EXPLORING SCHOOLGOING TEENAGE GIRLS’ KNOWLEDGE REGARDING REPRODUCTIVE HEALTHCARE IN THE EASTERN CAPE PROVINCE

L J TITUS

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Exploring schoolgoing teenage girls’ knowledge regarding reproductive healthcare in the Eastern Cape Province

Luzane Titus

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in

Advanced Clinical Midwifery and Neonatal Nursing Science in the

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Supervisor: Professor S. James

Co-supervisor: Ms N Rall

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DECLARATION

I, Luzane Titus 212269267, hereby declare that the dissertation for Master’s degree in Nursing in Advance Clinical Midwifery and Neonatal Nursing Science is my own work and that it has not previously been submitted for assessment or completion of any postgraduate qualification to another University or for another qualification.

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Dedication

I would like to dedicate this dissertation first and foremost to our Lord Almighty who has given me the intellect, strength and perseverance to complete my studies.

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ABSTRACT

The increased rate of teenagers suffering from reproductive healthcare-related conditions is a global phenomenon. An estimated 16 million teenage girls aged between 15 and 19 years give birth every year with 95% of these births occurring in the developing countries. In South Africa one notes from recorded statistics that 20000 schoolgoing teenagers fell pregnant in South Africa during 2014. These statistics left many questions to be answered in terms of what information schoolgoing teenage girls do receive at school. Formally the current school curriculum in South Africa includes a subject around life skills orientation which is known as Life Orientation Programme and in which learners are introduced to reproductive healthcare from grade 7; but a persistent increase in the rate of pregnancies and sexually-transmitted infections amongst schoolgoing teenage girls is observed.

The aim of the study was to explore and describe the knowledge of schoolgoing teenage girls regarding reproductive healthcare and services in the Eastern Cape Province.

The objectives of this study were:

- to determine and explore the knowledge of schoolgoing teenage girls regarding reproductive healthcare in the Eastern Cape Province;
- to determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school Life-Orientaion programme; and,
- based on the results of the entire study, develop guidelines that could assist the stakeholders in health and education professions in enhancing of knowledge regarding reproductive healthcare of schoolgoing teenage girls and improving their access to related services.

A quantitative design with a descriptive, exploratory and contextual approach was used. A survey was conducted and the data -collection tool was a self-administered, structured questionnaire developed by the researcher with the assistance of the
supervisor and the statistician. Validity and reliability were assured before data collection commenced. A convenience, non-probability sampling method was used to collect data from schoolgoing teenage girls that gave permission to participate and met the inclusion criteria of:

- schools having schoolgoing teenage girls between the ages of 12 and 19 years in the Eastern Cape Province,
- being within the Nelson Mandela Bay Municipality area and the Sarah Baartman district and
- the schoolgoing teenage girls being in grades 10 to 12.

Data was collected in September 2016 from a total of 314 teenagers who participated and returned the completed questionnaires. The data was captured by the researcher and analysed using a Microsoft excel programme created by the statistician for data-analysis purposes. STATISTICA Version 12 computer software application was used.

The study results revealed that learners received some reproductive healthcare-related education in Life-Orientation programme lessons; but the information was seen as insufficient. Parents were telling them about their body development; but were not discussing reproductive healthcare issues with them. Participants did not know how to use the different methods of contraceptives correctly though they knew about the methods. Participants did not know about other signs of complications of reproductive healthcare as they did not know how to identify sexually-transmitted infections, breast and vaginal infections and related problems. Based on the above study results guidelines was developed as the necessary tool to facilitate the enhancement of schoolgoing girls’ knowledge regarding reproductive healthcare in the Eastern Cape Province.

The study adopted the Belmont Report principles, namely, respect for persons, beneficence and justice, to enhance ethical considerations.

**Key concepts:** Enhancing, Reproductive healthcare, Exploring, Knowledge, Teenage schoolgoing girls
Abbreviations

DoH : Department of Health
LO programme : Life-Orientation Programme
UNIFPA : United Nations Population Fund
STIs : Sexually-transmitted infections
HIV/AIDS : Human immune-deficiency virus /
IUCD : Intrauterine Contraceptive Device
IUD : Intra-uterine device
BRICS : Brazil, Russia, India, China and South Africa
DOSD : Department of Social Development
WASH : Water Sanitation and Hygiene
UNICEF : United Nations Children’s Fund
UNESCO : United Nations Education and Cultural Organisation
GSWCAH : The Global Strategy for Women’s, Children’s and Adolescents’ Health
NMBM: Nelson Mandela Bay Municipality
DoE: Department of Education
NGO : Non-Governmental Organizations
WHO : World Health Organization
FPGSC : Faculty postgraduate studies committee
NRF : National Research Foundation
REC-H : Research Ethics Committee - Human (Adult)
BSE : Breast Self -Examination
NMMU : Nelson Mandela Metropolitan University
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Abbreviations used in the study

BSE : Breast Self-Examination

DoE: Department of Education

DoH : Department of Health

DOSD : Department of Social Development

FPGSC : Faculty’s postgraduate student committee

GSWCAH : The Global Strategy for Women’s, Children’s and Adolescents’ Health

HIV/AIDS : Human immune-deficiency virus

IUCD : Intrauterine Contraceptive Device

IUD : intra-uterine device

LO programme : Life-Orientation Programme

NMBM: Nelson Mandela Bay Municipality

NMMU : Nelson Mandela Metropolitan University

REC-H : Research ethics committee-Human

STIs : Sexually-transmitted infections

UNESCO : United nations’ education and cultural organization

UNICEF : United Nations Children’s Fund

UNIFPA : United Nations Population Fund

WASH : Water Sanitation and Hygiene

WHO : World Health Organization
1.1 Introduction

Teenage pregnancy is a globally known risk factor contributing towards a negative pregnancy outcome which can seriously affect the overall health of a teenager (Hoque & Hoque, 2010:1). The risk extends further to neonates born of teenage mothers as the deaths of these neonates are more prevalent in the first month of life among teenage mothers than amongst neonates born to older women (Presler-Marshall & Jones, 2012:1). Despite these risks being known to the majority of the population, the rate of teenage pregnancy continues to increase globally.

Strategies to deal with the challenge of teenage pregnancy have been implemented globally. In South Africa the Department of Health (DoH) is at the forefront of creating awareness about reproductive healthcare and teenage pregnancy by supplying free contraceptives to all citizens. Reproductive healthcare is a very broad umbrella concept, consisting of several distinct yet related issues such as abortion, childbirth, sexuality, contraception and maternal mortality (Kotwal, Khan & Kaul, 2014:1). For the purpose of this study the knowledge regarding reproductive healthcare will be explored, focusing on conception, contraceptive use, sexuality and reproductive hygiene needs.

The researcher is part of a broader project which is focusing on enhancing knowledge of and access to reproductive healthcare for women and youth in the Eastern Cape Province. The project involves five researchers with each one focusing on different
objectives. For the purpose of this study the researcher will only focus on the first objective of the overall project which is the title of the study.

In this study the researcher used a quantitative research design to explore the knowledge of schoolgoing teenage girls between the ages of 12 and 19 years in grades 10, 11 and 12 regarding reproductive healthcare in the Eastern Cape Province. The focus is on grades 10, 11 and 12 as it is hoped to illustrate the nature and consistent information gained at school that leads to the knowledge of the participants. The purpose includes facilitation of access to reproductive healthcare at school level. The knowledge explored is that which relates to the concept regarding reproductive healthcare which is that of conception and contraceptive use as well as female reproductive hygiene needs and contraception.

1.2 Orientation and background

An estimated 16 million teenage girls aged between 15 and 19 years give birth every year with 95% of these births occurring in the developing countries (Sagili, Pramya, Prabhu, Mascarenhas & Rani, 2011:1). Culture is at times a factor in these pregnancies at this early age as the custom of involving teenage girls in early marriages is still practised in many parts of Africa (Iklaki, Inaku, Ekabua, Ekanem & Udo, 2011:1). It may be under such circumstances that most teenage pregnancy rates increase at times, rising to more than 50% of the pregnancies occurring before the age of 20 years in the developing countries and more than 50% of teenage girls in Sub-Saharan Africa (Iklaki et al., 2011:1). Since child marriage is a serious violation of human rights according to Davis, Postles & Rosa (2013:20), the principles of reproductive healthcare insist among other things on the right of teenagers to say “No” to abuse, including forced marriages. In recent years it has been shown that there has been an increase in abandoning of children and one of the reasons for that is unplanned pregnancies among teenagers (Gwala & Jooste, 2010:1). For this reason, teenagers, especially those who are still at school, have to be made aware of reproductive healthcare to prevent unwanted pregnancies where possible. However, not
only is the burden of teenage pregnancies experienced in Africa and Sub-Saharan countries but also in some of the European and developed countries. In 2009 the United States teenage birth rate was 39.1 per 100 teenage girls aged between 15 and 19 years (Cavzos-Regh, Krauss, Spritznagel, Schootman, Cottler & Bierut, 2012:1).

South Africa is also one of the countries experiencing the burden of teenage pregnancies.

Recorded statistics for just 2014 alone indicate that 20 000 schoolgoing teenagers fell pregnant in South Africa (Masemola-Yende & Mataboge, 2015:2). These results left many questions unanswered. The Life-Orientation Programme (LO) was introduced in 1998 as a subject that was part of the Outcomes-based Education approach (UNIFPA, 2015:33). The LO Programme is aimed at developing and engaging learners in, among other skills, those of socio-economic areas so that they can achieve their full potential as responsible citizens of the country (Jacobs, 2011:1). Although the programme is being presented, it is not without some challenges, especially those related to reproductive healthcare as indicated by the persistent increase in the rates of pregnancy and sexually-transmitted infections amongst schoolgoing teenage girls. Learners regard the reproductive healthcare subject of the LO Programme as unimportant as part of their school curriculum because it focuses only on health promotion and is not addressing the real concerns facing teenagers regarding reproductive healthcare (Jacobs, 2011: 221). The attitude of educators related to their own misconceptions regarding sexual reproductive healthcare information has had a negative influence on schoolgoing teenagers. During the LO Programme lessons teenagers are found not to be receiving the specific information at school pertaining to their reproductive healthcare and knowledge needs (Francis & de Palma, 2014:91). Teenagers aged between 15 and 19 years (Flanagan, Lince, Durao, de Menezes, & Mdlopane 2013:13), have a higher prevalence of unmet needs for contraception (17.7%) compared to those of older women (11.7% - 16.8%). Consistent with this statement has been the fact that teenage pregnancy in South Africa, as in other countries, is driven by many factors; but inconsistent contraceptive use remains the leading one (Kanku & Mash, 2014:568; Ojong, Akpan, Alasia & Nlumanze, 2014: 22). The
reasons related to the inconsistent use of contraceptives range from attitudes of healthcare professionals at the reproductive healthcare centres to that of teenagers having limited options to choose from.

Other teenagers have maintained that they did not know that inconsistency in the use of contraceptives, even if it was for a limited period, could cause pregnancy; however, it is noted that inconsistent use of contraceptives is generally reported by some teenagers to be a result of criticism levelled at them by nurses. Teenagers report being at times denied a choice of the contraception method desired or a re-supply when in need (Willan, 2013:29). In a study that was conducted in Uganda it was found that the use of contraception among 15-19-year-olds was as low as 6.5% (Mehra, Agardh, Petterson & Ostergre, 2012:1). The authors in this latter-mentioned study stated that low usage of contraceptives by young people was due to their facing refusal or restrictions when they requested contraceptives from healthcare providers. Nearly one third of the healthcare providers, as reported in the study of Mehra, et al., (2012:1), would not supply contraceptives to individuals who were younger than 18 years, unmarried, still at school or to those without children although the policy guidelines of Uganda had no such requirements. Mehra et al., (2012:1) further stated that unwillingness to provide contraceptives was found to be due to cultural or individual biases of the healthcare providers. Given such a background to the accessibility of contraceptives to teenagers and schoolgoing girls, one tends to understand their inconsistent use of contraceptives. Furthermore, it becomes a concern as to how many of those teenagers that are ultimately able to obtain services are adequately informed about the effective use of contraceptives. This concern is due to the above-mentioned biases of healthcare providers.

It should be remembered that in general practice, dispensing of any medication is supposed to be preceded by health education about it and followed by instructions for the taking of that medication. Furthermore, contraceptives are regarded as a form of
medication and thus their consumers, including scholars, are supposed to be adequately informed of their use and uptake, effect and complications so as to ensure optimal use.

The healthcare professionals are still found to be preferring to teach abstinence to teenagers who present themselves for contraceptives (Flanagan, et al., 2013:14) and pharmacists are noted neither to be dispensing nor advocating the use of emergency contraception, even in cases when teenagers presented a prescription to the pharmacy (Willan, 2013:33).

Furthermore, findings in a similar study that was conducted at Taung in the North West Province in South Africa revealed that the youth had poor understanding of basic reproductive healthcare system such as the role of ovulation in the female body (Kanku & Mash, 2014:568). It also emerged in this latter -mentioned study that the youth were reportedly offered little choice of contraceptive methods and given poor explanations of the side effects and mechanism of action of the contraceptives given to them by the healthcare providers at the clinics. For that reason, the lack of information was noted as contributing to low usage of contraception, despite it being free (Kanku & Mash, 2014:568).

All these challenges faced by the teenagers in South Africa are happening despite the LO programme being taught that includes the section on reproductive healthcare. The teenagers are supposed to be informed of choices about contraceptives, be independent regarding self-reproductive healthcare and the healthcare providers should be respecting that independence. Based on the discussions above it becomes important to explore how these schoolgoing teenagers can gain the intended reproductive healthcare knowledge and independence under such conflicting circumstances and because of the reported unconstructive attitudes of healthcare providers.
Mshweshwe-Pakela (2015:20) found that teenage girls indicated a range of socio-cultural factors or the prevailing attitudes toward contraceptives as determinants of contraceptive use. Attitudes included misperceptions, such as that contraceptives caused infertility, made users fat or reduced pleasure in sex, which often resulted in non-use of contraceptives amongst teenagers (Mshweshwe-Pakela, 2015:20). Not much thought has been given to the knowledge that informs benefits of correct and consistent contraceptive use, reproductive healthcare and related services. The researcher will therefore explore knowledge of schoolgoing teenage girls in the Eastern Cape Province regarding reproductive healthcare.

Aside from popular media and one’s peers, teenagers often receive reproductive healthcare information from their parent(s) and or in school or church settings (Cavazos-Regh et al., 2013:470). Most of the teenagers, as found in the study of Msweshwe-Pakela (2015:44), received information on contraceptives from their teachers (28.86%) and their own parents and discussions with one or more parents was reported by 28% of these participants. There is a concern which has been reported that many parents do not discuss sexuality or sexuality risk with their children, citing barriers such as embarrassment, fear of encouraging sexual activity and lack of knowledge, skills and confidence (Miller, 2014:3; Cavazos-Regh et al., 2013:470). It is further stated that amongst those who do communicate with their children about sexuality issues, the communication often occurs later rather that sooner (Miller, 2014:30); however, 22.15% of the learners said that they had got the information from the clinic/healthcare facility/healthcare worker (Msweshwe-Pakela, 2015:44). If the healthcare providers have been found to be biased towards teenagers using contraceptives it is important to explore how much and what information is given when it is ultimately done. Also legally in South Africa learners are exposed to formal reproductive healthcare information as early as in grade eight (UNIFPA, 2015:30).
In conclusion it is noted from the aforementioned literature that young people, especially the schoolgoing teenage girls, though they are informed about and exposed to contraceptive services, it is on a limited scale and as such still experience unwanted pregnancies. Some still use contraceptives inconsistently while others demonstrate limited knowledge with regard to conception and reproductive healthcare as a whole. The aim of this research study was to explore the knowledge regarding reproductive healthcare of schoolgoing teenage girls in the Eastern Cape Province in order to enhance access to reproductive healthcare at schools.

1.3 Problem statement

Over a period of nine years the researcher has noted as a personal observation that there has been an increase in the number of teenage pregnancies of girls between the ages of 12 and 19 years in the Nelson Mandela Metropolitan Bay Municipal area. This is despite free access to contraceptive services at different clinics and hospitals throughout the municipal area. The free contraceptive service is a national policy of the South African government. Also as part of the basic educational curriculum South African schools are providing the LO programme which includes a section that deals with information to empower teenagers regarding reproductive healthcare. Under such circumstances it became a matter of concern to the researcher of this proposed study of the nature of the information given to teenagers at school regarding reproductive healthcare. Another concern raised by the researcher was what is the knowledge of schoolgoing teenagers with regard to reproductive healthcare.

The questions below were driving the study.

- What level of knowledge do schoolgoing teenage girls have regarding reproductive healthcare?
- What school-based information do schoolgoing teenage girls have regarding reproductive healthcare?
1.4 Purpose

The purpose of the study was to explore and describe the knowledge regarding reproductive healthcare of schoolgoing teenage girls in the Eastern Cape Province. From the empirical evidence generated in this study, the researcher was to determine what assistance is needed to enhance the current knowledge base in schools regarding reproductive healthcare and further enhance access to reproductive healthcare in schools in the Eastern Cape Province. The findings of the study were to guide the development of the guidelines.

1.5 Objectives

The objectives of this study were to:

- explore the knowledge of schoolgoing teenage girls regarding reproductive healthcare in the Eastern Cape Province,

- determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school LO Programme and,

- based on the results of the entire study, develop guidelines that could assist the stakeholders in health and education professions in enhancing knowledge regarding reproductive healthcare of schoolgoing teenage girls and improving their access to related services.

1.6 Theoretical framework

A paradigm is a way of looking at natural phenomena (Polit & Beck, 2014:387). Furthermore, it encompasses a set of philosophical assumptions that guide an individual's approach to inquiry (Polit & Beck, 2014:387). In this study the inquiry relates to the assumption
that schoolgoing teenage girls have limited access to and knowledge of reproductive healthcare which can lead them at times to use contraceptives inconsistently. A theoretical framework, which is at times referred to as a paradigm (Masters, 2011:11), is further stated as influencing the way knowledge is studied and interpreted (Mackenzie & Knipe, 2006:2). In this proposed study the Precede Procede Model was used as a framework for exploring access to and the knowledge of reproductive healthcare of schoolgoing teenage girls in the Eastern Cape Province. The model is directed at developing a change in behaviour in order to optimize general health outcomes but at a low cost. The model is suitable for the proposed study as the ultimate envisaged outcome is a change of behaviour amongst schoolgoing girls regarding reproductive healthcare through the enhancement of their knowledge in this regard.

The Precede Procede Model functions within two phases, namely, planning and evaluation. The planning phase, which is the phase of choice for this study, is further divided into several steps that include identification of what needs to be done and how it is to be done. The steps in this phase are:

- identification of predisposing, enabling and reinforcing factors that lead schoolgoing girls to use or not use reproductive healthcare services consistently,
- establishing how much they know about reproductive healthcare and
- how they can be assisted at school level with regard to knowledge about reproductive healthcare (See Annexure B).

Data derived using these steps became the foundation for the development of the guidelines described in chapter six.

1.7 Clarification of concepts

Below is the clarification of concepts that will be used in this study.
1.7.1 Exploring

‘Exploring’ means examining completely in order to find out more about something (Oxford Advanced Learners’ Dictionary, 2010:516). For the purpose of this study ‘exploring’ was defined as the complete examining of the access to and the knowledge of schoolgoing teenage girls regarding reproductive healthcare.

1.7.2 Knowledge

Knowledge is the information, understanding and skills that one gains through education or experience (Oxford Advanced Learners’ Dictionary 2010:817). For the purpose of this study ‘knowledge’ was defined as the information, understanding and skills gained regarding reproductive healthcare teaching at schools.

1.7.3. Teenage schoolgoing girl

A teenager is defined as a woman aged between 10 and 19 years (Liabsuetrakul, 2012:1). The dictionary defines the teenager as a person who is between 13 and 19 years old (Oxford Advanced Learners' Dictionary 2010:1534). For the purpose of this study the ‘teenage schoolgoing girl’ referred to schoolgoing teenage girls between 12 and 19 years old in the Eastern Cape Province.

1.7.4. Reproductive healthcare

Reproductive healthcare is defined as the constellation of methods, techniques and services contributing to women’s reproductive health and well-being by preventing and solving reproductive healthcare problems (Glasier, Gulmezoglu, Schmidt, Moreno & van Look, 2006:2). For the purpose of this study ‘reproductive healthcare’ referred to the methods, techniques and services contributing to reproductive health which are being
taught to schoolgoing teenage girls, including conception, contraceptive use, sexuality and reproductive hygiene.

