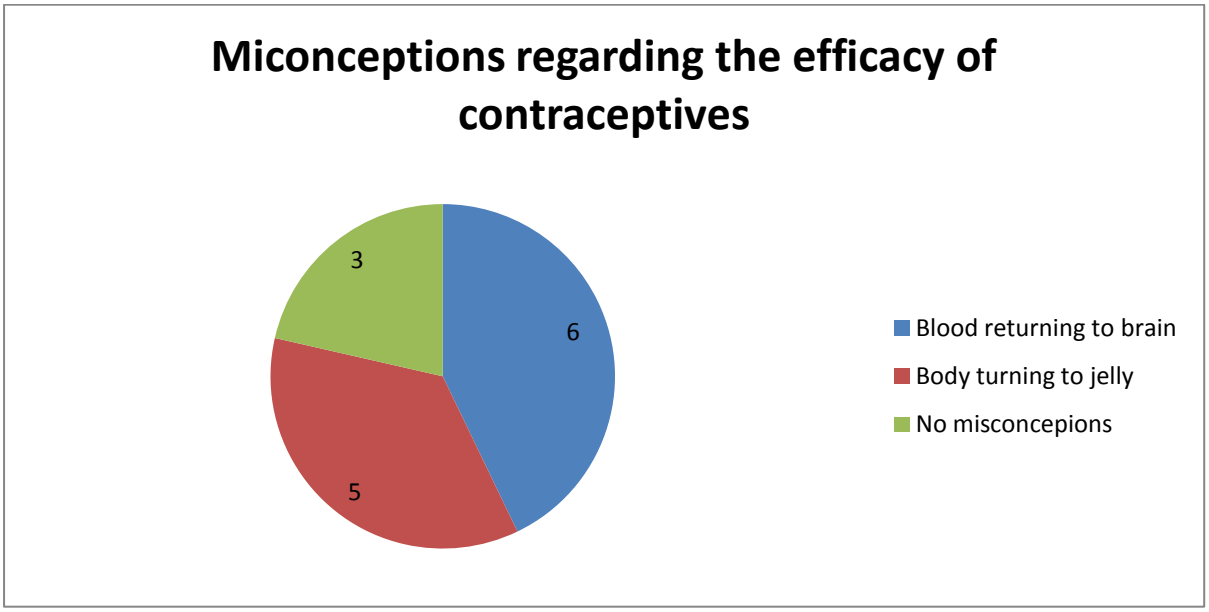

Figure 7.3: Misconceptions regarding efficacy of contraceptives

7.2.7.1 'Blood returning to brain'

There were misconceptions regarding the efficacy of contraceptives such as injectable contraceptives. Participant N2 highlighted that there was association of amenorrhea with use of the injectable contraceptive and menstrual blood was thought to not be coming out because it was assumed to be returning back to the brain. As a result some girls who had started with injectable contraceptives would default their next allocated visit at the PHC.

7.2.7.2 'Body turning to jelly'

When asked whether they would then consider taking the oral contraceptive five participants indicated that there were beliefs that taking the pill caused their bodies to become a "jelly", meaning the body loses its firmness or becomes fatter.

Participants informed that the Sister-in-Charge at the PHC in Ndwayana often recommended that sexually active adolescent girls be initiated on the injectable contraceptive instead of the oral contraceptive (the pill) because they would be more likely to forget to take the pill.

…They say that if you forgot to take your pill it's easy to fall pregnant, it's easy to use injection as it stays in your system for 2 months than the pill which you have to remember to take it every day. (N6)

7.2.8 Perceived Barriers to Accessing Contraceptives

Figure 7.4 shows the various emerging themes regarding perceived barriers to accessing contraceptives.

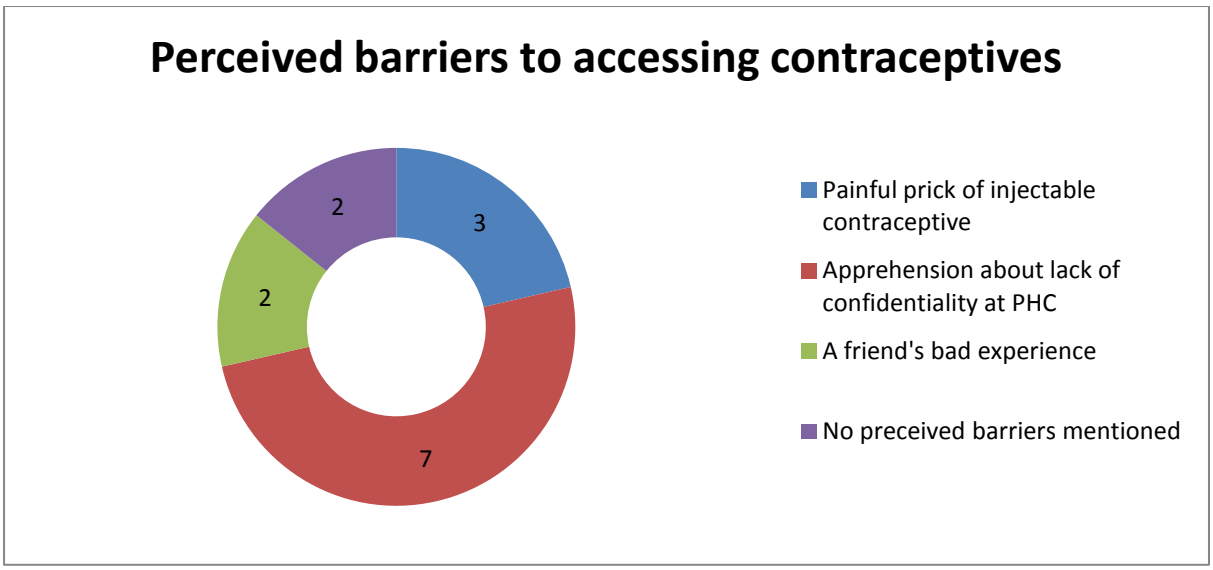

Figure 7.4: Perceived barriers to accessing contraceptives

7.2.8.1 Painful Prick of Injectable Contraceptives

Three of the 14 participants mentioned that there were issues regarding the painful prick of the injectable contraceptive which caused great difficulty and discomfort for some adolescent girls. As a result some adolescent girls would avoid accessing the contraceptive by not going to the PHC.

The following sentiments regarding use of contraception were articulated by two participants:

…The women in the community says if you use the injection there are less chances that you will fall pregnant, and if you do not use the injection let's say you use the condom and it bursts, you may fall pregnant that is why they recommend the injection. Most teenage girls in the community have a problem

> of not wanting to go to the clinic to get the contraceptive injection because they say it's painful. They also complain that their boyfriends do not want to use a condom which is the reason why teenage pregnancy is common in the community especially in June [during this time school-going learners will have a three week midyear break from school]. With the injection they say that it is painful, sometimes someone goes this month, skip the next month and say they that they are lazy. (N9)

7.2.8.2 Apprehension about Lack of Confidentiality at PHC

Other constraining factors that restricted adolescent girls from accessing contraceptives included apprehension about lack of confidentiality due to the 'volunteers', at the clinic gossiping about them. Most participants often referred to CHWs as 'volunteers'. Participant N7 expressed the following:

> …There is a friend of mine who did not want people to gossip about her, since the volunteers that are working there are local. She was uncomfortable about going there, she decided that she will not go but because of that she ended up getting pregnant. There are few girls in the community who go even though they know that there is a person there who knows them. Their reason to say yes we will still go even if we know that there is a person there who knows them in the community is because they want to protect themselves. (N7)

7.2.8.3 A friend's Bad Experience

Two participants mentioned that a reason why they did not access the injectable contraceptive at the PHC was because of the negative experience of one of their friends who used this contraceptive method but still fell pregnant.

7.2.9 Perceived Severity of Adolescent Pregnancy

Figure 7.5 portrays the themes which were highlighted as the perceived severity of adolescent pregnancy.

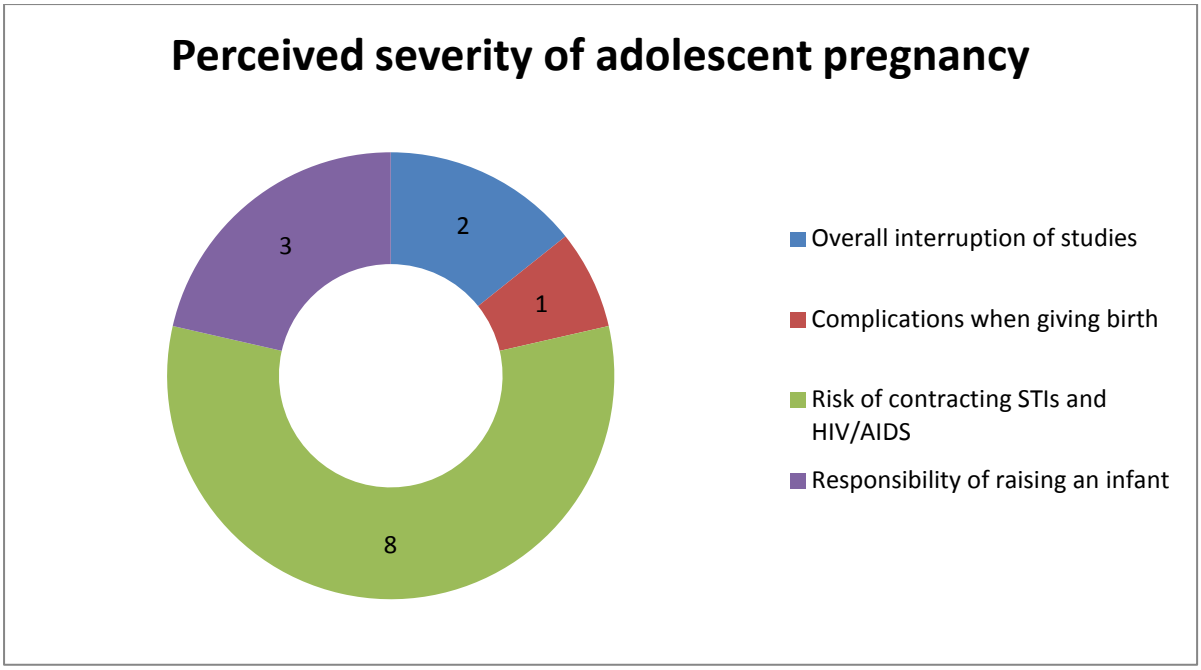

Figure 7.5: Perceived severity of adolescent pregnancy

7.2.9.1 Overall Interruption of Education

Participants mentioned that girls who were close to their delivery dates or around the sixth month into their pregnancy would be requested to leave school. The participants indicated that after delivery the adolescent mothers were allowed to return to school after a certain amount of time but they had no knowledge of the length of time it took for them to return to school. Although they were allowed to return to school some of the girls moved away from the villages and did not return to school. The adolescent girls who returned to school were often those with supportive mothers or older sisters and aunts who would take on the responsibility of raising the infant while the adolescent mother returned to school.

Participants expressed the following sentiments regarding this issue:

> …Even if they are allowed to come back after the six month, some of them besides the thing that their parents are uncomfortable, they themselves are uncomfortable they don't come back. (G3)

> …The young girls come back and continue with their schooling. Their mothers or the mother of the babies take care of the baby while they are at school. They

> will not be married; they just take responsibility for the child. Most of the pregnancies are unplanned. (G4)

One participant mentioned that they were concerned about interrupting their studies due to falling pregnant.

> …I do not want to have a baby while I'm still young, because that is going to disturb my studies. (G4)

7.2.9.2 Complications when Giving Birth

Another participant expressed the following as a possibility of complications when giving birth:

> …As a teenager your bones are not strong you might have a problem when you are trying to give birth and you might end up breaking your bones. I got this information from my mother and the nurse at the clinic. As a nurse she is well informed about health issues. (N2)

7.2.9.3 Risk of contracting STIs and HIV/AIDS

8 out of 14 participants mentioned that adolescents who had started to engage in sexual intercourse were putting themselves at risk of getting infected with HIV/AIDS while they are still young. Six participants mentioned that they were sexually active and accessed reproductive health services at the PHC. They also highlighted that during consultation the HCPs at the PHC asked them if they also wanted to take the HIV test.

> …Sometimes at the clinic when we go for contraceptive injection they ask if we would like to test for HIV as well, some say no I'm afraid because if I find out that I'm HIV positive, I will die immediately at this moment. (N3)

7.2.9.4 Responsibility of Parenting as an Adolescent

Most participants indicated awareness of the challenges of bringing up a child as an adolescent mother. The following were their sentiments regarding the responsibility of raising an infant as an adolescent mother:

> …I will not manage to take care of an infant because I'm unemployed …still at school. And will have to drop out of school. (N3)

> …Most of the time [it] is the grandparents who look after the children; they do not bond or take care of their children. Some of them have mothers, they leave the babies with the mothers… it's also common that guys deny that they are the father of the child, so when they do so, the child only depends on the girl [mother]. But if she and the baby are on good terms [he did not deny paternity] she takes the child to the boyfriend's home and takes the baby over the weekend, which gives her time to go to school. (N9)

> …The person who is responsible for the child of the teenager who got pregnant, are the parents. Some of them sit them down and tell them that they are giving them a second chance; if she repeats it again they have to leave the house. (N5)

7.2.10 Perceived barriers to Preventing Adolescent Pregnancy

Figure 7.6 illustrates the perceived barriers to preventing adolescent pregnancy.

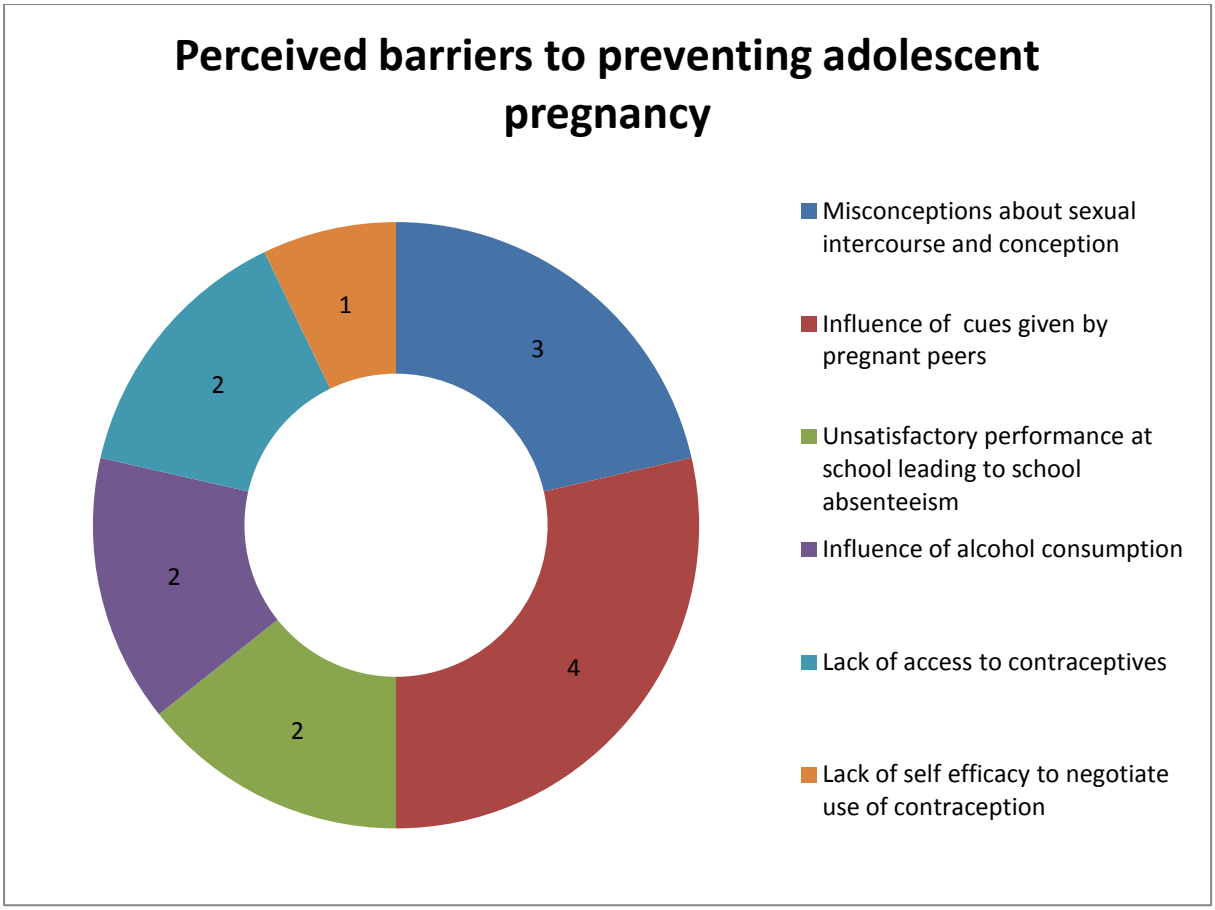

Figure 7.6: Perceived barriers to preventing adolescent pregnancy

7.2.10.1 Misconceptions about Sexual intercourse and Conception

Misconceptions regarding sexual intercourse and falling pregnant amongst adolescents were highlighted during discussions with the participants' peers. According to the feedback of three participants, there are misconceptions regarding the relationship between having sexual intercourse and falling pregnant which are strongly highlighted during discussions with the young males in the community, who are their peers. These young men insist that the young girls in the community must not believe that if they have sex they will fall pregnant. One of the participants from Ndwayana elaborated on the beliefs of young people in the community and expressed that she did not agree with their sentiments.

> …Some are saying, for instance when girls are talking between themselves maybe one will talk as well and say that is not true, maybe we are discussing that if a girl has sex with a boy she will fall pregnant and then the boy will say

> that is not true, you must not listen to statements that are not true and believe them, there is no such thing. I do not agree with this and I believe my mother [meaning she perceived the information that her mother had given her regarding the menstrual cycle and conception as more credible] and agree with what she says because I know she would not mislead me. (N1)

7.2.10.2 Influence of Cues Given by Pregnant Peers

Four of the participants mentioned that the influence of peers who have already fallen pregnant had some bearing on other impressionable girls who would want to follow suit and fall pregnant.

> …Sometimes the classmate falls pregnant and has a baby, then others are like; "Oh I also want a baby," then they don't get the contraceptive injection and make an excuse to the boyfriend. She then blames the boyfriend; saying something like boyfriend did not want to use a condom, whereas she was the one who wanted a baby. What is common with the school teenagers is that they just want to have a baby, and the ones who are not at school is because they want money [referring to the CSG] because they are unemployed, they are just sitting at home. (N9)

> …Some of them when we ask them why they want babies they say it is because they want money, then they go and apply for child support grant. Some parents do like it and some don't. Some women, maybe a certain mother does not mind her child getting pregnant because she knows that she will bring money. (N1)

7.2.10.3 Influence of Alcohol Consumption

The influence of alcohol was mentioned as a factor that acted as a barrier towards preventing adolescent pregnancy. Participants reported that girls as young as thirteen years old frequented the local tavern and they were not dismissed from the tavern premises. Another participant mentioned that sometimes they were not allowed to be inside the tavern but were allowed to be on the tavern premises where they waited for boys their own

age and older men. One participant also mentioned how some adolescent girls would then consume alcohol and would easily get drunk, often leading to risky sexual activity.

> …It's risky for some to get drunk and be involved in sexual activity because you do not know that person's HIV status, so you are both drunk, you are not going to use a condom, maybe you don't use preventing injection or pills. (N3)

It was gathered from the participants' feedback that there were some adolescent girls who accompanied their friends to the taverns without prior intentions of meeting up with older men in the community. One participant mentioned that some adolescent girls who were under the influence of alcohol would be easily influenced by men to go home with them. Another participant mentioned how it was not easy to think about safe sex when drunk as the perceived susceptibility of falling pregnant for adolescent girls who were under the influence of alcohol would be decreased.

> …I don't think it's easy when you are drunk to think about safe sex, nobody thinks about using a condom, when you are drunk everything is easy, nobody takes things serious. (N6)

7.2.10.4 Lack of Access to Contraceptives

One participant said the following:

> …I don't think that the contraceptives are protecting them from getting pregnant because a lot of girls in the community they fall pregnant although they do go to the clinic to get the injection. I lost about 4 friends this year because they got pregnant. They were 17 and 18 years of age. Some they say they are afraid to go there, but there is no reason to be afraid, because things are confidential at the clinic, even the nurses come to school and encourage us to protect ourselves so that we would not be infected. (N6)

7.2.10.5 Unsatisfactory Performance at School Leading to School Absenteeism

Two participants highlighted school absenteeism as a factor in increased adolescent pregnancy in the community. One participant accentuated the following concerning the perceived benefits of falling pregnant, which are recognized by some adolescent girls who willingly fall pregnant in the community:

> …Some fail at school, not because they are not competent but because they are lazy to attend school, some don't want to wake up in the morning so they end up not coming to school. Because they are not attending school, not doing anything, they end up having children, spending the child support grant, it's also common that the ones who are not attending school, do not look after their children. (N5)

7.2.10.6 Lack of Self-efficacy to Negotiate Use of Contraception

One participant highlighted that lack of self-efficacy to negotiate the use of contraceptives was a restraining factor in preventing adolescent pregnancy. Additionally, she mentioned that, although she was keen to take part in the educational programme regarding ways to prevent adolescent pregnancy, she did not think that increasing knowledge would help adolescent girls to behave differently. Her reason for this was that adolescent girls in the community already knew the consequences of risky sexual behaviour but believed that they were eventually going to die of another cause at some point in their lives.

7.2.11 Cues to Action and Self-efficacy to Prevent Adolescent Pregnancy

Figure 7.7 highlights the reported cues to action and self-efficacy to prevent pregnancy.

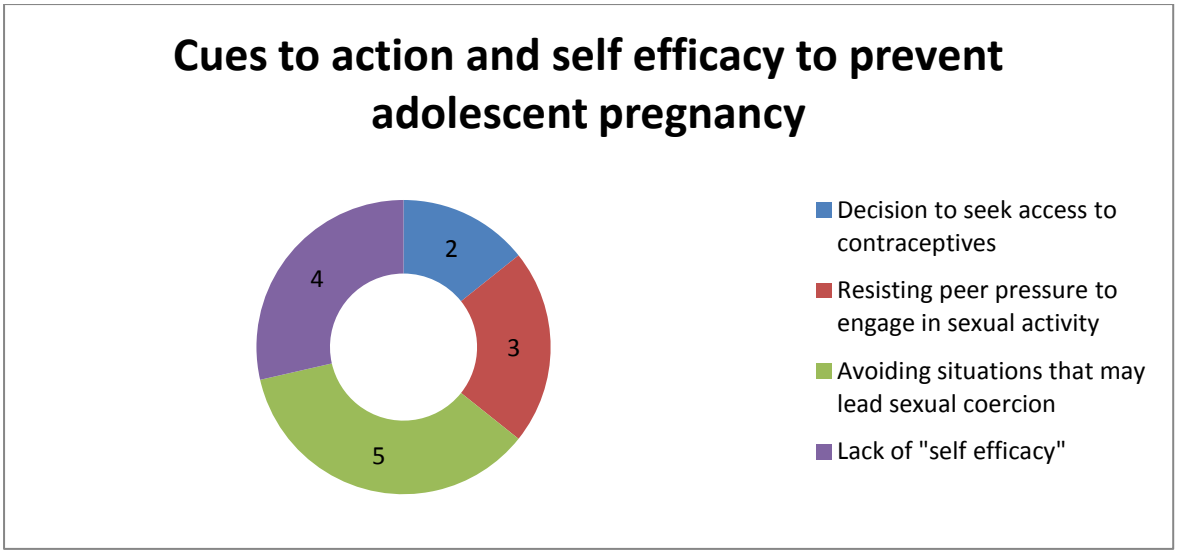

Figure 7.7: Cues to action and self-efficacy to prevent adolescent pregnancy

7.2.11.1 Personal Decision to Seek Access to Contraceptives

One of the participants indicated that she had made a decision by herself, to go to the clinic and start using the injectable contraceptive.

> …No one told me, I decided to go myself because I saw what stage I was at, that I now have a boyfriend and that was my decision. I have been using the injection at the clinic for 2 years now. (N6)

7.2.11.2 Avoiding Situations that May Lead to Sexual Coercion

Some participants mentioned that at school they noticed how their friends were not happy with the dynamics of the relationships that they were involved in as they felt that they were being coerced into engaging in sexual intercourse. These participants accentuated that they then reflected on their friends' dilemmas leading them to avoid being in secluded places with their partners as a way of avoiding sexual coercion.

7.2.11.3 Resisting of Peer Pressure to Engage in Sexual Intercourse

Some participants were aware of the negative influence of peer pressure to engage in sexual activities. The following sentiments were expressed by one participant:

> …They do say things like we are cowards, like me, I'm still a virgin. They do say some silly things, but I just don't entertain them. Because at home they sat me down and told me that I should look after myself. A child cannot have a child, because she is still dependent on her parents. Some [pregnant adolescents] get diseases; some lose their homes as they are kicked out by parents. (N8)

Another participant expressed the following regarding other perceived barriers to preventing adolescent pregnancy:

> … [Some girls fall pregnant] to bring their boyfriends closer, but that is not true; boyfriends won't get closer; they will go further because they are not ready. …Maybe I'm pregnant, and then my mother will not shout at me, she will be happy that I'm pregnant. (N1)

Three participants who readily mentioned that they were sexually active pointed out that they would negotiate to use a condom with their boyfriends and if they refused they would not engage in sexual intercourse with them.