1.7.5. Curriculum

A curriculum is defined as a structured programme on a specific course indicating details on what should be taught and how teaching should be implemented (Conley, de Beer, Durban-Krige, du Plessis, Gravett, Lomofsky, Merckel, November, Osman, Petersen, Robinson & van der Merwe, 2010:54) For the purpose of this study 'curriculum' referred to the structured programme on the course, namely, reproductive healthcare taught to schoolgoing teenage girls by their teachers.

1.7.6. Facilitation

'Facilitation' means 'making an action or a process possible or easier' (Oxford Advanced Learners' Dictionary, 2010:525). Facilitation is also described as working in pairs to assist each other, which appears to facilitate learning (Oxford Thesaurus of English, 2009:311). For the purpose of this study 'facilitation' referred to teachers and educators helping learners in schools understand and use the curriculum.

1.7.7. Enhancing

Enhancing means 'improving the quality, value or extent of something' (Oxford South African Concise Dictionary, 2010:388). For the purpose of the study 'enhancing' referred to the teachers improving the quality of reproductive healthcare teaching in schools.

1.8 Research methodology
Research methodology is the process used for conducting the specific steps of the study including specifying the type of information to be collected, the sources and data collection procedures (Grove, Burns & Gray, 2013:707). The research methodology of this study is discussed briefly below under two headings, namely, design and research methods. An in-depth discussion follows in chapter two.

1.8.1 Research design

A research design is a blueprint for maximising control over factors that could interfere with the desired outcome of a study (Tappen, 2011:43). It guides the planning and implementation of a study in a way that is most likely to achieve the intended goal (Burns & Grove, 2011:547). The research design in this study was a quantitative survey that was descriptive, exploratory and contextual in its approach. A brief description of the design and methods of the study follows below while a thick description will be in chapter three.

1.8.1.1 Quantitative research design

A quantitative research design is a formal, objective and systematic study process to describe and test relationships and examine cause-and-effect interactions among variables (Grove, et al., 2013:706). A quantitative research design is further described as the systematic, controlled empirical and critical investigation of hypothetical propositions about presumed relations among natural phenomena (Tappen, 2011:36). It makes use of experiments and develops hypotheses to test relationships or causality between the items being studied using statistics to make sense of the data that is gathered (Burnard, Morrison & Gluyas, 2011:49). Gathering data was facilitated through the use of an explorative, descriptive and contextual research approach.

A descriptive research approach aims at an accurate portrayal of the characteristics of people, circumstances and the frequency with which certain phenomena occur (Polit &
Furthermore, exploratory studies are designed to increase the knowledge of a field of study and so also provide the basis for confirmatory studies (Grove et al., 2013:694; Polit & Beck, 2012:18). The phenomenon referred to in this study was the access to and knowledge regarding reproductive healthcare of schoolgoing teenage girls. The context within which the study was conducted was the various schools in the Eastern Cape where teenage girls are continuing their schooling and where the LO Programme is being taught.

**1.8.2 Research methods**

The research methods refer to the techniques used by the researcher to structure a study and gather and analyse information in a systematic fashion (Polit & Beck, 2014:390; Polit & Beck, 2012:12). A quantitative study focuses on a formal, structured instrument being used to collect information from participants under controlled conditions (Brink, van der Walt & van Rensburg, 2012:11; Grove et al., 2013:703). The research methods of this study included determination of the suitable population, sampling method and data collection. Data was collected using a self-developed questionnaire (see Annexure C) and was captured manually using the Microsoft Excel software programme to make sense of numerical data collected (Watson, Mc Kenna, Cowman & Keady, 2008:353). Analysis was done using the statistician’s own version, STATISTICA.

The research population for the investigation was schoolgoing teenage girls in the Eastern Cape Province. The researcher selected different schools in the Eastern Cape Province, within the Nelson Mandela Bay Municipal area, the Cacadu district and the Sarah Baartman district, based on the statistics on the total number of teenage pregnancies at each school as well as schools where the LO Programme is being taught.
Sampling in research is usually criterion-based and purposive; therefore, the researcher selected the participants who possessed the suitable characteristics to provide the most information-rich data (Palinkas, Horwits, Green, Wisdom, Duan, & Hoagwood, 2015:1). The inclusion criteria consisted of the following:

- high schools in the Eastern Cape;
- high schools where the LO Programme is taught;
- teenage girls in grade 10, 11 and 12; and
- teenage girls between ages of 12 and 19 years.

A convenience, non-probability sampling method, which is based on using the most readily accessible persons, was used to select participants in this research (LobiondoWood & Haber, 2010:226; Botma, Greeff, Mulaudzi & Wright 2010:126). All the schools in the identified areas were notified and asked to participate by means of a formal letter faxed to the school and participation was according to the first come, first served principle. Learners who participated were chosen as soon as the school accepted the invitation and were next in line. An appointment was fixed through the school principal to address all the learners of the project, that is, its objectives and method of data collection, ethics and right to participate or withdraw at any stage of the project as well as the venue, date of data collection and transport arrangements where possible.

The school principal and teachers were not part of this information session. Only three classes per school were selected and all the learners in grades 10 to 12 were taken to an empty big classroom or school hall to be addressed as above and were asked to think and decide whether to participate or not but still keep the decision confidential. All the learners were given a sealed envelope that had another sealed envelope in it with the letter to the parents/guardians. The envelope was marked with a code number for identification purposes. All those who did not wish to participate were asked to post their envelopes in a marked and sealed box dedicated for the purpose that was placed in a
secluded corner in the classroom during the course of the day but was emptied by the end of the school day. A fieldworker was allocated to collect the box later that day before the locking up of the school gates and doors. Those learners who agreed to participate took the sealed envelope given to them home to the parents/guardians and brought the response in a sealed envelope within three days of the day of the meeting. Response envelopes were posted in the same type of sealed box selected and dedicated for the purpose which was in the secluded corner in the classroom. The fieldworker collected the box by the end of the school day.

A self-developed structured questionnaire was used for data collection. The data-collection process took place in the school during school hours, during the LO Programme periods of that particular class and data collection did not last more than half an hour so as not to cause major disruption to the normal curriculum. Boys were excused from the class during that period to ensure that privacy of the learners was maintained; but were required to use the time for self-study in the library. The researcher and the fieldworkers were available to the learners to clarify any questions they had regarding the questionnaire but not leading to or giving answers. The researcher explained to the learners that all information provided by them would remain confidential and that they should also keep the information about the research process and their responses a secret. Participants were informed that no information would be divulged to any other person except those who were directly involved in the research project. A publication or two was the form of dissemination of results; but privacy and confidentiality of participants and information respectively were strictly maintained.

At the end of data collection, a minimum of 300 usable questionnaires was collected and data was captured and analysed by the researcher. This number excludes the pilot study and spoilt questionnaires. Final data analysis was done under the assistance of a
statistician and research supervisors. The researcher ensured that ethical considerations protecting the participants were ensured and maintained throughout the study and that they were protected especially against harm (emotional embarrassment). Also parents were invited per the letter sent to them prior to the data-collection phase to clarify any concerns they might have had regarding the participation of their children in this study. To protect privacy and confidentiality the use of code numbers for identification purposes and the box to post responses at their own time were used. Respect for the autonomy of the participants was ensured, thus encouraging voluntary participation. Respecting justice was also ensured by seeing that teenagers themselves and their parents/guardians adhered to the practice of the principle of informed consent. To confirm feasibility of the study, validity and reliability of the study a pilot study was conducted. Based on the findings that emerged from the data collected, a framework of action was developed that could assist the education and healthcare professionals and Department of Education (DoE) stakeholders with appropriate means of information regarding informing schoolgoing teenage girls about reproductive healthcare and enhancing correct use of those services.

1.9 Pilot study

A pilot study is a small-scale study that is conducted prior to the main study on a limited number of participants from the main population at hand to test feasibility (Brink, et al., 2012:174; Burnard, et al., 2011:104). The pilot study was conducted using a convenience and non-probability sample of 30 participants. The researcher with the help of two fieldworkers went to two high schools, one in the Uitenhage area and the other in Kirkwood in the Eastern Cape Province. These two high schools are in Nelson Mandela Bay Municipal area and Sarah Baartman district respectively. An appointment was fixed through the school principal to address the learners on the project, its objectives and method of data collection, ethics and the right to participate or withdraw at any stage of the project as well as the venue, date, data collection and transport arrangements where possible. A total of 30 participants was used for the pilot study. The pilot study was
conducted following the same procedures as the main study. The data obtained from the pilot study was not included in the main study to ensure quality.

### 1.10 Quality of the research study

The quality of the research study was of the utmost importance; otherwise research findings would have been rendered worthless. The implementation of the following concepts was crucial for the current research study.

#### 1.10.1 Reliability

Reliability refers to the accuracy and consistency of the information obtained in a study (Polit & Beck, 2014:72). According to Brink, et al., (2012:162); Mateo & Foreman (2014:132), reliability and validity are of great importance in all qualitative and quantitative studies to ensure that the findings are auditable, consistent and trustworthy. Reliability of the study was done through seeking expert opinion from the supervisors of the research study and the statistician in relation to the content of the research study. A pilot study was conducted to test reliability of the questionnaire development.

#### 1.10.2 Validity

Validity refers to whether an instrument measures what it sets out to measure (Burnard, et al., 2011:63). Since validity varies from one sample to another and one situation to another, validity testing evaluates the use of an instrument for a specific group or purpose rather than the instrument itself. In this study the researcher developed the questionnaire under the guidance of the university-appointed statistician from the statistical unit following an intense literature review. The questionnaire together with the research proposal was presented to the supervisor and departmental committee for evaluation. The researcher also gave the questionnaire to senior colleagues to check for validity. The research proposal and questionnaire were presented to the university’s postgraduate research committee in the Faculty of Health sciences (see Annexure A) and Ethics
committees for approval (see Annexure E) and was approved by all these committees. Finally, a pilot study was conducted to see if the questionnaire measured what it was supposed to measure.

1.11 Ethical consideration

Ethics is concerned with issues of right and wrong and good and bad (Burnard et al., 2011:20). A researcher is responsible for conducting research in an ethical manner from the conceptualization and planning phases, through the implementation phase, to the dissemination phase (Brink, et al. 2012:32). The Belmont Report, which provides a model for many guidelines adopted by disciplinary organisations, served as a basis for regulations affecting research and was therefore adopted in this study (see Annexure D). The Belmont report articulates three broad principles on which standards of ethical conduct in research are based: beneficence, respect for human dignity and justice (Polit & Beck, 2012:152).

1.12. Dissemination of results

A copy of the study report will be handed to all the relevant stakeholders. The research report will also to be disseminated by an article written by the researcher in an accredited professional journal, presenting it at a conference as well as conducting seminars and workshop with midwives and educators in the Nelson Mandela Bay Municipal area and wherever the researcher is invited to go.

1.13 Chapter layout

**Table 1: Chapter layout**

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1.14 Conclusion

In this chapter the researcher presented an overview of the study. Owing to the increase in the rate of teenage pregnancies, other related sexually-transmitted infections and reproduction-related conditions amongst schoolgoing girls, the main goal of the research study was to develop guidelines that would assist and enhance access and knowledge of schoolgoing teenage girls regarding reproductive healthcare. The proposed research design was quantitative with an exploratory and descriptive approach. It was conducted at various high schools in the Eastern Cape Province where the teenage girls aged 12-19 years of age but in grades 10, 11 and 12 attended school in the focus being the school level grades rather than the age of the participants.
CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

In chapter one the researcher presented a brief overview and literature review of the research project. This chapter provided a detailed description on the rationale and the literature review that was conducted for the study and therefore paid attention to the global context of reproductive healthcare and the challenges that the teenagers were faced with. Also a description of the concept, ‘Reproductive healthcare’ was dealt with while the focus was issues related to sources for sexual and reproductive healthcare information, conception knowledge, contraceptive knowledge and reproductive hygiene among schoolgoing teenage girls.

2.2. Definition and rationale for literature review

The first step in quantitative research is to conduct a literature review in order to elicit the need for the study and thus show how the study qualifies in the given field and discipline (Blanche, Durrheim & Painter, 2006:19; Streubert & Carpenter, 2011:25). According to Ridley (2011:20), the literature review section is where connections between source texts are made, where background knowledge is drawn upon and where one positions oneself and the research in relation to these sources (Ridley, 2012:3). On the other hand, Jesson, Matheson & Lacey (2011: 20), in their highlighting the importance of a literature review, state that researchers need to conduct it so as to select the research topic that is most significant and relevant to their research question. The literature review conducted assisted in the identification of the gap in the knowledge regarding reproductive healthcare among teenage girls and thus confirmed the need for investigation using a suitable topic for this study.
A literature review, according to Burns & Grove (2009:92), is a presentation of an orderly written report of scholarly published information on different topics including that of the study intended to be conducted by the researcher. The author further states that reviews are conducted for various purposes, such purposes being class assignments to determine the strength of evidence, being able to support clinical decisions and practice and finally for conducting or guiding an envisaged study (Burns & Grove, 2009:92). In this regard Creswell (2014:25) confirms that a literature review is a written summary of factual evidence put together to describe the past and current state of information needed for a proposed study.

Polit & Beck (2012:732) define a literature review as critical research on the topic of interest and summary thereof in order to place a research problem in context. Both these definitions imply the importance of a literature review as an initial and critical step in any research study. A literature review is therefore fundamental in obtaining detailed, cuttingedge knowledge for the research topic selected. In this study the knowledge needed was about how much schoolgoing teenage girls knew about reproductive healthcare.

Polit & Beck (2012:58), Houser (2012:107) see a literature review as serving the purpose of:

- helping the researcher to identify the research problem and refine the research question;
- focusing the purpose of the study more precisely;
- informing the research questions and guiding the researcher to develop a research plan;
- providing a foundation for the researcher on which to base new evidence;
- helping the researcher to develop a conceptual or theoretical framework that might be used to guide the research study;
• assisting the researcher to conduct a critical, analytical appraisal of what is already known about the research topic at hand, to identify the gaps and weaknesses that exist. According to de Vos, Strydom, Fouche and Delport (2011:135), the literature review provides the framework of the research and identifies the area of knowledge that the study is intended to expand

• helping to study the conceptual and operational definitions used in the previous research;

• preventing unintentional duplication by placing the study in the context of the general body of knowledge and enhancing the probability that the new research will make a valuable contribution;

• analysing the advantages and the disadvantages of research methods used so that they can be adopted or improved; and

• assisting the researcher to compile a written report of what is known about the topic under investigation (Burns & Grove, 2005: 133; Polit & Beck, 2009:63).

Reflecting on the above discussions one observes that a literature review is an important aspect for a successful research study which must then be focused. To be able to have the necessary quality information the researcher has to plan the literature search. The researcher adopted the plan for literature review as suggested by Burns & Grove (2009:92); Blanche, et al., (2006:31) that of:

• reading from a diverse range of sources;
• retrieving relevant information;
• analysing and interpreting data guided by the question in mind and making use of the literature

In this regard the researcher in this study consulted journals and journal articles, books, DoE and National policies, circulars and reports as well consulting with experts in the field of teaching, healthcare especially reproductive healthcare. Literature searches were carried out
mainly through CINAHL and MEDLINE online databases. In the context of this study the literature review was conducted to gather current information regarding knowledge of schoolgoing teenage girls about reproductive healthcare; which needed to include what it was, its whereabouts and how to access it. The literature reviews also gave clarity on how helpful the LO Programme with regard to the reproductive healthcare subject at school was

2.3. Background to youth reproductive healthcare

With the effects of globalization, urbanization and greater opportunities for socialization in recent years the heightened risk of STIs, HIV and unwanted pregnancies are dominating factors within the lives of the youth today (Rajapaksa- Hewageegana, Piercy, Salway & Samarage, 2015:3). Although reproductive healthcare needs of teenagers have long been neglected, in the last decade the importance of information on reproduction and sexuality is being increasingly emphasized (Kotwal, et al., 2014:1). Because teenagers are beginning to experience their sexual debut at an earlier age than previously, measures need to be put in place to equip them with the necessary knowledge and information needed to make informed decisions without putting their health at risk. School-based education programmes covering the subject of sexuality play an essential role in equipping teenagers with the knowledge they require to make informed sexual and reproductive decisions and to protect their health (Rajapaksa- Hewageegana, et al., 2015:3). It is therefore necessary to address specific relevant issues related to reproductive healthcare by implementing it into the LO Programme at school level in order to promote good health and responsible sexual maturity of our teenage girls. The following section provided the description of youth/teenage reproductive healthcare worldwide as a means to its meaning in the South African context.
2.3.1 Reproductive healthcare in a global context

Reproductive healthcare is a broad umbrella concept consisting of several distinct yet related health issues (Kotwal, et al., 2014:1). In explaining the concept of reproductive health care Glasier, et al., (2006:2) define it as the constellation of methods, techniques and services that contribute to the reproductive health and well-being of an individual by preventing and solving reproductive health problems. Furthermore, healthy sexual and reproductive health status is noted to be a state of complete physical, mental and social well-being in all matters relating to the reproductive system. Such statements as the latter two imply that people are able to have a satisfying and safe sex life, the capability to reproduce and the freedom to decide if, when and how often to do so as long as there are services and educational information available regarding the consequences.; therefore it is important for young people to have free access to correct, accurate, safe, affordable and acceptable contraception methods of their choice so as to be seen as practising sensible and informed reproductive healthcare. In so doing people will be able to keep themselves protected against sexually-transmitted infections and unwanted pregnancies (http://www.unfpa.org/sexual-reproductive-health) accessed on 16/11/2016. Teenage reproductive healthcare forms, amongst others, part of the socio-political sphere as it relates to empowerment of young girls regarding their right to safe reproductive and sexual healthcare. On the other hand, teenage girls would benefit from a healthy reproductive healthcare service and become encouraged to stay in school and finish their studies before having babies

Reproductive healthcare of teenage girls has been noted still to be a major health concern and as such has received much attention for many years globally (RajapaksaHewageegana, et al., 2014:3). As stated in the International Conference on Population and Development Programme in 2012, some of the South African areas of priority concern in sexual and reproductive health are quality family-planning services, teenage sexuality and reproductive health education (Department of Social Development
Studies have suggested that teenagers have limited knowledge about sexual reproductive healthcare which may have negative consequences for their wellbeing (Shiferaw, Getahun & Asres, 2014:2; Malleshappa, Krishna & Nandini, 2011:305).

Globally the single leading risk factor for death and disability in young girls of reproductive age in low- and middle-income countries is HIV, mainly due to unsafe sex (UNIFPA, 2013:18). During a Demographic and Health Survey in 2010 for adolescents between the ages of 15 and 19 years that was conducted in over 60 developing countries, questions were posed about reproductive health issues such as sexual activity, condoms, contraceptive use and knowledge about HIV (WHO, 2010:4). Findings revealed that adolescents were not well informed about sexual and reproductive matters including the processes of puberty as a developmental stage. The limited knowledge of reproductive healthcare was partly attributed to the fact that teenagers relied on friends and other informal sources for the needed information rather than schools, healthcare providers and parents (WHO, 2010:6). Considering these results from the aforementioned survey one could conclude that the increased rate of HIV/AIDS transmission occurring amongst teenagers and youth was due to limited knowledge about sexual and reproductive health information.

The survey (WHO, 2010:4) did not make provision for the age group 10 to 14 years. Considering the incubation period of up to or more than ten years of HIV (https://www.avert.org/about-hiv-aids/symptoms) accessed on 10th April 2017 and the fact that teenagers are sexually active at that age and yet have limited information regarding reproductive health care, one could conclude that the mean age of being prone to HIV infection is 14 years, a statement supported by WHO (2010:4). It is at this age that some teenage girls become pregnant through not using protection during sexual
intercourse. Studies have also revealed that female teenagers between the ages of 15 to 19 years explore their sexuality at an early age (Coleman, 2009:3).