7.3 Post-Intervention Phase

7.3.1 Participants of Post-Intervention Phase

12 of the 13 participants who participated in the educational intervention took part in the post-intervention phase.

All participants from Glenmore, i.e. participants G1 to G5, as well as N1 to N6 and N8 from Ndwayana took part in all three phases: pre-intervention, educational intervention and post-intervention. Table 7.3 gives details of participants who did not participate in all three interventions.

Table 7.3: Participants who did not take part in all three interventions

Participant identity	Educational level	Age	Pre-intervention	Educational intervention (All 4 sessions)	Post-intervention
N7	Grade 10	17	Participated	Did not participate	Did not participate
N9	Grade 11	18	Participated	Participated	Did not participate

7.3.2 Relationship between Menstrual Cycle and Conception

The 12 participants highlighted that they had gained knowledge of aspects of the menstrual cycle that they were not aware of, such as ovulation. Knowledge of ovulation increased participants' awareness of the likelihood of someone falling pregnant if they engaged in unprotected sexual intercourse.

7.3.3 Knowledge of Abstinence as a Contraceptive Method

All 12 participants accentuated that they were now aware of abstinence as a contraceptive method they would consider. Participant N8 mentioned that she would discuss aspects from the educational intervention with other adolescent girls who were not taking part in the educational programme. These girls expressed it would be advantageous for the programme to be permanent in the community so that they too could take part in future and gain information on preventing adolescent pregnancy.

7.3.4 Perceived Barriers to Abstinence

Sexual coercion, the influence of older men, women and peers in the community and the personal decision not to abstain were reiterated as perceived barriers to abstinence. These sentiments were similar to those reflected in the pre intervention SSIs.

7.3.5 Perceived Barriers to Accessing Contraceptives at PHC

During the post-intervention interviews, participants gave more detail of the challenges that they face with regard to accessing contraceptives. Figure 7.8 below summarises the emerging themes that were highlighted as barriers to accessing contraceptives at the PHC.

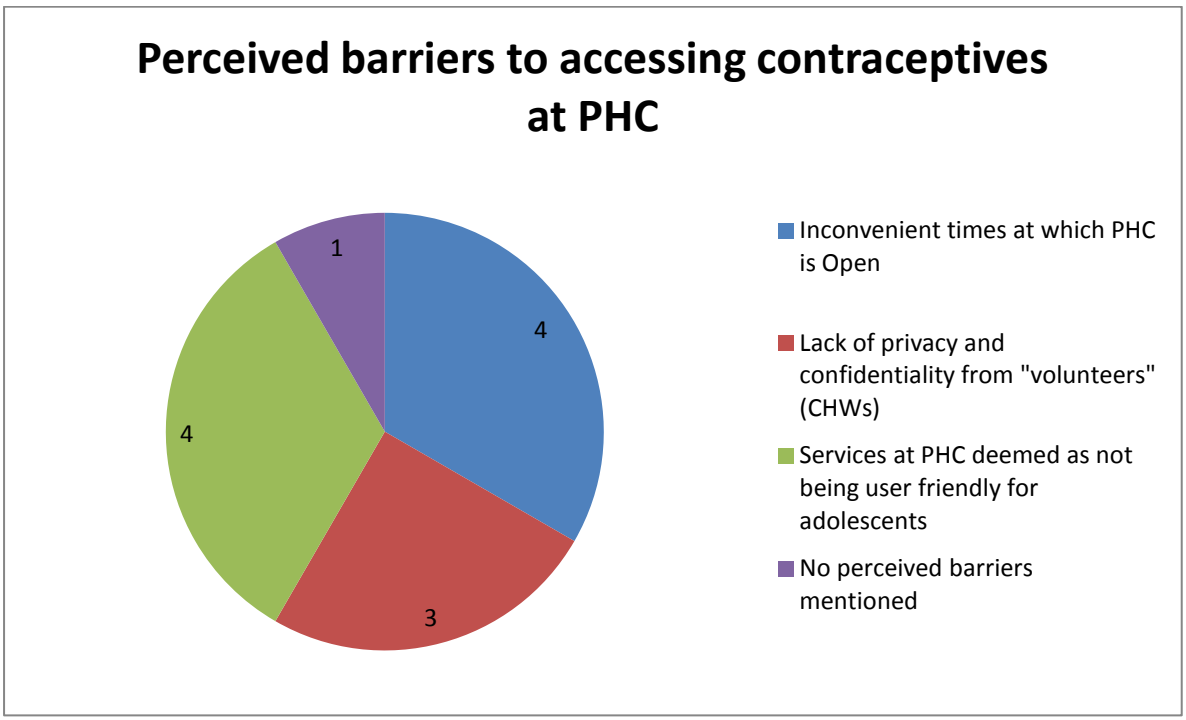

Figure 7.8: Perceived barriers to accessing contraceptives at PHC

7.3.5.1 Inconvenient Times at which the PHC is Open

Feedback from the post-intervention highlights the themes that emerged regarding barriers to accessing reproductive health services at the PHCs in both communities. Four participants said that they only had two breaks at school, at 10.30 am and 1.00 pm. However, if they went to access contraceptives during these times, they would not help them and instead tell them to come back at 2 p.m. Additionally, there was concern over the fact that the PHC was not open during the weekends, further hindering access to the PHC.

7.3.6 Perceived Severity of Adolescent Pregnancy

7.3.6.1 Health Risks of Adolescent Pregnancy

All 12 participants in the post-intervention phase highlighted that they were aware of the health risks associated with adolescent pregnancy. Three participants highlighted health risks of adolescent pregnancy as potential complications while giving birth such as cephalic pelvic disproportion and haemorrhage. The additional risk of contracting STI including HIV/AIDS was highlighted by six participants in the post- intervention phase. Participant N6 expressed the following:

> …It was good to also discuss STIs and HIV/AIDS. In the community I think all they care about is us teenagers not getting pregnant. They do not care about [us] getting diseases. (N6)

7.3.6.2 Other Consequences of Adolescent Pregnancy

All 12 participants highlighted the negative effect of adolescent pregnancy on interrupting the educational opportunities which would lead to them lagging behind at school. Additionally, all participants highlighted that it was not desirable to have the responsibility of raising an infant. Health risks associated with adolescent pregnancy were highlighted by all 12 participants in the post intervention SSIs.

7.3.7 Self-efficacy to Prevent Adolescent Pregnancy

11 of the 12 participants highlighted that they felt empowered to prevent pregnancy during their adolescent years. Participants highlighted that they could now be assertive and make informed decisions regarding their reproductive health instead of following the crowd. Those who had indicated that they had experienced barriers in accessing contraceptives at the PHC felt more confident to access reproductive health services at the PHC, having understood that it was their right to access these services. Participant N3 highlighted that she felt empowerment was still a process for her.

Six participants who used the injectable contraceptive stated that the educational programme had helped them to better understand the reason behind menstrual irregularities and amenorrhea. However, they stated that this knowledge did not change their minds on preferring to have a regular menstrual cycle where they would have their menstrual period. Participant N4 highlighted that even though she was now aware that blood was not returning to her brain, she still preferred to have a regular menstrual cycle so that she would not be worried that she may be pregnant.

Oral contraceptives were still unpopular amongst all 12 participants due to the increased responsibility of having to take the pill at a specific time daily. Participants mentioned that they were definitely likely to forget. The potential side effects of weight gain, which were also mentioned as a constraining factor regarding use of oral contraceptives.

7.3.8 Way Forward

All 12 participants expressed that they were very keen for the programme to continue with AGF coordinators in future. They all highlighted that overall the programme had given them a much-needed space to share their perceptions as well as obtain information on ways to empower themselves regarding prevention of adolescent pregnancy. Nine out of twelve participants requested that the programme also include boys. One participant mentioned the importance of including parents in the programme in future. Table 7.4 shows a comparison of participants who gained knowledge between the pre and post intervention SSIs.

Table 7.4: Comparison of number of participants stated correct responses between the Pre and Post Intervention SSIs

Concept	**Pre Intervention SSI: Number of Participants who stated correct responses**	**Post Intervention SSI: Number of Participants who stated correct responses**
Basic understanding of menstrual cycle	Six participants	All 12 participants
Risk of contracting STIs and HIV/AIDS	Six participants	All 12 participants
Abstinence as a contraceptive method	Seven participants	All 12 participants

Apart from the aforementioned details of additional information from the post intervention SSIs relayed in this section, all 12 participants expressed similar sentiments which they had previously expressed in the pre intervention SSIs. However, more detailed information was relayed with regard to aspects such as perceived barriers to accessing contraceptives at the PHC in comparison to that relayed in the pre intervention SSIs (Section 7.3.5). Table 7.5 portrays information that was perceived as useful by each participant from the educational intervention sessions.

Table 7.5: Information from educational intervention perceived as useful by participants

Participant	Perceived useful information obtained in educational programme in order of Importance to participant	
G1	Increased knowledge of menstrual cycle	Influence of peer pressure
G2	Increased knowledge of different contraceptive methods	Influence of peer pressure
G3	Influence of peer pressure	Influence of peer pressure
G4	Access to reproductive health as a human right	Increased self-efficacy to insist on use of condom with sexual partner
G5	Awareness of misconceptions regarding injectable contraceptives	Consideration of abstinence as a contraceptive method in future
N1	Risk of contracting STI and HIV/AIDS if not using dual contraception	Awareness of misconceptions regarding injectable contraceptives
N2	Awareness of misconceptions regarding injectable contraceptives	Effect of adolescent pregnancy on interrupting studies
N3	Increased self-efficacy to prevent adolescent pregnancy	Awareness of misconceptions regarding injectable contraceptives
N4	Access to reproductive health as a human right	Effect of adolescent pregnancy on interrupting studies
N5	Influence of peer pressure	Effect of adolescent pregnancy on interrupting studies
N6	Increased self-efficacy to prevent adolescent pregnancy	Influence of peer pressure
N8	Influence of peer pressure	Increased self-efficacy to prevent adolescent pregnancy

7.4 Development of Booklet from Educational Intervention

A booklet was developed to summarise some of the topics covered in the educational intervention sessions (Appendix 12). This booklet would serve as a resource tool for use in the continuation of the educational programme. Sustainability of the educational programme would be through its incorporation into the AGF 'Positive Health' Programme. In this context, feedback on the development of the booklet was obtained from FGDs with AGF 'Positive Health' programme coordinators and is summarised in Table 7.5 and Table 7.6. The criterion for the topics chosen for incorporation into the booklet was based on key aspects during the educational intervention sessions. These topics would facilitate more detailed discussion on related issues under each heading.

Table 7.6: **Booklet design feedback from AGF coordinators**

Constructive Comments
• Simple to use • Diagrams will be helpful as a supportive reference tool during discussions with adolescents • There is a lot of information to read which will be helpful as a reference tool during discussions • Can be used by moderator or facilitator to guide the direction of discussion on sensitive topics

Table 7.7: Suggested modifications towards design of booklet

Suggested Modifications
• Change 'STI' to 'STD' as this is more commonly used • Additional information on precautions when taking oral contraceptives • Bolden or highlight the need to dispose barrier contraceptives the correct way • Addition of examples of sexually transmitted diseases • Addition of precaution not to use both female and male condoms at the same time • Addition of the need for non-judgmental support by community members • Use of active person instead of third person

CHAPTER 8: DISCUSSION

8.1. Challenges with Health Care Services

Lack of infrastructural resources and unavailability of staff during weekends in marginalised communities such as Glenmore and Ndwayana pose a challenge towards improving maternal health outcomes. Notwithstanding this, according to the South Africa Health Profile for 2010, South Africa has made progress concerning women living in rural and urban areas who received skilled care at childbirth between 1990-1999 and 2000-2008, from 84% to 91% respectively. [66] Furthermore, according to a statement issued by the Eastern Cape Department of Health on 12th January 2012, 60 ambulances have been added to the fleet of ambulances serving the province. [292] One of the goals of these efforts is to speed up the delivery of ambulance services to the Eastern Cape in order to help reduce maternal mortality and morbidity. From the FGD discussions, it is apparent that there are still challenges with regard to ambulance services reaching marginalised areas such as Glenmore and Ndwayana timeously, and this is a constraining factor when addressing maternal health issues. National documents such as the *Primary Health Care Package for South Africa – a set of norms and standards* facilitate the opportunity for South Africa's population to know the quality of primary health care services they should expect to receive. [293] Additionally, one of the principles of Batho Pele emphasises that access to decent public services is the rightful expectation of all citizens, especially those previously disadvantaged. [232]

8.2 The Role of Community Health Workers

The role of CHWs in primary health care is relatively well recognised in the Glenmore and Ndwayana communities as supported by feedback from FGDs with community participants and SSIs with the HCPs. CHWs play an active role in promoting antenatal services for pregnant women in the two villages and this is a facilitating factor towards addressing maternal health issues. South Africa's NDoH policy document on the re-engineering of the PHC system has emphasised the role of CHWs as central to the PHC initiative with a focus on maternal, child and women's health. In addition to the above mentioned duties, each CHW is also assigned to be responsible for health promotion and prevention at household and community level. [105]

8.3 Reproductive Health

Data concerning reproductive health services and the high rate of adolescent pregnancy, which was highlighted in all ten FGDs and both SSIs conducted, confirms the relevance of including reproductive health as a target for improving maternal health. The right to universal access to reproductive health, which had not initially been stated under the Millennium Declaration, was incorporated as a clear target in 2007 and became effective on 1st January 2008. Indicators to monitor progress in achieving this developmental target are contraceptive prevalence rate, adolescent birth rate, antenatal care coverage, and the unmet need for family planning. [294] Statistics from the South African Statistical Fact Sheet for 2010 shows the percentage of unmet need for family planning for Africa as 24.3% but no data was recorded for South Africa. [68]

In nine out of the ten FGDs, most participants felt there was a need for the young girls in the community to be aware of abstinence as a method of contraception which should be included in reproductive health campaigns instead of solely promoting condom use. According to the 2010 MDG Country report for South Africa, the contraceptive prevalence rate for Africa is 24% whilst that for South Africa is 56%. [70] Although South Africa has a higher contraceptive prevalence rate than the rest of Africa, the promotion of interventions that place focus on conveying accurate reproductive health information is an important aspect of reproductive health rights, particularly for adolescent girls. [97] Achieving access to reproductive health facilitates the opportunity for individuals to develop in other aspects such as education. Moreover, babies born to adolescent mothers are also at risk of neonatal death. Failure to improve sexual and reproductive health has adverse outcomes as it relates to adolescent pregnancies which expose affected individuals to the risk of STI and HIV infection in the long term. [95]

8.4 High Rate of Adolescent Pregnancy

From the baseline study, adolescent pregnancy was highlighted as the maternal health issue of most concern to the Glenmore and Ndwayana communities, following feedback from nine of the ten FGDs and both SSIs with HCPs. Although, according to feedback from the SSIs with the Sisters-in-Charge, no maternal deaths were recorded in their PHC registers over the past five years in either community, maternal mortality has been indicated as accounting for

a large proportion of female death worldwide and in South Africa. [57, 58, 61] Additionally, maternal mortality is the major cause of death amongst adolescents aged between 15 and 19 years of age. In this context, the prominence of maternal deaths in this age group is recommended to be a motivation towards the promotion of sexual and reproductive health interventions suitable for this age group. [95] South African policy guidelines on teenage pregnancy, such as *Teenage pregnancy in South Africa – with a specific focus on school-going learners*, highlight the negative impact of adolescent pregnancy on increasing maternal deaths and emphasise the need for active involvement of all stakeholders as crucial to addressing adolescent pregnancy. [295] Improved access to sexual and reproductive health, which includes access to services and information, is a mainstay for supporting the overall health of communities, in particular that of women. The achievement of MDG 5 and other health-related MDGs is strongly reinforced by the progress that can be made on sexual and reproductive health. [35] Health promotion and community participation which facilitates the opportunity for subsequent community empowerment is thus a cost-effective approach to improving maternal and reproductive health outcomes, particularly in remote, underserved communities. [135]

8.5 Stock Status of Priority Medicines for Women's Health

Technical support from WHO assisted the development and implementation of the South African Drug Action programme in 1994, which aimed to focus on equity and access to essential medicines on a national scale. [296, 297] In 1996, South Africa drafted its National Medicine Policy, and then continued with the development of the national standard treatment guidelines and essential medicines list for all levels of the healthcare system. [296] WHO's priority medicines list for women and children helps countries select and make available the most important medicine for maternal and infant health. [45] The updated 2012 version of the WHO priority list of life-saving medicines for mothers includes the addition of misoprostol, hydralazine and methyldopa, mifepristone, tetanus vaccine, and the inclusion of contraceptives. It is encouraging that in this study, the bin cards in the two rural PHCs showed that priority medicines for maternal health according to the 2011 version of the WHO priority list were not out of stock during a twelve-month period. Conversely, the availability of these essential medicines does not render potential complications for pregnant women and mothers an impossible incident. In the event of such an occurrence,

the communities are ill-equipped as both PHCs are not operational after hours or during weekends, and the closest hospital is not easily accessible to these communities. This reality poses a likely health hazard which could ultimately lead to health complications. The Eastern Cape is the second poorest province in South Africa and has the highest level of unemployment, and reduced access to health services impacts negatively on the population. [298] Unemployment can negatively influence maternal health outcomes for pregnant adults as well as adolescents, who are likely to face financial constraints with regard to sourcing money for emergency transport to the referral hospital.

8.6 Source of Information on Reproductive Health Issues

A number of participants in the pre-intervention phase of this study mentioned that their parents/ guardians were an important source of information on reproductive health issues, such as the menstrual cycle. However, a few participants highlighted how they were not comfortable discussing reproductive health issues with parents or other family members. Findings from other studies highlight obstacles such as negative role modelling or an overly authoritarian parenting style in preventing open communication between parents and children about sexual and reproductive health issues. [299] Constructive, open communication is essential for increasing responsible sexual behaviour among adolescents. The quality of parent-child communication has a great influence on the decisions adolescents make regarding their sexual and reproductive health. [300] An assessment of various studies highlights that the quality of relationship between a parent or guardian and an adolescent influences their sexual behaviour. [301, 302, 303, 304, 305] Lack of parent-child communication on reproductive issues has been reported to lead to peers becoming the most important and influential source of information, as well as enhancing association with deviant peer groups. [306] In another study, adolescents concurred that it would be easier for them to avoid adolescent pregnancy if more open and honest conversations about these topics with their parents were fostered. [307] One study highlights the influence of African cultural norms which often view dialogue between parents and adolescents on sexual and reproductive issues as a ‘taboo’. As a result, communication on these topics is often characterised by elusive warnings from parents or guardians rather than direct, open discussion. [308] Changing of such ‘culture sensitive’ norms in a globalised world, is a process that is likely to take place over long a period of time, thus parent child

communication may remain a missed opportunity. A positive aspect to note was that feedback from a few participants in the post-intervention showed a keenness to have their parents/guardians involved in the educational program in future, in order to facilitate open communication.

8.7 Prevalence of Adolescent Pregnancy

Adolescent birth rates have been declining globally but they remain high in parts of Africa and Asia. [309] There is considerable evidence from numerous studies conducted in developed and developing countries indicating lower socioeconomic status, poverty, low levels of education, income and employment amongst community members as risk factors contributing towards a high prevalence of adolescent pregnancy. [310, 311, 312, 313] The reportedly high prevalence of adolescent pregnancy in the communities of Glenmore and Ndwayana resonates with this. However, this does not necessarily indicate that adolescent pregnancy is isolated to less fortunate communities. According to past studies conducted in South Africa in the 1990s, early pregnancy was welcomed as a sign of 'fertility' especially among African families. [314, 315, 316] However, this notion is no longer widely supported due to various reasons including but not limited to the change in aspirations of young people. One study from South Africa reported that over two thirds of adolescent mothers stated their pregnancies as unwanted. [317] According to findings from the aforementioned study, a majority of the girls disclosed that their pregnancies were unplanned; they had insufficient sexual information; ignored contraceptive options; and did not recognise the implications of intercourse and pregnancy for themselves or for their infants. Although it is recognised in South Africa that adolescent pregnancy is high, SADHS for 2003 has shown that there has been a decrease in adolescent pregnancy from 37% in 1998 to 27% in 2003. According to the aforementioned survey, the rate of condom use during the last sexual encounter was also reported to have increased from 16% in 1998 to 48% by 2002. [122, 317] In light of this, the *National Department of Health Policy Guidelines for Youth and Adolescent Health*, updated in 2012, highlights adolescent pregnancy as an area of much needed attention. [318]

8.8 Misconceptions Regarding the Efficacy of Contraceptives

Most participants in the pre-, post- and educational interventions highlighted that they suspected amenorrhoea indicated a decrease in the efficacy of the injectable contraceptive. Participants mentioned that they were not keen to use the injectable contraceptive because when they missed their menstrual bleeding they believed it to be due to "blood returning back to their brains" (Section 7.2.7.1). Studies have shown that, while adolescents are relatively well informed about contraceptive methods, gaps exist in the accuracy of skill regarding correct use of contraception. [319, 320] Lack of knowledge is often cited as a reason for ineffective or non-use of contraceptives. [321] Errors in accurately understanding the correct usage of a specific contraceptive method can decrease its effectiveness thus increasing the chances of experiencing a pregnancy. For example, incorrect usage can lead to tears in condoms, and missed doses of oral contraceptives can lead to ovulation. [320] According to a study by Woods and Jewkes [322], most of the girls using injectable contraceptives reported prolonged absence of menstruation as being due to the blood being ''blocked in the head." This was not appreciated as menstruation was widely seen as cleansing the womb of accumulated "dirt." [322] Participants in the aforementioned study also highlighted that not having adequate information regarding the oral contraceptive resulted in its erratic usage, to avoid potential weight gain or side effects such as amenorrhoea. [322] In another study, participants believed that amenorrhoea caused by using injectable contraceptives could result in infertility, and hence decided not to use them. [323] As a result, negative perceptions about contraceptives influence the likelihood of their incorrect and inconsistent usage. This aspect closely relate to the construct of perceived barriers highlighted in the Health Belief model. [251]

8.9 Perceived Severity of Adolescent Pregnancy

8.9.1 Overall Interruption of Education

The Department of Education [324] has set in place guidelines entitled *Measures for the Prevention and Management of Learner Pregnancy*, which state that no learner should be readmitted in the same year that she has left school due to pregnancy. The awareness of disruption of schooling was reported by some participants in both the pre- and post-intervention as a perceived severity of falling pregnant. Between 2002 and 2006 it is estimated that between 66,000 and 86,000 adolescent girls across South Africa reported

pregnancy as the main reason for interrupting their schooling. [325] Findings from Grant and Hallman showed that 29% of 14–19 year-olds who drop out of school due to pregnancy return to school by the age of 20 and, of this figure, only 34% complete their final year of schooling. [326] Another study revealed that most adolescent mothers who do go back to school after giving birth face a number of challenges and a lack of support from teachers may impede their ability to succeed. [327]

8.9.2 Health Risks Associated with Adolescent Pregnancy

The feedback from the participants showed limited awareness of the health risks associated with adolescent pregnancy. However, one participant mentioned that as a young adolescent their bones were still developing, causing the likelihood of complications during childbirth. She indicated that she had obtained this information from the nurse at the PHC and her mother at home (Section 7.9.3.2). The WHO adolescent pregnancy fact sheet highlights disadvantages of adolescent pregnancy on newborn infants such as low birth weight as a risk factor for infant illnesses. [151] A number of risks such as anaemia, post-partum haemorrhage, STIs and HIV/AIDS, and complications of hypertension in pregnancy have also been highlighted as causing pregnancy to be more risky to adolescents. [110] There are conditions that only women experience and that have negative health impacts that only women suffer. Some of these conditions, such as pregnancy and childbirth, are not in themselves diseases, but normal physiological and social processes that carry health risks and require health care. [150] Local studies have not extensively shown the awareness or lack of awareness regarding the physical developmental health risks such as cephalic pelvic disproportion during childbirth amongst adolescents. In South Africa the focus on preventing adolescent pregnancy as a measure of avoiding obstetric outcomes of early pregnancy is not as significantly highlighted as concerns over the increased risk for young women in terms of contracting HIV and the quality of antenatal care young pregnant women receive. [316]

8.9.3 Responsibility of Parenting as an Adolescent

Feedback highlighted by participants in the pre-, post- and educational intervention phases showed their awareness of the financial challenges and potential missed opportunities that come with raising an infant. These sentiments resounded with similar findings from other

studies. [328, 329] The role of parenting is deemed as more successful for first time parents if they have accomplished their other transitions to education, work, and/or marriage. [330] In a number of cases in South Africa, grandparents take on the responsibility of being caregivers of children born to adolescent mothers. [331]

8.9.3.1 Child Support grant

South Africa has a formal social security system which assists vulnerable segments of the population from the complete brunt of poverty. Such assistance is in the form of social grants, examples are the disability grant, older person grant and CSG among others. [332] Commentary has been made questioning the sustainability of the social grants, which have an allocation of 3,5% of South Africa's GDP. [333] Currently, the CSG is R300 a month per child. Individuals who are eligible for the CSG are primary care givers who earn less than R34, 800 per year if single or R69, 600 if married [334]. Notions of some adolescent girls falling pregnant as a way to obtain the CSG was pointed out by both HCPs during the baseline phase, including a few participants in the pre-intervention phase. The provision of the CSG has raised wide spread public views that associate this social grant with increased fertility particularly within the adolescent population. Acquiring short-term perceived benefits of the CSG and lack of comprehension of the actual costs that are involved in bringing up a child are thought to be the reason for this. [335] Paradoxically, despite the availability of the CSG in South Africa and popular notion that young women are falling pregnant to receive this grant, a study conducted by Makiwane *et al*. [336] reported that only 2.69% of grant recipients were mothers between the age of 15 and 19 years. [336] Other studies on the CSG and its relationship with increased adolescent pregnancies have asserted that the phenomenon of adolescent pregnancy predates the introduction of the CSG. [337, 338]