According to UNIFPA (2013: 3) (about 19% of all young girls in developing countries become pregnant before the age of 18 years and one girl in 10 has a child before the age of 15 years in Bangladesh, Chad, Guinea, Mali, Mozambique and Niger. In view of this statement the researcher took cognisance of the statement of Kangaude and Banda (2014:251) that Sub-Saharan Africa has a large population of young people who are transitioning from the pre-reproductive into the reproductive phase making sexual health amongst them determined by factors such as religion and cultural beliefs about sexuality. When one looks at Nigeria, one observes that the formal school system is tailored according to traditional values, namely, seeing sex as a topic best left alone (Ojong et al., 2014:22). In Nigeria and India sexual education programmes initially came to a halt because of socio-cultural opposition, thereby causing years of delay and related loss of investment (UNESCO, 2011:12). This in turn led to the removal of all elements related to actual sexual and preventive behaviour, including contraception and condoms (UNESCO, 2011:12). The reproductive healthcare-related programmes in Kenya and Indonesia are Non-Governmental Organizations (NGO) initiated, also in response to the sensitivity of sexuality education and the relative resistance of national government to address the topic. However, Estonia in Europe is a good example of comprehensive integrated and fully scaled-up sexual-education programmes holding important lessons for other countries wishing to achieve this impact (UNESCO, 2011:12).

Most studies reporting about teenage reproductive healthcare and pregnancy are noted to be from the African countries (Presler-Marshall & Jones, 2012:1; James, Pienaar & Strümpfer, 2012: 5.) Despite the fact that in all cultures and family’s teenage pregnancy is denounced by virtue of its effects on the future of the teenager; African cultures seem to be far more worse in this regard as their African ideals are that pregnancy should be confined to marriage only (Mshweshwe-Pakela, 2015:21). For instance, in these cultures
the teenager may become an outcast to the entire community as she is humiliated and labelled with bad names (Molapo, 2011:3). It is for this reason that the study focuses on how much teenagers know about reproductive healthcare in an attempt to limit stereotypes and misconceptions, thus increasing access for them to reproductive healthcare. This study focuses on schoolgoing teenage girls; but the researcher hopes that in the long-term the information gained by teenagers from this study will spill over to the older women as the teenagers will talk to their mothers and family while they themselves will grow to be knowledgeable women on the subject.

Owing to the cultural and traditional beliefs of some of the communities in the SubSaharan African countries as indicated in the above section and discussion, teenagers are compelled to fall pregnant or get married at an early age. Consequently, when they fall pregnant so young, they become vulnerable to the high risk of maternal mortality as their bodies are not mature enough to cope with the experience of pregnancy (UNICEF, 2011:22). Enhancing the teenagers’ knowledge regarding reproductive healthcare will empower independence and ability to make useful decisions regarding the use of contraceptives. It therefore becomes useful to explore how reproductive healthcare of the youth and teenagers is being dealt with in South Africa.

South Africa is amongst a few countries that provide legal protection of sexual and reproductive rights (Ramkissoon, Searle, Burn & Beksinska, 2010:34). According to Section 134 of the Children’s Act No. 38 of 2005, the law of South Africa enables access to contraceptive advice to be available from the age of 12 (Act 38 of 2005:94). This means that no teenager at the age of twelve years and over should be refused access to sexual and reproductive information and services at a healthcare facility in South Africa. Similarly, one of the important strategies of the Population Policy is the promotion of “responsible and healthy reproductive and sexual behaviour among adolescents to reduce the incidence of related high-risk teenage pregnancies, abortions and sexually
transmitted infections, including HIV/AIDS” (DOSD, 2015:2). It is for these reasons that correct information sharing with teenage girls regarding reproductive healthcare should be emphasised thus enhancing knowledge that could render them assertive in taking control of their reproductive healthcare and responsibilities around this issue.

The South African government, in response to this required Population Policy call, has therefore introduced a national Life-Skills programme at schools. The subject is taught in all secondary schools and the syllabus focuses on teaching about physical activity, nutrition, emotional and mental health, drug and alcohol use as well as vocational preparation (Smith & Harrison, 2013:69). South Africa is one of a few countries in Sub Saharan Africa that introduced the LO Programme with reproductive healthcare as one of its subjects in public schools in 1999 as part of the Outcomes-based Education approach in South Africa (UNIFPA, 2015:33).

In South Africa the LO Programme is aimed at developing and engaging learners in, among other skills, those of socio-economic areas so that they can achieve their full potential as citizens of the country (Jacobs, 2011:1; UNIFPA, 2015:33); however, the varieties of different life -skills curricula currently being implemented by South African schools and institutions focus largely on HIV- and AIDS-transmission awareness and information, thus not sufficiently emphasizing the importance of physical and mental wellness, namely, to promote healthy reproductive and sexual behaviour (Thaver & Leao, 2012:87). Since sex and sexuality are behavioural matters one has to be fully informed of the advantages and disadvantages of any lifestyle to gain improved or permanent results, hence the need to refocus the LO Programme.

Evaluations on LO Programme studies identified challenges to this subject, such as insufficient LO Programme teachers and lack of integration into the schools’ system and policies amongst others (Beksinska, Pillay, Milford & Smith, 2014:676). It has also been found that teachers still find it rather uncomfortable to teach learners about sexuality,
continuing to believe naively that abstinence is the most appropriate prevention strategy for these learners (Smith & Harrison, 2013:69). The sexual behaviour considered acceptable by teachers seems to be rather biased as learners are deprived of adequate reproductive healthcare information. It is therefore important for teenagers to have access to constructive reproductive healthcare information to assist healthy decision-making, otherwise they are prone to experience grave consequences for their health (Shiferaw, et al., 2014:2).

Currently there seems globally to be a low level of access to quality reproductive healthcare information for some vulnerable groups such as teenagers (Ojong, et al., 2014:22). The above discussion provided a global view of youth and teenager reproductive healthcare. In the next section discussion will focus more on the different sources of sexual and reproductive healthcare information.

2.3.2 Sexual and reproductive healthcare information sources for teenagers

The ideal preventive healthcare measure for all teenagers regarding sexual and reproductive healthcare information necessitates extensive and truthful conversations. The home environment is seen as a protected environment as few responsible parents will expose their child to dangerous circumstances or hurtful conversations. It is suggested that these conversations are initiated in the home environment as early as possible; but there are challenges. Literature reports that parents are not discussing sexuality or sexual risks with their children, citing barriers such as the fear of encouraging sexual activity amongst their children, lack of knowledge on important information to convey and the skills in how to convey such information and confidence in doing it (Miller, 2014:3). The aforementioned author further states that amongst those who do communicate with their children about sexuality issues, the communication too often occurs later rather than sooner (Miller, 2014:30). It is also noted that parents often just
neglect the issues and very few children are growing up in stable homes, regardless of educational level or any other socio-economic facto

Parent-child engagement in talks about reproductive healthcare is encouraged as it has been reported that when such an engagement happens some positive effects are noted on parent-child communication (Manu, Mba, Asare, Odoi-Agyarko & Asante, 2015:2). For that reason, it is noted that parents should be educated on different sexual and reproductive health issues in order to initiate comprehensive family-life education of their children and teenagers (Shiferaw, et al., 2014:9); therefore, the home environment where the teenagers reside should form the basis point for providing them with information on sexual and reproductive healthcare issues which will be continued at school level.

Parent-child communication about sex and sexuality as indicated by Aaro, Matthews, Kaaya, Katahoire, Onya, Abraham, Klepp, Wubs, Eggers & de Vries (2014:1) has been shown to encourage in other matters

- delayed onset of first sexual activity and
- increased sexual abstinence as well as practice of safer sex, if sexually active, through condom use.

In many developing countries, however, it has been found that teenagers rarely discuss sexual and reproductive healthcare issues openly with their parents as such discussions are viewed to be embarrassing and shameful due to cultural beliefs which is really an attitude of denial (Shiferaw, et al., 2014:2).

A lack of access to comprehensive and accurate information on sexual and reproductive healthcare means that teenage girls are not equipped to manage their sexual health or to reduce potential reproductive-system-related health risks (UNAIDS, 2014:4). As a justification of this statement the researcher would like to mention that over the past three decades in some regions of the world it has been shown that teenage girls have remained
at a much higher risk of HIV infection than their male peers (UNAIDS, 2014:3). A study conducted in Northern Uganda showed that as a result of lack of sexual education, almost half of new HIV infections on a daily basis were occurring among young people aged between 10 and 19 years especially in Sub-Saharan Africa (Herman, Ovugo, Mshilla, Ojara, Kimbugwe, Adwara & Mahuro 2013:2). Results from a study conducted by Idele, Gillespie, Porth, Suzuki, Mahy, Kasedde & Luo (2014:145) indicated that the majority of HIV infections occurred in Sub-Saharan Africa, where 85% of all teenagers living with HIV were located. In 2012 there were 1.7 million and the teenagers that were newly infected with HIV were girls. Statistics further show that there are 35 million people living with HIV globally of whom 2.1 million are teenagers as further stated by UNAIDS (2014:3). Such information leads to the understanding that teenagers, especially girl teenagers in the sub-Saharan region, urgently need to be empowered to access adequate reproductive healthcare services as one of the important aspects of their healthcare responsibilities.

To enforce reproductive healthcare awareness and responsibility one has to start as soon as possible and target girls as young as possible, hence the focus of this study. Young girls are said to lack access to credible sources of sexual information at an early stage of their lives which leads them to lack the capacity to resist sex, as well as lacking the requisite skills to negotiate for safer sex (Onyeonoro, Oshi, Ndimele, Chuku, Onyemuchara, Ezekwere, Oshi & Emelumadu, 2011:294). Owing to that limited capacity they engage in unprotected sex and fall pregnant or become infected with sexually transmitted infections (Idele, et al., 2014:151). Correct and reliable informants become crucial in building a well-founded life-skills system to counteract negative reproductive behaviour and ignorance. Aside from popular media and one’s peers, teenagers often receive reproductive healthcare information from their schools or church settings (Cavazos-Regh et al., 2013:470). For that reason the researcher chose to target the schools as a reliable source for this information through investigating the knowledge levels of the schoolgoing girls, assessing how much reliable information they had and which sources could be identified for the information.
In the study of Msweshwe-Pakela (2015:44) which was conducted at a high school in Mdantsane, East London, Eastern Cape Province, results indicated that most of the teenagers received information regarding contraceptives from their school teachers and from their own parents (28.86%). Discussions with one or more parents were reported by 28% of these participants in this study; but 22.15% of the learners got the information from the clinic/healthcare facility/healthcare worker (Msweshwe-Pakela, 2015:44). Other popular sources used by the teenagers are the internet, magazines and radio news.

At school the LO Programme is supposed to be the source of this much-needed information for the learners; but it was found that learners regarded the LO subject as an unimportant part of the school curriculum and mainly viewed its teaching time as a ‘free’ period where they could socialize with their friends (Jacobs, 2011: 221). Scholars nowadays also view any subject that they don’t have to pass an exam on as trivial, indicating that there is no culture of eagerness for learning. Such an attitude is because LO Programme is viewed as not addressing the real concerns teenagers are faced with regarding reproductive healthcare (Jacobs, 2011: 221). The attitude of educators related to their own misconceptions regarding sexual reproductive healthcare has also been found to be having a negative influence on schoolgoing teenagers because they do not receive specific information pertaining to their reproductive healthcare knowledge needs during their LO Programme (Francis & de Palma, 2014:91).

One of the gaps in the current subject as identified by the researcher is the matter of relevance, hence the need to know the knowledge levels of the recipients of this teaching through this programme.; otherwise it serves as a missed opportunity to instil adequate knowledge regarding specific reproductive healthcare issues facing teenagers on a daily basis so that they are finding themselves unprepared when confronted with these dilemmas. In order for teenage girls to lead a healthy, responsible and fulfilling lifestyle and protect themselves from reproductive health problems, they need to be knowledgeable about themselves and have adequate information about the physical
changes that take place during puberty, menstruation, pregnancy and childbirth (Malleshappa, Krishna & Nandini, 2011:306). The researcher further discussed the following concepts of reproductive healthcare, namely, conception, contraception and reproductive hygiene amongst teenage girls in order to assess their knowledge thereof.

2.4. Reproductive healthcare concept

The above discussions, which are related to sources for sexual and reproductive healthcare information, have shown that teenagers often lack basic reproductive healthcare information and knowledge (Tegegn, Yazachew & Gelaw, 2008:1). The researcher therefore explored how much schoolgoing teenagers knew about the concepts of conception, contraception and reproductive hygiene.

2.4.1. Conception

Unplanned early parenting because of early sexual initiation and unplanned pregnancy has increased the parenting burden and dilemma in many households (Obiyan & Agunbiade, 2014:848). It becomes a burden to the parents of the teenager or elders in that household as the teenager herself still needs parenting as well (James, van Rooyen & Strümpher, 2011:190).

Previous and related studies have suggested that teenagers have limited knowledge about sexual reproductive health and about the natural process of puberty (Shiferaw, et al., 2014:2). Conception, which normally occurs when a single sperm penetrates an ovum, formulating a single cell (Davidson, 2010:8) is a result of unprotected sex without the use of contraceptives. It seems as if teenagers have limited knowledge of this human developmental physiology or neglect it if they are forced or perhaps under the influence of alcohol or drugs. It is therefore important to know how much schoolgoing teenagers know of the relationship between conception and contraception in order to be able to
identify the nature of the necessary support and education to provide them with in school. A study conducted in South Africa indicated that teenagers lacked access to medical information on the reproductive system itself, particularly conditions necessary for conception to take place (Wood & Jewkes, 2006:112). From the results of that study it appeared that females believed that having multiple partners and alternating them regularly prevented conception (Wood & Jewkes, 2006:112).

The results of another study conducted at Taung in the North-West Province in South Africa revealed that the youth had a poor basic understanding of the reproductive healthcare system (Kanku & Mash, 2014:568). These authors further stated that, from their study, it emerged that, regarding the knowledge about ovulation, eight out of twelve girls knew that women produced an egg; but had little understanding of the role of ovulation in the female body (Kanku & Mash, 2014:568). Since ovulation is part of conception it is essential for the scholars to understand this concept if they are to avoid pregnancy while they are at school, hence the urgent need to engage with schoolgoing teenage girls to explore their understanding of the concept. The most convenient place to start this formal engagement is at school. The focus on schoolgoing girls is because they are the ones that are most negatively affected by the results of ill-timed conception as they have to leave school and sit with an unplanned pregnancy and child.

2.4.2. Contraceptives

The World Health Organization has developed guidelines in order to accelerate progress towards attainment of international development goals targeting sexual and reproductive health (WHO, 2014:8). As further stated by WHO (2014:8), the guideline will contribute particularly to meeting the unmet need for contraceptive information and services which South Africa had done already, in assisting with the objectives stated in those guidelines by formulating a policy, namely, the National Contraception and Fertility Planning Policy (DoH, 2012:2). Furthermore, in conjunction with this policy an addition of another policy and guidelines, called Service Delivery Guidelines as well as the National Contraception Clinical
Guidelines has been drawn up (DoH, 2012:2). These policies are serving as an extremely important framework aimed at reprioritizing contraception and fertility planning in South Africa (DoH, 2012:2).

Contraception is the practice of preventing a woman from becoming pregnant; methods of practising birth control and by giving advice about contraception (Oxford Advanced Learners’ Dictionary 2010:316). As also stated by Dreyer (2012:2) contraception refers to the prevention of oocyte fertilization that results in the prevention of pregnancy. Information related to this aspect of reproductive healthcare is important for maintenance of the wellbeing and health of teenage girls.

The most urgently targeted group for the contraceptive and family planning service information are the youth and teenagers. Providing young teenage girls with access to information and services for safe and effective contraception methods will ultimately enable them to make informed choices regarding their fertility. Contraceptive methods are provided in the form of injectables, tablets, artificial devices such as the Intrauterine Contraceptive Device (IUCD) and implants (Tabane & Peu, 2015:2). Other means of contraception are abstinence, lactation and amenorrhoea (Tabane & Peu, 2015:2). In South Africa contraceptive methods are made available at various service points where services are equitably distributed and made available to all who need them (Tabane & Peu, 2015:2).

When one looks at the BRICS (Brazil, Russia, India, China and South Africa) countries which are at a newly advanced development stage and that focus on reducing poverty and inequality addressing the vulnerable groups, an interesting statistical finding has indicated the compliance with contraceptive use (DOSD, 2015:2). China had the highest percentage of contraceptive use 85% followed by Russia 80%, Brazil 80%, South Africa
64% and India 55% (DOSD, 2015:22). Stricter contraceptive and family-planning policies had been successfully implemented in these countries and these services were mandated to be offered free of charge to all citizens in order to reduce population growth as well as decrease pregnancy-related mortality (DOSD, 2015:28). Contraceptive use by teenagers is included in these findings.

The effectiveness of contraceptive services being used by teenagers has a direct impact on teenage pregnancy rates and STIs. The correct use of contraceptives and assistance from the relevant authorities and governmental departments could be of assistance in bringing down these rates. In the past few decades South Africa has seen a decline in teenage fertility; yet rates still remain high with around 30% of 15- to -19-year-olds reporting having been pregnant before (Wilan, 2013:7). It is hoped that with the introduction of properly taught LO these rates will decline further. Teenagers in South Africa aged between 15 and 19 years, as stated by Flanagan, et al., (2013:13), have a higher prevalence of an unmet need for contraception (17.7%) when compared to that of older women (11.7% - 16.8%). Teenage pregnancy in South Africa, as in other countries, is driven by many factors; but inconsistent contraceptive use remains the leading one. Exploring the effectiveness of LO Programme by investigating the knowledge of schoolgoing teenagers with regard to reproductive healthcare assisted in understanding the reason for their inconsistent use of contraceptives.

2.4.3. Reproductive hygiene

Personal hygiene is said to be the foundation of a healthy body and mind. Healthcare providers insist on health education that emphasizes personal hygiene on almost all personal levels and circumstances hence a patient in a hospital will be washed and turned around for the purpose of washing himself/herself regardless of the condition. Washing does not assure personal hygiene, however; but has to be coupled with avoiding of circumstances that would predispose a person/patient to risking any such. behaviour;
therefore all persons/patients should keep themselves clean and also keep a constant eye on signs of infection such as foul smells and development of unexplained rashes and pimples especially with regard to reproductive system healthcare.

Thakre, Thakre, Reddy, Rathi, Pathak & Ughade (2011:1) state that even though good hygienic practices, such as the use of sanitary pads and adequate washing of the genital area, are essential during menstruation these are not always observed, maybe due to poverty as well as ignorance. These authors relate the rise in some of reproductive system infections to lack of hygiene during menstruation (Thakre, et al., 2011:1); therefore, appropriate education in this regard is needed. In the context of this study reproductive hygiene includes taking care of oneself before, during and after the menstrual period, checking and being aware of any genital abnormalities, use of clean, proper underwear and care of breasts. The importance of menstrual hygiene should be addressed openly so that teenagers can have correct knowledge regarding menstruation without feeling ashamed or embarrassed.

Owing to the growing evidence that suggests the gender impacts of inadequate WASH (Water Sanitation and Hygiene) facilities in low-and middle-income country schools, it is alleged that girls experience many challenges in managing their menstruation while they are at school (Sommer, Caruso, Sahin, Calderon, Cavill, Mahon, & Phillips-Howard, 2016:2). To enhance care during and knowledge about menstruation UNICEF in collaboration with the University of Columbia, developed the “MHM (Menstrual Hygiene Management) in Ten” initiative in October 2014. The initiative is directed to mapping out a ten-year agenda for overcoming the menstrual hygiene management-related barriers facing schoolgirls (Sommer, et al., 2016:2).

In many parts of the developing countries, since a culture of silence surrounds the topic of menstruation and related issues, as a result many young girls lack appropriate and sufficient information regarding menstrual hygiene (Lawan, Yusuf & Musa, 2010:202).
The 400 participants who participated in that study were schoolgoing teenage girls, most of whom (94%) knew that sanitary products were available for menstrual flow protection; but only about half of the participants (57%) knew that poor hygiene predisposed them to infection and that personal hygiene had a place in the prevention of menstrual pain (Lawan, et al., 2010:201). The findings stated that many mothers lacked correct information and the necessary skills to communicate about menstrual hygiene which was needed to pass on to their children, leading to false beliefs and practices in this regard (Lawan, et al., 2010:201). This study hoped therefore to benefit not only the current teenagers but also the future adult women and it is hoped also that through this study the same message will be communicated by both parents and teachers to the schoolgoing teenagers and that the content will be appropriate and sufficient for the teenagers at that particular age.