8.10 Perceived Barriers to Preventing Adolescent Pregnancy

8.10.1 Sexual Coercion

Four participants in the pre-intervention and a higher number of participants in the educational intervention highlighted sexual coercion as a perceived barrier to abstinence and/or preventing adolescent pregnancy. Coerced consensual sex is a common problem in schools, workplaces and amongst peers. [339] Other studies also point out that sexual

coercion contributes to most adolescents' first sexual experience. Therefore it is important to take into account the occurrence of sexual coercion in efforts to understand unwanted pregnancy amongst young women. [339, 340] Additionally, power imbalances also play a role in women's ability to negotiate safe sex potentiating the occurrence of sexual coercion, particularly in instances where there is dependence for material benefits either for sustenance or for luxuries. [341] Resounding sentiments on this aspect are highlighted in Section 7.2.4.1. South Africa's *Policy Guidelines for Youth and Adolescent Health* recognises sexual exploitation and coercive sex among other undesirable gender-based areas of concern. Facilitating empowerment of women about the importance of equitable gender relations can be of assistance in helping adolescent girls make informed choices regarding sexual issues and their reproductive health. [318]

8.10.2 Influence of Alcohol Consumption

During the pre-intervention and educational intervention phases, participants highlighted the consumption of alcohol as a factor influencing risky sexual behaviour. Reports from two different studies conducted in 2002 and 2008 echo the influence of alcohol consumption in increasing an adolescent's chances of unprotected sexual intercourse which may lead to pregnancy and contraction of STIs. [313, 342] Another study, conducted in 2003 by Reddy *et al*. [343], reported that 31.8% of adolescents consumed alcohol which was linked with high-risk sexual behaviour. A study by Palen *et al*. [344] has highlighted the influence of alcohol consumption in increasing the chances of engaging in casual sex. There are similarities in reports from another study resonating with those in this study, regarding the increased risk of forced sex and the decreased likelihood of condom use when under the influence of alcohol. [345] Participants also highlighted that there were no restrictions for adolescents to frequent some premises where alcohol was sold in both communities (Section 7.2.10.3). The negative effects of alcohol consumption as a perceived barrier to preventing adolescent pregnancy are aided by an environment where heavy drinking is a social norm and there is a lack of active prohibition of sale of alcohol to minors within the community. Licensing of taverns and social drinking places is thus required to control underage drinking. [346]

8.10.3 Peer Influences in the Community

The increase in adolescent pregnancies in Glenmore and Ndwayana was reported by participants as being associated with factors such as peer pressure. This was reported in the pre-, post- and educational interventions. Peer pressure was also mentioned as a reason why adolescents in both communities were inclined to resort to risky sexual behaviour. Peer pressure has been recognised as a considerable aspect in the commencement of sexual involvement among adolescents. Studies have shown that when most adolescents perceived that people of their age were sexually active, they are more likely to become sexually active. [313, 347] Many adolescents entertain the idea that being sexually active is fashionable, and that being sexually inactive is a sign of abnormality. They might, therefore, become sexually active in order to be accepted by their peers. The extent to which peer groups influence sexual behaviour can be linked to the extent to which peer groups are relied on as sources of information on sex-related topics. [329] If adolescents were supported within their families through attention, interest and understanding, their dependence on peers might be reduced. In this context, developmentally appropriate parent-child communication about sexual and reproductive health issues can mediate unconstructive peer norms about sexual behaviour. [348, 349]

8.10.4 Unsatisfactory Performance at School Leading to School Absenteeism

One of the participants in the pre-intervention phase of this study highlighted a critical aspect which has been discussed in the literature: that some adolescents making a decision not to attend school particularly because they were not performing well. Comprehending limited promising opportunities from schooling, they would opt to stay at home and eventually fall pregnant. This feedback resonates with studies which have highlighted that if there is little incentive to participate in school, there may also be little motivation to prevent pregnancy. It then becomes a rational option for such adolescents to disengage from school and deliberately seek out a maternal role. [326,350] Absenteeism from school thus interrupts a young girl's education, and lack of financial and social support to bring up the newborn infant are factors that also increase poverty. [351] Additionally, the occurrence of adolescent pregnancy poses a threat to the well-being of the pregnant adolescent and the newborn infant, heightening the inclination towards a trajectory of lifetime poverty for the young mother and her child. [352] Community mobilisation, which actively involves a

socially-reinforced response and collective action from parents, guardians and educators, is key to breaking free from the vicious cycle of poverty caused by missed opportunities in the educational development of such adolescents. [353]

8.10.5 Lack of Self-efficacy to Negotiate Use of Contraception

Feedback from the pre-, post- and educational interventions highlighted that, despite having information on contraceptive methods, lack of self-efficacy to negotiate the use of condoms as a contraceptive method was due to some adolescent girls' involvement in sexual relationships with older men. It is a matter of concern that the age difference inhibits girls' ability to negotiate the circumstances in which to have sex. [354] Even when adolescents are able to access reproductive health services, the behaviour of their partners, the lack of communication skills, and the skills to negotiate mutually agreed terms under which sexual intercourse occurs will continue to contribute to the risk of HIV infection and unplanned pregnancy. [355, 356] One study in South Africa found that sexual communication is poor between partners, and that young women appear powerless to enforce their preferences in sexual situations. [357] In addition, a study by Varga and Makubalo found that 58% of girls in a sample avoided discussing use of condoms or contraception because they feared physical abuse, rejection or their partner's objection. [358]

8.11 Perceived Barriers to Accessing Contraceptives at PHC

8.11.1Accessibility of Contraceptives for Adolescents

Four participants mentioned a challenge in accessing reproductive health services as the PHC is open at inconvenient times. Rigid and relatively short clinic hours for adolescent consultations (generally from Monday to Friday, 08:00 until 13:00 or 16:00) reduced service availability for adolescents. School-going children cannot attend at these times and cannot wait for many hours. The availability of contraception is further reduced at clinics where contraceptive services have not been fully integrated with PHC services. The NAFCI works with service providers to improve the quality of health care for young people. Research has identified changes in the perceptions of youth when a PHC facility has received NAFCI support. [359] However, this is not universal and access to condoms is especially difficult for young women who have to negotiate the negative attitudes of nurses at some local clinics. [360] During the post-intervention SSI, seven participants were more detailed in highlighting

that there were challenges in accessing reproductive health services at the PHC due to fear of lack of privacy and confidentiality. Additionally, another emerging theme was the attitudes of the HCPs and CHWs who were deemed as not being approachable on these reproductive health matters. Although the government has made extensive efforts for youth to obtain free contraceptives from health centres, the availability of contraceptives has not inevitably encouraged adolescents to actually make use of them. [361]

A significant aspect that influences adolescents' health care-seeking behaviour is the fear of stigmatisation due to recognition of social norms that strongly forbid mention of sexual and reproductive issues with older members of society such as parents or guardians. [148] Adolescents who fall ill with commonly occurring conditions such as fevers and colds may have no reluctance in seeking care. However, they may be less willing to seek health care for more sensitive issues such as their reproductive health. [362] Health care professionals can also pose as a barrier to equitable and accessible reproductive services by overlooking their professional standards of confidentiality and empathy when dealing with adolescents and showing resentment and negative attitudes instead. However, the efficiency of providing reproductive health services is reliant on whether the services are considered as 'youth friendly or adolescent friendly'. [158] WHO has highlighted that it is essential to overcome these barriers and to make it easier for adolescents to obtain the health services they need. [363] This has led to the release of resource tools to standardise and scale-up coverage of quality health services to adolescents, namely, *Quality Assessment Guidebook: A guide to assessing health services for adolescent clients*, which was published in 2009. [364]

8.12 Cues to Action and Self-efficacy to Prevent Pregnancy

8.12.1 Personal Decision to Seek Access to Contraceptives

During the pre-intervention phase, some girls, who readily mentioned that they were sexually active, disclosed that, despite the challenges of services that were not 'adolescent friendly', their perceived susceptibility of falling pregnant led them to overlook this constraining factor and access contraceptives from the PHC. The 1994 International Conference on Population and Development in Cairo [141] and the fourth World Conference on Women in Beijing held in 1995 [365] bring to light that the prevention of unwanted pregnancies must always be given the highest priority and every effort should be made to

eliminate the need for the termination of pregnancies. [366] Because many adolescents face unwanted pregnancy, rates of unsafe abortion among young women are high, especially in Africa where girls aged 15–19 years account for one in every four unsafe abortions. South Africa passed the Choice on Termination of Pregnancy (CTOP) Act of 1996. [367] Termination of pregnancy is an aspect that was not highlighted by participants in both the baseline and educational intervention phase of this study.

Findings from a study conducted by Moultrie and McGrath in rural KwaZulu-Natal showed that between 2000 and 2005 the proportion of young people who had ever had sex remained relatively constant, but that contraceptive usage increased significantly. [368] Simbayi *et al*. [369] reported a similar trend of increased contraceptive usage in the 2003 SADHS as compared to findings from the 1990s. [364] Another study reported a significant increase in condom usage and a decrease in multiple partners between 2002 and 2005 amongst women aged 17 to 22 years surveyed in a Cape Area Panel Study. [359] Contraception usage varies considerably depending on a number of factors, including location and education. These include perceived lack of risk, peer norms, gender power relations, lack of availability and access, and fear of adult attitudes to contraceptive usage. [163, 360] According to the 2003 SADHS, women in rural areas and in the Eastern Cape and Mpumalanga, and those with lower levels of education, reported the lowest condom use. [122]

8.13 Community as the Setting to Implement Educational Intervention

Programmes that are more participatory and address underlying structural and community-level factors appear to be essential, as various school-based programmes in Africa are delivered by teachers and have a top-down approach rather than addressing young people's self-identified needs. [370] Kirby *et al*. argue in favour of sexual and reproductive health education programmes that are based on a written curriculum, which can be implemented in school, clinic or community setting. [371] While clinic and community settings are very effective sites, particularly where they can reach other youth who have dropped out of school, programmes implemented in schools potentially reach larger numbers of youths. [371] However, one of the main concerns regarding the teaching of sexual health programmes in a school context is the lack of training for teachers, who often do not have

the skills and knowledge to tackle this task. [372] Additionally, talking about sex and sexuality with learners often engenders a great deal of anxiety, as some teachers are frightened of encouraging sexual activity, or of parents accusing them of this, or they feel it is inappropriate for them to talk about these things to learners who are so young. [373] Similarly to the published literature, during the educational intervention of this study, most participants highlighted that teachers are not comfortable discussing sexual and reproductive health within school. On a positive note, some teachers would refer adolescent girls to the clinic to access reproductive health services. Other studies have shown that lack of communication on reproductive health within the curriculum hinders open and frank discussion with learners. [374] This was similarly found by Helleve *et al*. [372] who examined the perceptions of sex education held by Life Orientation teachers in South Africa in relation to their teaching of the topic and highlighted how inadequately trained teachers often add to the silence surrounding topics of sex, also compounding gender issues. [372] Implementing the educational intervention in the form of discussion oriented sessions in this study rather than a didactic approach increased the engagement of participants. In addition, the comprehensive approach in conveying information focusing on different types of contraceptive methods rather than aiming for an abstinence only intervention was aimed at addressing the varying information needs and personal choices of participants in the educational intervention.

8.14 Empowerment as an Outcome of Educational Intervention

Following feedback from the post-intervention, participants highlighted that they felt the educational intervention provided a forum to facilitate their empowerment on making more informed decisions with regard to reproductive health issues. The concept of empowerment has been referred to as

> The process by which people gain control over the factors and decisions that shape their lives. It is the process by which they increase their assets and attributes and build capacities to gain access, partners, networks and/or a voice, in order to gain control. ‘Enabling’ implies that people cannot "be empowered" by others; they can only empower themselves by acquiring more of power's different forms. It assumes that people are their own assets, and the role of the external agent is to catalyse, facilitate or "accompany" the community in acquiring power. [375]

Disempowered people, who have little control over important aspects of their lives, are less likely to feel that they can take control over their health or engage in health-enhancing behaviours. [259] In this perspective, facilitation of empowerment of adolescent girls with regard to reducing adolescent pregnancy and improving access to reproductive health services is significant to the promotion of women's educational, social, and economic development. [376] McQueston *et al* [377] have carried out a systematic review of interventions to reduce adolescent childbearing in low- and middle-income countries. [377] In view of this, such evaluation of the effectiveness of the educational intervention from this study would be useful in ascertaining the rate of its success in facilitating the process of empowerment with regard to prevention of adolescent pregnancy.

8.15 Development of Booklet from Educational Intervention

Discussions were used to facilitate open communication during the educational intervention. The resultant booklet is thus a summary of some of the key aspects that were covered during the educational intervention sessions. The feedback from AGF coordinators was incorporated into the booklet draft. Development of the booklet followed the guidelines which are mentioned in more detail in Section 2.16.1.2. After intensive field testing of the booklet, it would be of benefit to generate an IsiXhosa version of the booklet. This would aid future readers who have limited fluency in English, during scale up of the educational programme.

8.16 Strengths and Limitations

This study involved a trend setting collaborative partnership which forms part of a community engagement research project and enhances Rhodes University's focus on community engagement with health intervention based research. The identification of one maternal health issue that was of most concern was obtained from the consensus of the community representatives who took part in the FGDs conducted during the baseline phase.

The implementation of CBPR was strength in this study which supported collaboration with already existing structures such as women self-help groups and CHWs including the Sisters-in-Charge from the study setting. The intention to use the village community hall or other venues chosen by the community at their convenience was a way of using the already

existent infrastructures while social structures such as positive health champions were a valuable interface between the researcher and participants. Another strength of this study is that information that was relayed during the educational intervention was based on the feedback of female adolescent participants in Glenmore and Ndwayana. Additionally, feedback was obtained from the AGF coordinators and positive health champions to assess the details of the proposed educational intervention and the question guides (Appendix 11-13). In this context, CBPR facilitated the opportunity for community participants of Glenmore and Ndwayana and aforementioned stakeholders involved to develop an educational intervention that is effectual, acceptable and culturally competent. Feedback from AGF stakeholders was also significant for the purpose of future scale up and sustainability of the educational intervention through its incorporation into the AGF's existing 'Positive Health' programme.

Another strength of this study is that it was conducted in a setting in which no previous research study had been implemented. As no previous research on adolescent pregnancy and other maternal health issues had been conducted in the setting, the results derived from the baseline and educational intervention phase are hence attributable to this current study.

It may be argued that the small target population that took part in the educational intervention phase of the study may be a limitation with regard to generalising the results. In light of this, the use of qualitative methods as research instruments facilitated the generation of rich descriptive data from the small target population. Extrapolation of the findings of this study to other settings must be done with caution. In addition, 12 of the 14 participants took part in the entire duration of the educational intervention phase of this study. This can be viewed as a strength considering that no incentives were given to take part in this study.

A potential limitation is that the researcher was a non-Xhosa speaker and used the assistance of an interpreter whose home language is IsiXhosa during the interviews and on some aspects during the educational intervention. Prior to conducting the interviews, the researcher would go through the question guide and familiarise herself with the questions

that would be asked. Emphasis was placed on the use of simple, well-known words wherever possible. The interpreter was also made aware of the need to avoid offering long explanations that would unintentionally influence the participants' answers.

The time between the educational intervention and follow up SSIs was six weeks. A longer interval with regards to following up on the educational intervention would have resulted in long term recall of some aspects covered in the educational intervention. It is still encouraging to note that there was keenness by participants for the continuation of the educational intervention through its incorporation into the existing AGF 'Positive Health' Program.

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

9.1 Conclusion

The aim of this study was to design and implement an appropriate educational intervention for a specific target group after assessment of the maternal health issue of most concern to community participants in two rural study settings. A first time collaborative partnership with key stakeholders was established towards this endeavour. As previously mentioned, key stakeholders in this collaborative partnership are the Faculty of Pharmacy and Community Engagement Office of Rhodes University, AGF, 'positive health champions', community participants and HCPs from the Glenmore and Ndwayana.

During the baseline phase, adolescent pregnancy was identified as the maternal health issue of most concern to community participants in the study setting. Consensus on the identified maternal health issue was reached following feedback from FGDs conducted with community leaders, women's self-help groups and CHWs. The reiteration of adolescent pregnancy as the maternal health issue of most concern by both Sisters in Charge at each of the PHCs in the study setting further augmented the concurrence from the FGD feedback. In addition, other pertinent issues that constrained or facilitated the maternal health outcomes in the both communities were brought to light during the FGDs.

Prior to implementation of the educational intervention, the pre-intervention phase of this study provided the opportunity to investigate the informational needs of the target population. Knowledge gaps on reproductive health issues, such as aspects of the menstrual cycle, conception, contraception and the health risks associated with adolescent pregnancies, were identified during thematic analysis of the pre-intervention data. These emerging themes helped to further guide the design of the educational intervention. Barriers faced by adolescent participants with regard to reproductive health issues were relayed in more detail in the educational intervention and post-intervention phase of this study. The study results revealed that the adolescent participants faced challenges with regard to accessing reproductive health services at the PHC.

The study shows that there are various factors which influence adolescents' susceptibility to falling pregnant within the study setting. Although the results from this study cannot be generalised to a larger population, they resound with findings accentuated in other studies conducted within and outside South Africa. Results from the post-intervention phase of this study highlighted that the participants appreciated the opportunity to have a forum to discuss adolescent pregnancy and related reproductive health issues within the community setting. All participants in the post-intervention stated that the educational intervention was culturally acceptable to them. Acceptability and cultural sensitivity of the educational intervention was reinforced by feedback from AGF coordinators and positive health champions. Participants also recommended that the educational intervention must continue into the following year with incorporation of a larger target audience of adolescent girls. The inclusion of adolescent boys in such educational interventions was also emphasised by participants in this study. The results of this study suggest the need for adolescent friendly services at the PHC towards achieving universal access to reproductive health and potentially reducing adolescent pregnancies. The role of parental communication is highlighted as an important factor in creating supportive environments for adolescents. Increased self-efficacy to prevent adolescent pregnancy was highlighted by a majority of participants in the post-intervention phase of this study.

9.2 Recommendations for future research

The synergistic effect of community engagement and health promotion can significantly enhance awareness of maternal health as a priority in South Africa. This can be carried through involvement of all key stakeholders in implementation of educational campaigns that address risk behaviours which influence poor maternal health outcomes.

The following areas were identified as needing further research:

- Scaling up of the project within the study setting and Grahamstown and initiating combined efforts of nongovernmental organisations in the area of maternal health.

- Development and monitoring of indicators for continual evaluation of the project by AGF 'Positive Health' programme coordinators

- Determine the effectiveness of incorporating trained adolescent peer educators in educational interventions. Peer education strategies can involve assenting adolescents in the community including those who were participants in the educational intervention. Training of peer educators can be carried out by stakeholders involved, for example, community organisations such as AGF. In this context, the formation and support of peer educational settings can provide a forum where peers can discuss issues regarding adolescent pregnancy and related reproductive health issues.

- Development of educational interventions that reinforce culturally sensitive parent-child communication on sexual and reproductive health issues for the prevention and reduction of adolescent pregnancy.

- Research which involves reinforcement of youth friendly services at the PHCs. This can be facilitated by identifying existing gaps in the current system of functioning PHCs with regard to adolescent pregnancy. CBPR can be implemented as an approach to address those gaps.

- Research which involves both female and male genders, as part of educational interventions to prevent adolescent pregnancy. Such research can involve formation of collaborative partnerships which promote the inclusion of adolescent boys and men in the community in order to bring about their active participation in adolescent, maternal and reproductive issues.

- Research which involves adolescent mothers to avoid the occurrence of second adolescent pregnancies.

REFERENCES

1. United Nations Development Programme. The Millennium Development Goals Report [Internet]. 2001 [cited 2012 Jan 24]. Available from: http://www.un.org/millenniumgoals/pdf/MDG%20Report%202010%20En%20r15%20-low%20res%2020100615%20-.pdf.
2. United Nations Population Fund. Preventing Maternal Mortality [Internet]. 2012 [cited 2012 Jan 24]. Available from: www.unfpa.org/webdav/site/global/shared/.../reducing_mm.pdf.
3. World Health Organization. United Nations Human Rights Council Resolution [Internet]. Geneva; 2012 [cited 2012 Jan 24]. Available from: www.who.int/pmnch/topics/maternal/20090617_hrcresolution.pdf.
4. Tinker A, Hoope-Bender P, Azfar S et al. A continuum of care to save newborn lives. Lancet. 2005; 365:822-825.
5. World Health Organization. The World Health Report 2005: Make every mother and child count. Geneva; 2005 [cited 2012 Sept 24]. Available from: http://www.who.int/whr/2005/whr2005_en.pdf.
6. Stanton C, Lawn JE, Rahman H et al. Stillbirth rates: delivering estimates in 190 countries. Lancet. 2006; 367:1487-1494.
7. Kerber KJ, de Graft-Johnson JE, Bhutta ZA et al. Continuum of care for maternal, newborn, and child health: from slogan to service delivery. Lancet. 2007; 370:1358–1369.
8. World Health Organization. WHO welcomes launch of UN Commission on Life-Saving Commodities for Women and Children [Internet]. 2012 [cited 2012 Jan 25]. Available from: http://www.who.int/reproductivehealth/news/un_commission/en/index.html.
9. Ruhanga W. Stand up for African mothers [Internet]. African Medical and Research Foundation; 2012 [cited 2012 Mar 13]. Available from: http://www.amref.org.
10. Department of Health. South Africa's National Strategic Plan for a Campaign on Accelerated Reduction of Maternal and Child Mortality in Africa [Internet]. 2012 [cited 2012 Mar 23]. Available from: http://www.doh.gov.za/docs/stratdocs/2012/carmma.pdf.

11. World Health Organization. Developing Pharmacy practice: A focus on patient care [Internet]. 2006 [cited 2012 Jan 24]. Available from: http://www.who.int/medicines/publications/WHO_PSM_PAR_2006.5.pdf.
12. Sorensen T, Davis R, Balidemaj F. Sharing Community Engagement in Pharmacy. Innovations in Pharmacy 2011; 2 (1):24.
13. Zenz A. Evaluating Empowerment: The world vision area development programme [Internet]. Washington: World Bank; 2012 [cited 2012 Nov 30]. Available from: http:www.devnet.org.nz/conf/Paers/zenz.pdf.
14. Green LW, George MA, Daniel M et al. Study of participatory research in health promotion: Review and recommendations for the development of participatory research in health promotion in Canada. Vancouver, British Columbia: Royal Society of Canada; 1995; 4:201-212.
15. World Health Organization. Health Topics Millennium Development Goals [Internet]. Geneva; 2012 [cited 2012 Oct 5]. Available from: http://www.who.int/topics/millennium_development_goals/en/
16. Gil-González D, Carrasco-Portiño M, Ruiz MT. Knowledge gaps in scientific literature on maternal mortality: a systematic review. Bull World Health Organ. 2006; 84(11):903-909.
17. World Health Organization. WHO Constitution [Internet].Geneva; 1946 [cited 2012 Mar 12]. Available from: http://www.who.int/governance/eb/who_constitution_en.pdf
18. http://www.un.org/en/documents/udhr/
19. International Covenant on Economic, Social and Cultural Rights [Internet]. [cited 2013 Jul 10]. Available from: http://www.who.int/hhr/Economic_social_cultural.pdf
20. United Nations. Office of the High Commissioner of Human Rights. Convention on the Rights of the Child UN General Assembly Resolution 44/25. Geneva: United Nations; 1989.
21. United Nations. Convention on the Elimination of All Forms of Discrimination against Women [Internet]. 2003 [cited 2102 Jan 19]. Available from: http://www.un.org/womenwatch/daw/cedaw/cedaw27/tun3-4.pdf.

22. Government of the Republic of South Africa. The Constitution of the Republic of South Africa No. 108 of 1996 [Internet]. 1996 [cited 2012 Sep 10]. Available from: www.info.gov.za/documents/constitution/1996/a108-96.pdf

23. World Health Organizati -

24. United Nations Development Programme. The Millennium Development Goals [Internet]. 2000 [cited 2013 July 10]. Available from: http://www.undp.org/content/undp/en/home/mdgoverview/

25. United Nations Development Programme [Internet]. 2011 [cited 2013 Oct 18]. Available from: http://www.beta.undp.org/undp/en/home/mdgoverview.html

26. United Nations Development Programme. Millennium Development Goals: Progress towards health related Millennium Development Goals. Fact Sheet No 290 [Internet]. 2012 [cited 2013 Jan 23]. Available from: http://www.who.int/mediacentre/factsheets/fs290/en/index.html

27. United Nations. The United Nations Population Fund: The Millennium Development Goals [Internet]. 2013 [cited 2013 Sept 24]. Available from: http://web.unfpa.org/icpd/mdgs.cfm

28. United Nations Development Programme. Post 2015 Agenda [Internet]. 2013 [cited 2013 Nov 12]. Available from: http://www.un.org/millenniumgoals/beyond2015.shtml

29. United Nations Development Programme. Millennium Development Goals Beyond 2015, Frequently Asked Questions [Internet].2013 [cited 2013 Nov 12]. Available from: http://www.un.org/millenniumgoals/beyond2015-faqs.shtml

30. Beaglehole R, Bonita R. Global public health: a scorecard. Lancet. 2008; 372(9654):1988-1966.

31. Manning R. Using Indicators to Encourage Development: Lessons from the Millennium Development Goals. DIIS Report. Copenhagen: Danish Institute for International Development; 2009.

32. World Health Organization. Health in the Post-2015 UN development Agenda [Internet]. 2013 [cited 2014 Jan 10]. Available from: http://www.who.int/topics/millennium_development_goals/post2015/en

33. United Nations Secretary-Generals Appoints High-Level Panel On Post-2015 Development Agenda: United Nations Press Release [Internet]. 2012 [2013 Jul 31]. Available from: www.un.org/sg/management/hlppost2015.shtm
34. World Health Organization. Health in the Post 2015 briefing [Internet]. 2013 [cited 2014 Jan 10]. Available from: http://www.who.int/topics/millennium_development_goals/post2015/healthinthepost_briefing_20120921.pdf.
35. United Nations Development Programme. The Millennium Development Goals 2008 Report [Internet]. 2008 [cited 2013 July 14]. Available from http://mdgs.un.org/unsd/mdg/resources/static/products/progress2008/mdg_report_2008_en.pdf.
36. World Health Organization. International Statistical Classification of Diseases and Related Health Problems. Tenth Revision. Vol. 1: Tabular list. Vol. 2: Instruction manual. Geneva, World Health Organization; 1992.
37. United Nations Development Programme. MMR Definition [Internet]. 2012 [cited 2102 Jan 24]. Available from: http://mdgs.un.org/unsd/mdg/Metadata.aspx?IndicatorId=0&SeriesId=553
38. World Health Organization. District Planning Tool for Maternal and New-born Health Strategy Implementation A practical tool for strengthening Health Management System [Internet]. Geneva; 2008 [cited 2012 Jan 23]. Available from: http://whqlibdoc.who.int/publications/2011/9789241500975_eng.pdf Accessed 20 January 2012
39. World Health Organization. What are essential medicines? [Internet]. Geneva; 2012 [cited 2012 Mar 21]. Available from: http://www.who.int/medicines/rationale.html
40. World Health Organization. The Selection and Use of Essential Medicines WHO Technical Report Series, No 914 [Internet]. Geneva; 2014 [cited 2014 April 3]. Available from http://apps.who.int/medicinedocs/en/d/Js4875e/5.2.html
41. World Health Organization. Continuity and change: Implementing the third WHO Medicines Strategy 2008-2013 [Internet]. 2010 [cited 2013 Oct 29]. Available from http://apps.who.int/medicinedocs/documents/s16880e/s16880e.pdf
42. Quick JD, Hogerzeil HV. Perspectives: twenty-five years of essential medicines. Bull World Health Organ. 2002; 80:913-914.

43. Hogerzeil HV. The concept of essential medicines: lessons for rich countries. BMJ. 2004; 329:1169-72

44. World Health Organization. WHO List of Priority Life Saving Medicines for women and children [Internet].Geneva; 2011 [cited 2012 Apr 17]. Available from: http://www.who.int/medicines/publications/A4prioritymedicines.pdf.

45. World Health Organization. WHO Priority lifesaving medicines for women and children [Internet].Geneva; 2011 [cited 2011 Sep 4]. Available from: http://www.who.int/medicines/publications/emp_mar2012.1/en/index.html

46. World Health Organization. WHO Medicines: Essential medicines; Fact sheet N°325 [Internet]. 2010 [cited 2012 Mar 21] Available from: http://www.who.int/mediacentre/factsheets/fs325/en/index.html.

47. Hogerzeil V, Mirza Z. World Health Organization: The World's Medicine Situation 2011, Access to essential Medicines as part of the right to health Department of Essential Medicines and Pharmaceutical Policies [Internet] Geneva; 2011 [cited 2012 Mar 7]. Available from: http://apps.who.int/medicinedocs/documents/s18772en/s18772en.pdf.

48. Baghdadi-Sabeti G, Cohen-Kohler C, Wondemagegnehu E. WHO: Measuring Transparency in the public pharmaceutical sector [Internet]. Geneva; 2009 [cited 2012 Mar 6]. Available from:http://www.who.int/medicines/areas/policy/goodgovernance/AssessmentInstrumentMeastranspENG.PDF.

49. United Nations. The Millennium Development Goal Eight: Global Partnership for Development: Time to Deliver [Internet]. 2011 [cited 2013 Oct 29]. Available from: http://www.undp.org/content/dam/undp/library/MDG/english/mdg_gap_report2011_en.pdf

50. United Nations. United Nations General Assembly. Resolution adopted by the General Assembly 64/265. Prevention and control of non-communicable diseases [Internet]. 2010 [cited 2013 Aug 24]. Available from http://esango.un.org/event/documents/ARES64265.pdf

51. Hogerzeil HV. Human rights and essential medicines: what can they learn from each other? Bull World Health Organ. 2006; 84:371-375.

52. Perehudoff SK, Laing RO, Hogerzeil HV. Access to essential medicines in national constitutions. Bull World Health Organ. 2010; 88:800.

53. Hogerzeil HV, Samson M, Vidal Casanovas J et al. Is access to essential medicines as part of the fulfilment of the right to health enforceable through the courts? Lancet. 2006; 368:305-311.

54. Ritz LS. World Health Organization. Access to medicines publications in developing countries: A bibliometric study and its implications for the access to medicines research network [Internet].undated [cited 2013 Oct 29]. Available from: http://apps.who.int/medicinedocs/documents/s17068e/s17068e.pdf

55. Bigdeli M, Jacobs B, Tomson G et al. Access to medicines from a health system perspective. Health Policy Plan. 2013; 28(7):692-704.

56. Cameron A, Ewen M, Auton M et al. World Health Organization. The world medicines situation 3rd ed. Medicines prices, availability and affordability [Internet]. 2011[cited 2013 Oct 29]. Available from: http://apps.who.int/medicinedocs/documents/s18065en/s18065en.pdf

57. United Nations Development Programme. The Millennium Development Goals 2012 Report [Internet]. 2012 [cited 2013 Jan 27]. Available from: http://www.un.org/millenniumgoals/pdf/MDG%20Report%202012.pdf

58. United Nations Development Programme The Millennium Development Goals 2013 Report [Internet]. 2013 [cited Sept 24]. Available from: http://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013-english.pdf

59. World Health Organization. World Health statistics: 2013 [Internet]. Geneva; 2013 [cited 2013 Jan 12] Available from: http://www.who.int/gho/publications/world_health_statistics/WHS2013_IndicatorCompendium.pdf.

60. United Nations. Department of Economic and Social Affairs (DESA): The Millennium Development Goals Report [Internet]. 2007 [cited 2012 Aug 13]. Available from: http://millenniumindicators.un.org/unsd/mdg/Resources/Static/Products/Progress2007/UNSD_MDG_Report_2007e.pdf.

61. Hill K, Thomas K, Abou Zahr C et al. Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data. Lancet. 2007; 370:1311-1319.

62. Millennium Development Goal Review Summit 2010 [Internet]. 2010 [cited 2012 Jan 27]. Available from: http://www.endpoverty2015.org/en/2010_mdg_review_summit.

63. Hogan MC, Foreman KJ, Naghavi M et al. Maternal mortality for 181 countries, 1980-2008: a systematic analysis of progress towards Millennium Development Goal 5. Lancet. 2010; 375(9726):1609-1623.

64. South Africa every death counts writing group. Every death counts: use of mortality audit data for decision making to save the lives of mothers, babies and children in South Africa. Lancet [Internet]. 2008 [cited 2012 Jul 6]; 371(9620):1294-1304. Available from: http://download.thelancet.com/pdfs/journals/lancet/PIIS0140673608605644.pdf?id=4d03 7fefcb72946c:2814762a:12be852470b:-3b161288095032659.

65. Countdown to 2015: Maternal and newborn and child survival Building a Future for Women and Children: The 2012 Report [Internet]. 2012 [cited 2013 Mar 12]. Available from: http://www.countdown2015mnch.org/documents/2012Report/2012-complete-no-profiles.pdf.

66. World Health Organization .South Africa Profile 2011[Internet].Geneva; 2011 [cited 2012 Feb 4]. Available from: http://www.who.int/countries/zaf/en/.

67. World Bank list of economies [Internet]. Washington: World Bank; 2013 [cited 2012 May 16]. Available from: http://muse.jhu.edu/about/order/wdi2013.pdf.

68. World Health Organization. South Africa Statistics 2010 [Internet].Geneva; 2010 [cited 2012 May 16]. Available from: http://www.who.int/countries/zaf/en/.

69. World Health Organization. Global Strategy for 'Health for All' in the Year 2000; Health for All Series [Internet].Geneva; 1981 [cited 2012 May 23]. Available from: http://whqlibdoc.who.int/publications/9241800038.pdf.

70. Government of the Republic of South Africa. Republic of South Africa Millennium Development Country Report [Internet]. 2010 [cited 2012 Jan 28]. Available from: http://www.statssa.gov.za/news_archive/Docs/MDGR_2010.pdf.

71. Statistics South Africa 2010. Social profile of South Africa, 2002–2009 [Internet]. 2010 [cited 2012 Aug 14]. Available from: http://www.statssa.gov.za/publications/Report-03-19-00/Report-03-19-002009.pdf.

72. United Nations Development Programme. 2011 Human Development Report [Internet]. 2011 [cited 2012 Sept 27]. Available from: http://www.undp.org/content/dam/undp/library/corporate/HDR/2011%20Global%20HDR/English/HDR_2011_EN_Complete.pdf.

73. United Nations Development Programme. Africa Human Development Report 2012: Towards a Food Secure Future [Internet]. 2012 [cited 2012 Sep 27]. Available from: http://www.undp.org/content/undp/en/home/librarypage/hdr/africa-human-development-report-2012/.

74. United Nations Development Programme. Youth Development Index [Internet]. 2012 [cited 2014 Jan 10]. Available from: http://commonwealthyouthcouncil.org/wp-content/uploads/2013/12/youth-develoment-index.pdf.

75. United Nations Development Programme. 2011 Gender Inequality Index [Internet]. 2011 [cited 2012 June 3]. Available from: http://hdr.undp.org/en/media/HDR_2011_EN_Table4.pdf.

76. United Nations Development Programme Components of the Gender Inequality Index [Internet].2011 [cited 2012 June 5]. Available from: http://hdr.undp.org/en/statistics/gii.

77. Hunt P, Bueno De Mesquita J .UNFPA; Reducing maternal mortality: The contribution of the right to the highest attainable standard of health [Internet]. 2012 [cited 2012 Mar 5]. Available from: http://www.unfpa.org/webdav/site/global/shared/documents/publications/reducing_mm.pdf.

78. Burchett HE, Mayhew SH. Maternal mortality in low-income countries: What interventions have been evaluated and how should the evidence base be developed further? Int J Gynaecol Obstet. 2009; 105(1):78-81.

79. World Health Organization. Health Impact Assessment: The determinants of Health [Internet]. 2012 [cited 2012 Mar 21]. Available from: http://www.who.int/hia/evidence/doh/en/.

80. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Soc Sci. Med. 1994; 38:1091-1110.

81. World Health Organization, Beyond the Numbers: Reviewing maternal deaths and complications to make pregnancy safer [Internet]. 2004 [cited 2012 Mar 2]. 45-46: 2004 Available from: http://www.who.int/reproductive-health/publications/btn/text.pdf.

82. World Health Organization. Maternal mortality at a glance 2009 [Internet]. Geneva; 2009 [cited 2012 Jan 24]. Available from: http://www.who.int/making_pregnancy_safer/en/

83. Trends in maternal mortality: 1990 to 2008. Estimates developed by WHO, UNICEF, UNFPA and the World Bank [Internet]. 2010 [cited 2012 Jan 21]. Available from: http: //whqlibdoc.who.int/publications/2010/9789241500265_eng.pdf.

84. Trends in maternal mortality: 1990 to 2010.WHO, UNICEF, UNFPA and the World Bank estimates [Internet]. 2012 [cited 2012 Sep 6]. Available from: http://www.unfpa.org/webdav/site/global/shared/documents/publications/2012/Trends_in_maternal_mortality_A4-1.pdf.

85. Bhutta Z, Yakoob M, Salam R et al. Global Review of Interventions Related to Maternal, Newborn and Child Health (MNCH): What Works and Can be Scaled-up?[Internet]. Pakistan: Aga Khan University; 2011 [cited 2012 Jan 20]. Available from: www.pmnch.org.

86. United Nations. Millennium Development Goals Report 2010: Forward [Internet]. 2010 [cited 2012 Jan 12]. Available from: http://www.un.org/millenniumgoals/pdf/MDG%20Report%202010%20En%20r15%20-low%20res%2020100615%20-.pdf.

87. United Nations Population Fund: Reproductive Health Fact Sheet [Internet]. 2005 [cited 2012 March 12]. Available from: http://www.unfpa.org/swp/2005/presskit/factsheets/facts_rh.htm#ftn

88. United Nations Equity for Gender Equality and Women's Empowerment. MDG Momentum [Internet]. 2013 [cited 2013 Dec 4]. Available from: http://www.unwomen.org/en/news/in-focus/mdg-momentum/]

89. McAlister C, Baskett T. Female Education and Maternal Mortality: A Worldwide Survey. J Obstet Gynaecol [Internet]. 2006 [cited 2012 March 2]; 983:988-989. Available from: http://www.sogc.org/jogc/abstracts/full/200611_WomensHealth_3.pdf

90. World Health Organization, Department of Reproductive Health and Research. Advancing Safe Motherhood through Human Rights [Internet]. 2001 [cited 2012 March 2]. Available from: http://www.who.int/reproductivehealth/publications/RHR_01_5_advancing_safe_motherhood/advancing_safe_motherhood_through_human_rights.pdf.

91. United Nations Development Programme. Promote Gender Equality and Empower Women by 2015 [Internet]. 2013 [cited 2013 Dec 4]. Available from: http://www.worldbank.org/mdgs/gender.html].

92. Patton GC, Coffey C, Sawyer M et al. Global patterns of mortality in young people: a systematic analysis of population health data. Lancet. 2009, 374:881–892.

93. Conde-Agudelo A, Belizan JM, Lammers C. Maternal-perinatal morbidity and mortality associated with adolescent pregnancy in Latin America: Cross-sectional study. Am J Obstet Gynaecol. 2004; 192:342–349.

94. MDG Momentum. The gender dimension of the Millennium Development Goals Report: 2013 [Internet]. 2013 [cited 2013 Dec 4]. Available from: http://www.unwomen.org/en/news/in-focus/mdg-momentum/

95. World Health Organization. Early marriages, adolescent and young pregnancies: Sixty-Fifth World Health Assembly, Report by the Secretariat [Internet]. 2012 [cited 2013 Jun 8]. Available from: http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_13-en.pdf

96. United Nations Population Fund. Maternal Mortality Update 2012. A focus on emergency obstetric care [Internet]. 2012 [2012 Aug 12]. Available from: www.unfpa.org/upload/lib_pub.../201_filename_mmupdate-2002.pdf.

97. African Union. Protocol to the African Charter on Human and People's Rights [Internet]. 2003 [cited 2012 October 7]. Available from:http://www.achpr.org/files/instruments/womenprotocol/achpr_instr_proto_women_eng.pdf.

98. United Nations Population Fund. South Africa HIV Fact Sheet [Internet]. 2013 [cited 2013 Nov 14]. http://countryoffice.unfpa.org/southafrica/2013/05/03/6675/hiv/.

99. Darmstadt GL, Walker N, Lawn JE et al. Saving newborn lives in Asia and Africa: cost and impact of phased scale-up of interventions within the continuum of care. Health Policy Plan 2008; 23:101–117.

100. United Nations. CEDAW Combined second, third and fourth periodic report of States parties, South Africa [Internet]. 2013 [cited 2013 Dec 5]. Available from: www.iwraw-ap.org/resources/pdf/48_official_documents/SouthAfrica.pdf

101. Report to the CEDAW Committee on South Africa's Implementation of CEDAW [Internet]. 2005 [cited 2014 January 7]. Available from: http://www.pmg.org.za/files/docs/100721report.pdf.

102. Republic of the Government of South Africa. Health Data Advisory and Co-ordination Committee Report November [Internet]. Pretoria: Government Printer; 2011 [cited 2102 Aug 13]. Available from: www.poa.gov.za.

103. Millennium Development Goals. South Africa [Internet]. 2013 [cited 2013 Nov 9]. Available from: http://beta2.statssa.gov.za/wp-content/uploads/2013/10/MDG_October-2013.pdf.

104. Negotiated Service Delivery Agreement; 2010 – 2014 [Internet]. 2011 [cited 2013 Dec 13]. Available from http://www.hst.org.za/sites/default/files/NSDA_booklet.pdf

105. National Department of Health. Re- engineering of Primary health care in South Africa [Internet]. 2011 [cited 2013 Jul 10]. Available from: http://www.ahp.org.za/news-detail/229/the-reengineering-of-primary-healthcare-in-south-africa#sthash.s8YIVZSm.dpuf.

106. Department of Health Annual Report 2010/2011: Minister's Statement [Internet] Pretoria: Government Printer; 2011[cited 2012 February 22]. Available from: http://www.doh.gov.za/docs/reports/annual/2011/annual_report2010-11.pdf.

107. Department of Health. Human Resources Health South Africa Strategy for the Health Sector: 2012/13 – 2016/17[Internet]. 2011 [cited 2012 Feb 22]. Available from: http://www.doh.gov.za/docs/stratdocs/2011/hrh_strategy.pdf

108. National Maternity Guidelines Committee at the Department of Health. A manual for clinics, community health centers and district hospital (2007). 3rd ed. Department of Health, Republic of South Africa.2007 [cited 2012 Feb 22]. Available from: http://www.doh.gov.za/docs/policy/2011/guidelines_a.pdf.

109. Department of Health. Saving Mothers: Report On Confidential Enquiries into Maternal Deaths In South Africa, 1998. Pretoria: Department of Health; 1999.

110. Department of Health. Saving mothers: Fifth Report on Confidential Enquiries into Maternal Deaths in South Africa, 2008-2010 [Internet]. Pretoria: Department of

Health; 2011. [cited 2012 July 2012]. Available from: http://www.doh.gov.za/docs/reports/2012/saving1.pdf.

111. Department of Health. Saving mothers: Third report on confidential inquiries into maternal deaths in South Africa, 2002–2004. Pretoria: National Department of Health; 2007.

112. Department of Health. Saving Mothers: Fourth Report on Confidential Enquiries into Maternal Deaths in South Africa, 2005-2007. Pretoria: Department of Health; 2008.

113. Lewis G. Confidential enquiries into maternal deaths. In: Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer [Internet]. 2004 [cited 2012 Feb 12]; 77-102. Available from: http://www.doh.gov.za/docs/reports/2004/saving1.pdf

114. Bradshaw D, Dorrington RE. Maternal mortality in South Africa: lessons from a case study in the use of deaths reported by households in censuses and surveys. Journal of Population Research; 2011 [cited 2012 Sept 2]; 28:49–73. Available from: DOI 10.1007/s12546-011-9050-9.

115. Gibbon CJ. South African Medicines Formulary. 8th Edition. Capetown: Health and Medical Publishing Group of the South African Medical Association; Chapter 1, Guidance in Prescribing: Prescribing in Pregnancy;2008 p1-29.

116. National Department of Health. Maternity case record guidelines [Internet]. Pretoria, South Africa: Department of Health; undated [cited 2013 Mar 1]. Available from: http://www.doh.gov.za/docs/forms/matrec_guide.pdf.

117. Killewo J, Anwar I, Bashir I et al. Perceived delay in healthcare -seeking for episodes of serious illness and its implications for safe motherhood interventions in rural Bangladesh. J Health Popul Nutr. 2006; 24(4):403-412.

118. Gerein N, Green A, Pearson S. The Implications of Shortages of Health Professionals for Maternal Health in Sub-Saharan Africa. Reprod Health Matters. 2006; 14(27):40–50.

119. Maternal and newborn health: The state of the world's children, UNICEF, 2010 [Internet]. 2010 [cited 2012 Mar 20]. Available from: http://www.childinfo.org/files/The_State_of_the_Worlds_Children_2009.pdf.

120. Republic of South Africa. National Health Act No.61 of 2003 [Internet]. 2003 [cited 2012 Mar 19]. Available from: http://www.info.gov.za/view/DownloadFileAction?id=68039.
121. World Health Organization. South Africa Health Profile 2009 [Internet]. 2012 [cited 2012 Mar 3]. Available from: http://www.who.int/countries/zaf/en/
122. Department of Health. South Africa Demographic and Health Survey 2003 Preliminary Report [Internet]. Pretoria: South Africa: Department of Health; 2004 [cited 2013 July 13]. Available from: http://www.doh.gov.za/docs/reports/2003/sadhs2003/part1.pdf.
123. Eastern Cape Department of Health. Annual Report 2008/09 [Internet]. South Africa: Eastern Cape Department of Health; 2009 [cited 2012 March 8]. Available from: http://www.ecdoh.gov.za/uploads/files/011010105658.pdf
124. South African Health Review 2008. Health Systems Trust [Internet]. 2008 [cited 2012 Oct 4] Available from: http: http//www.hst.org.za/uploads/files/sahr2008.pdf.
125. National Drug Policy- South African Government Information [Internet]. 2013 [cited 2013 Dec 4]. Available from: www.gov.za/documents/download.php?f=70506.
126. Wadee H, Gilson L, Thiede M et al. Health Care Inequity in South Africa and the Public/Private Mix. Geneva: The United Nations Research Institute for Social Development (UNRISD); 2003.
127. Hall EJ. Nursing attrition and the work environment in South African health facilities. Curationis. 2004; 27(4):28-36.
128. World Health Organization. Innovative care for chronic conditions: building blocks for action Global Report [Internet]. 2002 [cited 2013 Jul 18]. Available from: http://whqlibdoc.who.int/hq/2002/WHO_NMC_CCH_02.01.pdf.
129. Parliamentary Monitoring Group. Minister of Health on 2014 Millennium Development Goals Progress [Internet]. 2011 [cited 2013 Nov 12]. Available from: http://www.pmg.org.za/report/20110524-minister-health-progress-made-towards-attaining-2014-millenium-develo.
130. World Health Statistics 2011[Internet]. Geneva; 2011 [2012 Apr 4]. Available from: http://www.who.int/whosis/whostat/EN_WHS2011_Full.pdf.

131. World Health Organization. Human Resources for the Pharmaceutical Sector [Internet].Geneva; 2012 [2012 Apr 3]. Available from: http://www.who.int/medicines/areas/coordination/hrpharma/en/

132. Human Sciences Research Council. Fact Sheet: Poverty in South Africa. 2004 [cited 2012 Jan 21]. Available from: http://www.sarpn.org.za/documents/d0000990.

133. Province of the Eastern Cape. Annual Performance Plan. Department of Health. 2009-2011[Internet]. 2011 [cited 2012 Mar 30]. Available from: http://www.ecdoh.gov.za/uploads/files/260308124845.pdf

134. What is Primary Health Care? [Internet]. University of Cape Town: Faculty of Health Sciences; 2012 [cited 2012 May 20]. Available from: http://www.primaryhealthcare.uct.ac.za/approach/whatis/whatis.htm

135. World Health Organization. Global Experience of Community Health Workers for Delivery of Health Related Millennium Development Goals [Internet]. Geneva: World Health Organization; 2010 [cited 2012 Jun 1]. Available from: http://www.who.int/workforcealliance/knowledge/resources/chwreport/en/index.html

136. Walt G, Gilson L. Community health workers in national programmes: Just another pair of hands? Milton Keynes: Open University Press; 1990.

137. Lewin S, Munabi-Babigumira S, Glenton C et al. Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. Cochrane Database of Systematic Reviews [Internet]. 2010 [cited 2013 Dec 13]. Available from: http://summaries.cochrane.org/CD004015/the-effect-of-lay-health-workers-on-mother-and-child-health-and-infectious-diseases

138. Werner D, Bower B. Helping health workers learn. Hesperian Foundation; 1982.

139. Friedman I. Community health workers and community caregivers: Towards a unified model of practice. South African Health Review. 2005; 176-188

140. Chopra M, Munro M, Lavis J et al. Effects of policy options for human resources for health: an analysis of systematic reviews. Lancet. 2008; 371(9613):668- 674.

141. United Nations. ICPD - International Conference on Population and Development [Internet]. 2012 [cited 2012 Sept 6]. Available from: http://www.unfpa.org/public/icpd/.

142. United Nations. The Millennium Development Goals Report 2005 [Internet]. 2005 [cited 2012 Mar 6]. Available from: http://mdgs.un.org/unsd/mdg/Resources/Static/Products/Goals2005/English.pdf

143. World Health Organization Contraceptive prevalence rate [Internet]. 2012 [cited 2012 Jun 4]. Available from: http://www.who.int/reproductivehealth/topics/family_planning/contraceptive_prevalence/en/index.html.

144. World Health Organization. From Evidence to Policy: Expanding Access to Family Planning Expanding access to contraceptive services for adolescents [internet].2012 [cited 2012 Mar 12]. Available from: http://apps.who.int/iris/bitstream/10665/75160/1/WHO_RHR_HRP_12.21_eng.pdf.