In some cultures, open discussions about menstruation and menstrual challenges are difficult due to tradition and culture. For example, in India menstruation is generally considered as unclean in their society and it could be difficult to openly talk about the matter with teenagers (Thakre, et al., 2011:1). Owing to this perception, during the menstrual period girls may be isolated from the community and at times restrictions are still being imposed on them in the family (Thakre, et al., 2011:1). Abstinence from sexual intercourse during menstruation is, of course, part of menstrual hygiene and should be treated as such. Women, especially the teenagers in the context of this study, should be provided with adequate health education regarding such matters. Sexual intercourse while one is menstruating can introduce infection into the uterus through the slightly open cervix (Dittman, 2008:4). The aforementioned author further advises that a simple “hygiene bath” consisting of salt (preferably sea salt) and two tablespoons of potassium iodide substantially reduces the overload on the immune system during menstruation.

Gently washing out the genital area with the salty solution prevents externally cultured infections from upsetting the delicate vaginal terrain (Dittman, 2008:4). It is stated that
this method of genital care is preferable to douching, as there is less risk of the introduction and contracting of ascending infections. Teenagers should be taught about such simple and cost-effective but preventive measures and emphasis could be through the teaching of reproductive healthcare subject at school.

2.5. Conclusion

The above discussion outlined the orientation related to literature on reproductive healthcare in a global context, the manner in which reproductive information is conveyed and relevant concepts under the broader aspects of reproductive healthcare facing youth at times as a challenge. It was concluded from the above mentioned discussions that teenage girls and young women were the ones who found themselves vulnerable and ultimately making wrong decisions when it came to reproductive healthcare issues due to their limited knowledge thereof.; therefore, introducing the necessary adjustment changes to the LO Programme will allow teenagers to gain more insight into their health and enable them to make proper informed decisions when the need arises. The following chapter will outline the research objectives, research questions, research design as well as ethical principles.
CHAPTER 3

RESEARCH METHODOLOGY

3.1. Introduction

The current chapter presents an in-depth research design and methods used in this study. The overview to the design and methods of the study was presented in chapter one, hence an in-depth one at this stage. The methods include the target population from which the sample was drawn, selection criteria for participants and sample as well as the research instrument and data-collection methods. Furthermore, the chapter will provide a detailed description of data-analysis procedures and ethical considerations used in this study.

3.2. Rationale for the study

Literature accessed revealed that reproductive healthcare needs of teenagers had long been neglected, globally (Kotwal, et al., 2014:1); therefore, owing to challenges of reproductive healthcare currently facing the youth and teenagers, the importance of information on reproduction and sexuality is being increasingly emphasized (Kotwal, et al., 2014:1). There has been also an observation of an alarmingly high rate of teenage pregnancies of girls between the ages of 14 and 19. Of the total births worldwide, 11% are to girls aged 15–19 years (WHO, 2016:para 5) and the vast majority of these births occurs in low- and middle-income countries (WHO, 2016:para 5). Statistics from The Global Strategy for Women’s, Children’s and Adolescents’ Health [GSWCAH] (2016–2030) further reveal that worldwide, 2.5 million teenage girls would have given birth by the age of 16 (Mohammed & Tau, 2015:27). Moreover, the 2014 World Health Statistics put the global teenage birth rate at 49 per 1000 girls of 15–19 years (WHO, 2016: para 5. Specific to the African society, and according to the 2013 report of the United Nations Population Fund (UNFPA – formerly the United Nations Fund for Population Activities) on
teenage pregnancy, the teenage birth rate in West and Central Africa, and Eastern and Southern Africa remains high at 129 and 109 per 1000 births respectively (Loaiza & Liang, 2013:23. Young teenage girls in Sub-Saharan Africa have a five-times higher STI prevalence rate than teenage boys and most are unaware of their status (Morrison & Rushwan, 2015:40).

Recorded statistics for just 2014 alone indicate that 20 000 schoolgoing teenagers fell pregnant in South Africa (Masemola-Yende & Mataboge, 2015:2). It is noted that between the period of 2010-2014, the Eastern Cape Province was amongst those with the highest rates of teenage pregnancies in the country with a recorded 28 322 pregnancies (http://www.heraldlive.co.za/news/shock-teen-pregnancy-figures-e-cape/) accessed 7 May 2017. The increased teenage pregnancies accompanied by STI's and genital tract abnormalities such as vaginal fistulae, warts and rashes have also been noted in the Nelson Mandela Metropolitan Bay Municipal area. This is despite free access to reproductive healthcare services supposed to be available to all women throughout the country.

South Africa has commenced a school curriculum that includes a programme specific to the reproductive healthcare needs of its youth; but its limited impact is evident in this regard, hence the need to find information regarding the knowledge of school going teenage girls of reproductive healthcare and develop guidelines to enhance that knowledge.

### 3.3. Purpose of the study

The purpose of the study was to explore and describe the knowledge of schoolgoing teenage girls in the Eastern Cape Province regarding reproductive healthcare. Findings of the study were to be used for the development of guidelines that could assist the stakeholders in health and education professions to enhance knowledge of schoolgoing teenage girls regarding reproductive healthcare.
3.4. Study objectives

The objectives of this study were to

- explore the knowledge of schoolgoing teenage girls regarding reproductive healthcare in the Eastern Cape Province;
- determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school Life-Orientation programme; and,
- based on the results of the entire study, develop guidelines that could assist the stakeholders in health and education professions in enhancing knowledge of schoolgoing teenage girls regarding reproductive healthcare.

3.5. Research design

A research design is a plan that assists a researcher in collecting and analysing data and coming up with evidence that will make it possible for the investigator to answer whatever questions he or she has posed (Flick, 2015:94). As further stated by Burns & Grove (2011:547), the research design guides the planning and implementation of a study in a way that is most likely to achieve the intended goal. The researcher used a quantitative design with a descriptive, exploratory and contextual approach which assisted in establishing the schoolgoing teenage girls' knowledge about reproductive healthcare in the Eastern Cape Province. A full description of the research design follows below.

3.5.1 Quantitative research

A quantitative research design is defined as the process of investigating a phenomenon that lends itself to specific measurement and quantification (Polit & Beck, 2012:739). As further explained by these authors, quantitative research designs involve a rigorous and controlled process (Polit & Beck, 2012:739). The phenomenon being investigated was the knowledge of schoolgoing teenage girls regarding reproductive healthcare which could include the different services and where those services were being rendered.
3.5.2 Descriptive research

A descriptive research approach aims at an accurate portrayal of the characteristics of people, circumstances and the frequency with which certain phenomena occur (Polit & Beck, 2014:379; Mateo & Foreman, 2014:136). During the study the researcher accurately portrayed the characteristics of the schoolgoing teenage girls at various high schools in the Nelson Mandela Metropolitan Bay area, the Cacadu and Sarah Baartman districts and how their knowledge related to reproductive healthcare was being influenced by these characteristics. The characteristics related to their age, current grade at school, ethnicity, type of school being attended, age at first menstruation and religion of the participant. The researcher examined the demographical information including the age groups of the teenage girls. This was to help to determine what the knowledge was within the different age groups and different grade at school level so as to describe how these ultimately affected their decisions regarding reproductive healthcare.

3.5.3 Explorative

Exploratory studies are designed to increase the knowledge regarding a field of study and so also provide the basis for confirmatory studies (Grove, et al., 2013:694; Polit & Beck, 2012:18). This design can be particularly effective when the researcher is exploring a phenomenon that is also well suited to the development and testing of an instrument (Terry, 2012:109). The phenomenon referred to in this study was the knowledge of schoolgoing teenage girls regarding reproductive healthcare. The questionnaire was developed in such a manner that it had questions of a descriptive nature to assist with the understanding needed by the researcher of the knowledge of schoolgoing teenage girls in the Eastern Cape Province regarding reproductive healthcare. These descriptions assisted the researcher with the analysis and conclusions of the study.
3.5.4 Contextual

A context is the body, world and the concerns unique to each person and which that person can be understood (Burns & Grove, 2009:693). The context within which the study was conducted was the various high schools in the Eastern Cape Province where teenage girls are continuing their schooling and where the Life-Orientatio programme including the reproductive healthcare component is being taught. The researcher used the information gathered in this study to develop guidelines which might be incorporated in the Life-Orientatio programme and teaching of reproductive healthcare component to assist the health and education professions in enhancing knowledge of schoolgoing teenage girls regarding reproductive healthcare.

3.6. Research methods

The research methods refer to the techniques used by the researcher to structure a study and to gather and analyse information in a systematic fashion (Polit & Beck, 2014:390; Polit & Beck, 2012:12). Research methods involve collecting information that is specific and limited to the particular parts of events or a phenomenon being studied (Rebar, Gersch, Macnee & McCabe, 2011:31). In this study the researcher investigated the knowledge of schoolgoing teenagers about reproductive healthcare. The process of research methods of this study included determination of the suitable population; sampling method and sample and data collection, using a self-developed questionnaire.

The researcher used specific criteria to select high schools in the Eastern Cape Province within the Nelson Mandela Bay Municipal (NMBM) area, the Cacadu district and the Sarah Baartman district. These three areas were chosen as they represent the Eastern Cape Province demographics in terms of socio-economic status and ethnicity. The NMBM is a municipality serving communities from well-off, middle- to low- socio-economic bracket homes. The schools mainly use English as the medium of instruction. People in the Sarah
Baartman district are mostly Afrikaans-speaking and learners in those schools were mainly from middle- to low- socio-economic status homes. The Cacadu district is dominantly a Xhosa-speaking rural area.

3.6.1 Population

Brink (2012:213) defines a population as a complete set of persons or objects that possess some common characteristics that are of interest to the researcher. Gerrish and Lacey (2010:142) further describe the population as the aspect of the research group to which the study results will be generalized or applied to other populations. The research population for this study was schoolgoing teenage girls in the Eastern Cape Province. The reason for choosing this specific population was the fact that most teenage pregnancies and sexually-transmitted infections (STIs) are amongst the schoolgoing teenagers who in any case are supposed to have been exposed to the LO Programme that includes knowledge about reproductive healthcare; thus it was needed to establish their knowledge regarding the concept of reproductive healthcare. It is of importance to explore their knowledge regarding reproductive healthcare and determine their need for assistance in this regard. In order to have the suitable sample size the researcher considered the sampling frame.

3.6.2 Sampling frame

The sampling frame is the list of units or elements assumed to define best the target population and it is from this list that the sample is drawn (Saks & Allsop, 2010:160). Furthermore, a sampling frame is the listing of every member of the population with membership defined by the sampling criteria (Grove, et al., 2013:708).

Within the context of this study the sampling frame was the various high schools within the Nelson Mandela Metropolitan Bay area, Cacadu and Sarah Baartman districts. The
researcher made use of the basic education website of the Eastern Cape Province (http://www.ecdoe.gov.za) to retrieve a list of all the high schools in these areas. Directed by the statistician and research supervisor the sampling frame was seen as suitable as it had 24 schools listed with a minimum population of 5000. It was agreed by the statistician that a minimum of 300 and a maximum of 500 participants would be a suitable sample.

The calculation was done by the statistician based on the sample frame. The most direct impact on precision is the size of the sample because it improves the accuracy of estimates and reduces standard error (Houser, 2012:387). In quantitative studies a minimum of 100 participants is acceptable to analyse for the researcher to come up with acceptable findings (Simon, 2012:7). The focus was the number of high schools as each would have had the three grades that were needed and thus be able to cover the number of teenagers to respond to the questionnaire. The average number of possible participants was 4320, as there were 24 schools, three grades needed from each school with an average of 60 per grade.

Following the determination of a useful sample frame the researcher then chose the schools for participation, determining the sample by the guidance of a set sampling method and specific criteria. The researcher distributed a minimum of sixty consent letters out for each school depending on the number of teenagers who were interested in the study in that grade. Only the teenagers who met the inclusion criteria and returned their signed consent letters from the parents that were entered for sampling. Teenagers younger than eighteen years who wanted to take part in the research but whose parents did not give consent, were not allowed in the study. Response letters from their parents were known only by the researcher and most importantly not their names as only codes were used to identify participants. The teenagers of eighteen years and older were within the legal age to give consent and were therefore allowed to complete the questionnaire. The number of teenagers that were sampled based on the number of returned letters giving permission to participate per grade was 350; but only 313 questionnaires were used for the main study. For the pilot study 30 (10%) questionnaires were returned and were not part of the 313 but of the 350. A full description of the method follows below.
3.6.3 Sampling method

Burns and Grove (2009:42) define a sample as a subset of the population that is selected for a particular study. Sampling is the process of selecting a sample and the sampling technique used will therefore affect the validity of the research (Gerrish & Lacey 2010:532). A convenience, non-probability sampling method, which is based on using the most readily accessible persons, was used to select participants in this research (Loiondo-Wood & Haber, 2010:226; Botma, et al., 2010:126). The researcher, following the necessary school permission, used the teenagers that were at school on that particular day to address them which meant they were not preselected. Owing to the fact that the study covered three districts of the Eastern Cape, which were the Nelson Mandela Metropolitan Bay area, Cacadu and Sarah Baartman districts, this type of sampling method also proved to be cost effective and time-saving. As the sampling frame was quite vast selection criteria were used to determine the suitable participants. The inclusion criteria are discussed in the following section.

3.6.4 Inclusion criteria

The inclusion criteria refer to the sampling requirements identified by the researcher that must be present for the element or subject to be included in the sample (Burns & Grove, 2009:703). The primary function of the inclusion criteria is to limit the potential for selection bias by objectively identifying who can be considered a subject (Houser, 2012:180). The inclusion criteria were:

- high schools in the Eastern Cape Province;
- schools where the LO Programme is taught;
- teenagers in grades 10, 11 and 12; and
- teenage girls between the ages of 12 and 19 years.
As soon as sampling was done the researcher completed the development of the data collection questionnaire so as to start with the pilot study.

3.6.5 Data-collection instrument

Data gathering is the precise and systematic gathering of data to be able to resolve a research question (Botma, et al., 2010:131). During data collection, investigators use a variety of techniques for measuring study variables, such as observation, interview, questionnaires or scales (Burns & Grove, 2011:52).

The preferred data-collection instrument which was used in this study was a structured questionnaire developed by the researcher with the assistance of the supervisor and the statistician. Questionnaires are widely used and seen to be the best and increasingly used method of data collection in healthcare studies internationally (Gerrish & Lacy, 2010:370). Questionnaires collect data in a standardized manner and results can be referred to a wider population provided the sample was appropriate and representative (Gerrish & Lacey, 2010:369).

A questionnaire was appropriate for this study as the researcher had to have no fewer than 300 but not more than 500 questionnaires to be filled in by the participants. Questionnaires were suitable for this study as they have the following advantages (Burns & Grove, 2009:406). Questionnaires can:

- be designed to determine facts about the subject, their beliefs, attitudes and level of knowledge about a situation;
- be distributed to large samples directly or indirectly;
- have varying degrees of structure i.e. such as open-ended questions that require written responses as well as closed ended questions with opinions that the researcher has selected;
• elicit data that can be stored in a computer file and be immediately available for analysis; and

• provide responses to questions that are presented in a consistent manner so that there is less opportunity for bias.

The current study benefited from all of the above-mentioned advantages.

The researcher, taking into consideration the importance of and yet difficulty in developing a research questionnaire consulted a statistician for assistance and to avoid bias and errors. Gerrish & Lacey (2010:374) suggest some important aspects to consider when developing a questionnaire, such as:

• developing items that are consummate to face and content validity;

• excluding controversial and sensitive items by talking to the proposed target group and getting the necessary hints;

• protecting the relevance and acceptability of the questionnaire;

• making use of simple language which is familiar to the participants;

• avoiding misinterpretation of questions by using simple and clear language; and

• avoiding use of leading questions

The format of the questionnaire was given attention so as to enhance participation and return high rates of fully completed questionnaires. The questionnaire consisted of two sections. Section A measured the demographical data and section B focused on the knowledge related to reproductive healthcare. Section B consisted of a narrative schedule which ultimately was not easy to analyse as the participants did not complete the information on the questionnaire accordingly. The statistician and supervisor advised that
the researcher do away with those questions as early as at the pilot stage of the study. The researcher was careful to avoid developing a very long questionnaire and use of complicated questions, but most importantly making sure of clear instructions (Gerrish & Lacey, 2010:377). Adopting these principles proved to be effective as the response rate was 100% of the total 313 questionnaires distributed. There was no spoilt questionnaire included.

The questionnaire was approved by the FPGSC (H16-HEA-NUR-010) and Human-Ethics (Adult) committees (H16-HEA-NUR-010) following some suggested adaptations to some of the questions to ensure sensitivity and protection of the teenagers from harm and disrespect. The statistician created a computer file for storage of collected data as it was being captured and only the researcher had access to this file.

3.7. Data-collection process

Data collection is the precise and systematic gathering of information relevant to the research purpose or the specific objectives, questions, or hypothesis of a study (Burns & Grove 2009:695). A survey, which was the data-collection method for the study, is a data-collection technique in which questionnaires or personal interviews are used to gather data about an identified population (Burns & Grove 2009:724). In this study the researcher used questionnaires for data collection. Polit & Beck (2012:744) define a survey as a nonexperimental research procedure which obtains information about people’s activities, beliefs, preferences and attitudes via direct questioning. Surveys as indicated by Gerrish & Lacey (2010:217) are of different forms which are:

- descriptive surveys, the commonest type, which are used to collect statistical data regarding a large population and data about the status of a problem and which are easy to conduct;
• correlational and comparative surveys, which focus on investigating and comparing relationships between variables and formulate a hypothesis to be investigated, the results of which are used for theory development;

• longitudinal surveys, which are conducted over a period of time and at regular intervals; and

• cohort studies, which focus on a single group of participants and are conducted either retrospectively or prospectively.

The current study used the descriptive survey in order to describe the knowledge of schoolgoing teenage girls regarding reproductive healthcare. A self-developed structured questionnaire, which was the preferred data-collection tool used during the study, included two sections, namely, section A: the demographic data which included the ethnicity, age, level of current study/class (grade), type of current school, age at first menstruation and religion; and Section B, which included the knowledge related to reproductive healthcare. A descriptive survey was appropriate for this study as the researcher gathered information from a large portion of a large population.

The researcher, with the assistance of two field workers, was responsible for the data collection process. The fieldworkers were appointed after going through a formal interview session as agreed with the project funding agent, National Research Foundation (NRF). They were both in their last year of the Honours programme (Bachelor of Nursing [Advanced Midwifery] and Information and Technology respectively and thus were familiar with research ethics and conducting of research. The fieldworkers were orientated regarding their duties during data collection and how to keep questionnaires and at the end of the orientation session had to sign an informed agreement form for confidentiality purposes. The researcher adhered to the indicated dates and agreed upon with the
FPGSC and REC-H committees for data collection that o was from August 2016 to September 2016.

3.7.1 Collection of data

To collect data, the researcher visited altogether nine high schools which met the criteria and also gave permission for the study. Of the nine schools five were from the Nelson Mandela Bay Municipal area (two from only black areas, two multi-racial schools and only one Afrikaans -speaking) as it was the biggest of these areas. The Sarah Baartman district had one (a multi-racial school) and the Cacadu area (both black schools only) had two schools participating. In that way a representative sample was at least assured. Following the necessary approval of the study by the designated authorities, the researcher phoned the school principals to ask for an appointment to talk about the study and its merits. For those school principals that could not be reached telephonically letters were forwarded by fax or e-mail (see Annexure A). All the schools in the identified areas and meeting the inclusion criteria were notified at least one week in advance and the researcher or the fieldworkers respectively dropped off the letters of permission. The schools that were willing to allow learners to participate, due to difficulty to reach them at the same period to ask for permission, were accepted per district according to the firstcome, first served principle and a list was drawn. Learners who participated were chosen as soon as the school had accepted the invitation.

The data -collection process was as follows:

Session: 1.

An appointment was fixed through the school principal to address all the female learners of the project, its objectives, method of data collection, ethics and right to participate or withdraw at any stage of the project as well as the venue, date of data collection and transport arrangements where possible. Letters of permission were handed out.
• The researcher explained to the learners that all information provided by them would remain confidential and that they should also keep the information about the research process and their responses confidential. Participants were informed that no information would be divulged to any other person except those who were directly involved in the research project. The school principal and teachers were not part of this information session. Learners were also informed that not all of them would be selected even with the signed consent but a selection process would be employed. Such a step was also to protect identity of the learners who did not wish to participate and those whose parents refused to give permission for their participation.

• The researcher handed out between 60 and 120 letters at each high school depending on the number of classes per grade that were available. The learners who were interested in being a part of the research had to take the letters to their parents/guardians. Information included in the letters explained the purpose of the research including the consent letter to be completed. The letters were for the parents and participants for permission purposes (see Annexure A). Learners younger than 18 years had to get consent from their parents/guardian to participate in the research and the ones older than 18 years gave consent themselves by completing an assent form. See Annexure A on permission letters.

• Owing to the end-of-year examinations needing to be prepared for, not all the classes could be accessed.

• Only the available classes per grade and per school would be taken to an empty big classroom or school hall depending on the school, addressed as above and were asked to think and decide whether to participate or not but still keep the decision confidential. All the learners would be given a sealed envelope containing another sealed envelope in it with the letter to the parents/guardians as well as the assent letter to those learners of 18 years and over (see Annexure A). The
envelopes were each marked with a code number for identification purposes and no names of learners were used.

- The learners took the sealed envelope given to them home to the parents/guardians and brought back the response in a sealed envelope within three days of the day of the meeting. Response envelopes were posted in a sealed box selected and dedicated for this purpose which was in a secluded corner in the classroom or in the school.

- The learners who did not wish to participate would post back their letters unopened but within the day of receiving them from the researcher. Posting back had to be done secretly but in the same box and the fieldworkers would empty the box at the end of the school day.

- The fieldworker/researcher collected the box with letters that went home within three days of handing out the letters to the learners.

Session 2: Collecting of signed consent letters and completion of questionnaires.

- The data-collection process took place in the school as the teachers felt responsible for protecting the learners from possible disruption of their study time should the data collection be outside school hours. The researcher offered an option of collection of data on a Saturday in a private venue but within safe distance from the school.

- Only learners who returned signed consent letters were gathered and handed questionnaires to complete.

- In one school only, the data was collected before the school started which also ensured that privacy of the learners was maintained. At another school the process
took place during the second break with the learners’ permission so as not to interfere with the school programme. The rest of the remaining seven schools allowed the data collection to be during the LO Programme class period.

- Learners were released from the venue immediately after all the questionnaires had been completed so as minimise disruption of other classes. Ultimately 313 questionnaires were collected.

- Owing to vulnerability of the research population the research supervisor supervised the process of getting permission to enter the schools, distribution of the letters of permission to the participants and conducted spot inspections of the process of data collection just to make sure of confidentiality.

The researcher collected all the questionnaires and consent letters and kept them safely locked up.

3.8. The role of the researcher

The planning and execution of the current study, which was the responsibility of the researcher, included obtaining permission to conduct the study from the Research Ethics Committee (Annexure D). A letter of permission to conduct the study was requested from the Department of Education and approval was obtained from the District School Director (Annexure A) and the school principal of the respective high schools (Annexure A). Three classes were provided for data-collection purposes in each school in which there were grade 10-12 learners. The researcher addressed only the female learners of each class per grade who met the inclusion criteria and the male learners were excused from the session. The researcher identified the Life -Orientation teachers as gatekeepers for the study process through the direction of the school principals at each school. Gatekeepers are people occupying a role that enables the researcher to access a setting or research
participants, for example, a head teacher for access to schoolchildren (Gerrish & Lacey, 2010:529).

Gatekeepers are an important link between the researcher and the schools. Appointments with the gatekeepers were done telephonically to save time as there were many schools and the distance from each school was considerable. Since participants needed to know that permission had been given by the school principals to collect data, gatekeepers were useful in this regard. The initial introduction of the researcher to the setting was made by the gatekeepers. The researcher discussed the whole study process with the gatekeepers to ensure confidentiality and anonymity as the study process involved teenagers. The contents of the questionnaire were not divulged.

Emphasis was also placed on the benefits of the research to LO Programme and the Department of Education rather than to the individual participants. The gatekeepers assisted the researcher in gaining access to the teenagers at the respective schools (Flick, 2015:81). During session 2 of the data-collection process (collecting of consent letters and handing out of questionnaires) the gatekeepers were not present in the venue and did not know who the chosen participants were as it could introduce serious bias to the data (Shaw, Brady & Davey, 2011:14). Participants as well as the parents/guardians had to sign an assent form as well as an informed consent form respectively. Thereafter data was collected using a questionnaire as a data-collection instrument.

3.9. Data analysis and management

After data collection had been done, the data was captured and prepared for analysis by the researcher using a Microsoft Excel programme created by the statistician for data analysis purposes. All 313 questionnaires were captured by the researcher over a period of one week because the data had been captured after work and also to make sure not
to make data-capturing errors that could interfere with results. The statistician was consulted three times during the data-capturing process so as to make sure to eliminate data-capturing errors.

During the data capturing and analysis, the researcher experienced some minor challenges as she had to do the data capturing by herself in a very short space of time. The challenges did not affect the results as the researcher was in constant consultation with the supervisor and statistician. The study had to be submitted by the end of the year before the university summer recess for the autumn graduation. The researcher made use of descriptive statistics which were computed to reveal characteristics of the sample and to describe study variables (Burns, et al., 2013:538). Final data analysis was done by the statistician; but she consulted with the researcher and supervisors. The questionnaire consisted of responses that were related to the information regarding contraceptives, reproductive hygiene and conception knowledge of their own and that which the learners had received from their teachers. Such responses provided the researcher with more depth and insight into the knowledge of the teenage girls about contraception. Though the focus was not on the levels of knowledge, some of the results could be used to estimate the knowledge levels of schoolgoing teenage girls regarding reproductive healthcare (see Annexure D). The presentation of interpretation and analysis of results will be dealt with in chapter four; but at this stage the researcher will only state that the results were presented using tables.

3.10. Pilot study

A pilot study is a smaller version of a proposed study and researchers frequently conduct these to refine the methodology (Burns & Grove, 2011:49). Its purpose is to investigate the feasibility of the proposed study and to detect and correct possible flaws in the methodology of the proposed study such as ambiguous instructions, wording and inadequate time limits (Brink, 2012:174). The procedures in the pilot study should be the same as those intended to be used in the administration of the primary survey instrument (Terry, 2012:155) and that is what was done in this study. Results from the pilot study are
not analysed, as stated by Simon (2011:2); but serve an important role to guide the researcher of the possible quality of outcome of the study, hence the necessary adaptations where suggested were done.

The pilot study using 30 questionnaires was conducted by the researcher in the high schools in the Nelson Mandela Bay Municipality area. The data from the pilot study was submitted for review to the statistician who advised continuation with data collection having seen the variation of collected data; but the researcher was asked to remove the open-ended questions. Questionnaires used for the pilot study were collected and are kept together with the rest from the primary study but marked as pilot study.

3.11. Reliability and validity of the study

The quality of the research questionnaire is of the utmost importance otherwise research findings may be rendered worthless. The implementation of the following concepts was crucial for the current research study to ensure reliability and validity.

3.11.1 Reliability

Reliability refers to the accuracy and consistency of the information obtained in a study (Polit & Beck, 2014:72). According to Brink (2012:162); Mateo and Foreman (2014:132), reliability and validity are of great importance in all qualitative and quantitative studies to ensure that the findings are auditable, consistent and trustworthy. Reliable instruments enhance the power of a study to detect significant differences or relationships occurring in the population under review; therefore, it is important to test the reliability of an instrument before using it in a study (Kimberlin & Winterstein, 2008:2277).

Reliability of the study was achieved through continuously seeking expert opinion from the supervisors of the research study and the statistician in relation to the content of the
research study and questionnaire respectively. The pilot study helped to test the reliability of the questionnaire that was used. The literature review shaped the direction of the study and ensured consistency of results, in that way assuring the researcher of enhancing reliability in this study.

3.11.2 Validity

Validity refers to whether an instrument measures what it sets out to measure (Burnard, et al., 2011:63). Since validity varies from one sample to another and one situation to another, validity testing evaluates the use of an instrument for a specific group or purpose rather than the instrument itself. In this study, besides presenting the questionnaire to the supervisor, departmental and university's faculty for Health Sciences research committees for evaluation the researcher also developed the questionnaire under the guidance of the statistician from the university's statistical unit. The researcher also gave the questionnaire to senior colleagues to check for validity and finally conducted a pilot study to see if the instrument measured what it was supposed to measure. Furthermore, the accuracy of the data collection instrument was established by ensuring the face and content validity.

3.11.2.1 Face validity

Face validity is the most obvious and the weakest kind of instrument. It verifies basically that the instrument looked as if it was valid or gave the appearance of measuring the content it was supposed to measure (Burns &Grove, 2009:381). In this study the researcher looked thoroughly at the details of the questionnaire which were used to collect data from the participants and the questionnaire was given to the colleagues of the researcher who are midwives, to the supervisor and the departmental research committee to critique and verify if the tool was suitable to collect particular data needed to make the
investigation for this study. When the researcher was convinced that the instrument fulfilled the requisite criteria, it was used in the main study.

3.11.2.2 Content validity

Content validity examines the extent to which the method of measurement includes all the major elements relevant to the construct being measured thus obtaining evidence from three relevant sources, namely: (1) literature (see chapter two), (2) representatives of the relevant population (see sampling above) and (3) content experts (Burns & Grove, 2009:381). Brink et al. (2012:166) state again that content validity is an assessment of how well the instrument represents all the components of the variable to be measured.

An in-depth literature review was done to ensure content validity of the questionnaire (Brink et al., 2012:166). The content validity of the questionnaire was reviewed in conjunction with the research supervisor and statistician prior to the pilot study to ensure that the criteria for content validity were met. In this study the researcher made sure that the true data was entered as it appeared, without manipulating or forcing it to suit herself. During the analysing of the data on the spread-sheet there were areas with blank spaces which indicated the questions which the participants had not answered and had left blank. In this regard the researcher was convinced that this was a limitation caused by fearing to make grammatical mistakes as the questions were responded to where they were direct questions and responses to be ticked off on the questionnaire.

3.12 Ethical considerations

A researcher is responsible for conducting research in an ethical manner from the conceptualization and planning phases, through the implementation phase to the dissemination phase (Brink, et al., 2012:32). The Belmont Report, which provides a model for many guidelines for the protection of human subjects of research, was therefore adopted in this study. The Belmont Report was established by the National Commission
for Protection of human subjects of Biomedical and Behavioural Research in 1978 and passed in 1974 (Burns & Grove, 2011:107). The three ethical principles identified by the commissioner that are relevant to the conduct of research involving human subjects are respect for persons, beneficence, non-maleficence and justice (Schmidt & Brown, 2012:52).

3.12.1 Ethical clearance and permission

Approval of the study and ethical clearance were given by the faculty’s post -graduate studies committee (FPSG) and Research Human (REC-H) committee of the NMMU after the research proposal had been submitted and approved by the Department of Nursing Science (see Annexure A). The Ethics Committee’s duty is to ensure the respondents’ rights will be protected and that the study complies with ethical guidelines. In this regard, after the questionnaire had been examined, some changes were suggested by the Ethics Committee prior to the administering of the questionnaires to protect the vulnerability of the learners. The researcher obtained permission to collect data from the various principals of the different high schools where permission was granted for the study. Informed consent to participate in the study was also obtained from the participants as well as their parents/ guardian (see Annexure A). The three ethical principles are as follows:

3.12.1.1 Respect for persons

This principle states that the individual is to be treated autonomously, that is, having the ability to make decisions and being treated with respect (Schmidt & Brown, 2012:52). Houser (2012:54) further states that it is important for the researcher to acknowledge a person’s autonomy as well as protect those with diminished autonomy.

The prospective participants would have been informed and were also informed of their right to decide voluntarily whether to participate in this study without the risk of penalty or prejudice.
from the researcher (Polit & Beck, 2014:84). The participants in this study who were the schoolgoing teenage girls are also regarded as vulnerable or members of a vulnerable population (Houser, 2012:54) and therefore the study was approved by the Human Ethics Committee independent of the FPGSC. The research supervisor also paid sporadic visits to the school where data was being collected either on the day before, during or after the session to supervise the process. On the first day the researcher had an information session with all the schoolgoing teenage girls and provided them with information regarding the purpose of the research study.

After this session they were allowed to decide if they wanted to participate and were invited to a separate venue where it was explained that, if they felt uncomfortable at any time or they did not want to continue with participation in the research study, they were free to withdraw. All participants received an assent and informed consent form which had to be signed by them and their parents/guardians within three days. Time-frames were needed to control the progress of the study. Within three days signed forms from research participants and parents where possible were collected and they were allowed to participate in the study and complete the questionnaires. Parents who needed more information regarding the research were free to call the researcher for further explanation as her contact details were also included in the letters.

3.12.1.2 Beneficence

Beneficence is the principle of doing good as stated in the Belmont Report and indicating that the researcher should try to maximize possible benefits and minimize possible harm (Schmidt & Brown, 2012:52). Human beings can be harmed in a variety of ways, including physically (injury), psychologically (worry, stress and fear) and socially (loss of friends), as stated by Houser (2012:54); therefore the researcher secured the well-being of the participants and protection from any of the above-mentioned categories of discomfort and harm.
Although the school principal and class teacher were gatekeepers, they were not in the room where the session was being conducted. The participants were also asked not to write their names or any personal information on the questionnaire which could be associated with them.

3.12.1.3 Justice

In this principle as stated by Schmidt & Brown, (2012:53) the main consideration is that individuals ought to be treated equally with fair distribution of burdens and benefits. Houser (2012:56) further states that an injustice would occur when a benefit to which a person is entitled is denied or when a burden is unduly imposed.

During the study the researcher gathered all the prospective participants in a secured room where information regarding the study was explained to them. Each prospective participant was given a fair chance to ask questions regarding the study before making the decision to participate or not. The participants who ultimately decided to participate in the study and brought back their signed consent forms were given the opportunity to complete the questionnaire. The learners who forgot their signed consent letters were unfortunately excused from the venue and no exceptions were made at any of the schools

The work of others was acknowledged and the findings were reported. The findings of the study would after approval be reported to the schools where the research was conducted and the DoE; Eastern Cape Department of Education.

3.13 Conclusion

The researcher described in this chapter the methodology implemented in the study to explore and describe the knowledge of the schoolgoing teenage girls regarding reproductive healthcare in the Eastern Cape Province. Data was collected using self-
developed structured questionnaires that had been developed under the supervision of
the statistician. The data was analyzed by the statistician using Microsoft Excel software
program. The total number of questionnaires that were collected was 313.
CHAPTER 4
PRESENTATION OF DATA-ANALYSIS FINDINGS

4.1 Introduction
This chapter presents the result findings of the data analysis done. The purpose of the study was to explore the knowledge of school going teenage girls in the Eastern Cape Province regarding reproductive healthcare. Results will be presented in the form of tables. Descriptive statistics are reported in three sub-sections below.

- 4.2.1: Participants’ demographical distribution
- 4.2.2: Participants’ responses to the questionnaire items regarding reproductive healthcare
- 4.2.3 Participants’ knowledge regarding reproductive healthcare.

Section 4.3 reports the results of one-sample t-tests that were conducted to test the hypothesis that the mean knowledge level of the learners in the sampled population differs from 6.67, the specified minimum acceptable value for the various knowledge factors. Correlations for the dimensions of knowledge regarding reproductive healthcare were also done and the results reported in section 4.4. Analysis of variance (ANOVA) was used to determine the significance of the relationships between the demographical variables and the dimension of knowledge regarding reproductive healthcare. The ANOVA results are reported in section 4.5

4.2 Descriptive Statistics
A total of 313 participants (n=313) responded to the questionnaire. This number excludes those used in the pilot study. Frequency distributions for all the items in the questionnaire are presented in sub-sections 4.2.1 and 4.2.2.
4.2.1 SECTION A: Demographic data

The demographic information included the participants' ethnicity, age, level of current study, type of current school, age at first menstruation and religion.

Table 4.1: The participants’ ethnicity distribution (n=313)

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>192</td>
<td>61%</td>
</tr>
<tr>
<td>Coloured</td>
<td>35</td>
<td>11%</td>
</tr>
<tr>
<td>White</td>
<td>86</td>
<td>27%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>313</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 4.1 reflects that all participants (n=313) responded to this item and that the majority (61%) were black.

Table 4.2: The participants’ age distribution (n=310)

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 - 14</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>15 - 16</td>
<td>75</td>
<td>24%</td>
</tr>
<tr>
<td>16 - 17</td>
<td>94</td>
<td>30%</td>
</tr>
<tr>
<td>17 - 18</td>
<td>75</td>
<td>24%</td>
</tr>
<tr>
<td>18 - 19</td>
<td>64</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>310</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The number of participants who responded to this item was n=310. The majority (78%) of the participants were between the ages of 15 and 18 years.

Table 4.3: Participants’ level of current study at school (n=310)

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 10</td>
<td>167</td>
<td>54%</td>
</tr>
<tr>
<td>Grade 11</td>
<td>108</td>
<td>35%</td>
</tr>
<tr>
<td>Grade 12</td>
<td>35</td>
<td>11%</td>
</tr>
</tbody>
</table>
Table 4.3 reflects that n=310 of the participants indicated their level of current study on the questionnaire. The majority (54%) of the respondents were in grade 10. All (n=311) respondents indicated their type of current school as co-educational.

Table 4.4 The age category of participants at first menstruation (n=311)

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 11</td>
<td>38</td>
<td>12%</td>
</tr>
<tr>
<td>12 - 13</td>
<td>135</td>
<td>43%</td>
</tr>
<tr>
<td>14 - 15</td>
<td>105</td>
<td>34%</td>
</tr>
<tr>
<td>16 - 17</td>
<td>28</td>
<td>9%</td>
</tr>
<tr>
<td>18 - 19</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>311</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 4.4 reflects that n=311 learners responded to this question. The majority (77%) of the participants indicated that their age at first menstruation was between 12 and 15 years.

Table 4.5 The religion of participants (n=253)

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglican</td>
<td>36</td>
<td>14.2%</td>
</tr>
<tr>
<td>Methodist</td>
<td>63</td>
<td>24.9%</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>20</td>
<td>7.9%</td>
</tr>
<tr>
<td>Muslim</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Jewish</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other</td>
<td>133</td>
<td>52.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>253</td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Table 4.5 reflects that the majority (52.6%) of the n=253 respondents to this item indicated a religion other than those listed in the table.
4.2.2 SECTION B: Items on knowledge about reproductive healthcare

The study results for the participants’ responses to the questionnaire items on knowledge about reproductive healthcare are reported in this sub-section.

4.2.2.1 Sources of reproductive health information

Regarding health information participants had to respond to two questions, namely:

“The most frequently used source of information for me on the changes that the bodies of girls and boys will undergo during teenage years has been my:”

“I would have preferred to have received more information on this topic from”.

The responses to these questions are summarised in Tables 4.6 and 4.7.

<table>
<thead>
<tr>
<th>Source</th>
<th>Strongly disagree</th>
<th>Do not agree</th>
<th>Do not know</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>School teacher</td>
<td>12</td>
<td>4%</td>
<td>24</td>
<td>9%</td>
<td>19</td>
<td>7%</td>
</tr>
<tr>
<td>Mother and father/guardian</td>
<td>10</td>
<td>3%</td>
<td>30</td>
<td>10%</td>
<td>13</td>
<td>5%</td>
</tr>
<tr>
<td>Other family members</td>
<td>27</td>
<td>11%</td>
<td>60</td>
<td>23%</td>
<td>51</td>
<td>20%</td>
</tr>
<tr>
<td>Doctors and nurses</td>
<td>33</td>
<td>13%</td>
<td>39</td>
<td>15%</td>
<td>45</td>
<td>18%</td>
</tr>
<tr>
<td>Books/magazines/television</td>
<td>35</td>
<td>14%</td>
<td>41</td>
<td>16%</td>
<td>32</td>
<td>13%</td>
</tr>
</tbody>
</table>

Table 4.6 Indicates that the largest proportion of the respondents agreed and strongly agreed that they had received most information on the changes that their body undergoes during teenage years from their parents/guardian (81%) and school teacher (80%). The smallest positive proportion (46%) was for other family members.
Table 4.7 Frequency distributions of the preferred sources of information regarding the changes that the bodies of boys and girls undergo during teenage years

<table>
<thead>
<tr>
<th>Source</th>
<th>Strongly disagree</th>
<th>Do not agree</th>
<th>Do not know</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>School teacher</td>
<td>13</td>
<td>23</td>
<td>29</td>
<td>132</td>
<td>76</td>
<td>273</td>
</tr>
<tr>
<td>Mother and father/ guardian</td>
<td>6</td>
<td>14</td>
<td>12</td>
<td>78</td>
<td>152</td>
<td>262</td>
</tr>
<tr>
<td>Other family members</td>
<td>32</td>
<td>46</td>
<td>49</td>
<td>73</td>
<td>31</td>
<td>231</td>
</tr>
<tr>
<td>Doctors and nurses</td>
<td>23</td>
<td>28</td>
<td>19</td>
<td>69</td>
<td>103</td>
<td>242</td>
</tr>
<tr>
<td>Books/ magazines/ television</td>
<td>52</td>
<td>46</td>
<td>30</td>
<td>67</td>
<td>32</td>
<td>227</td>
</tr>
</tbody>
</table>

Table 4.7 Indicates that the largest proportion (88%) of the respondents agreed or strongly agreed that they would have preferred to have received more information on the changes that their body undergoes during their teenage years from their parents/guardians. The smallest positive proportions were for other family members (46%) and books/magazines/television (44%).