145. World Health Organization. The Human Reproduction Programme at World Health Organization Providing the foundation for sexual and reproductive health [Internet].2012 [cited 2012 Mar 5]. Available from: http://apps.who.int/iris/handle/10665/76235.

146. World Health Organization**.** 2008 Update of the WHO Selected Practice Recommendations for Contraceptive use [Internet]. Geneva; 2004 [cited 2012 Jan 26]. Available from: www.who.int/reproductivehealth/publications/family_planning/9241562846index/en/index.html.

147. World Health Organization. Adolescent Development [Internet]. 2012 [cited 2012 Jan 3]. Available from: http://www.who.int/maternal_child_adolescent/topics/adolescence/dev/en/].

148. Barker G, Olukoya A, Aggleton P. Young people, social support and help-seeking. Int J Adolesc Med Health. 2005; 17(4):315–336.

149. Gore F, Bloem PJN, Patton GC et al. Global burden of disease in young people aged 10—24 years: a systematic analysis. Lancet. 2011; 377:2093–2102.

150. World Health Organization. Women and health: Today's evidence, Tomorrow's agenda [Internet]. Geneva; 2009 [cited 2013 Dec4]. Available from: http://www.who.int/gender/women_health_report/en/index.html

151. World Health Organization. WHO: Why is giving special attention to adolescents important for achieving Millennium Development Goal 5? [Internet]. 2008 [cited

2012 Mar 12]. Available from: http://www.gfmer.ch/SRH-Course-2010/adolescent-sexual-reproductive-health/WHO-adolescents-MDG5-2008.html.

152. Pattison, RC. Saving babies 2006-2007: Sixth Perinatal care survey of South Africa. Pretoria: Tshepesa Press; 2009.

153. World Health Organization. Reproductive Health and Research and Child and Adolescent Health and Development departments. Policy brief 4 implementing the reproductive health strategy. Geneva: World Health Organization; 2006.

154. World Health Organization. Common agenda for action in adolescent health and development. Geneva: World Health Organization; 1997.

155. World Health Organization. Guidelines on Preventing Early Pregnancy and Poor Reproductive Outcomes among Adolescents in Developing Countries [Internet]. 2012 [cited 2012 Sept 9]. Available from: http://whqlibdoc.who.int/hq/2012/WHO_FWC_MCA_12_02.pdf

156. Department of Health. Speech by Minister of Health at the 2004 Abstinence Walk Fundraising Sendoff Party [Internet]. 2004 [cited 2013 Jul 24]. Available from: http://www.doh.gov.za/show.php?id=845.

157. United States Government United States President's Emergency Plan for AIDS Relief. 2003 [cited 2013 May 12]. Available from http://www.pepfar.gov/.

158. Dickson-Tetteh KE, Rees H, Duncan J. The National Adolescent-Friendly Clinic Initiative: Programme Guidelines [Internet]. Johannesburg: Reproductive Health Research Unit; 1999 [cited 2013 Dec 4]. Available from: http://www.ppdafrica.org/docs/southafricaadolescent.pdf].

159. Into a new world, young women's sexual and reproductive lives. New York: Alan Guttmacher Institute; 1998.

160. Pettifor AE, Rees HV, Kleinschmidt I et al. Young people's sexual health in South Africa HIV prevalence and sexual behaviors from a national representative household survey. AIDS. 2005; 19:1525-1534.

161. Flisher AJ, Ziervogel CF, Chalton DO et al. Risk-taking behaviour of Cape Peninsula high-school students. Part VIII. Sexual behaviour. S Afr Med J.1993; 83:495-497.

162. Seekoe E. Reproductive health needs and the reproductive health behaviour of the young in Mangaung in the Free State province a feasibility study. Curationis. 2006; 28(3):20–30.

163. Ehlers VJ. Adolescent mothers' utilization of contraceptive services in South Africa. Int Nurs Rev. 2003; 50:229–41.

164. United Nations Population Fund. Maternal Mortality in 2005 Fact Sheet: Skilled attendance for safer delivery [Internet]. 2005 [cited 2012 Mar 12]. Available from: http://www.unfpa.org/swp/2005/presskit/factsheets/facts_rh.htm#ftn10.

165. Developing comprehensive and evidence-based policy and guidelines for antenatal and postnatal care in Kwazulu- Natal [Internet]. 2008[cited 2012 Jun 3]. Available from; http://www.popcouncil.org/pdfs/frontiers/FR_FinalReports/SouthAfrica_ANCPNC.pdf

166. Policy Brief: The Millennium Development Goals: How is Africa doing? [Internet]. 2012 [cited on 2012 Aug 23]. Available from: http://one.org/c/us/policybrief/3507/.

167. Meeting MDG5: Improving Maternal Health Findings from CARE's Learning Tour to Ethiopia September 8-10, 2010 [Internet]. 2010 [cited 2012 Apr 12]. Available from: http://www.care.org/getinvolved/LearningTour/Ethiopia-Learning-Tour-Trip-Report.pdf.

168. Progress towards MDG5 Reducing maternal mortality in Bangladesh Briefing paper 4 December 2009[Internet]. 2009 [cited 2012 Aug 23]. Available from: http://www.icddrb.org/what-we-do/publications/cat_view/52-publications/10043-icddrb-documents/10058-icddrb-reports-and-working-papers/10060-research-briefs/10254-progress-towards-mdg5-2009.

169. Shiffman J Stanton C, Salazar AP et al. The emergence of political priority for safe motherhood in Honduras. Health Policy Plan. 2004; 19(6):380-390.

170. United States Agency of International Development (USAID). MCH program description: Rwanda [Internet]. 2008 [cited 2012 Aug 23]. Available from: http://pdf.usaid.gov/pdf_docs/PDACP019.pdf.

171. UNICEF. Prioritizing maternal health in Sri Lanka. [cited 2102 Mar 3]. Available from: http://www.unicef.org/devpro/46000_48498.html

172. Royal College of Obstetricians and Gynaecologists. Setting standards to improve women's health [Internet].undated [cited 2012 Mar 21]. Available from: http://www.rcog.org.uk/news/rcog-release-promoting-safer-childbirth-sri-lankan-success-story

173. World Health Organization. Health Promotion in a Globalized World [Internet]. 1986 [cited 2012 Jun 3]. Available from: http://www.who.int/healthpromotion/conferences/6gchp/hpr_050829_%20BCHP.pdf

174. World Health Organization. Ottawa Charter for Health Promotion [Internet]. Ottawa; 1986 [cited 2012 May 18]. Available from: http://www.who.int/hpr/NPH/docs/ottawa_charter_hp.pdf

175. World Health Organization. Milestones in Health Promotion Statements from Global Conferences. Geneva: World Health Organization; 2009.

176. World Health Organization**.** Second International Conference on Health Promotion, Adelaide, South Australia, 5-9 April 1988. Extract from the report on the second International Conference on Health Promotion [Internet].1988 [cited 2012 Mar 3]. Available from: www.who.int/healthpromotion/conferences/adelaide.pdf.

177. World Health Organization. Third International Conference on Health Promotion; Sundsvall, Sweden, 9-15 June 1991[Internet]. 1991 [cited 2013 Aug 23]. Available from: www.int/healthpromotion/conferences/sundsvall.pdf.

178. World Health Organization. Jakarta Declaration on Leading Health Promotion into the 21st Century [Internet].1997 [cited 2012 May 20]. Available from: http://www.who.int/hpr/NPH/docs/jakarta_declaration_en.pdf

179. World Health Organization. Fourth International Conference on Health Promotion; Jakarta, Indonesia, 1997 [Internet]. 1997 [cited 2013 Aug 24]. Available from: http://www.who.int/healthpromotion/conferences/previous/jakarta/en/index.html.

180. Mexico Ministerial Statement for the Promotion of Health. Fifth Global Conference on Health Promotion, Health Promotion: Bridging the Equity Gap, Mexico City, June 5th, 2000 [Internet]. 2000 [cited 2012 Aug 23] Available from: http://www.who.int/healthpromotion/conferences/previous/mexico/statement/en/index.htm

181. De Leeuw E. Ottawa to Bangkok- Health promotion's journey from principles to "global" implementation. Health Promot Int. 2006; 21:1.

182. The Bangkok Charter for Health Promotion in a Globalised World [Internet]. 2005[cited 2012 May 6]. Available from www.who.int/healthpromotion/conferences/bangkok.pdf

183. World Health Organization. Overview: 7th Global Conference on Health Promotion[Internet]. 2009 [cited 2013 Dec 7[. Available from: www.who.int/healthpromotion/conferences/7gchp/en/index.html.
184. Khubchandani J, Simmons R. Going Global: Building a Foundation for Global Health Promotion Research to Practice. Health Promot Pract. 2012; 13:293.
185. World Health Organization. WHO Health Promotion: The 8th Global Conference on Health Promotion [Internet]. 2013 [cited 2013 Dec 7] Available from: http://www.who.int/healthpromotion/conferences/8gchp/background/en/index.html]
186. World Health Organization. Health promotion Sub-Navigation. Track 1: Community empowerment 7th Global Conference on Health Promotion: Track themes [Internet]. 2013 [cited 2013 Nov 5]. Available from : http://www.who.int/healthpromotion/conferences/7gchp/track1/en/index.html
187. Levin ME. Effects on quality of health care and health worker satisfaction of language training for health care workers in South Africa. Afr J Health Porf Educ. 2001; 3(11):11-14.
188. Huckerby C, Hesslewood J, Jagpal P. Taking health care into black and minority communities – pharmacist led initiative. Pharm J. 2006; 276(7404):680-682.
189. Kickbusch I. Health Literacy: addressing the health and education divide. Healt Promot Inte. 2001; 16(3):289 -297.
190. Health promotion Sub-Navigation Track 2: Health literacy and health behaviour 7th Global Conference on Health Promotion: track themes [Internet]. 2013 [cited 2012 Nov 23] Available from: http://www.who.int/healthpromotion/conferences/7gchp/track2/en/
191. Youmans SL. Schillinger D. Functional health literacy and medication use: The pharmacist's role. Ann Pharmacother. 2003; 37(11):1726-1729.
192. Baker DW, Parker RM, Williams MV et al. The relationship of patient reading ability to self-reported health and use of health services. Am J Public Health. 1997; 87(6):1027-1030.
193. Logan PD, Shcwab RA, Salomone JA et al. Patient understanding of emergency department discharge instructions. South Med J. 1996; 89(8):770-774.

194. Kessels RPC. Patient's memory for medical information. J R Soc Med. 2003; 96:219-222.

195. Coulter A, Ellins J. QEI Review: Patient – focused Interventions [Internet]. 2006. [cited 2013 Dec 23]. Available from: http: //www.pugestsoundhealthalliance.org/resources/documents/Picker.pdf

196. Zimmerman M, Newton N, Frumin L et al. Developing health and family planning print materials for low-literate audiences: A guide. Washington, D.C: Program for Appropriate Technology in Health; 1989.

197. Nutbeam D. Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. Health Promot Int. 2000; 15(3):259-267.

198. Ratzan SC Health literacy: Communication for the public good. Health Promot Int. 2001; 16(2):207-214.

199. Dowling W. Reading level analysis of written materials distributed by the Ohio Cancer Information Service, Columbus, Ohio, Adult Literacy Centre for Individual and Organizational Development; 1990.

200. National Cancer Institute. U. S National Institute of Health. Clear and Simple: Developing Effective Print Material for Low Literate Readers [Internet]. 2003 [cited 2013 Dec 20]. Available from: http://www.nci.nih.gov/aboutnci/oc/clear-and-simple/allpages.

201. Kriplalani S, Weiss BD. Teaching about Health Literacy and Clear Communication. J Gen Intern Med. 2006; 21(8):888-890.

202. Kemm J. Health education and the problem of knowledge. Health Promotion Internation. 1991; 6(4):291-296.

203. National Literacy Trust (England and Wales). Relating SMOG levels to adult literacy[Internet].2013 [cited 2013 Oct 28] Available from: http://www.literacytrsut.org.uk/campaign/SMOG.html

204. Centres for Disease Control and Prevention. Principles of community engagement. 2nd ed. Atlanta GA: 2007 [cited 2013 May 30]. Available from: http://www.atsdr.cdc.gov/communityengagement/pdf/PCE_Report_508_FINAL.pdf

205. Himmelman AT. On coalitions and the transformation of power relations: collaborative betterment and collaborative empowerment. Am J Community Psychol 2001; 19:277-284.

206. Nelson G, Prilleltensky I, MacGillivary H. Building value based partnerships: toward solidarity with oppressed groups. Am J Community Psychol. 2001; 29:649-677.

207. Harrell SP, Bond MA. Listening to diversity stories: principles for practice in community research and action. Am J Community Psychol. 2006; 37(3-4):365-376

208. Tindana PO, Singh JA, Shawn T et al. Grand Challenges in Global Health: Community Engagement in Research in Developing Countries. PLoS Med. 2007. [cited 2012 April 16]; 4(9): 273. Available from: http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.0040273

209. Mittelmark M. Promoting social responsibility for health; health impact assessment and healthy public policy at the community level. Health Promot Int. 2001; 16(3): 269-274.

210. Frenk J. The new public health. Ann. Rev. Public Health. 1993; 14:469–90.

211. Pearce N. Traditional epidemiology, modern epidemiology and public health. Am. J. Public Health. 1996; (5) 86:678-638.

212. El-Ansari W, Phillips CJ, Zwi AB. Narrowing the gap between academic professional wisdom and community lay knowledge: Perceptions from partnerships. Public Health. 2002; 116(3):151-159.

213. Foster J, Burgos R, Tejada C et al. A community-based participatory research approach to explore community perceptions of the quality of maternal–newborn health services in the Dominican Republic. Midwifery.2010; 26(5):504-511.

214. Ahmed SM, Palermo SA. Community engagement in research: Frame-works for education and peer review. Am J Public Health. 2010; 100(8):1380-1387.

215. Sanstad KH, Stall R, Goldstein E et al. Collaborative community research consortium: a model for HIV prevention. Health Educ Behav. 1999; 26:171–184

216. Israel BA, Schulz AJ, Parker EA et al. Review of community-based research: Assessing partnership approaches to improve public health. Annual Review Public Health. 1998; 19:173-202.

217. Hatch J, Moss N, Saran A et al. Community Research: Partnership in black communities. Am J Prev Med.1993; 9:27-31.
218. Hall BL. Participatory research, popular knowledge and power: A personal reflection. Convergence. 1981; 14(3):6-17.
219. Israel BA, Checkoway B, Schulz A.J et al. Health education and community empowerment: conceptualizing and measuring perceptions of individual, organizational, and community control. Health Educ Quart. 1994; 21:149-170.
220. Bishop R. Initiating empowering research? New Zeal J Educ Stud. 1994; 29:175-188.
221. Minkler M. Health education, health promotion and the open society: an historical perspective. Health Educ Quart. 1989; 16:17-30
222. Minkler M, Breckwich Vásquez V, Tajik M et al. Promoting environmental justice through community-based participatory research: The role of community and partnership capacity. Health Educ Behav. 2008, 35(1):119-37.
223. Brown E.R. Community action for health promotion: a strategy to empower individuals and communities. Int J Health Serv. 1991; 21:441-456.
224. World Declaration on Higher Education [Internet].1998 [cited 2012 Jun 4]. Available from: http://www.unesco.org/education/educprog/wche/declaration_eng.htm
225. Talloires Declaration on the Civil Roles and Social responsibility of Higher Education [Internet]. 2005 [cited 2012 Jun 4]. Available from: http://www.tufts.edu/talloiresnetwork/downloads/TalloiresDeclaration2005.pdf
226. The Talloires network [Internet].2012 [cited 2012 Jun 4]. Available from: http://www.tufts.edu/talloiresnetwork/downloads/.pdf
227. Talloires Declaration: Institutional signatories List [Internet].2012 [cited 2012 Jun 4]. Available from http://www.ulsf.org/programs_talloires_signatories.html
228. White paper on higher education [Internet].1997 [cited 2012 Jun 12]. Available from: http://www.info.gov.za/whitepapers/1997/educ3.pdf
229. Council of Higher Education. Community Engagement in Higher Education. Proceedings of the Community engagement in higher education conference. 2006; 3-5.
230. South African Higher Education Community Engagement Forum [Internet].2012 [cited 2012 Jun 13] Available from: http://www.sahecef.ac.za/

231. Wagner A, Graves A, Reiss S et al. Access to care and medicines, burden of health care expenditures, and risk protection: Results from the World Health Survey. Health Policy. 2011; 100:151-158.

232. Department of Public Service and Administration. Batho Pele Principles- putting people first [Internet]. Pretoria: Government Printer; 2007[cited 2013 May 15]. Available from _____ -_____.

233. Mosavel M, Simon C, van Stade D et al. Community-based participatory research (CBPR) in South Africa: Engaging multiple constituents to shape the research question. Soc Sci Med. 2005; 61:2577-2587.

234. Airhihenbuwa CO. On being comfortable with being uncomfortable: centering an Africanist vision in our gateway to global health. Health Educ Behav. 2007; 34(1):31-42.

235. El-Ansari W. Collaborative research partnerships with disadvantaged communities: challenges and potential solutions. Public Health. 10/2005; 119(9):758-70.

236. Library of Congress South Africa a country study [Internet]. Undated [cited 2012 May 23] Available from: http://www.lcweb2.loc.gov/frd/cs.zatoc.html

237. World Health Organization. Media Centre; Maternal Mortality [Internet].2010 [cited 2012 May 6]. Available from: http://www.who.int/mediacentre/news/releases/2010/maternal_mortality_20100915/en/index.html

238. Morrison J, Tamang S, Mesko N et al. Women's health groups to improve perinatal care in rural Nepal. BMC Pregnancy Childbirth. 2005; 16:5-6.

239. Rosato M, Laverack G, Grabman-Howard L et al. Community participation: lessons for maternal, newborn, and child health. Lancet. 2008; 372:962-971.

240. South African Higher Education in the First Decade of Democracy November 2004, Community Engagement Chapter 7 [Internet].2004 [cited 2012 Jun 4]. Available from: http://www.che.ac.za/documents/d000081/SA_HE_10years_Nov2004_Chapter7.pdf

241. Fishbein M. Persuasive communication. In: Bennett AE, ed. Communication between Doctors and Patients. Oxford: Oxford University Press; 1976; 103-108.

242. Helman CG. Culture, Health and Illness: An Introduction for Health Professionals. Oxford: Butterworth-Heinemann Ltd; 1990.

243. Kikwawila Study Group. Qualitative research methods: teaching materials from a TDR workshop. Geneva: UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR). Resource Paper No. 3; 1994.
244. Rosenstock IM, Stretcher VJ, Becker MH. The Health Belief Model and HIV risk behaviour change. New York: Plenum Press; 1994.
245. Wilson D, Mehryar A. The role of AIDS knowledge, attitudes, beliefs and practices research in sub-Saharan Africa. AIDS. 1991; 5(1):S177-S181.
246. Brown SA, Hanis CL. Culturally competent diabetes education for Mexican Americans: the Starr County Study. Diabetes Educ. 1999; 25:226-236.
247. Arden GJR, Paz-Pacheco E, Jimeno C et al. Knowledge, attitudes and practices of persons with type 2 diabetes in a rural community: Phase 1 of the community-based Diabetes Self-Management Education Program in San Juan, Batangas, Philippines. Diabetes Res Clin Pract. 2010; 90:160-166.
248. Campbell BK, Krumenacker J, Stark MJ. Smoking cessation for clients in chemical dependence treatment. A demonstration project. J Subst Abuse Treat. 1998; 15(4):313-8.
249. Downie RS, Fyfe C, Tannahill A. Health Promotion: Models and Values. Oxford: Oxford University Press; 1998; 2.
250. Hausmann-Muela S, Muela Ribera J. Recipe knowledge: a tool for understanding some apparently irrational behaviour. Anthropol Med.2003; 10(1):87-105.
251. Hochbaum GM. Public Participation in Medical Screening Programs; A socio – psychological Study. Washington DC: Government Printing Office, Public Health Service Publication; 1958; 572.
252. Ogden J. Health Psychol: A textbook. Buckingham: Open University Press; 2004.
253. Stretcher VJ, Rosenstock IM. The Health Belief Model. Health Behaviour and Health Education: Theory, Research and Practice. San Francisco: Jossey-Bass; 1997.
254. Conner M, Sparks P. Theory of Planned Behaviour and Health Behaviours, in Predicting Health Behaviour. Buckingham: Open University Press; 1996.
255. Johnson RW, Ostrow DG, Joseph J. Educational strategies for prevention of sexual transmission of HIV/AIDS. In Ostrow DG, editor. Behavioural Aspects of AIDS .New York: Plenum Press; 1990:43-57.

256. Corbett J. Poverty and sickness: The high costs of ill-health, in Vulnerability: How the Poor Cope. Chambers R, editor. IDS Bulletin. 1989; 20(2).

257. Graham ME. Health beliefs and breast examination in black women. J Cult Divers. 2002; 9(2):49-54.

258. Liefooghe RJ, Michiels N, Habib S et al. Perception and social consequences of tuberculosis: a focus group study of tuberculosis patients in Sialkot, Pakistan. Soc Sci Med. 1995; 14:1685-1692.

259. Bandura A. Social foundations of thought and action: A Social Cognitive Theory. Englewood Cliffs, NJ: Prentice-Hall; 1986.

260. Gomes M, Litsios S. Introduction. Soc Sci Med. 1993; 37(9):1091-1092.

261. Kelly JA, St. Lawrence JS. The Aids health crisis: Psychological and social interventions. New York: Plenum Press; 1988.

262. Snyder CR. Hope theory: Rainbows in the mind. Psychological Inquiry [Internet]. 2002 [cited 2013 July 2]; 13(4):249-75. Available from: http://www.jstor.org/stable/1448867

263. Gibson CH. A concept analysis of empowerment. J Adv Nurs. 1991; 16(3):354-61.

264. Tones K, Tilford S. Health Promotion: Effectiveness, Efficiency and Equity. Great Britain: Cheltenham, Nelson Thornes; 2001: 49- 51.

265. Perkins DD. Speaking truth to power; empowerment ideology as social intervention and policy. Am J Comm Psychol. 1995; 239(5):765-94.

266. Valley Research Group, Assessment of female community health volunteers program. Kathmandu, Nepal: Family Health Division, Department of Health Services, Ministry of Health, 1997.

267. Pradhan A, Aryal RH, Regmi G et al. Nepal Family Health Survey: Kathmandu, Nepal: Ministry of Health, Family Health Division. Macro International Demographic and Health Surveys: Calverton; 1996.

268. Location of Glenmore and Ndwayana [Internet]. 2012 [cited 2012 Mar 13]. Available from:http://maps.google.co.za/maps?oe=utf-8&rls=org.mozilla:en-ZA:official&client=firefox-a&q=location+of+Glenmore&um=1&ie=UTF-8&hq=&hnear=0x1e64141429fe9369:0x4289e1f03ce7a908,Glenmore&gl=za&ei=XtBgT-

DRJo3hAfE582wBw&sa=X&oi=geocode_result&ct=title&resnum=1&ved=0CCMQ8gEwAA.

269. Punt C. A profile of the Eastern Cape Province: Demographics, poverty, inequality and unemployment. Elsenburg, Background Paper [Internet]. 2005 [cited 2012 Jan 12]; 1(2). Available from: www.elsenburg.com/.../BP2005_1_2%20Demographics%20EC.pdf

270. Image of Provinces of South Africa [Image on Internet]. 2012 [2012 Jun 3]. Available from: http://www.southafrica.to/provinces/provinces.php

271. The Angus Gillis Foundation [Internet].2012 [cited 2012 Apr 20]. Available from: http://www.theangusgillisfoundation.co.za/index.php?p=127.

272. Ofili E, Igho-Pemu P, Lapu-Bula R et al. The Community Physicians' Network (CPN): an academic–community partnership to eliminate healthcare disparities. Ethn Dis 2005; 15:S5-124–127.

273. Clark NM, McLeroy KR. Creating capacity through health education: what we know and what we don't. Health Educ Q. 1995; 22:273-289.

274. O'Toole TP, Aaron KF, Chin MH et al. Community-based participatory research: Opportunities, challenges, and the need for a common language. J Gen Intern Med. 2003; 18:592-594.

275. Altman DG. Sustaining interventions in community systems: On the relationship between researchers and communities. Health Psychol. 1995; 14:526-536.

276. Wallerstein N. Powerlessness, empowerment, and health: implications for health promotion programs. Am J Health Promot. 1992; 6:197-205.

277. Petras EM, Porpora DV. Participatory research: Three models and an analysis. Am Sociol. 1993; 24:107-126.

278. Denzin NK, Lincoln YS. Introduction: Entering the field of qualitative research. In Denzin NK, Lincoln YS, editors. Handbook of qualitative research. Thousand Oaks, CA: Sage; 1994; p. 17.