4.2.2.2 Reproductive healthcare services and problems

Regarding reproductive healthcare services and problems, participants had to respond to the five questions listed in Table 4.8.

Table 4.8: Frequency Distributions: Reproductive Healthcare Services and Problems

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Do not agree</th>
<th>Do not know</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genital infections are treatable</td>
<td>1</td>
<td>3</td>
<td>90</td>
<td>116</td>
<td>81</td>
<td>291</td>
</tr>
<tr>
<td>Vaginal itching is a sign of infection</td>
<td>5</td>
<td>12</td>
<td>95</td>
<td>100</td>
<td>85</td>
<td>297</td>
</tr>
<tr>
<td>Painful lumps on my breasts are a sign of growth and development</td>
<td>16</td>
<td>24</td>
<td>72</td>
<td>110</td>
<td>77</td>
<td>299</td>
</tr>
<tr>
<td>Healthcare clinics are attended by appointment only</td>
<td>91</td>
<td>109</td>
<td>50</td>
<td>32</td>
<td>12</td>
<td>294</td>
</tr>
<tr>
<td>Patients of the age that is fewer than 15 years will not be examined at the reproductive healthcare clinics without the permission of their parents/guardians</td>
<td>12 4%</td>
<td>28 9%</td>
<td>82 27%</td>
<td>85 28%</td>
<td>93 31%</td>
<td>300 100%</td>
</tr>
</tbody>
</table>

Table 4.8 indicates that the largest proportion (68%) of the respondents agreed or strongly agreed that genital infections were treatable while the smallest proportion (1%) did not agree or strongly disagreed.

The largest proportion (63%) of the respondents agreed or strongly agreed that vaginal itching was a sign of infection while the smallest proportion (6%) did not agree or strongly disagreed.

The largest proportion (63%) of the respondents agreed or strongly agreed that painful lumps on one’s breasts were a sign of growth and development while the smallest proportion (13%) did not agree or strongly disagreed.

The largest proportion (68%) of the respondents did not agree or strongly disagreed that healthcare clinics were attended by appointment only while the smallest proportion (15%) agreed and strongly agreed.

The largest proportion (59%) of the respondents agreed or strongly agreed that patients of the age of fewer than 15 years would not be examined at the reproductive healthcare clinics without the permission of their parents/guardians while the smallest proportion (13%) did not agree or strongly disagreed.

4.2.2.3 Contraceptive knowledge.

Regarding contraceptive knowledge information, participants had to respond to nine questions listed in Table 4.9.
### Table 4.9: Frequency Distributions: Contraceptive Knowledge

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Do not agree</th>
<th>Do not know</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A condom is useful as long as it is from its packet</td>
<td>16</td>
<td>19</td>
<td>52</td>
<td>82</td>
<td>17%</td>
<td>82</td>
</tr>
<tr>
<td>Intra-uterine devices (loop) are no longer used</td>
<td>8</td>
<td>29</td>
<td>227</td>
<td>76%</td>
<td>5%</td>
<td>100%</td>
</tr>
<tr>
<td>Female/ male sterilization works only for three years</td>
<td>39</td>
<td>43</td>
<td>181</td>
<td>62%</td>
<td>13%</td>
<td>100%</td>
</tr>
<tr>
<td>Contraceptive pills/tablets do not expire</td>
<td>79</td>
<td>75</td>
<td>100</td>
<td>34%</td>
<td>1%</td>
<td>100%</td>
</tr>
<tr>
<td>Contraceptive injections are only good if they are given by the doctor</td>
<td>32</td>
<td>84</td>
<td>61</td>
<td>20%</td>
<td>18%</td>
<td>71</td>
</tr>
<tr>
<td>Contraceptives are not good for us teenagers</td>
<td>23</td>
<td>49</td>
<td>136</td>
<td>46%</td>
<td>3%</td>
<td>100%</td>
</tr>
<tr>
<td>Contraceptives are free of charge</td>
<td>9</td>
<td>25</td>
<td>79</td>
<td>26%</td>
<td>1%</td>
<td>100%</td>
</tr>
<tr>
<td>Contraceptives are also protecting us from sexually transmitted infections</td>
<td>49</td>
<td>54</td>
<td>86</td>
<td>28%</td>
<td>1%</td>
<td>100%</td>
</tr>
<tr>
<td>Condoms are contraceptives that are most accessible for me</td>
<td>5</td>
<td>13</td>
<td>90</td>
<td>30%</td>
<td>1%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4.9 indicates that the largest proportion (72%) of the respondents agreed or strongly agreed that a condom was useful as long as it was from its packet while the smallest proportion (11%) did not agree or strongly disagreed.
The largest proportion (76%) of the respondents did not know the answer to the question while the smallest proportion (11%) agreed and strongly agreed that Intra-uterine devices (Loop) were no longer used.

The largest proportion (62%) of the respondents did not know the answer to the question while the smallest proportion (10%) agreed and strongly agreed that female/male sterilization only worked for three years.

The largest proportion (52%) of the respondents did not agree or strongly disagreed that contraceptive pills/tablets did not expire while the smallest proportion (14%) agreed and strongly agreed.

The largest proportion (41%) of the respondents agreed or strongly agreed that contraceptive injections were only good if they were given by the doctor while the smallest proportion (20%) did not know the answer to the question.

The largest proportion (46%) of the respondents did not know the answer to the question while the smallest proportion (24%) did not agree and strongly disagreed that contraceptives were not good for us teenagers.

The largest proportion (62%) of the respondents agreed or strongly agreed that contraceptives were free of charge while the smallest proportion (11%) did not agree and strongly disagreed.

The largest proportion (37%) of the respondents agreed or strongly agreed that contraceptives were also protecting them from sexual transmitted infections while the smallest proportion (28%) did not know the answer to the question.

The largest proportion (63%) of the respondents agreed or strongly agreed that condoms were contraceptives that were most accessible for hr while the smallest proportion (6%) did not agree or disagreed.

4.2.2.4 Conception knowledge.
Regarding conception knowledge information, participants had to respond to four questions listed in Table 4.10.

### Table 4.10: Frequency Distributions: Conception Knowledge

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Do not agree</th>
<th>Do not know</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will not fall pregnant if I have sex while menstruating</td>
<td>118 (39%)</td>
<td>71 (23%)</td>
<td>73 (24%)</td>
<td>23 (8%)</td>
<td>21 (7%)</td>
<td>306 (100%)</td>
</tr>
<tr>
<td>I will not fall pregnant if I miss one dose of tablets or one day of my injection but have sex with my boyfriend</td>
<td>119 (39%)</td>
<td>85 (28%)</td>
<td>64 (21%)</td>
<td>31 (10%)</td>
<td>6 (2%)</td>
<td>305 (100%)</td>
</tr>
<tr>
<td>I cannot get pregnant on the very first time I have sex</td>
<td>125 (42%)</td>
<td>72 (24%)</td>
<td>63 (21%)</td>
<td>24 (8%)</td>
<td>17 (6%)</td>
<td>301 (100%)</td>
</tr>
<tr>
<td>Feeling sick and vomiting is a sign of being pregnant</td>
<td>14 (5%)</td>
<td>26 (9%)</td>
<td>41 (14%)</td>
<td>118 (40%)</td>
<td>99 (33%)</td>
<td>298 (100%)</td>
</tr>
</tbody>
</table>

Table 4.10 indicates that the largest proportion (62%) of the respondents did not agree or strongly disagreed with the statement saying that she would not fall pregnant if she had sex while menstruating while the smallest proportion (15%) agreed or strongly disagreed.

The largest proportion (67%) of the respondents did not agree or strongly disagreed with the statement saying that she would not fall pregnant if she missed one dose of tablets or one day of her injection but had sex with her boyfriend while the smallest proportion (12%) agreed or strongly agreed.

The largest proportion (66%) of the respondents did not agree or strongly disagreed with the statement saying that she could not get pregnant on the very first time she had sex while the smallest proportion (14%) agreed or strongly agreed.

The largest proportion (66%) of the respondents agreed or strongly agreed with the statement saying feeling sick and vomiting was a sign of being pregnant while those who did not know the
answer to the question amounted to (14%) as well as those who did not agree or strongly disagreed.

4.2.2.5 Reproductive hygiene.

Regarding reproductive hygiene information, participants had to respond to five questions listed in Table 4.11.

Table 4.11: Frequency Distributions: Reproductive Hygiene

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Do not agree</th>
<th>Do not know</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls should change their sanitary pad only after school</td>
<td>147 49%</td>
<td>95 32%</td>
<td>18 6%</td>
<td>24 8%</td>
<td>16 5%</td>
<td>300 100%</td>
</tr>
<tr>
<td>The genital area should be washed each time when the sanitary pad is soaked</td>
<td>9 3%</td>
<td>36 12%</td>
<td>51 17%</td>
<td>116 38%</td>
<td>93 30%</td>
<td>305 100%</td>
</tr>
<tr>
<td>Underwear should be changed and washed daily or when soiled</td>
<td>4 1%</td>
<td>16 5%</td>
<td>21 7%</td>
<td>99 32%</td>
<td>116 54%</td>
<td>306 100%</td>
</tr>
<tr>
<td>Sanitary pads should be disposed of every evening</td>
<td>12 4%</td>
<td>27 9%</td>
<td>56 19%</td>
<td>112 37%</td>
<td>92 31%</td>
<td>299 100%</td>
</tr>
<tr>
<td>It is advisable to abstain from sexual activity during menstruation to prevent infection</td>
<td>5 2%</td>
<td>9 3%</td>
<td>80 27%</td>
<td>80 27%</td>
<td>123 41%</td>
<td>297 100%</td>
</tr>
</tbody>
</table>

Table 4.11 Indicates the largest proportion (81%) of respondents did not agree or strongly disagreed with the statement that girls should change their sanitary pad only after school during menstruation while the smallest proportion (6%) did not know the answer to the question.
The largest proportion (68%) of the respondents agreed or strongly agreed with the statement that the genital should be washed each time the sanitary pad is soaked, while the smallest proportion (15%) did not agree or strongly disagreed.

The largest proportion (68%) of the respondents agreed or strongly agreed with the statement that underwear should be changed and washed daily or when soiled while the smallest proportion (6%) did not agree or strongly disagreed.

The largest proportion (68%) of the respondents agreed or strongly agreed with the statement that sanitary pads should be disposed of every evening while the smallest proportion (13%) did not agree or strongly disagreed.

The largest proportion (68%) of the respondents agreed or strongly agreed with the statement saying it was advisable to abstain from sexual activity during menstruation to prevent infection while the smallest proportion (5%) did not agree or strongly disagreed.

4.2.2.6 Reproductive healthcare.

Regarding reproductive healthcare information, participants had to respond to five questions listed in Table 4.12.

Table 4.12: Frequency Distributions: Reproductive Healthcare Services and Problems

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Strongly disagree</th>
<th>Do not agree</th>
<th>Do not know</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive healthcare involves checking my breast every month for lumps</td>
<td>2 1%</td>
<td>10 3%</td>
<td>89 30%</td>
<td>106 36%</td>
<td>89 30%</td>
<td>296 100%</td>
</tr>
<tr>
<td>Looking for unfamiliar rashes on my body</td>
<td>3 1%</td>
<td>6 2%</td>
<td>87 29%</td>
<td>126 43%</td>
<td>74 25%</td>
<td>296 100%</td>
</tr>
<tr>
<td>Not allowing boys and men to touch me inappropriately</td>
<td>3 1%</td>
<td>10 3%</td>
<td>17 6%</td>
<td>90 30%</td>
<td>178 60%</td>
<td>298 100%</td>
</tr>
</tbody>
</table>
Table 4.12 indicates that the largest proportion (66%) of the respondents agreed or strongly agreed that reproductive healthcare involved checking her breasts every month for lumps while the smallest proportion (4%) did not agree or strongly disagreed.

The largest proportion (68%) of the respondents agreed or strongly agreed that reproductive healthcare involved looking for unfamiliar rashes on her body while the smallest proportion (3%) did not agree or strongly disagreed.

The largest proportion (90%) of the respondents agreed or strongly agreed that reproductive healthcare involved not allowing boys and men to touch her inappropriately while the smallest proportion (4%) did not agree or strongly disagreed.

The largest proportion (72%) of the respondents agreed or strongly agreed that reproductive healthcare involved reporting any funny smells on her body to the clinic while the smallest proportion (4%) did not agree or strongly disagreed.

The largest proportion (50%) of the respondents agreed or strongly agreed that reproductive healthcare involved checking that her breasts might feel slightly heavier before menstruation began while the smallest proportion (4%) did not agree or strongly disagreed.

4.2.2.7 Information that the participants receive from the teacher regarding contraceptives

The questions in this sub-section of the questionnaire were:

- Where can I obtain contraceptives?
• How often do I need to take the pill in order to prevent pregnancy?
• How often do I need to take the injection in order to prevent pregnancy?
• When do I take the emergency contraceptive to prevent pregnancy?

Tables 4.13 to 4.16 summarise the responses to the abovementioned four questions.

Table 4.13 Participants’ knowledge on where contraceptives can be obtained.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic</td>
<td>209</td>
<td>81.0%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>8</td>
<td>3.1%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>25</td>
<td>9.7%</td>
</tr>
<tr>
<td>Doctors</td>
<td>13</td>
<td>5.0%</td>
</tr>
<tr>
<td>Prescriptions</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Public bathrooms</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Hospitals</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>258</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 4.13 reflects that by far the majority (81%) of the participants indicated that contraceptives could be obtained from the clinic. A small but significant proportion (9.7%) did not know where contraceptives could be obtained and an even smaller proportion (between 0.4% and 5.0%) knew about other sources.

Table 4.14 Participants’ knowledge regarding how often the contraceptive pill needs to be taken in order to prevent pregnancy.

<table>
<thead>
<tr>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
</table>

77
Table 4.14 reflects that the majority (56.6%) of the participants indicated that the contraceptive pill needed to be taken every day in order to prevent pregnancy while approximately one out three (35.1%) indicated that they did not know the answer to the question. Only a small proportion (between 0.4% and 2.8%) gave other answers.

**Table 4.14**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every day</td>
<td>137</td>
<td>56.6%</td>
</tr>
<tr>
<td>Don't know</td>
<td>85</td>
<td>35.1%</td>
</tr>
<tr>
<td>Morning and night</td>
<td>3</td>
<td>1.2%</td>
</tr>
<tr>
<td>As long as I am taking it</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Monthly</td>
<td>7</td>
<td>2.8%</td>
</tr>
<tr>
<td>2 or 3 times a week</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>2 or 3 months</td>
<td>2</td>
<td>0.8%</td>
</tr>
<tr>
<td>3 years</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>3 times</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>After sex</td>
<td>2</td>
<td>0.8%</td>
</tr>
<tr>
<td>2 times a day</td>
<td>2</td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>242</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

**Table 4.15 (i)** Participants' knowledge regarding how often the contraceptive injection needs to be taken to prevent pregnancy

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>monthly</td>
<td>69</td>
<td>27.8%</td>
</tr>
<tr>
<td>2 monthly/ 3 monthly</td>
<td>88</td>
<td>35.4%</td>
</tr>
<tr>
<td>Do not know</td>
<td>82</td>
<td>33.0%</td>
</tr>
</tbody>
</table>
Table 4.15 (i) reflects that the largest proportion (35.4%) of the participants indicated that the contraceptive injection needed to be taken at a 2 monthly/3 monthly interval in order to prevent pregnancy. Almost the same proportion (33.0%) did not know the answer to the question. Also worth noting is that approximately one out four (27.8%) participants indicated that the contraceptive injection needed to be taken monthly while a small proportion (between 0.4% and 1.6%) gave other answers.

Table 4.15 (ii) Participants’ knowledge regarding when to take the emergency contraceptive to prevent pregnancy

<table>
<thead>
<tr>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don’t know</td>
<td>132</td>
</tr>
<tr>
<td>Before sleeping with someone</td>
<td>10</td>
</tr>
<tr>
<td>After sexual abuse/ rape</td>
<td>6</td>
</tr>
<tr>
<td>Morning after</td>
<td>22</td>
</tr>
<tr>
<td>After 72 hours</td>
<td>2</td>
</tr>
<tr>
<td>Before having sex</td>
<td>2</td>
</tr>
<tr>
<td>Per month</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 4.15 (ii) reflects that the majority of the participants (61.9%) indicated that they did not know the answer to the question, while a small but significant proportion (10.3%) indicated that the emergency contraceptive pill needed to be taken the morning after. Only a small proportion (between 0.4% and 8.4%) gave other answers.

4.2.3 Scores for knowledge factors regarding reproductive healthcare

Tables 4.16 and 4.17 present descriptive statistics for the participants’ scores for the knowledge factors that were calculated on a scale of 0 (no knowledge) to 10 (100% knowledge).

Table 4.16: Measures of central tendency and dispersion: Scores for Knowledge Factors (n = 313)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>S.D.</th>
<th>Minimum</th>
<th>Quartile 1</th>
<th>Median</th>
<th>Quartile 3</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive Healthcare Services</td>
<td>4.65</td>
<td>2.60</td>
<td>0.00</td>
<td>3.33</td>
<td>3.33</td>
<td>6.67</td>
<td>10.00</td>
</tr>
<tr>
<td>Reproductive Healthcare</td>
<td>5.76</td>
<td>2.44</td>
<td>0.00</td>
<td>4.29</td>
<td>5.71</td>
<td>8.57</td>
<td>10.00</td>
</tr>
<tr>
<td>Contraceptive Knowledge</td>
<td>4.17</td>
<td>2.05</td>
<td>0.00</td>
<td>2.22</td>
<td>4.44</td>
<td>5.56</td>
<td>8.89</td>
</tr>
</tbody>
</table>
According to Table 4.16 respondents’ mean knowledge scores ranged between 4.17 for Contraceptive Knowledge and 6.45 for Conception Knowledge. As it was decided to regard scores below 6.67 as unacceptable, it is clear that all mean scores are below this threshold value. The results therefore imply that participants had low overall knowledge on average for all the stated reproductive healthcare concepts.

<table>
<thead>
<tr>
<th>Knowledge Factor</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conception Knowledge</td>
<td>6.45</td>
<td>2.91</td>
<td>0.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Reproductive Hygiene</td>
<td>6.12</td>
<td>1.97</td>
<td>0.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Overall Knowledge</td>
<td>5.43</td>
<td>1.56</td>
<td>1.01</td>
<td>8.65</td>
</tr>
</tbody>
</table>

Table 4.17: Frequency Distributions: Scores for Knowledge Factors (n = 313)

<table>
<thead>
<tr>
<th>Knowledge Factor</th>
<th>Unacceptable [0.00 to 6.67)</th>
<th>Acceptable [6.67 to 7.78)</th>
<th>Good [7.78 to 8.89)</th>
<th>Excellent [8.89 to 10.00]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive Healthcare Services</td>
<td>166 (53%)</td>
<td>130 (42%)</td>
<td>0 (0%)</td>
<td>17 (5%)</td>
</tr>
<tr>
<td>Reproductive Healthcare</td>
<td>175 (56%)</td>
<td>59 (19%)</td>
<td>72 (23%)</td>
<td>7 (2%)</td>
</tr>
<tr>
<td>Contraceptive Knowledge</td>
<td>259 (83%)</td>
<td>33 (11%)</td>
<td>19 (6%)</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>Conception Knowledge</td>
<td>136 (43%)</td>
<td>96 (31%)</td>
<td>0 (0%)</td>
<td>81 (26%)</td>
</tr>
<tr>
<td>Reproductive Hygiene</td>
<td>205 (65%)</td>
<td>0 (0%)</td>
<td>97 (31%)</td>
<td>11 (4%)</td>
</tr>
<tr>
<td>Overall Knowledge</td>
<td>239 (76%)</td>
<td>63 (20%)</td>
<td>11 (4%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

It is clear from the results presented in Table 4.17 that the largest proportion of participants were in the unacceptable range for all factors. A significant proportion (26%) of participants were in the excellent range on conception knowledge only.