279. Gubrium JF, Sankar A .Qualitative methods in aging research. Thousand Oaks, CA: Sage.1994

280. Chenail RJ, Maione P. Sense making in clinical qualitative research. Qual Rep.1997; 3(2):1-9.

281. Aronson J. A pragmatic view of thematic analysis. Qual Rep. 1994; 2(1):1-3.

282. Durrheim K. Research design. In Terre Blanche M, Durrheim K, Painter D, editors. Research in practice: Applied methods for the social sciences. Cape Town: University of Cape Town Press; 2006; p33-58.
283. Boyatzis RE. Transforming qualitative information: Thematic analysis and code development. Thousand Oaks, CA: Sage; 1998.
284. Lincoln YS, Guba EG. Naturalistic Inquiry. Beverly Hills, CA: Sage; 1985.
285. Long and M. Johnson Rigour, reliability and validity in qualitative research [Internet]. 2012[cited Mar 7]. Available from: http://www.sciencedirect.com/science/article/pii/S1361900400901067
286. Van der Riet M, Durrheim K. Putting design into practice: Writing and evaluating research proposals. In Terre Blanche M, Durrheim K, Painter, editors. Research in practice: Applied methods for the social sciences. Cape Town: University of Cape Town Press; 2006; p80-111.
287. Twohig PL, Putnam W. Group interviews in primary care research: advancing the state of the art or ritualized research? Fam Pract. 2002; 19(3):278–284.
288. Berg B L. Qualitative Research methods for the Social Sciences, Viacom; 1998; 3; 56-151.
289. Mays N, Pope C. Qualitative research in health care: assessing quality in qualitative research [Internet]. BMJ 2000[cited 2012 Mar 7]; 320:50-2. Available from: http://www.sciencedirect.com/science/article/pii/S1361900400901067.
290. Weiss RS. Learning from Strangers: The Art and Method of Qualitative Interview Studies. New York, NY: The Free Press, a Division of Simon and Schuster Inc; 1994.
291. Creswell JW. Qualitative inquiry and research design: Choosing among five approaches. 2ND ed. Thousand Oaks, CA: Sage; 2009.
292. Government Statement Eastern Cape, South Africa [Internet] 2012 [cited 2013 Jul 13]. Available from: http://www.info.gov.za/speech/DynamicAction?pageid=461&sid=32427&tid=91132
293. National Department of Health. Primary Health Care Package for South Africa – a set of norms and standards [Internet]. Pretoria: Department of Health; 2000 [cited 2013 Jul 15]. Available from: http://www.doh.gov.za/docs/policy/norms/full-norms.html

294. World Health Organization. Millennium Development Goal 5 B, Fact Sheet [Internet]. 2009 [cited 2013 May 13]. Available from: www.mdg5b.org/sites/default/files/MDG5bFactSheet.pdf WHO RHR 09 06

295. Panday S, Makiwane M, Ranchod C et al. Teenage pregnancy in South Africa – with a specific focus on school-going learners. Child, Youth, Family and Social Development, Human Sciences Research Council. Pretoria: Department of Basic Education; 2009.

296. Hoebert J, van Dijk L, Mantel-Teeuwisse AK et al. National medicines policies – a review of the evolution and development processes. J Pharm Pol Prac. 2013; 6(5):1-10.

297. World Health Organization. Essential Medicines and Health Products Information Portal [Internet]. 2013 [cited 2013 Oct 29]. Available from: http://apps.who.int/medicinedocs/en/d/Js2230e/2.html#Js2230e.2.1

298. Socio-demographic and Economic Situation. Eastern Cape Province Spatial Development Plan. Chapter 5 [Internet].undated [2013 Apr 10]. Available from: http://drupal6dev15.econsultant.co.za/sites/drupal6dev15.econsultant.co.za/files/Chapter%205%20Socio%20Demo%20Economic%20Situation_3.pdf.

299. Feldman SS, Brown N. Family influences on adolescent male sexuality: The meditational role of self-restraint. Soc Dev. 1993; 2:15–35.

300. Cox MF. Maternal demandingness and responsiveness as predictors of adolescent abstinence. J Pediatr Nurs. 2007; 22:197-205.

301. Blake SM, Simkin L, Ledsky R et al. Effects of a parent-child communications intervention on young adolescents' risk for early onset of sexual intercourse. Fam Plann Perspect. 2001; 33:52-61.

302. Dittus PJ, Jaccard J. Adolescents' perceptions of maternal disapproval of sex: Relationship to Male sexual outcomes. J Adolesc Health. 2000; 26, 268-278.

303. Hutchinson MK, Jemmott JB, Jemmott LS et al. The role of mother– daughter sexual risk communication in reducing sexual risk behaviours among urban adolescent females: A prospective study. J Adolesc Health. 2003; 33:98–107

304. Karofsky PS, Zeng L, Kosorok M. Relationship between adolescent-parental communication and initiation of first intercourse by adolescents. J Adolesc Health, 2000; 28:41-45.

305. Miller BC, Benson B, Galbraith KA. Family relationships and adolescent pregnancy risk: A research synthesis. Dev Rev. 2001; 21, 1–38.

306. Perrino T, Gonzalez SA, Pantin H et al. The role of families in adolescent HIV prevention: A review. Clin Child Fam Psychol Rev. 2000; 3, 81-96.

307. Hollander D. Parents are youngster's top choice as source of health information. Perspectives on sexual and reproductive health 2003 [cited 2012 Dec 17]; 34(2). Available from: from http://www.guttmacher.org/pubs/ journals/341102.html

308. Bastein S, Kajula L J, Muhwezi WW. A review of studies of parent-child communication about sexuality and HIV/AIDS in sub-Saharan Africa. Reprod Health. 2011; 8:25.

309. UNFPA. Giving girls Today and Tomorrow. Breaking the cycle of Adolescent pregnancy [Internet]. 2012 [cited 2012 Dec5]. Available from: http://www.unfpa.org/webdav/site/global/shared/documents/publications/2007/giving_girls.pdf

310. Hobcraft J, Kiernan K. Childhood poverty, early motherhood and adult social exclusion. Br J Sociol. 2001; 52:495–517.

311. Russell ST. Childhood developmental risk for teen childbearing in Britain. J Res Adolescence. 2002; 12:305-324.

312. Woodward LJ, Harwood L, Fergusson DM. Teenage pregnancy: cause for concern. N Z Med J. 2001; 114:301-303.

313. Kirby D. Antecedents of adolescent initiation of sex, contraceptive use, and pregnancy. Am J Health Behav. 2002; 26:473-485.

314. Preston-Whyte E, Zondi M. African Teenage Pregnancy: Whose Problem? In Burman S, Preston- Whyte E, editors. Questionable Issue: Illegitimacy in South Africa. Cape Town: Oxford University Press; 1992; p45-59.

315. Caldwell JC, Caldwell P. The South African fertility decline. Popul Dev Rev. 1993; 19(2):225-262.

316. Jewkes R, Vundule C, Maforah F et al. Relationship dynamics and teenage pregnancy in South Africa. Soc Sci Med.2001; 52:733-744.

317. Pettifor A, Rees H, Steffenson A et al.HIV and sexual behaviour among young South Africans: a national survey of 15-24 year olds. Johannesburg: Reproductive Health Research Unit, University of Witwatersrand; 2004.

318. Government of the Republic of South Africa. National Department of Health. Policy Guidelines for Youth and Adolescent health. Pretoria: Government Printer; 2012.
319. Abiodun OM, Balogun OR. Sexual activity and contraceptive use among young female students of tertiary educational institutions in Ilorin, Nigeria. Contraception. 2008; 79:146-149.
320. Bankole A, Ahmed FH, Neema S et al. Knowledge of correct condom use and consistency of use among adolescents in four countries in Sub-Saharan Africa. Afr J Reprod Health. 2007; 11:198-220.
321. Arai L. Low expectations, sexual attitudes and knowledge: Explaining teenage pregnancy and fertility in English communities, Insights from qualitative research. Sociol Rev. 2003; 51:199-217.
322. Wood K, Jewkes R. Blood blockages and scolding nurses: barriers to adolescent contraceptive use in South Africa. Reprod Health Matters. 2006; 14:109-118.
323. Makiwane M. Adolescent pregnancy and reproductive health in Transkei (rural South Africa). Afr J Reprod Health. 1998; 2(1):41-48.
324. Government of the Republic of South Africa, Department of Education. Measures for the Prevention and Management of Learner Pregnancy, Pretoria; Government Printer, 2007
325. Jewkes R, Morrell R, Christofides N. Empowering teenagers to prevent pregnancy: lessons from South Africa. Cult Health Sex. 2009; 11(7):675-688.
326. Grant M, Hallman K. Pregnancy-related school dropout and prior school performance in KwaZulu- Natal, South Africa. Stud Fam Plann. 2006; 39(4), 369-382.
327. Chigona A, Chetty R. Teen mothers and schooling: Lacunae and challenges. S Afri J Educ. 2008; 28:261-81.
328. Richter L. A Survey of Reproductive Health Issues among Urban Black Youth in South Africa. Final Report. Pretoria: Centre for Epidemiological Research in South Africa; 1996.
329. Kaufman CE, de Wet T, Stadler J. Adolescent pregnancy and parenthood in South Africa. Stud Fam Plann. 2000; 32(2):147-160.
330. Lloyd C. Growing Up Global: The Changing Transitions to Adulthood in Developing Countries. Washington: National Academies Press; 2005.

331. Swartz S, Bhana A. Teenage Tata: Experience of Young Fathers in Impoverished Communities in South Africa. 1-169. Cape Town: HSRC; 2009.

332. Government of the Republic of South Africa. Department of Social Development: Grants [Internet].2013 [cited 2013 Dec 2]. Available from: http://www.dsd.gov.za/

333. Sustainability of the South African Welfare State [Internet]. 2013 [cited 2013 Dec 9]. Available from: http://www.sanlam.co.za/wps/wcm/connect/sanlam_en/sanlam/investor+relations/economic+information/economic+commentary/the+sustainability+of+the+south+african+welfare+state

334. Government of the Republic of South Africa. South African Government Services. Child Support Grant [Internet]. 2013 [cited 2014 Dec 3]. Available from: http://www.services.gov.za/services/content/Home/ServicesForPeople/Socialbenefits/childsupportgrant/en_ZA

335. Case A, Hosegood V, Lund V. The reach and impact of Child Support Grants: Evidence from KwaZulu-Natal. Development Southern Africa. 22004; 2(4):467-482.

336. Makiwane M, Desmond C, Richter L et al. Is the Child Support Grant Associated with an Increase in Teenage Fertility in South Africa? Evidence from National Surveys and Administrative Data. Cape Town: HSRC Press; 2006.

337. Woodward LJ, Harwood L, Fergusson DM. Teenage pregnancy: cause for concern. N Z Med J. 2001; 114:301-303.

338. Goldblatt B, Solange R. Implementation of the Child Support Grant: A Study of Four Provinces and Recommendations for Improved Service Delivery. Centre for Applied Legal Studies: University of Witwatersrand Children's Institute & University of Cape Town; 2005.

339. Macleod C I, Tracey T. A decade later: follow-up review of South African research on the consequences of and contributory factors in teen-aged pregnancy. S Afr J Psychol. 2010; 40(1):18-31.

340. Maharaj P. Reasons for condom use among young people in KwaZulu-Natal: prevention of HIV, pregnancy or both? Int Fam Plan Perspect. 2006; 32(1):28-34.

341. Wood K, Maforah F, Jewkes R. "He forced me to love him": putting violence on adolescent sexual health agendas. Soc Sci Med. 1998; 47:233-242.

342. Limmer M. Addressing young people's sex and alcohol use: It's about aspiration not information. Educ Health. 2008; 26:38-39.
343. Reddy SP, Panday S, Swart D et al. Umthenthe Uhlaba Usamila - The South African National Youth Risk Behaviour Survey 2002. Cape Town: Medical Research Council; 2003.
344. Palen L, Smith EA, Flisher AJ et al. Substance use and sexual risk behaviour among South African eighth grade students. J Adolesce Health. 2006; 39:761-763.
345. Morojele NK, Kachieng'a MA, Mokoko E et al. Alcohol use and sexual behaviour among risky drinkers and bar shebeen patrons in Gauteng province, South Africa. Soc Sci Med. 2006; 62:217-227.
346. Government of the Republic of South Africa. No. 59 of 2003: Liquor Act, 2003.Liquor Act 59 of 2003 [Internet]. 2013 [cited 2103 Dec 9]. Av
347. Sieving RE, Eisenberg ME, Pettingel S et al. Friends' influence of adolescents' first sexual intercourse. Perspect Sex Reprod Health. 2006; 38:13-19.
348. Whitaker DJ, Miller KS. Parent-adolescent discussions about sex and condoms. J Adolesce Res. 2000; 15:251–273.
349. Muyinda H, Kengeya J, Pool R et al. Traditional sex counselling and STI/HIV prevention among young women in rural Uganda. Cult Health Sex. 2001; 3:353-361.
350. Jewkes R, Christofides N. Teenage pregnancy: Rethinking prevention. Paper prepared for the HSRC Youth Policy Initiative Roundtable 5: Teenage Pregnancy. Pretoria: Reserve Bank; 2008.
351. Ojwang S, Maggwa A. Adolescent Sexuality in Kenya. E Afr Med J. 1991; 68(2):74-80.
352. Geronimus T, Korenman S. The Socio-economic consequences of teen childbearing reconsidered. Q J Econ. 1992; 107(4):1187-1214.
353. Sampson R, Raudenbush S, Earls F. Neighbourhoods and violent crime: a multi-level study of collective efficacy. J Sci. 1997; 277:918-924.
354. Miller K, Clark L, Moore J. Sexual initiation with older male partners and subsequent HIV risk behaviour among female adolescents. Family Plann Perspect. 1997; 29:212-214.

355. Abdool Karim SS, Abdool Karim Q, Preston-Whyte EM et al. Reasons for lack of condom use among high school students. South African Medical Journal 1992; 82:107-110.
356. Rutenberg N, Kaufman N, Macintyre CE et al. Pregnant or positive: adolescent childbearing and HIV risk in KwaZulu Natal, South Africa .Reprod Health Matters. 2003; 11:22
357. Varga C. Sexual decision making and negotiations in the midst of AIDS: youth in KwaZulu-Natal. Health Trans Rev. 1997; 7(2):13-40.
358. Varga C, Makubalo L. Sexual non-negotiation. Agenda. 1996; 28:31-38.
359. Dinkelman T, Lam D, Leibbrandt M. Household and community income, economic shocks and risky behaviour of young adults: evidence from the Cape Area Panel Study 2002 and 2005. AIDS.2007; 21(7):S49-S56.
360. MacPhail C, Campbell C. "I think condoms are good but, aai, I hate those things." condom use among adolescents and young people in a Southern African township. Soc Sci Med. 2001; 52:1613-1627.
361. Dickson-Tetteh K, Pettifor A, Moleko W. Working with public sector clinics to provide adolescent friendly services in South Africa. Reprod Health Matters. 2001; 9:160-169.
362. World Health Organization**.** Making health services adolescent friendly. Developing national quality standards for adolescent friendly health services [Internet] 2012 [cited 2012 May 6]. Available from: http://apps.who.int/iris/bitstream/10665/75217/1/9789241503594_eng.pdf.
363. Global Consultation on adolescent-friendly health services. A consensus statement. Geneva: World Health Organization; 2002.
364. World Health Organization. Quality Assessment Guidebook: A guide to assessing health services for adolescent clients [Internet]. 2009 [cited 2013 Nov 3]. Available from: http://www.who.int/maternal_child_adolescent/documents/fch_cah_9789241598859/en/
365. United Nations. Fourth World Conference on Women, Beijing 1995[Internet]. 1995 [cited 2013 Dec4]. Available from: www.un.org/womenwatch/daw/beijing.
366. Somers CL, Fahlman MM. Effectiveness of the "Baby Think It Over" Teen Pregnancy Prevention Program. J School Health. 2001; 71(5):188-195.

367. Birenhaum J. Contextualising choice; abortion, equality and the right to make decisions regarding reproduction. South African Journal of Human Rights. 1996; 12:485-503.

368. Moultrie TA, McGrath N. Teenage fertility rates falling in South Africa. S Afr Med J. 2007; 97(6):442-443.

369. Simbayi LC, Chauveau J, Shisana O. Behavioural responses of South African youth to the HIV/AIDS epidemic: a nationwide survey; AIDS Care. 2004; *16*(5):605-618.

370. Bhana A, McKay MM, Mellins C et al. Family based HIV prevention and intervention services for youth living in poverty- affected context; The CHAMP model of collaborative, evidence- informed programme development. J Int AIDS Soc. 2010; 139(2): S8.

371. Kirby D, Laris M, Lori A. Sex and HIV education programmes: their impact on sexual behaviours of youth throughout the world. J Youth Health. 2007; 40:206-217.

372. Helleve A, Flisher A, Onya H.et al. South African teachers' reflections on the impact of culture on their teaching of sexuality and HIV/AIDS. Cult Health Sex. 2009; 11 (2): 189-204.

373. Jewkes R. Growing up sexual in the age of HIV and AIDS. In: Mitchell C, Pithouse K, editors. Teaching and HIV and AIDS in the South African Classroom. Macmillan: Northlands; 2009 p. 147–158.

374. Aggleton P, Campbell C. Working with young people-towards an agenda for sexual health. Sexual and Relationship Therapy. 2000; 15 (3):283-296.

375. Labonté R, Laverack G. World Health Organization. Health promotion in action: from local to global empowerment. Geneva; 2008.

376. Nove A, Matthews Z, Neal S et al. Maternal mortality in adolescents compared with women of other ages: evidence from 144 countries [Internet]. Lancet Glob Health 2014 [cited 2014 Jan 31]; S2214-109X (13)70179-7. Available from: http://dx.doi.org/10.1016/

377. McQueston K, Silverman R, Glassman A. The Efficacy of Interventions to Reduce Adolescent Childbearing in Low- and Middle-Income Countries: A Systematic Review. Stud Fam Plann. 2013; 44(4):369–388.

APPENDIX 1: APPROVAL BY EASTERN CAPE DEPARTMENT OF HEALTH IN BHISHO

From: To:0466037506 25/04/2012 08:53 #759 P.001/001

Eastern Cape Department of Health

Enquiries:	Zonwabele Merle	Tel No:	040 608 0830
Date:	23rd April 2012	Fax No:	043 642 1409
e-mail address:	zonwabele.merle@impilo.ecprov.gov.za		

Dear Ms A Siruma

Re: Maternal Health: Assessment, community educational intervention and evaluation

The Department of Health would like to inform you that your application for conducting a research on the abovementioned topic has been approved based on the following conditions:

1. During your study, you will follow the submitted protocol with ethical approval and can only deviate from it after having a written approval from the Department of Health.
2. You are advised to ensure, observe and respect the rights and culture of your research participants and maintain confidentiality of their identities and shall remove or not collect any information which can be used to link the participants.
3. The Department of Health expects you to provide a progress on your study every 3 months (from date you received this letter) in writing.
4. At the end of your study, you will be expected to send a full written report with your findings and implementable recommendations to the Epidemiological Research & Surveillance Management. You may be invited to the department to come and present your research findings with your implementable recommendations.
5. Your results on the Eastern Cape will not be presented anywhere unless you have shared them with the Department of Health as indicated above.

Your compliance in this regard will be highly appreciated.

DEPUTY DIRECTOR: EPIDEMIOLOGICAL RESEARCH & SURVEILLANCE MANAGEMENT

APPENDIX 2: BASELINE PHASE PARTICIPANT INFORMATION SHEET

Title of Project: Maternal Health: Assessment, Community Educational Intervention and Evaluation

Invitation to participate in a research about community beliefs and attitudes on maternal mortality

We are looking for participants to take part in focus group discussions in which we will be talking about the causes of death in women during pregnancy, during delivery or 42 days after childbirth which is called maternal death. The idea is to share views and opinions on maternal death. The information collected will be used to help address one maternal health issue, by designing educational programs for women of child bearing age in the community.

Can you participate?
Yes, if you are:

- 18 years and above
- Living in Glenmore or Ndwayana
- A mother and/or expecting to be a mother
- Able to give consent voluntarily

What is expected of you?

Once the consent form has been explained to you and has been signed, you can participate. You will be taking part in a focus group discussion concerning causes of maternal deaths during which all participants will be required to participate in the discussion. There will be a moderator and the discussion will be conducted in isiXhosa. If at any point you would like to withdraw from the focus group discussion you may do so. Information on when and where the discussions will be held will be confirmed and you will be contacted.

Why should you participate?

Your input will not only benefit this research project, but it will also help other women to have increased understanding of the beliefs and attitudes of the women participating in this community concerning maternal health, and will help us to identify how to reduce maternal deaths in the future.

What are the benefits of participating?

Your participation during this discussion is important in understanding the problems related to death of pregnant women before delivery, during delivery and 42 days after delivery of a baby in this community. The results obtained from these discussions will be used to introduce better ways to deal with maternal health issues.

CONTINUATION OF APPENDIX 2: BASELINE PHASE PARTICIPANT INFORMATION SHEET

Is your participation compulsory?

No, the purpose of the research project has been explained to you, and if you wish to participate, you will be given a consent form that you will be required to sign. If at any point you feel the need to withdraw from the study, you are free to do so. Refusing to participate in this discussion will not have any impact on the quality of health care given to you in the clinic.

Will your role in this study be kept confidential?

Your details such as name or identity will be kept confidential and will not be available to anyone. The results of the project will be used for research purposes.

What is the way forward?

Once the study is over, information collected will be analysed and used to introduce an educational program to improve health of pregnant women

What are the risks involved?

During the discussions there may be differences of opinion among the five to eight participants; however this will be minimised by giving everyone a chance to speak. There will be a translator/moderator to reduce communication barriers. All discussions will be conducted with women in a similar age group so you are free to express your opinions

Thank you for your time.

Thank you for your time.

Researcher name: Amanda Siruma

Contact details: 082 047 8936

Faculty of Pharmacy

Rhodes University

APPENDIX 3: BASELINE PHASE PARTICIPANT INFORMED CONSENT FORM

Title of Project: Maternal Health: Assessment, Community Educational Intervention and Evaluation

Name of Researcher: Amanda Siruma

1. I confirm that Ms Siruma has explained the contents of the Participation Information Sheet and I understand the information sheet for the research on knowledge, attitudes, and practices regarding maternal deaths in women who are pregnant, women in labour or within 42 days after childbirth. I will have the opportunity to consider the information, ask questions and have these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without my medical care or legal rights being affected.

3. I understand that data collected during the study, will be used by the researcher but all details gathered during this research, especially my name or identify, will be kept private. I give permission to Ms. Siruma and the moderator …….. (Name) to ask relevant questions when I participate in this group discussion.

4. I agree to take part in the above study.

Name of Participant .....

Date .....

Signature .....

Declaration

I, Amanda Siruma (the researcher) and..... (The interpreter), swear that any personal details obtained during this research study will remain strictly confidential.

Signature (Researcher) .....

Signature (Interpreter).....

Date .....

Name of witness .....

Signature .....

Date .....

APPENDIX 4: CHECKLIST FOR AVAILABILITY OF WHO PRIORITY MEDICINES FOR WOMEN'S HEALTH

Name of PHC:

Date of survey:

Name of maternal health issue:	WHO Priority medicines	STG medicines	Strength	Dosage	Availability in Public Health Facility (present day)	Availability in Health facility (last 12 months
Post-partum haemorrhage:	Oxytocin	Oxytocin	10 IU in 1ml ampoule	IM		
	Sodium chloride	Sodium chloride	0.9% isotonic Or Ringers Lactate	IV		
Severe pre-eclampsia and eclampsia:	Calcium gluconate	Calcium gluconate	100 mg/ml in a 10-ml ampoule	IV		
	Magnesium sulphate	Magnesium sulphate	500 mg/ml in a 2-ml ampoule 500 mg/ml in a 10-ml ampoule	IM		
Maternal sepsis:	Ampicillin	Ampicillin:	500 mg; 1 g (as a sodium salt) in vial	IV		
	Gentamicin	Gentamicin	10 mg/ml 40 mg /ml in a 2-ml vial	IV		
	Metronidazole	Metronidazole	500 mg in a 100-ml vial	IV		
	Misoprostol	Misoprostol	200 mcg	tablets		

CONTINUATION OF APPENDIX 4: CHECKLIST FOR AVAILABILITY OF WHO PRIORITY MEDICINES FOR WOMEN'S HEALTH

Name of maternal health issue:	WHO Priority medicines	STG medicines	Strength	Dosage	Availability in Public Health Facility (present day)	Availability in Health facility (last 12 months
Sexually transmitted diseases: Uncomplicated genital chlamydial infections:	Azithromycin:	Azithromycin	250 mg; 500 mg or 200 mg/5 ml	Capsules Capsules Oral liquid		
Gonococcal infection – uncomplicated anogenital infection:	Cefixime:	Cefixime:	400mg	Capsule		
Syphillis:	Benzathine benzyl penicillin:	Benzathine benzyl penicillin:	900 mg or 1.44 g in a 5-ml vial	IV		
Preterm birth:	Betamethasone	Betamethasone	5.7 mg/ml as betamethasone sodium phosphate	IM		
Preterm birth:	Nifedipine	Nifedipine	10 mg	Immediate release capsule		
Maternal HIV AIDS :	Nevirapine	Nevirapine	200mg 50mg/5ml	Tablet Suspension		
	Lopinavir/ Rotinavir	Lopinavir/ Rotinavir	200/50mg 80 20mg per ml	Tablets Capsules Oral solution		
	Zidovudine	Zidovudine	100mg 300mg 250mg 50mg/ml	Capsules Capsules Capsules IV		
Malaria	Quinine	Quinine	300mg	Tablets		
	Clindamycin	Clindamycin	150mg 600mg 4ml	Capsules IV		

APPENDIX 5: **SEMI-STRUCTURED INTERVIEW QUESTION GUIDE FOR SISTERS- IN-CHARGE**

Name of PHC:…….