**4.3 One sample t-test for scores for knowledge factors**

One-sample t-tests were conducted to test the hypothesis that the mean knowledge level of the learners in the sampled population differed from 6.67, the specified minimum
acceptable value, for the various knowledge factors. The results are summarised in Table 4.18.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>t</th>
<th>p</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive Healthcare Services</td>
<td>4.65</td>
<td>2.60</td>
<td>-13.74</td>
<td>&lt;.0005</td>
<td>0.78</td>
</tr>
<tr>
<td>Reproductive Healthcare</td>
<td>5.76</td>
<td>2.44</td>
<td>-6.60</td>
<td>&lt;.0005</td>
<td>0.37</td>
</tr>
<tr>
<td>Contraceptive Knowledge</td>
<td>4.17</td>
<td>2.05</td>
<td>-21.62</td>
<td>&lt;.0005</td>
<td>1.22</td>
</tr>
<tr>
<td>Conception Knowledge</td>
<td>6.45</td>
<td>2.91</td>
<td>-1.36</td>
<td>.173</td>
<td>n/a</td>
</tr>
<tr>
<td>Reproductive Hygiene</td>
<td>6.12</td>
<td>1.97</td>
<td>-4.93</td>
<td>&lt;.0005</td>
<td>0.28</td>
</tr>
<tr>
<td>Overall Knowledge</td>
<td>5.43</td>
<td>1.56</td>
<td>-14.10</td>
<td>&lt;.0005</td>
<td>0.80</td>
</tr>
</tbody>
</table>

The results in Table 4.18 indicate that the null hypothesis can be rejected for all the knowledge scores (p <.0005 and d>0.20) except for Conception Knowledge (p=.173) It can thus be concluded that on average, with the exception of Conception Knowledge, learners in the sampled population have unacceptable levels of knowledge regarding reproductive healthcare.

### 4.4 Correlations for the dimensions of knowledge regarding reproductive healthcare

Correlations are statistically significant at the 0.05 level for n=313 if the absolute value of the correlation (|r|) is greater than 0.111, as determined using the software package Statistica, and practically significant if |r| >= 300 (Gravetter & Wallnau, 2009:534); therefore for this study correlations are deemed significant (both statistically and practically) if |r| >=.300. The correlations depicting the strength and direction of the relationship amongst the knowledge factors are reported in Table 4.19. The significant correlations are shaded bold red in italics and correlations that are statistically significant only are in red.

| Table 4.19: Pearson Product Moment Correlations – Reproductive Healthcare Knowledge Factors |
Table 4.19 Indicates that there are significant relationships between the following knowledge factors:

- Reproductive Healthcare Services and Contraceptive Knowledge (.326);
- Reproductive Healthcare and Reproductive Hygiene (.385);
- Conception Knowledge and Reproductive Hygiene (.317).

It is worth noting that all correlations were positive which implies that learners in the sampled population with little knowledge about one of the knowledge factors also tend to have little knowledge about the other knowledge factors.

### 4.5 Relationships between demographic variables and knowledge regarding reproductive healthcare

Analysis of Variance (ANOVA) was used to determine the significance of the relationships between demographic variables and knowledge on reproductive healthcare. According to Polit and Beck (2012:416), ANOVA is the parametric procedure for testing the significance of the differences between means of three or more groups. The three demographic variables selected for comparisons were: Age, Level and Menstrual age. The other demographic variables in this study could not be used for analysis due to too small sample sizes for some of the variables’ categories.
Tables 4.20 to 4.32 summarise the descriptive statistics and ANOVA results for knowledge regarding reproductive healthcare services by age. In the table the abbreviations “95% CI low” and 95% CI high” are used for the lower and upper limits of the 95% confidence interval for the mean of the relevant variable.

Table 4.20: Descriptive statistics regarding Reproductive Healthcare Services by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>13 - 16</th>
<th>16 - 17</th>
<th>17 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>77</td>
<td>94</td>
<td>139</td>
</tr>
<tr>
<td>Mean</td>
<td>4.67</td>
<td>4.89</td>
<td>4.68</td>
<td>4.53</td>
</tr>
<tr>
<td>SD</td>
<td>2.59</td>
<td>2.51</td>
<td>2.60</td>
<td>2.63</td>
</tr>
<tr>
<td>95% CI low</td>
<td>4.38</td>
<td>4.32</td>
<td>4.15</td>
<td>4.09</td>
</tr>
<tr>
<td>95% CI high</td>
<td>4.96</td>
<td>5.46</td>
<td>5.21</td>
<td>4.97</td>
</tr>
</tbody>
</table>

Table 4.21: ANOVA - Reproductive Healthcare Services by Age

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>6.423</td>
<td>2</td>
<td>3.212</td>
<td>0.471</td>
<td>.625</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2095.049</td>
<td>307</td>
<td>6.824</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2101.472</td>
<td>309</td>
<td>6.824</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.22: Descriptive statistics regarding Reproductive Healthcare by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>13 - 16</th>
<th>16 - 17</th>
<th>17 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>77</td>
<td>94</td>
<td>139</td>
</tr>
<tr>
<td>Mean</td>
<td>5.79</td>
<td>5.57</td>
<td>5.65</td>
<td>6.00</td>
</tr>
<tr>
<td>SD</td>
<td>2.44</td>
<td>2.53</td>
<td>2.54</td>
<td>2.31</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.52</td>
<td>4.99</td>
<td>5.13</td>
<td>5.61</td>
</tr>
<tr>
<td>95% CI high</td>
<td>6.06</td>
<td>6.14</td>
<td>6.17</td>
<td>6.39</td>
</tr>
</tbody>
</table>

Table 4.23: ANOVA - Reproductive Healthcare by Age

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>11.841</td>
<td>2</td>
<td>5.920</td>
<td>0.982</td>
<td>.376</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1850.328</td>
<td>307</td>
<td>6.027</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1862.169</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.24: Descriptive statistics regarding Contraceptive Knowledge by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>13 - 16</th>
<th>16 - 17</th>
<th>17 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>77</td>
<td>94</td>
<td>139</td>
</tr>
<tr>
<td>Mean</td>
<td>4.18</td>
<td>4.17</td>
<td>4.24</td>
<td>4.14</td>
</tr>
<tr>
<td>SD</td>
<td>2.05</td>
<td>2.04</td>
<td>2.00</td>
<td>2.10</td>
</tr>
<tr>
<td>95% CI low</td>
<td>3.95</td>
<td>3.71</td>
<td>3.83</td>
<td>3.79</td>
</tr>
<tr>
<td>95% CI high</td>
<td>4.41</td>
<td>4.63</td>
<td>4.65</td>
<td>4.49</td>
</tr>
</tbody>
</table>

Table 4.25: ANOVA - Contraceptive Knowledge by Age
<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>0.605</td>
<td>2</td>
<td>0.303</td>
<td>0.071</td>
<td>.931</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1308.527</td>
<td>307</td>
<td>4.262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1309.133</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.26: Descriptive statistics regarding Conception Knowledge by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>13 - 16</th>
<th>16 - 17</th>
<th>17 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>77</td>
<td>94</td>
<td>139</td>
</tr>
<tr>
<td>Mean</td>
<td>6.49</td>
<td>6.33</td>
<td>6.73</td>
<td>6.42</td>
</tr>
<tr>
<td>SD</td>
<td>2.87</td>
<td>2.97</td>
<td>2.67</td>
<td>2.96</td>
</tr>
<tr>
<td>95% CI low</td>
<td>6.17</td>
<td>5.66</td>
<td>6.18</td>
<td>5.92</td>
</tr>
<tr>
<td>95% CI high</td>
<td>6.81</td>
<td>7.00</td>
<td>7.28</td>
<td>6.92</td>
</tr>
</tbody>
</table>

Table 4.27: ANOVA - Conception Knowledge by Age

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>7.963</td>
<td>2</td>
<td>3.981</td>
<td>0.464</td>
<td>.629</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2631.614</td>
<td>307</td>
<td>8.572</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2639.577</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.28: Descriptive statistics regarding Reproductive Hygiene by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>13 - 16</th>
<th>16 - 17</th>
<th>17 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>77</td>
<td>94</td>
<td>139</td>
</tr>
<tr>
<td>Mean</td>
<td>6.15</td>
<td>5.95</td>
<td>6.36</td>
<td>6.13</td>
</tr>
<tr>
<td>SD</td>
<td>1.94</td>
<td>1.78</td>
<td>2.09</td>
<td>1.93</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.94</td>
<td>5.54</td>
<td>5.93</td>
<td>5.81</td>
</tr>
</tbody>
</table>
95% CI high | 6.37 | 6.35 | 6.79 | 6.45

Table 4.29: ANOVA - Reproductive Hygiene by Age

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>7.404</td>
<td>2</td>
<td>3.702</td>
<td>0.947</td>
<td>.389</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1199.982</td>
<td>307</td>
<td>3.909</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1207.387</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.30: Descriptive statistics regarding Overall Knowledge by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>13 - 16</th>
<th>16 - 17</th>
<th>17 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>77</td>
<td>94</td>
<td>139</td>
</tr>
<tr>
<td>Mean</td>
<td>5.46</td>
<td>5.38</td>
<td>5.53</td>
<td>5.45</td>
</tr>
<tr>
<td>SD</td>
<td>1.53</td>
<td>1.52</td>
<td>1.67</td>
<td>1.45</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.29</td>
<td>5.04</td>
<td>5.19</td>
<td>5.20</td>
</tr>
<tr>
<td>95% CI high</td>
<td>5.63</td>
<td>5.73</td>
<td>5.88</td>
<td>5.69</td>
</tr>
</tbody>
</table>

Table 4.31: ANOVA - Overall Knowledge by Age

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1.007</td>
<td>2</td>
<td>0.503</td>
<td>0.205</td>
<td>.815</td>
</tr>
<tr>
<td>Within Groups</td>
<td>754.150</td>
<td>307</td>
<td>2.457</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>755.157</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is clear from the results reported in Tables 4.20 to 4.32 that none of the knowledge factors was significantly related to age.
Tables 4.32 to 4.46 summarise the descriptive statistics and ANOVA results for knowledge regarding reproductive healthcare services by education level.

**Table 4.32: Descriptive statistics Reproductive Healthcare Services by Level**

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>167</td>
<td>108</td>
<td>35</td>
</tr>
<tr>
<td>Mean</td>
<td>4.66</td>
<td>4.93</td>
<td>4.88</td>
<td>2.67</td>
</tr>
<tr>
<td>SD</td>
<td>2.60</td>
<td>2.61</td>
<td>2.34</td>
<td>2.53</td>
</tr>
<tr>
<td>95% CI low</td>
<td>4.37</td>
<td>4.53</td>
<td>4.43</td>
<td>1.80</td>
</tr>
<tr>
<td>95% CI high</td>
<td>4.95</td>
<td>5.33</td>
<td>5.32</td>
<td>3.54</td>
</tr>
</tbody>
</table>

**Table 4.33: ANOVA - Reproductive Healthcare Services by Level**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>156.426</td>
<td>2</td>
<td>78.213</td>
<td>12.345</td>
<td>&lt;.0005</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1945.046</td>
<td>307</td>
<td>6.336</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2101.472</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.34: Descriptive and Inferential statistics for ANOVA - Reproductive Healthcare Services by Level

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Diff. M₁-M₂</th>
<th>Scheffé p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 10</td>
<td>Grade 11</td>
<td>0.05</td>
<td>.985</td>
<td>n/a</td>
</tr>
<tr>
<td>Grade 10</td>
<td>Grade 12</td>
<td>2.26</td>
<td>&lt;.0005</td>
<td>0.87 Large</td>
</tr>
<tr>
<td>Grade 11</td>
<td>Grade 12</td>
<td>2.21</td>
<td>&lt;.0005</td>
<td>0.92 Large</td>
</tr>
</tbody>
</table>

Table 4.35: Descriptive statistics Reproductive Healthcare by Level

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>167</td>
<td>108</td>
<td>35</td>
</tr>
<tr>
<td>Mean</td>
<td>5.75</td>
<td>5.35</td>
<td>6.63</td>
<td>4.94</td>
</tr>
<tr>
<td>SD</td>
<td>2.45</td>
<td>2.44</td>
<td>2.04</td>
<td>2.92</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.48</td>
<td>4.98</td>
<td>6.24</td>
<td>3.93</td>
</tr>
<tr>
<td>95% CI high</td>
<td>6.02</td>
<td>5.73</td>
<td>7.02</td>
<td>5.94</td>
</tr>
</tbody>
</table>

Table 4.36: ANOVA - Reproductive Healthcare by Level

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>131.955</td>
<td>2</td>
<td>65.978</td>
<td>11.707</td>
<td>&lt;.0005</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1730.213</td>
<td>307</td>
<td>5.636</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1862.169</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.37: Descriptive and Inferential statistics for ANOVA - Reproductive Healthcare by Level

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Diff. M₁-M₂</th>
<th>Scheffé p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 10</td>
<td>Grade 11</td>
<td>-1.27</td>
<td>&lt;.0005</td>
<td>0.56 Medium</td>
</tr>
<tr>
<td>Grade 10</td>
<td>Grade 12</td>
<td>0.42</td>
<td>.642</td>
<td>n/a</td>
</tr>
<tr>
<td>Grade 11</td>
<td>Grade 12</td>
<td>1.69</td>
<td>.001</td>
<td>0.74 Medium</td>
</tr>
</tbody>
</table>

Table 4.38: Descriptive statistics regarding Contraceptive Knowledge by Level
<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>167</td>
<td>108</td>
<td>35</td>
</tr>
<tr>
<td>Mean</td>
<td>4.16</td>
<td>4.02</td>
<td>4.45</td>
<td>3.90</td>
</tr>
<tr>
<td>SD</td>
<td>2.06</td>
<td>1.90</td>
<td>2.19</td>
<td>2.29</td>
</tr>
<tr>
<td>95% CI low</td>
<td>3.93</td>
<td>3.73</td>
<td>4.04</td>
<td>3.12</td>
</tr>
<tr>
<td>95% CI high</td>
<td>4.39</td>
<td>4.31</td>
<td>4.87</td>
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</table>

Table 4.39: ANOVA - Contraceptive Knowledge by Level

<table>
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<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
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<td>2</td>
<td>7.521</td>
<td>1.784</td>
<td>.170</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1294.092</td>
<td>307</td>
<td>4.215</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1309.133</td>
<td>309</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.40: Descriptive statistics Conception Knowledge by Level

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>167</td>
<td>108</td>
<td>35</td>
</tr>
<tr>
<td>Mean</td>
<td>6.44</td>
<td>6.47</td>
<td>6.57</td>
<td>5.93</td>
</tr>
<tr>
<td>SD</td>
<td>2.92</td>
<td>2.82</td>
<td>3.01</td>
<td>3.16</td>
</tr>
<tr>
<td>95% CI low</td>
<td>6.12</td>
<td>6.04</td>
<td>6.00</td>
<td>4.84</td>
</tr>
<tr>
<td>95% CI high</td>
<td>6.77</td>
<td>6.90</td>
<td>7.15</td>
<td>7.01</td>
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Table 4.41: ANOVA - Conception Knowledge by Level

<table>
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<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>11.214</td>
<td>2</td>
<td>5.607</td>
<td>0.655</td>
<td>.520</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2628.362</td>
<td>307</td>
<td>8.561</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2639.577</td>
<td>309</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.42: Descriptive statistics regarding Reproductive Hygiene by Level

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>167</td>
<td>108</td>
<td>35</td>
</tr>
<tr>
<td>Mean</td>
<td>6.11</td>
<td>6.04</td>
<td>6.37</td>
<td>5.66</td>
</tr>
<tr>
<td>SD</td>
<td>1.97</td>
<td>1.92</td>
<td>1.99</td>
<td>2.09</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.89</td>
<td>5.74</td>
<td>5.99</td>
<td>4.94</td>
</tr>
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<td>95% CI high</td>
<td>6.33</td>
<td>6.33</td>
<td>6.75</td>
<td>6.37</td>
</tr>
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</table>

Table 4.43: ANOVA - Reproductive Hygiene by Level

<table>
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<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>15.416</td>
<td>2</td>
<td>7.708</td>
<td>1.985</td>
<td>.139</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1191.971</td>
<td>307</td>
<td>3.883</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1207.387</td>
<td>309</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.44: Descriptive statistics regarding Overall Knowledge by Level

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>310</td>
<td>167</td>
<td>108</td>
<td>35</td>
</tr>
<tr>
<td>Mean</td>
<td>5.42</td>
<td>5.36</td>
<td>5.78</td>
<td>4.62</td>
</tr>
<tr>
<td>SD</td>
<td>1.56</td>
<td>1.52</td>
<td>1.43</td>
<td>1.86</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.25</td>
<td>5.13</td>
<td>5.51</td>
<td>3.98</td>
</tr>
<tr>
<td>95% CI high</td>
<td>5.60</td>
<td>5.59</td>
<td>6.05</td>
<td>5.26</td>
</tr>
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</table>

Table 4.45: ANOVA - Overall Knowledge by Level

<table>
<thead>
<tr>
<th>Source of Variation</th>
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<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>37.040</td>
<td>2</td>
<td>18.520</td>
<td>7.917</td>
<td>&lt;.0005</td>
</tr>
<tr>
<td>Within Groups</td>
<td>718.117</td>
<td>307</td>
<td>2.339</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>755.157</td>
<td>309</td>
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<td></td>
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</table>
Table 4.46: Descriptive and Inferential statistics for ANOVA- Overall Knowledge by Level

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Diff. $M_1-M_2$</th>
<th>Scheffé p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 10</td>
<td>Grade 11</td>
<td>-0.42</td>
<td>.087</td>
<td>n/a</td>
</tr>
<tr>
<td>Grade 10</td>
<td>Grade 12</td>
<td>0.74</td>
<td>.035</td>
<td>0.47 Small</td>
</tr>
<tr>
<td>Grade 11</td>
<td>Grade 12</td>
<td>1.16</td>
<td>.001</td>
<td>0.75 Medium</td>
</tr>
</tbody>
</table>

According to the results reported in Tables 4.31 to 4.46 significant relationships were found between learners’ education level and the following knowledge factors:

- Reproductive Healthcare Services: grade 10 ($M=4.93$) and grade 11 ($M=4.88$) learners have significantly better knowledge than grade 12 ($M=2.67$) learners.

- Reproductive Health Care: grade 11 ($M=6.63$) learners have significantly better knowledge than grade 10 ($M=5.35$) and grade 12 ($M=4.94$) learners.

- Overall Knowledge: grade 12 ($M=4.62$) learners’ levels of knowledge are significantly lower than those of grade 10 ($M=5.36$) and grade 11 ($M=5.78$) learners.