Demographic data

Race

Age

Gender

Female

Male

Education

Qualification.....

Years of experience

Number of years at the PHC

Stock status

1a). Do you have a copy of the South African STG at the clinic?

1b). Is the STG used by all HCPs? If so, please explain how.

1c). Other than the SA STG and EML/Formulary, is your PHC required to have a priority list of essential medicines for maternal health?

2a). Do you ever run out of the essential medicines required for maternal health?

2b). How often do you run out of these essential medicines?

3a). What are the various reasons why medicines for maternal health are ever out of stock?

3b). What procedures do you follow when medicines for maternal health are out of stock?

Use of bin cards

4. Do you make use of bin cards in this health care facility? Please explain.

5a). Are the bin cards updated regularly? If yes, how often are they updated?

5b). Who is responsible for the updating of bin cards? Please explain.

5c). When do you reorder medicines and how soon are the medicines delivered to you? (*Probe for 'safety stock' and its calculation, if required*)

6. Who trained you/person in charge of bin cards to place orders for these essential medicines and the use of bin cards?

7. In your opinion what facilitates using the bin card appropriately in this PHC? Please explain.

8. What are the advantages you have seen with regard to using bin cards?

9. In your opinion are there any disadvantages in using the bin cards? Please explain.

10. In your opinion would you/person in charge of reordering medicines require further training in managing bin cards? If yes, please explain.

CONTINUATION OF APPENDIX 5: SEMI-STRUCTURED INTERVIEW QUESTION GUIDE FOR SISTERS -IN-CHARGE

Expired medicines

11a). Do you often end up with expired medicines for maternal health?

11b). How often do you have to dispose of expired medicines useful for maternal health? Please explain how you dispose of these essential medicines.

Accessibility of medicines

11. Do you ever have cases where you have to turn away patients with maternal health issues?

12. What are the reasons for doing so?

13. If the reason is due to unavailability of maternal health medicines, do the patients come back to enquire about the availability of these medicines or do you inform them?

Correct use of medication

14. Do your patients know how and when to take their medicines for maternal health?

15. Do you confirm with them how and when to take their medicine?

Implementation of Batho Pele principles

17. Do you have a poster on Batho Pele?

18. What is the language used on the poster?

19. How do you apply the principles of Batho Pele?

20. What interventions are in place when women come in with maternal health complications?

Communication

21a). What are three common barriers when seeing a patient?

21b). What do you do to overcome them?

22. Do you encourage patients to come for prenatal and postnatal care of the expectant mother?

23. Do you liaison with community leaders and women self-help groups to encourage them to access the health care facility for their maternal health issues?

Perception of health care professionals on maternal health issue of most concern in the community

24. What is the main maternal health issues affecting the women attending the clinic?

25a). Do you think the maternal mortality rate is high in this village?

25b). What are the perceptions of your patients concerning the causes of a high maternal mortality rate in the community?

26. What are the three most prevalent causes of maternal mortality in this community?

27. In your opinion, what is the major maternal issue that urgently needs to be addressed in the community?

28. How should the major maternal issue be addressed?

APPENDIX 6: BASELINE PHASE FOCUS GROUP DISCUSSION QUESTION GUIDE

NOTE: To check if the consent forms been explained and signed?

Introduction

Perception of maternal mortality – Today we are going to talk about maternal health and issues that cause maternal death. Maternal mortality is the death of a woman while pregnant or within 42 days after childbirth. This is regardless of the site or duration of pregnancy and can be from any cause related to the pregnancy or its management.

Accessibility of health care facilities

What are the health care facilities available to pregnant women in the community?

Probe: How accessible are these health care facilities to pregnant women?

When pregnant women visit the health facility, is there anyone available to attend to them immediately?

Where do pregnant women usually prefer to go when they have any health problem?

Knowledge of causes of maternal mortality

Do you believe that many women in this community die during pregnancy or childbirth?

What do people in the community believe causes this issue?

Probe: Does anyone have similar/different views?

When a person finds out that there is a maternal death what do they believe has caused it?

Community concerns on maternal mortality

Do people in the community worry when they are told about maternal death taking place?

Do you think maternal death is a problem in your community? Please discuss.

Do you think that maternal death can be prevented? Please discuss.

Cultural practices

What are your beliefs with regard to maternal death issues in your community?

What are the cultural practices during pregnancy? Please discuss.

Do you think any of these cultural practices decreases deaths in women who are pregnant?

Are young mothers (pregnant for the first time) and pregnant women (with surviving children) encouraged to adopt any of these cultural practices?

Probe: To what extent are these cultural practices still upheld in the community?

CONTINUATION OF APPENDIX 6: BASELINE PHASE FOCUS GROUP DISCUSSION QUESTION GUIDE

Knowledge, attitudes and practices regarding maternal mortality issues

Where is the source of information regarding avoiding how to deal with maternal mortality issues?

What has the community practiced regarding addressing these maternal mortality issues?

Prevalence of maternal mortality issues

List three maternal death issues in order of how often they occur in your community. *(Moderator must take note to use a board if available to write these issues down.)*

Do most of you agree with the above list of major maternal death issues? *(Moderator must ensure that the question is repeated and clarified.)*

Closing remarks and Way Forward

Is there anything you feel we missed that you would like to talk about?

From what we have discussed, what is the major maternal issue that urgently needs to be addressed in the community?

In your opinion, would an educational program for the young mothers/mothers in the community regarding these conditions be of benefit?

If yes, for which condition would you like me to start an educational program that can address the major maternal issue?

Would you all participate voluntarily in that education program?

Are there any other suggestions as input in the educational program to improve maternal health?

What is the best way to organise this educational program?

Would the community members participate actively in this planned educational program?

APPENDIX 7: ACCEPTANCE BY FACULTY OF PHARMACY'S HIGHER DEGREE COMMITTEE

RHODES UNIVERSITY
Grahamstown • 6140 • South Africa

FACULTY OF PHARMACY
Tel: +27 (0)46 603 8381 • Fax: +27 (0)46 603 7506 • E-mail: dean.pharmacy@ru.ac.za • PO Box 94, Grahamstown, 6140, South Africa

6 May 2013

Dear Amanda Siruma

RE: Acceptance by Faculty of Pharmacy's Higher Degrees Committee (HDC)

The Faculty of Pharmacy's Higher Degrees Committee (HDC) has accepted your re-submitted proposal for your Masters research entitled "Adolescent pregnancy: A community engaged participatory approach to develop and test an educational intervention".

A few concerns were raised, and we suggest you do your best to overcome these:

1. The need to be extremely sensitive in the handling of consent issues - the documentation remains fairly formal and so you will need to ensure that the verbal discussion is accessible and reassuring.
2. The need to be flexible in your interviewing – there are many questions, and you will need to be wary of turning this into an interrogation.
3. You will need to have a good rapport with the interpreter and establish a comfortable environment for the participants which is reassuring rather than intimidating. This may mean having something closer to a conversation, rather than asking each question in precise turn as you have it in your interview schedule.

We wish you all the very best for your research.

Sincerely

C. Oltmann

Carmen Oltmann, PhD
On behalf of the Faculty of Pharmacy's Higher Degrees Committee

APPENDIX 8: ETHICAL APPROVAL BY FACULTY OF PHARMACY'S ETHICS COMMITTEE

RHODES UNIVERSITY
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Tel: +27 (0)46 603 8381 • Fax: +27 (0)46 603 7506 • E-mail: dean.pharmacy@ru.ac.za • PO Box 94, Grahamstown, 6140, South Africa

3 June 2013

Dear Amanda Siruma

RE: Ethical approval by the Faculty of Pharmacy's Ethics Committee

(Tracking number PHARM 2013 - 7)

As a registered student in the Faculty of Pharmacy, with student number 07S0371, I am pleased to inform you that the Faculty of Pharmacy's Ethics Committee grants you ethical approval for your research entitled:

Adolescent pregnancy: A community engaged participatory approach to develop and test an educational intervention

Please ensure that the Faculty of Pharmacy's Ethics Committee is notified should any substantive change(s) be made, for whatever reason, during the research process.

Sincerely

Carmen Oltmann, PhD

Chairperson of the Faculty of Pharmacy's Ethics Committee

APPENDIX 9: EDUCATIONAL INTERVENTION PARTICIPANT INFORMATION SHEET

TITLE OF RESEARCH: ADOLESCENT PREGNANCY: A COMMUNITY ENGAGED PARTICIPATORY APPROACH TO DEVELOP AND IMPLEMENT AN EDUCATIONAL INTERVENTION.

Invitation to participate in educational program on prevention of adolescent pregnancy

PLEASE NOTE: The details of this participant information sheet will be explained in isiXhosa. Please feel free to ask any questions

This is an invitation to participate in an educational program that addresses ways of understanding prevention of adolescent pregnancy. Preventing adolescent pregnancy is an important factor in decreasing poor maternal health outcomes which often lead to maternal deaths amongst adolescent girls.

What are the benefits of participating?

This educational program will facilitate the opportunity for you to get more information on prevention of adolescent pregnancy. This will help you to make informed decisions concerning your reproductive health, which also improves your maternal health outcomes in future.

Can you participate?

Yes, if you are:

- A girl between 12 and 19 years of age
- Living in Glenmore or Ndwayana

Please note: For any interested participant below 18 years of age your parent or guardian must give written consent for you to participate in the educational program.

What is expected of you?

Once the consent form has been explained to you and has been signed, you can participate. There will be a translator and the interviews before and after the educational discussions will be conducted in English and isiXhosa. There will be a translator/moderator to reduce communication barriers. A voice recorder will be used during all interviews and educational discussions. If at any point you would like to withdraw from the interviews and educational discussions you may do so. Information on when and where the interviews and discussions will be held will be confirmed and you will be contacted in advance.

Is your participation compulsory?

No, the purpose of the educational program has been explained to you, and if you wish to participate, you will be given a consent form that you will be required to sign. Participants below the age of 18 will obtain written consent from their parent/guardian. A copy of the consent form will be given to you to keep. If at any point you feel the need to withdraw from the study, you are free to do so.

Will your role in this study be kept confidential?

Your details such as name or identity will be kept confidential and will not be available to anyone. The results of the project will be used for research purposes only.

Thank you for your time.

Researcher name: Amanda Siruma
Contact details: 082 047 8936
Faculty of Pharmacy,
Rhodes University

APPENDIX 10: EDUCATIONAL INTERVENTION PARTICIPANT INFORMED CONSENT FORM

NOTE: ***The consent form will be explained in isiXhosa. Please feel free to ask any questions.***

TITLE OF RESEARCH: ADOLESCENT PREGNANCY: A COMMUNITY ENGAGED PARTICIPATORY APPROACH TO DEVELOP AND IMPLEMENT AN EDUCATIONAL INTERVENTION.

Name of Researcher: Amanda Siruma, Faculty of Pharmacy, Rhodes University
1. I confirm that Ms Siruma and the interpreter have explained the purpose of the two interviews and four educational program discussions on preventing adolescent pregnancy.
2. I understand that my participation is voluntary and that I am free to withdraw at any time
3. I understand that data collected during the study will only be used for research purposes and details such as my name and identity will be kept confidential.
4. I give permission to Ms. Siruma and the interpreter…….. (name) to ask relevant questions when I participate in the interviews before and after the educational program and the discussions held during the educational program.
4. I understand that a voice recorder will be used during the interviews and discussions held during the educational program and I give my permission for such use.
5. I agree to take part in this research project

Section for participants 18 years and above

Name of Participant .....

Date .....

Signature .....

Section for participants below 18 years

Name of Parent Guardian .....

Date .....

Signature .....

Name of Participant .....

Date .....

Signature .....

Name of Witness to consent.....

Signature .....

Date .....

Declaration

I, Amanda Siruma (the researcher) and..... (The interpreter), swear that any personal details obtained during this research study will remain strictly confidential.

Signature (Researcher).....

Signature (Interpreter).....

Date .....

APPENDIX 11 PRE-INTERVENTION SEMI-STRUCTURED INTERVIEW QUESTION GUIDE

Note: All information given below is confidential and will only be used for research purposes

Demographics:

Age	
Educational level	
Occupation (if applicable)	

Introductory note: I will be discussing with you issues related to women's health issues. Please note there are no right or wrong answers, all your views are important. If you do not feel free to answer any questions along the way feel free to indicate this to me.

1. Please tell me about the general health in the community?
2. Please tell me what you understand about the term reproductive health?

Note: *If participant does not understand an explanation will be given to participant explaining reproductive health as pertaining to women's health issues regarding menstruation, contraception, pregnancy right through to delivery including the general health of a female's reproductive system.*

3. Where did you first get information on the menstrual cycle?
4. Please tell me what you understand on the menstrual cycle?
5. Where did you first get information on women's health issues?
6. Who do you feel free to discuss these issues with?
7. What are young people's beliefs with regard to women's health issues?
8. How do other young people's beliefs on women's health issues influence your views?
9. What are the beliefs of the men in this community regarding women's health issues?
10. What are the beliefs of the women in this community regarding women's health issues?
11. What are your parents' beliefs with regard to women's health issues?
12. What is your attitude concerning your parents' beliefs with regard to women's health issues?
13. Why do you agree / disagree with your parents' beliefs with regard to sex and reproductive health issues?
14. Do you discuss women's health issues in your family? If so with whom?
15. Do you who discuss women's health issues with other young people? If so with whom?
16. Please tell me what you understand concerning abstinence?
17. What are young people's beliefs with regard to abstinence?
18. What are the beliefs of the men in this community regarding abstinence?
19. What are the beliefs of the women in this community regarding abstinence?
20. What are your parents' beliefs with regard to abstinence?
21. What is your attitude regarding your parents' views on abstinence?
22. Why do you agree/disagree with your parents' beliefs on abstinence?
23. What is your attitude with regard to abstinence?
24. In your opinion, do adolescent girls choose to remain abstinent until they get married?
25. In your opinion, why do they choose to remain abstinent until marriage?
26. In your opinion, are adolescent girls able to negotiate abstinence if in a relationship?
27. Is adolescent pregnancy a common occurrence at school?
28. If yes, what are the views of the men in the community concerning this?
29. If yes, what are the views of the women in the community concerning this?
30. What are young people' beliefs on early onset of sexual activity?

CONTINUATION OF APPENDIX 11 PRE-INTERVENTION SEMI-STRUCTURED INTERVIEW QUESTION GUIDE

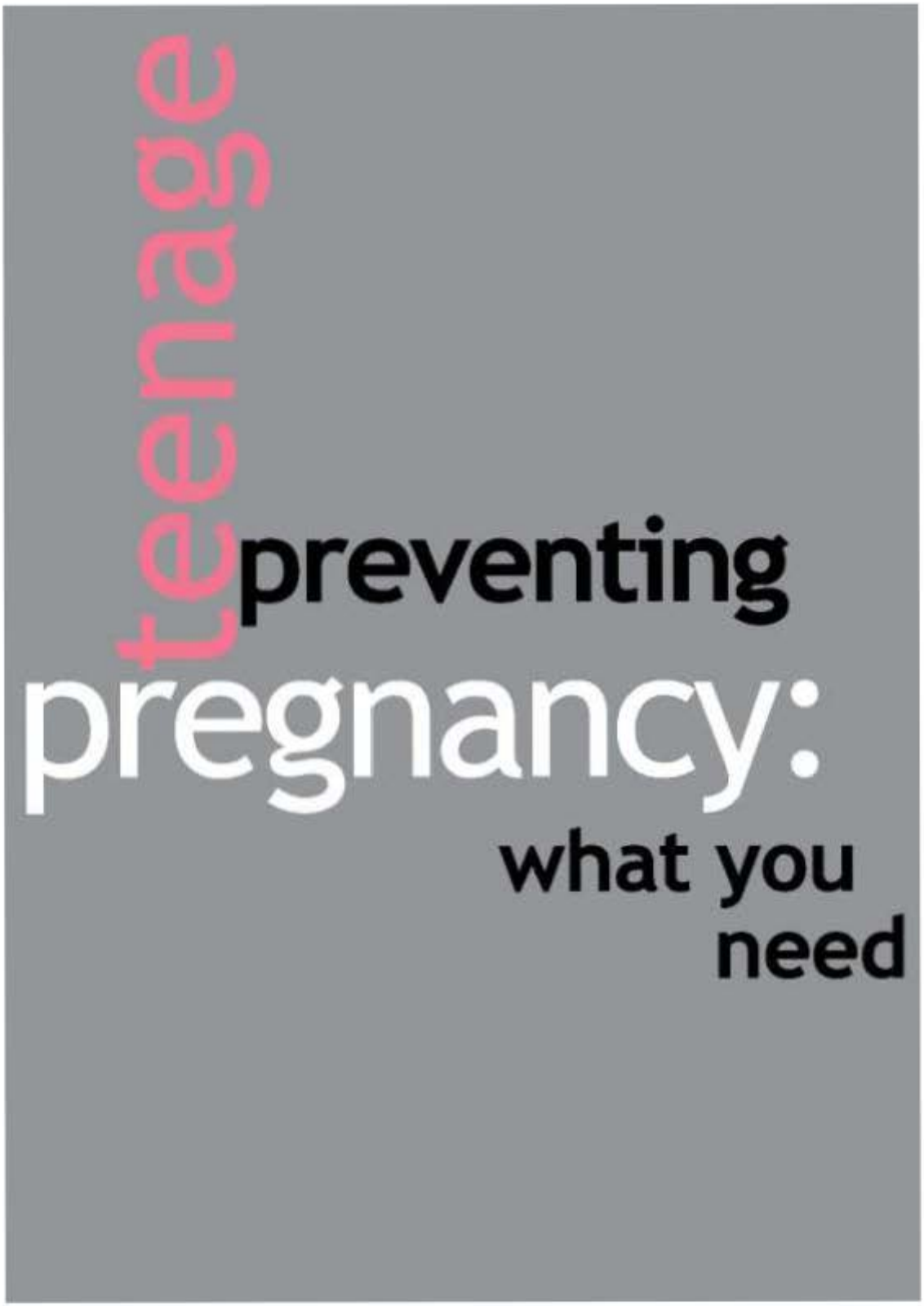
31. What are the beliefs of the men in the community on early onset of sexual activity?
32. What are the beliefs of the women in the community on early onset of sexual activity?
33. What are your parents' beliefs on early onset of sexual activity?
34. What are your beliefs on early onset of sexual activity?
35. In your opinion, are there any risks involved in early onset of sexual activity?
36. If yes, what do you understand the risks are?
37. What are your beliefs on the benefits of early onset of sexual activity, if there are any?
38. In your opinion, what are the pressures that make it difficult for adolescent girls in this community to delay onset of sexual activity?
39. How do adolescent girls deal with these pressures?
40. In your opinion are there consequences that occur if an adolescent girl falls pregnant?
41. If yes, please elaborate.
42. What is your opinion on the influence of alcohol on an adolescent girl's decision to become sexually active?
43. Please tell me what you understand with regard to contraception?
44. In your opinion, do sexually active adolescent girls have access to contraceptives?
45. If yes, where do they get access to contraceptives?
46. What do the men in the community uphold as myths surrounding use of contraceptives?
47. What do the women in the community uphold as myths surrounding the use of contraceptives?
48. Are there adolescent girls who willingly fall pregnant in the community?
49. If yes, please elaborate.
50. In your opinion, do they understand all aspects of the responsibilities involved in bringing up a child?
51. In your opinion, what is the responsibility that comes with raising a healthy infant?
52. In your opinion, do adolescent mothers have an income of their own, sufficient to raise a healthy infant?
53. Who bears the responsibility of raising an infant born to an adolescent girl?
54. What are the consequences of adolescent pregnancy on a young girl's education?
55. In your opinion, what are the health risks associated with adolescent pregnancy?
56. Are you aware of other health risks such as possible contraction of Human Immunodeficiency Virus (HIV) and Sexually Transmitted Infections (STIs)?
57. Are you aware of other health risks associated with adolescent pregnancy such as complications of hypertension during pregnancy?
58. In your opinion, is making informed choices influenced by increase in knowledge on reproductive health?
59. As an individual do you feel you are able to make informed choices about your reproductive health?
60. Who is a role model in your community?
61. Why do you consider the person you mentioned above a role model in your community?
62. Would you be prepared to listen to this person if they were to inform you about adolescent pregnancy and the complications and challenges associated with it in an educational intervention?

CONTINUATION OF APPENDIX 11 PRE-INTERVENTION SEMI-STRUCTURED INTERVIEW QUESTION GUIDE

Additional Questions for feedback from stakeholders

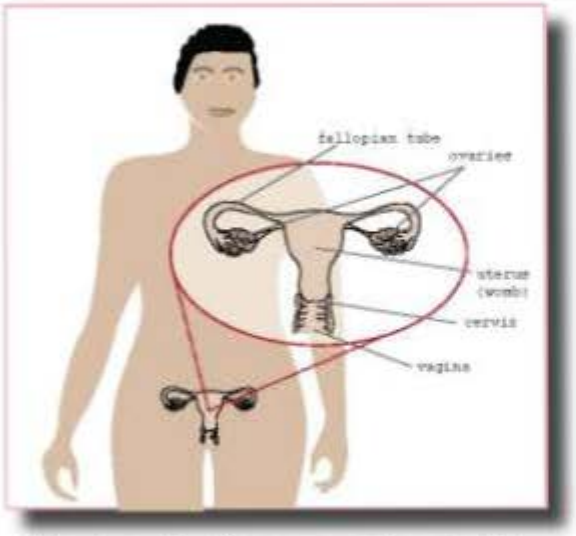
63. What are your thoughts on the cultural sensitivity of this question guide?
64. Is the language appropriate for second language English speakers?
65. Are there any words that will be difficult for the participants to understand?
66. Are there any suggestions to ensure that this question guide is easier to use for adolescent girls?
67. Is there any other question regarding problems concerning prevention of adolescent pregnancy which you would like to be added in this question guide?

APPENDIX 12: BOOKLET DEVELOPED FROM EDUCATIONAL INTERVENTION


teenage
preventing
pregnancy:
what you
need

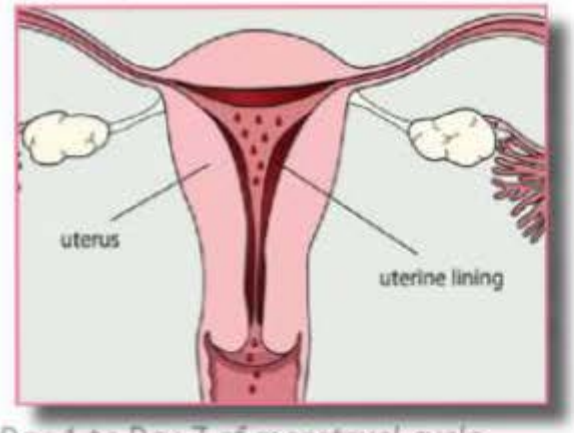
to know

Female reproductive system



1. What is menstruation?

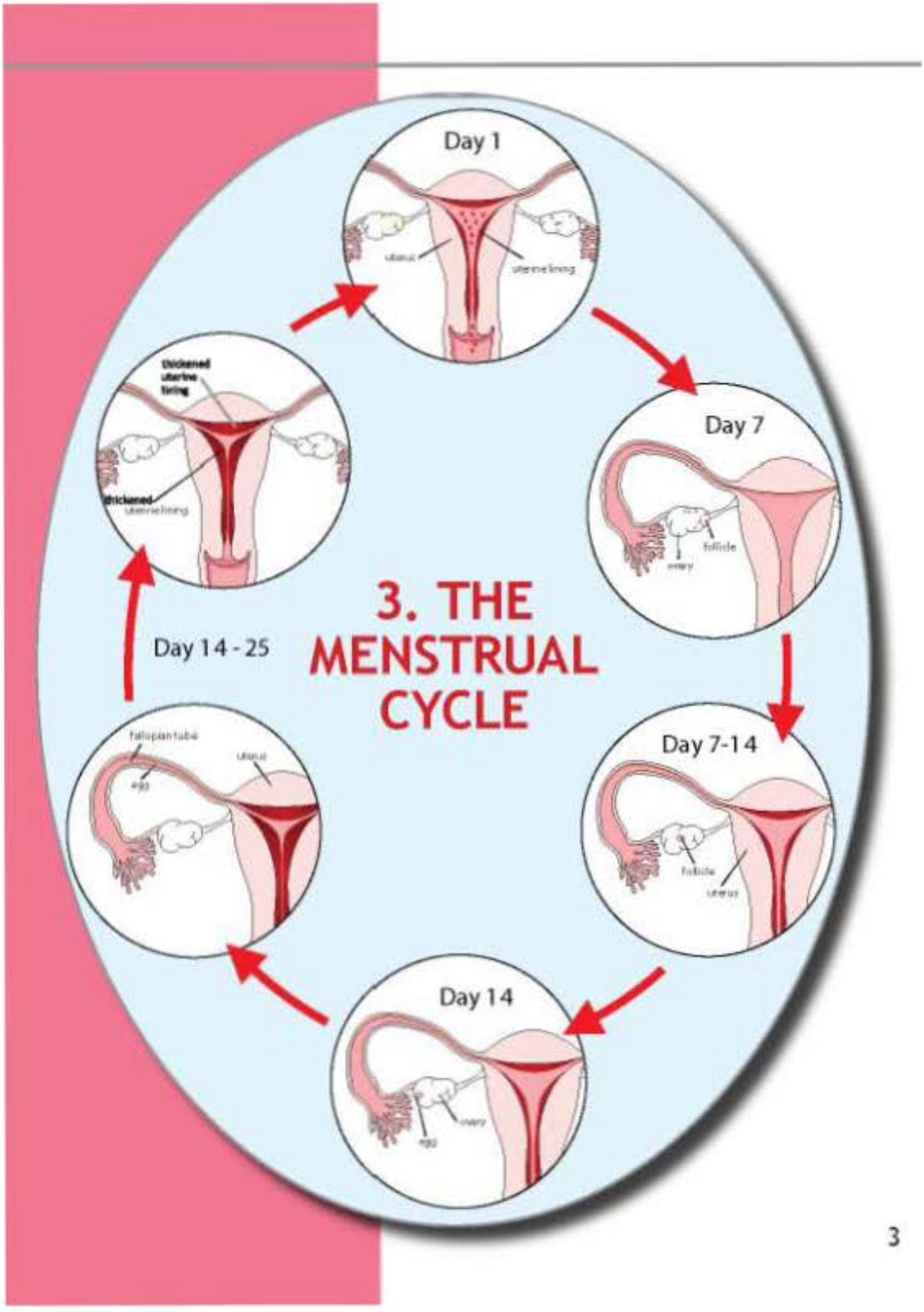
- Menstruation is a woman's monthly bleeding where the body sheds the lining of the uterus.
- The period of menstruating usually lasts between 3 and 7 days.
- Menstration generally starts in young girls after they reach puberty.



Day 1 to Day 7 of menstrual cycle

2. What is the menstrual cycle?

- When periods (menstruation) come regularly, this is called the menstrual cycle.



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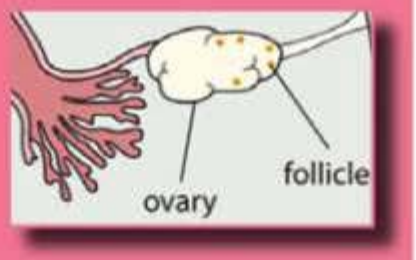
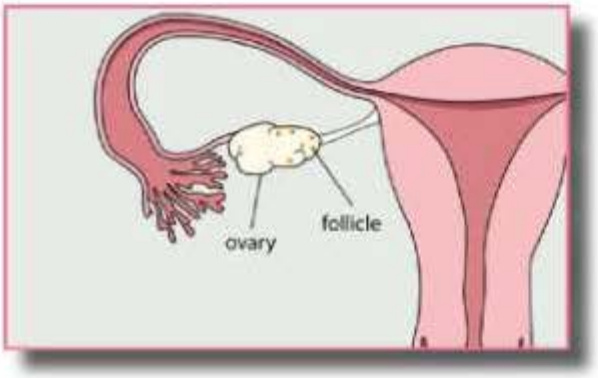
4. Details of the stages of the menstrual cycle



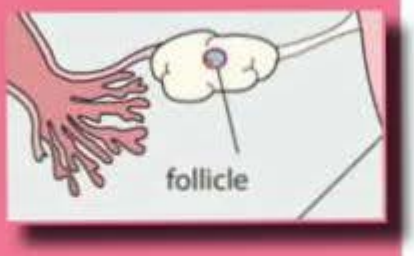
- A cycle is counted from the first day of one period to the first day of the next period.
- The average menstrual cycle is 28 days long.
- Cycles can be between 21 to 35 days in adults and from 21 to 45 days in young teens.
- Everyone is different so you **SHOULD NOT WORRY** if your menstural cycle is different from your friend's cycle.

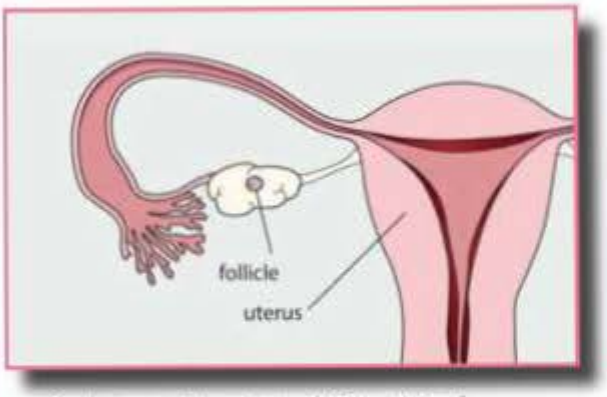
- Day 1 starts with the first day of your menstruation period.
- Usually by Day 7, bleeding has stopped.



Around Day 7 (in 28-day cycle)

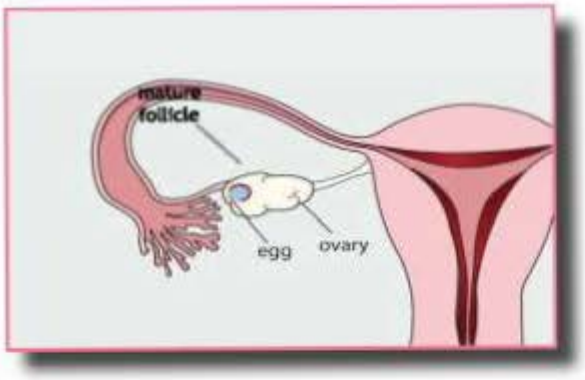
- Around Day 7 hormones cause fluid-filled pockets called 'follicles' to develop in the ovaries. Each follicle contains an egg.
- Between Days 7 and 14, one follicle will continue to develop and reach maturity.





Between Day 7 and Day 14 of menstrual cycle (in 28-day cycle)

- The lining of the uterus starts to thicken. The lining is rich in blood and nutrients.
- Around Day 14 (in a 28-day cycle), hormones cause the mature follicle to open and release an egg from the ovary, a process called **OVULATION**.



Day 14 (in 28-day cycle)

- If the egg is not fertilized, hormone levels will drop around Day 25. This

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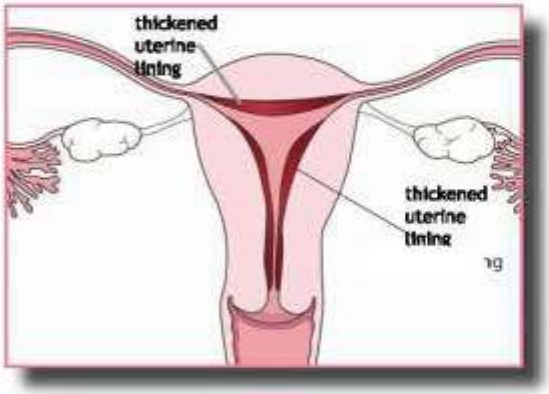
signals the next menstrual cycle to begin.



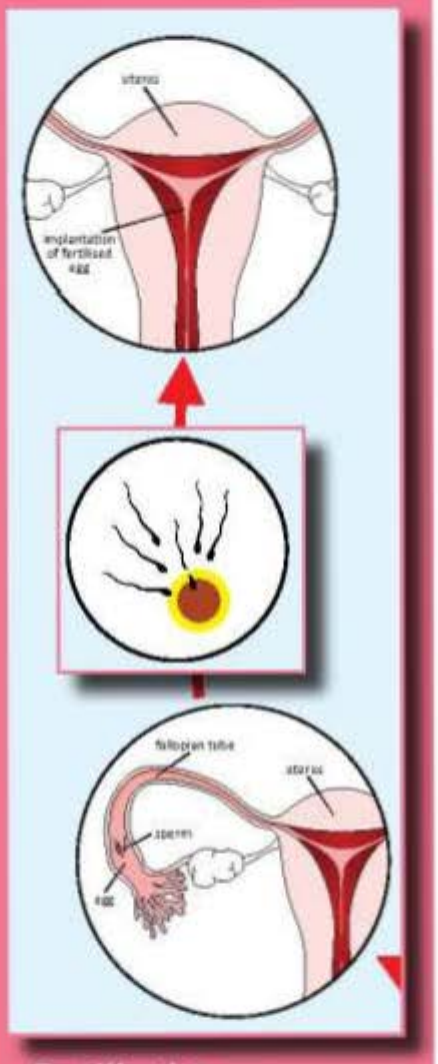
Day 14 to 25 (in 28-day cycle)

5. What leads to pregnancy?

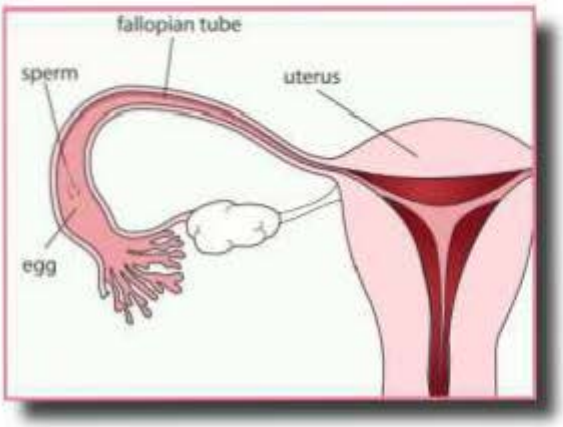
- If one engages in sexual intercourse without using contraception sperm cells swim up the uterus towards the egg.
- This may be followed by the process of fertilisation, if contraception has not been used.

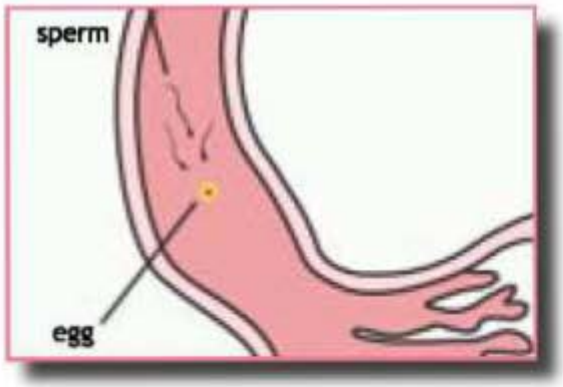
6. What is Fertilisation?

- Fertilisation is when one sperm makes physical contact and unites with the female egg.
- The fertilised egg will continue down the fallopian tube and attach to the lining of the uterus.
- This means that the baby starts to grow.



Fertilisation





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7. Why should teenage pregnancy be avoided?

- Complications from pregnancy and childbirth are a leading cause of death among girls aged 15 to 19 years.
- Teenagers have double the risk of dying due to falling pregnant compared to women aged 20 to 24.
- Falling pregnant at an early age also increases chances of getting sexually transmitted diseases and HIV / AIDS.
- Preventing teenage pregnancy will ensure that education is not interrupted due to being absent from school, before and after giving birth.
- Teenage pregnancy leads to increased dependency on the family or community to raise the new born baby.
- As a dependent teenager and without support of adequate education and a reliable source of income, it is difficult to provide a caring, sustainable, encouraging environment for a child.

8. How to avoid pregnancy?

9. What is Abstinence?

- Abstinence is not engaging in sexual intercourse.

10. Why is abstinence recommended for teenagers?

- Abstinence is 100% safe and effective in preventing pregnancy.
- No side effects.
- Abstinence is 100% safe and effective in preventing being infected by STDs and HIV/AIDS.

11. What are STDs and HIV/AIDS?

- STDs are Sexually Transmitted Diseases e.g. syphillis, gonorrhoea and genital warts.
- HIV is Human Immunodeficiency Virus.
- AIDS is Acquired Immuno Deficiency Syndrome.

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12. How do other contraceptive methods work?

- **ORAL CONTRACEPTIVES**
  (often called the 'pill')
  - Highly effective if used correctly.
  - The 'Pill' must be taken every day, at a specific time, preferably in the morning.
  - Forgetting to take the pills leads to ovulation and increases the chances of falling pregnant.
  - If you forget to take the 'pill', seek advice from your clinic immediately
  - Taking other medications (e.g. antibiotics) may cause the 'Pill' not to work properly.
  - Some sicknesses (e.g. vomiting and/or diarrhoea) may make the 'Pill' less effective.

- **INJECTABLE CONTRACEPTIVES**
  - Also prevents ovulation from taking place.

- Highly effective if used correctly.
- An 'injection' is given once every two or three months depending on which one you take.
- It is important to go to the clinic in time to get your next 'injection'.

- **MALE CONDOMS**
  - Highly effective but must be used correctly by male partner.
  - If the condom is not put on and taken off the right way it may not work properly.
  - Check the condom's expiry date on the sealed packet and make sure the condom has no holes.

- **FEMALE CONDOMS**
  - Highly effective but must be used correctly by the partner.
  - Female and male condoms **MUST NOT BE USED TOGETHER** as they can stick to each other and cause tearing.

NB: Male and female condoms can only wbe used once.

- Follow the instructions written on the condom packet.

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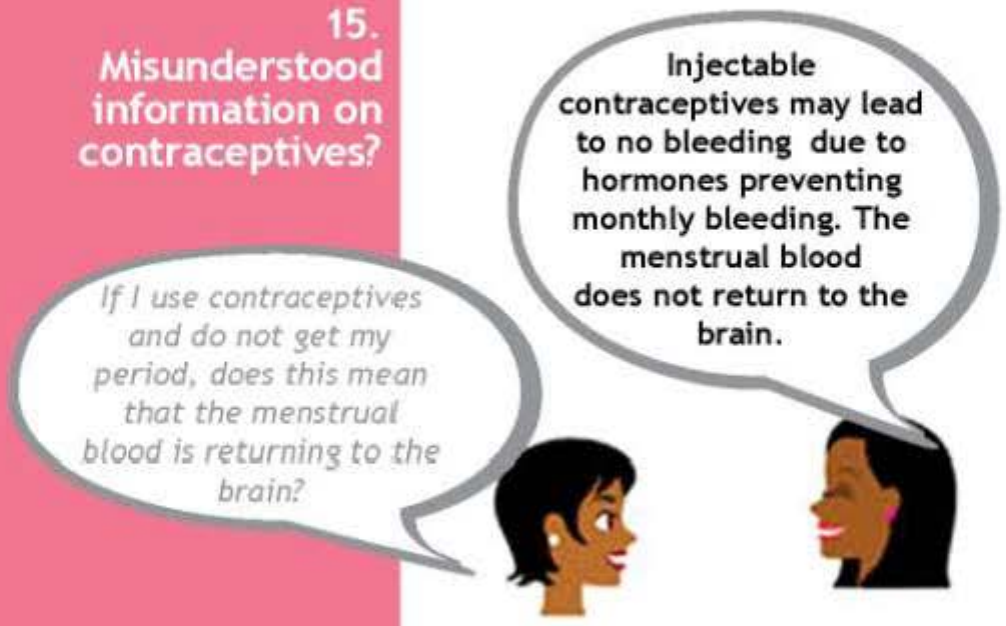
13. Will taking the 'pill' or 'injectable' contraceptive protect you from getting STDs and HIV?

- No, taking the 'Pill' or injectable contraceptive does not protect you from getting STDs and HIV.
- Using the condom helps decrease the chances of getting HIV/AIDS or becoming pregnant only if used correctly.

14. How to take precautions to protect yourself from getting STDs and HIV/AIDS?

- It is important for both sexually active partners to go for HIV counselling and testing at the nearest clinic.
- It is important to use a condom to protection against contracting an STD and/or HIV.
- It is important that both sexually active partners are faithful to each other, to avoid the risk of infection with HIV and/or STDs.
- Even if you are taking the 'Pill' or injectable contraceptives correctly, having sexual intercourse still puts you at risk of getting sexually transmitted diseases (STD) and Human Immune Deficiency Virus (HIV).
- Abstinence is the only contraceptive method that is 100% safe and effective.

15. Misunderstood information on contraceptives?



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16. What is peer pressure?

- Peer pressure is the influence that a person may feel to behave in a certain way because their friends or people in their group expect it, or claim to be doing it.
- Peer pressure is about other people making your choices and decisions for you.
- For example, one teenager may negatively influence another into rushing things that are against the law for their age group, such as drinking alcohol, taking drugs, or becoming sexually active.

17. How to cope with peer pressure

You may have heard the saying that "everybody is doing it" but you do not have to follow the crowd.

- You can avoid putting yourself in situations that make you feel uncomfortable.
- You can choose your friends wisely.
- You can surround yourself with people who share similar interests to reduce the chances of being asked to do something you don't want to do.
- "You can stop for a moment and ask yourself: 'Will this activity get you in into trouble? Will it be harmful to your health?'"
- You can learn how to say NO!

18. What is statutory rape?

- Statutory rape is when someone below the age of 16 agrees to and engages in sexual intercourse with someone else above the age of 16.
- Even when two people under the age of 16 agree and have sexual intercourse, this is also considered to be statutory rape.

19. What are your health rights as a teenager?

- The Convention on the Rights of the Child is an international agreement to ensure that all children enjoy their rights and have the special care and protection they need as children. South Africa is also committed to this agreement.
- According to the Convention on the Rights of the Child, as a teenager, you have the right to freely access information and health care services at the clinic or health facility.
- As a teenager, you also have the right to education, health, nutrition, security, a safe environment, water and shelter.

20. How can others in the community contribute towards preventing teenage pregnancy?

- Clinic services and teachers can help by offering information and answering questions on reproductive health issues.
- Community members can form groups, led my community leaders,

to give teenagers the reproductive health information they need so that they may make informed decisions.

  - Examples of role models may be a nurse, community health worker, a school teacher, a developmental organisation, trusted and respected women in the community.

- They san make an effort to not judge teenagers when they ask questions about sexual matters or if they make mistakes.
- They can seek out information on teenage pregnancy and reproductive health issues and learn to talk about it freely, when necessary.

REFERENCES

1. United Stated Department of Health and Human Services. Office on Women's Health, [cited 2013 August 20]. Available from http://www.womenshealth.gov/publications/our-publications/fact-sheet/birth-control-methods.html.

2. World Health Organization. Adolescent pregnancy. [cited 2013 Oct 12]. Available from www.who.int/making_pregnancy_safer/topics/adolescent_pregnancy/enindex.html.

3. Grant M, Hallman, K. Pregnancy-related school dropout and prior school performance in South Africa. Population Council Policy Research Division Working Paper no. 212. 2006. Johannesburg: Population Council. International

4. Government of the Republic of South Africa. National Department of Health. Policy Guidelines for Youth and Adolesscent health. 2012. Pretoria: Government Printer.

5. National Department of Health. National Contraception Clinical Guidelines.2012

6. Wood K, Maepa J, Jewkes R. Adolescent sex and contraceptive experiences: perspectives of teenagers and clinic nurses in the Northern Province. Pretoria: Centre for Epidemiological Research in South Africa on Women's Health. 1997

7. Government of the Republic of South Africa. National Department of Health. Policy Guidelines for Youth and Adolescent health. 2001. Pretoria: Government Printer.

8. Government of the Republic of South Africa.Department of Justice and Cosnstitutional Development.Criminal Law (Sexual Offences and related matters) Ammendment Act, 2007 (Act No. 32 of 2007).

9. Office of the High Commissioner of Human Rights (1989) Convention on the Rights of the Child, UN General Assembly Resolution 44/25. Geneva, United Nations

10. United Nations Children's Fund (UNICEF), Convention on the Elimination of all forms of Discrimination against Women. Policy in Brief for adolescents. Gender, Rights and Civic Engagement, Policy and Practice, New York, 2011

11. National Program of Action Steering Committee, National Program of Action for Children in South Africa: Framework. Pretoria 1996.


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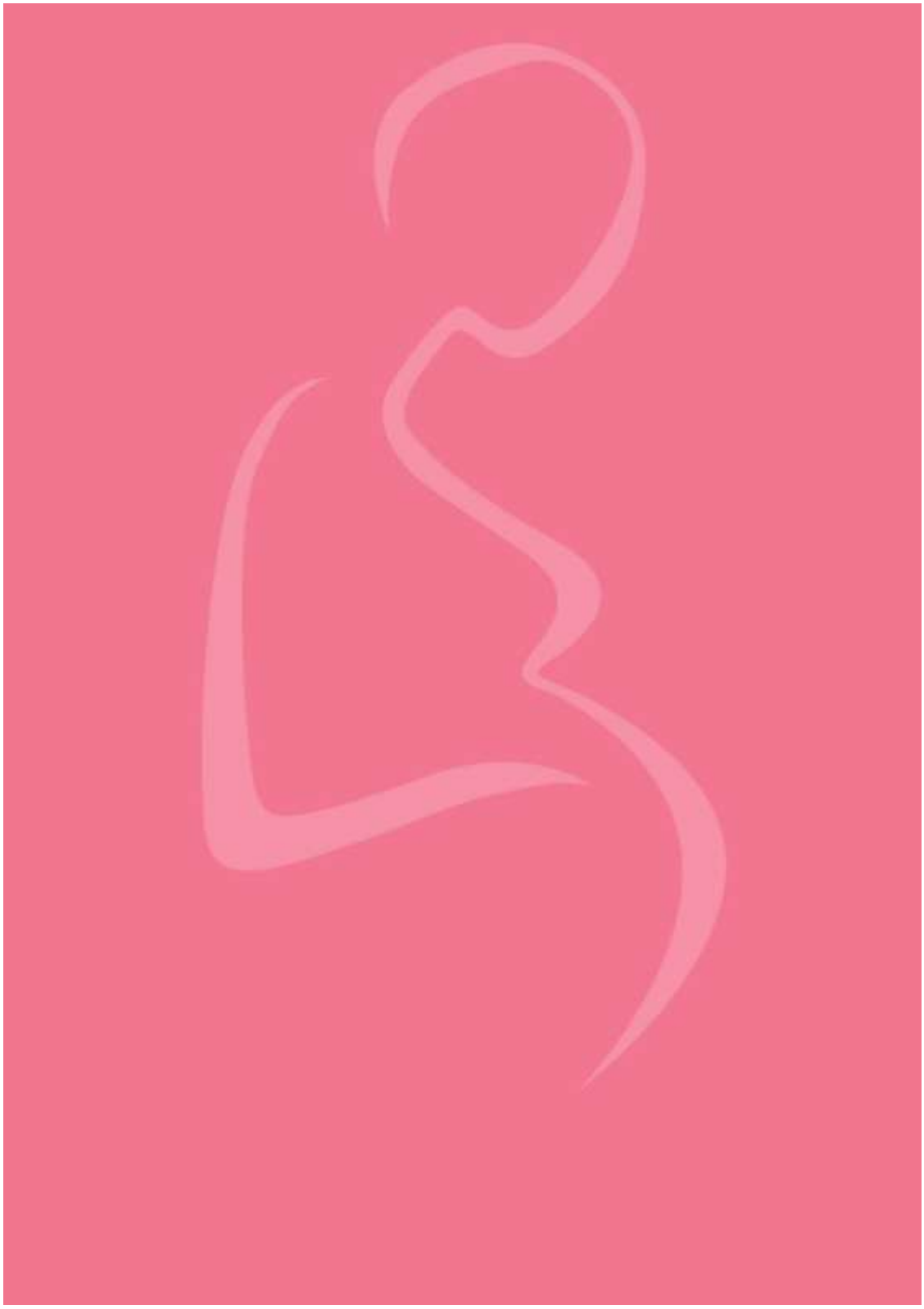

APPENDIX 13: POST-INTERVENTION SEMI-STRUCTURED INTERVIEW QUESTION GUIDE
Note: All information given below is confidential and will only be used for research purposes

Demographics:

Age	
Educational level	
Occupation (if applicable)	

Introductory note: I will be discussing with you issues related to women's health issues. Please note there are no right or wrong answers, all your views are important. If you do not feel free to answer any questions along the way feel free to indicate this to me.

1. Do you feel you have gained any new information about the menstrual cycle from this educational program?
2. If so, what new information on the menstrual cycle did you obtain from this educational program?
3. Where did you first get information on women's health issues?
4. Who do you feel free to discuss these issues with?
5. What are young people's beliefs with regard to women's health issues?
6. How do other young people's beliefs on women's health issues influence your views?
7. What are the beliefs of the men in this community regarding women's health issues?
8. What are your feelings with regard to these beliefs?
9. What are the beliefs of the men in the community regarding the rights of women concerning women's health issues?
10. What are your feelings with regard to these beliefs?
11. What are the beliefs of the women in this community regarding women's health issues?
12. Do the women in this community seem to think they have rights regarding women's health issues?
13. If yes, please elaborate.
14. What are your parents' beliefs with regard to women's health issues?
15. What is your attitude concerning your parents'/other close relatives' beliefs with regard to women's health issues?
16. Do you feel supported by your parents regarding these issues?
17. What are the challenges adolescent girls experiences with regard to abstinence?
18. Do you feel you have gained new information on contraceptives from this educational program?
19. What new information on contraceptives did you obtain from this educational program?
20. In your opinion, do sexually active adolescent girls have access to contraceptives?
21. If yes, where do they get access to contraceptives?
22. Are the services at the clinic user friendly?
23. Do you feel you can go back for help regarding reproductive health issues?
24. Who bears the responsibility of raising an infant born to an adolescent girl?
25. What are the consequences of adolescent pregnancy on a young girl's education?
26. Please elaborate on these consequences.
27. What are your thoughts on the effectiveness of this educational program?
28. Did you find this educational program respectful enough for you?
29. Are there any words/concepts that were difficult for you to understand during the educational program?
30. Can you tell me 3 to 5 useful points that you obtained from this educational program that you think may influence your future decisions or choices?
31. Please elaborate on how you have found this information useful for you in future?
32. Has this educational program facilitated the room for you to feel empowered?
33. If so, in what way?
34. Would you like the AGF to continue this educational program with you and other adolescent girls in the community from next year?

Thank you so much for your time