Tables 4.47 to 4.60 summarise the descriptive statistics and ANOVA results for knowledge regarding reproductive healthcare services by menarche.
Table 4.47: Descriptive statistics regarding Reproductive Healthcare Services by Menarche

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>10 – 13</th>
<th>14 - 15</th>
<th>16 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>311</td>
<td>173</td>
<td>105</td>
<td>33</td>
</tr>
<tr>
<td>Mean</td>
<td>4.64</td>
<td>4.93</td>
<td>4.70</td>
<td>2.93</td>
</tr>
<tr>
<td>SD</td>
<td>2.60</td>
<td>2.53</td>
<td>2.56</td>
<td>2.47</td>
</tr>
<tr>
<td>95% CI low</td>
<td>4.35</td>
<td>4.55</td>
<td>4.20</td>
<td>2.05</td>
</tr>
<tr>
<td>95% CI high</td>
<td>4.93</td>
<td>5.31</td>
<td>5.19</td>
<td>3.80</td>
</tr>
</tbody>
</table>

Table 4.48: ANOVA - Reproductive Healthcare Services by Menarche

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>111.862</td>
<td>2</td>
<td>55.931</td>
<td>8.658</td>
<td>&lt;.0005</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1989.610</td>
<td>308</td>
<td>6.460</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2101.472</td>
<td>310</td>
<td>6.460</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.49: Descriptive and Inferential statistics for ANOVA- Reproductive Healthcare Services by Menarche

<table>
<thead>
<tr>
<th>Menarche 1</th>
<th>Menarche 2</th>
<th>Diff. M₁-M₂</th>
<th>Scheffé p</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 13</td>
<td>14 - 15</td>
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<td>.757</td>
<td>n/a</td>
</tr>
<tr>
<td>10 - 13</td>
<td>16 - 19</td>
<td>2.00</td>
<td>&lt;.0005</td>
<td>0.79 Medium</td>
</tr>
<tr>
<td>14 - 15</td>
<td>16 - 19</td>
<td>1.77</td>
<td>.003</td>
<td>0.70 Medium</td>
</tr>
</tbody>
</table>

Table 4.50: Descriptive statistics regarding Reproductive Healthcare by Menarche

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>10 - 13</th>
<th>14 - 15</th>
<th>16 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>311</td>
<td>173</td>
<td>105</td>
<td>33</td>
</tr>
<tr>
<td>Mean</td>
<td>5.75</td>
<td>5.85</td>
<td>5.51</td>
<td>5.97</td>
</tr>
<tr>
<td>SD</td>
<td>2.44</td>
<td>2.49</td>
<td>2.51</td>
<td>1.97</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.47</td>
<td>5.47</td>
<td>5.02</td>
<td>5.27</td>
</tr>
<tr>
<td>Source of Variation</td>
<td>SS</td>
<td>df</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>----</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
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<td>0.772</td>
</tr>
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<td>1852.879</td>
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<td>6.016</td>
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<tr>
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<td>310</td>
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</tr>
</tbody>
</table>

**Table 4.52: Descriptive statistics regarding Contraceptive Knowledge by Menarche**

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>10 - 13</th>
<th>14 - 15</th>
<th>16 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>311</td>
<td>173</td>
<td>105</td>
<td>33</td>
</tr>
<tr>
<td>Mean</td>
<td>4.16</td>
<td>4.00</td>
<td>4.37</td>
<td>4.34</td>
</tr>
<tr>
<td>SD</td>
<td>2.05</td>
<td>2.00</td>
<td>2.23</td>
<td>1.72</td>
</tr>
<tr>
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<td>3.93</td>
<td>3.70</td>
<td>3.94</td>
<td>3.73</td>
</tr>
<tr>
<td>95% CI high</td>
<td>4.39</td>
<td>4.30</td>
<td>4.80</td>
<td>4.95</td>
</tr>
</tbody>
</table>

**Table 4.53: ANOVA - Contraceptive Knowledge by Menarche**

<table>
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<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>10.130</td>
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<td>5.065</td>
<td>1.201</td>
<td>.302</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1299.002</td>
<td>308</td>
<td>4.218</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1309.133</td>
<td>310</td>
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<td></td>
</tr>
</tbody>
</table>

**Table 4.54: Descriptive statistics regarding Conception Knowledge by Menarche**

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>10 - 13</th>
<th>14 - 15</th>
<th>16 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>311</td>
<td>173</td>
<td>105</td>
<td>33</td>
</tr>
<tr>
<td>Mean</td>
<td>6.46</td>
<td>6.60</td>
<td>6.45</td>
<td>5.76</td>
</tr>
<tr>
<td>SD</td>
<td>2.91</td>
<td>2.85</td>
<td>3.06</td>
<td>2.69</td>
</tr>
<tr>
<td>95% CI low</td>
<td>6.14</td>
<td>6.18</td>
<td>5.86</td>
<td>4.80</td>
</tr>
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</table>
### Table 4.55: ANOVA - Conception Knowledge by Menarche

<table>
<thead>
<tr>
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<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>19.875</td>
<td>2</td>
<td>9.938</td>
<td>1.168</td>
<td>.312</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2619.702</td>
<td>308</td>
<td>8.506</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2639.577</td>
<td>310</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4.56: Descriptive statistics regarding Reproductive Hygiene by Menarche

<table>
<thead>
<tr>
<th>Group</th>
<th>All</th>
<th>10 - 13</th>
<th>14 - 15</th>
<th>16 - 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>311</td>
<td>173</td>
<td>105</td>
<td>33</td>
</tr>
<tr>
<td>Mean</td>
<td>6.12</td>
<td>6.46</td>
<td>5.71</td>
<td>5.64</td>
</tr>
<tr>
<td>SD</td>
<td>1.97</td>
<td>1.95</td>
<td>1.99</td>
<td>1.76</td>
</tr>
<tr>
<td>95% CI low</td>
<td>5.90</td>
<td>6.17</td>
<td>5.33</td>
<td>5.01</td>
</tr>
<tr>
<td>95% CI high</td>
<td>6.34</td>
<td>6.75</td>
<td>6.10</td>
<td>6.26</td>
</tr>
</tbody>
</table>

### Table 4.57: ANOVA - Reproductive Hygiene by Menarche

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
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<td>2</td>
<td>22.643</td>
<td>6.001</td>
<td>.003</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1162.100</td>
<td>308</td>
<td>3.773</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1207.387</td>
<td>310</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4.58: Descriptive and Inferential statistics for ANOVA - Reproductive Hygiene by Menarche
According to the results reported in Tables 4.47 to 4.60 significant relationships were found between learners’ menarche and the following knowledge factors:

- **Reproductive Healthcare Services**: the menarche group 16-19 (M=2.93) has significantly lower levels of knowledge than those of the menarche groups 10-13 (M=4.93) and 14-15 (M=4.70).
• Reproductive Hygiene: the levels of knowledge of the menarche group 10-13 (M=6.46) are significantly higher than those of age groups 14-15 (M=5.71).

4.6. Conclusion

This chapter presented the results of the current study. The results indicate that even though learners have some knowledge regarding reproductive healthcare, it is very limited and can be described as unacceptable on average. Some significant relationships were found between certain demographic variables and the knowledge regarding reproductive healthcare concepts. The discussion and conclusion of the findings will follow in the next chapter.
CHAPTER 5
DISCUSSION AND INTERPRETATION OF THE RESULTS

5.1 Introduction

In view of the results from the review report compiled by Wilan (2013:27) on a review of schoolgoing teenage girls’ experiences of, their knowledge of and access to sexual and reproductive healthcare services, it became evident that the participants in that review who were schoolgoing teenage girls had received some reproductive healthcare-related education in Life-Orientation Programme classes; but the information pertaining to reproductive healthcare was superficial (Wilan, 2013:27). Owing to the nature of the information received at school these learners demonstrated deficiencies in the correct use and understanding of how contraceptives work, thus in this regard revealing a significant gap and inaccurate knowledge with regard to safe reproductive healthcare. Mason-Jones, Crisp, Mathews & Dhansay (2012:2) advise that more focus be put on these significant issues which would be more appropriate than a “blanket approach to provision” of assistance at school level. The current study was therefore guided by this statement to learn about the knowledge of schoolgoing teenage girls with regard to reproductive healthcare in order to develop guidelines that would enhance existing knowledge regarding the concept of reproductive healthcare.

In this chapter the results presented in chapter four will be discussed using literature control to provide meaning for and justification of the context of the study. A summary of results of each section will be presented and discussed, with the researcher drawing conclusions with each discussion. Results being discussed are responses to each research question.
5.2 Research questions

The research questions of this study were the following.

- What knowledge do schoolgoing teenage girls have regarding reproductive healthcare?
- What school-based information do schoolgoing teenage girls have regarding reproductive healthcare?

5.3 Interpretation of the results

The results will be discussed in relation to demographic data and participants’ knowledge related to reproductive healthcare. Furthermore, the participants’ knowledge related to reproductive healthcare will be discussed under the headings of sources for reproductive health information, reproductive healthcare services and problems, contraceptive knowledge, conception knowledge, reproductive hygiene and reproductive healthcare. The researcher will also be discussing the relationship between the demographic variables and the participants’ knowledge regarding reproductive healthcare.

5.3.1 SECTION A: Demographic profile

Results relating to demographic profile of the participants are discussed in the following sections. The demographic data will focus on the ethnicity, age, level of current study, type of current school, age at first menstruation and religion of the participants. These are factors that in some studies have been identified as being the barriers associated with the teaching of reproductive healthcare (Masinga, 2013:4; Mothiba & Maputle, 2012:1; James et. al, 2011:192).
5.3.1.1 Ethnicity

The results indicated that out of the total number (n=313) of participants who responded to the question, the majority of the participants were black n=192 (61%) while the minority were coloured n=35 (11%). The study was conducted in the Eastern Cape Province which has mainly a black population and therefore these results were expected. Furthermore, most of the study results that the researcher came across while doing literature research were from African countries or had results congruent with the current study results (Lawan, et al.,2010:3; Mustapha, 2006:1).

A study conducted by Lawan, et al., (2010:3) on menstruation and menstrual hygiene amongst adolescent school girls in Kano, Northwest Nigeria, indicated that the majority of the participants were of the Hausa ethnic group which amounted to 73%. The Hausa ethnic group seems to be the largest as it is the biggest African tribe currently in Nigeria constituting 57.8% of the country’s population (Mustapha, 2006:1). Statistics from a study done in the United States by Advocates for Youth (2010:1) indicated that the gonorrhoea rate (which is a sexually-transmitted infection) among black teenagers aged 15-19 years was 16 times higher than the rate among white females (2,934.6 and 181.3 per 100 000 females respectively). Also Martin, Hamilton & Osterman, 2015:5; Curtin, Abma, Ventura & Henshaw, 2013:1; Martinez, Copen & Abma, 2011:23) have reported that LatinAmerican teenagers are more inclined to sexual activity than their white counterparts and will report non-use of contraceptives at their initial sexual encounter.

Furthermore, it is a known fact that the African communities are more reluctant than other communities to discuss matters related to reproductive healthcare subjects with their young children, teachers included (James et al, 2012::190; Cavazos-Regh, et al., 2013:470). The results of this study therefore support the conclusion that the limited knowledge about reproductive healthcare was demonstrated by the responses from the schoolgoing teenage girls.
5.3.1.2 Age

The results indicated that the majority of study participants were in the age group of 16-17 years old. In view of the fact that in Africa, and South Africa included, the mean age of first sexual encounter among teenagers is from 16 to 18 years (Wilan, 2013:15) the age range that was targeted in this study was appropriate. More so, Crossland, Hadden, Vargas, Valadez and Jeffery, (2015:397) found in their study that age and level of education were associated with an increase in knowledge and access to reproductive healthcare services. The participants targeted in this study were expected to have knowledge regarding reproductive healthcare by virtue of the age group and current school grade level. Also, as has been stated as the main argument in this study, this is the age group that should know better by virtue of being exposed to the LO programme for at least three years each.

Also, referring to knowledge of other reproductive healthcare-related conditions, Muliira, Kisaakye, Kizza & Suubi, (2011:87) found that university students aged between 18 and 20 years of age had limited knowledge or none at all about cervical cancer or methods of its prevention. Cervical cancer forms part of the reproductive healthcare component, a concern about which awareness has to be raised as early as at primary school level. The concern is that young women are at higher risk of STI's that are linked to cervical cancer than older women (Muliira et al., 2011:91) and yet the participants in this study are not aware of that fact.

In the context of this study taking note of the age as a factor to knowledge regarding reproductive healthcare would probably assist as a basis for the guidelines that are yet to be developed.
5.3.1.3 Level of current study/ grades at school

The participants were in grades 10 to 12 and in all these classes the LO programme that has the reproductive healthcare component is taught and thus the expectation was that these participants ought to know about reproductive healthcare. Results are the opposite of what was expected and yet congruent with existing literature that has been mentioned previously in this study. Research results from a study that was conducted by Panday, Makiwane, Ranchod & Letsoalo (2009:42) to investigate pregnancy of schoolgoing teenagers in South Africa revealed that there were high levels of pregnancy at both primary and secondary schools with an average of 58% over a period of three years. There was no significant difference noted between the pregnancies at these three grades and levels of school education (Panday, et al., 2009:42). Most of the schoolgoing teenage girls in that study and in other similar studies were observed to have had unplanned pregnancies due to either not knowing about or inconsistent use of contraceptives.

The current study results show limited knowledge of schoolgoing teenage girls regarding reproductive healthcare and yet it is almost seven years since the study of Panday, et al. (2009:42) and almost twenty years since 1998, the first year of the introduction of the LO programme and with reproductive healthcare as a component of that programme at schools.

In the light of these results from Panday, et al., (2009: 42) and the context of the current study, level of grade or class at school could be an important factor to consider while developing the needed guidelines.

5.3.1.4 Type of current school
The current study was conducted at combined high schools in the Nelson Mandela Metropolitan Municipal area and Sarah Baartman and Cacadu districts targeting schoolgoing teenage girls. The results suggest that there are many girls whose voices are probably not being heard when it comes to reproductive healthcare discussions in class due to shyness about talking about the topic in front of boys. Literature indicates that young girls feel restricted or silenced about openly discussing their sexuality or their sexual behaviour in the LO Programme class (Shefer, Kruger, Macleod, Baxen & Vincent, 2015:78). Girls are viewed as the ones who should take sole responsibility for safe sex while boys are being viewed as all-powerful and carefree beings who leave when pregnancy occurs (Shefer et al., 2015:78). Also results from the study of Pahlke, Hyde & Allison (2014:2096) found that during a discussion in class on power relations and their effect on relationships, boys had more control in these situations than girls who were expected just to accept the decisions made. Based on the discussion by Shefer et al., (2015:78; Pahlke, et al., 2014:2096) the researcher assumes that such a discussion will apply to the participants of the current study.

Teenage girls are found to be afraid to accept knowing where to get the contraceptives and as a result, will at times not get them and thus engage in unprotected sex (Crossland, et al., 2015:397). Fear to be known as using contraceptives is associated with stigma of STIs and thus in keeping quiet when the topic is being discussed and neither asking questions nor raising opinions, they may deprive themselves of the necessary reproductive healthcare information. The researcher concludes that, in the context of the study and discussion presented above, the schoolgoing teenage girls are intimidated in class and therefore do not ask the relevant questions. The type of school may also be an influence to consider for the development of recommendations and guidelines for the study.
5.3.1.5 Age at first menstruation

Results indicate that the majority of participants, n=135 (43%) had their first menstrual period at the age of 12-13 years of age. Similar findings were reported by Thakre, et al., (2011:1028) on menstrual hygiene: knowledge and practice among adolescent school girls of the Saoner, Nagpur district in India. Findings in that study indicated that 47.03% of participants had their first menstruation at the age of 13 years of age while the study conducted by Lawan, et al., (2010:203) indicated that 92.7% of participants who formed the majority experienced their menarche between 11 and 15 years of age. Such findings are congruent with the age range found in existing literature, which indicates that the normal timing of first menstruation among healthy girls extends from about 11 years to 14 to 15 years (WHO, 2011:7).

It is at schools that the first menstruation could be clarified and related to pregnancy so as to warn teenagers, create intelligence around this matter and remove misconceptions. Garg, Goyal & Gupta (2012:768) explain in their study that in developing countries the concept of menstruation has created such a problem with young girls that it leads to selfobjectification and body shame. These authors state that limited knowledge about the physiology of menstruation brings about the experience of fear and shame with it (Garg, et al., 2012:768).

It is also important to identify those teenagers who have not reached menarche by the age of 15 years yet or have not done so within three years thereafter, hence the inclusion of this matter as a variable in the study. Literature shows that teenagers who have not started menstruation by the age of 14 years may have a history of excessive exercise or an eating disorder which could predispose them to serious reproduction-related problems later on in life (The American College of Obstetricians and Gynecologists, 2015:3). It was
important for the researcher to determine the age at first menstruation and link it to the knowledge of reporting of this tendency by the teenage girls seeing that some of them had been found during the problem formulation phase with reproductive healthcare problems that were never reported to the healthcare professionals. The researcher will therefore state that the reproductive healthcare component should be suitable for the promotion of such health education for teenage girls.

5.3.1.6 Religion

The results indicate that the many of participants indicated that they were Methodist. Literature indicates that all major religions offer a distinct belief system which aims to guide devout followers in sexual and reproductive health matters (Arousall & Carlbom, 2016:78). Some religions are against the use of contraceptives (Manenene-Netshiwela, 2007:68.) and therefore schoolgoing teenage girls from such backgrounds would seem vulnerable to listening about such information during a school lesson. Such information would therefore be useful to consider during the phase of development of guidelines.

5.3.2 SECTION B: Participants’ responses to questionnaire items on knowledge regarding reproductive healthcare and sources of relevant information

The current section will present discussion about the results pertaining the participants’ responses to questionnaire items on the knowledge regarding reproductive healthcare. The discussion is presented under seven subheadings which contain questions, statements and responses to questions asked. The subheadings are as follows:

- Sources of reproductive health information
- Reproductive healthcare services and problems
• Contraceptive knowledge
• Conception knowledge
• Reproductive hygiene
• Reproductive healthcare

5.3.2.1 Sources of reproductive health information

Exploring sources of information for participants was in the context of this study against the background that teenagers get their information other than from their parents from sources that are sometimes non-authentic (Galloway, Duffy, Dixon & Fuller, 2017:560; Ford & Forthofer, 2010:356; Sterling, & Sadler, 2009:20; Yee & Simon, 2010:366). Such information thus brings with it some misconceptions and incorrect use of contraceptives as also delay in reporting symptoms of infections or reproductive health complications (Galloway et al., 2017:s60). In this study participants had to indicate where they received the most information regarding the changes of the body that girls and boys undergo during their teenage years.

All participants responded to the question and results indicate that the majority of the learners agreed that they received the information regarding the changes that their bodies undergo during teenage years from their parents/guardians (81%) teachers (80%). This result is in contrast to the general impression created by society that parents do not adequately engage with their teenage daughters regarding reproductive health, especially sex and sexuality topics. For example, it has been reported that parents discuss less with their female teenage children about engaging in protected sex than they do with their male teenage children (Obiyan & Agunbiade, 2014:858). Such discussions with their daughters are considered to be immoral (Obiyan & Agunbiade, 2014:858) or disconcerting (Tegegn, et al., 2008:143) if not religiously unacceptable.
As stated before, in many developing countries sexual and reproductive health issues tend to be culturally related and are rarely discussed at home amongst teenagers and their parents (Shiferaw, et al., 2014:2); therefore teenagers rely on their peers who themselves lack adequate information (Shiferaw et al., 2014:2). Furthermore, it was noted on all the questions in this study that a minimal number of participants indicated that they did not know where they had received information. Such a response could be due to some errors by the teenagers in interpretation of the question or selection of the response slot on the questionnaire as it is not possible that they did not have some information regarding the changes that their bodies undergo during teenage years.

Results similar to the current study results are those from a study that was conducted by Msweshwe-Pakela (2015:44) on knowledge, attitudes and use of contraception amongst female learners attending a high school in Mdantsane in the Eastern Cape. The results indicated that discussions were held with one or more parents were reported by at least 28% of those participants while the bulk results indicated a discussion with teachers; however, results from a study which was conducted in Limpopo indicated that one of the sources of information on sexuality and contraceptives amongst teenagers was found to be the school (Ramathuba, Khoza & Netshikweta, 2012:2). Of concern about this result is the fact that teachers themselves were from the same cultural background and reported a feeling of discomfort in discussing sex and sexuality issues with teenagers (Ramathuba et al., 2012:2). Nonetheless parents and teachers seem always to play a crucial role in a child’s upbringing and education.

In a study of 1088 adolescents about the same topic of discussing sex and sexuality between teenage children, parents and teachers, results revealed that 40.3% of those adolescents had obtained their information from parents while 71.8% said their source of
information was the teachers. The significance of these results, though different from these of the current study, is the fact that teenagers get the information from the sources with which they spend most of their time; therefore, if teachers and parents can provide teenagers with the correct information, it will ensure that they (teenagers) themselves relay correct information to peers when approached by them with questions on sexual and reproductive healthcare issues; thus in the context of this study it is important to explore the knowledge of the school-going teenage girls regarding reproductive healthcare because the teachers are also compelled through the school curriculum to inform learners on this topic.

The other source of information that was mentioned in this study were the healthcare professionals. Likewise, it has been noted from literature that healthcare professionals are also reluctant to share information regarding reproductive healthcare with teenagers (Tegegn, et al., 2008:143). This reluctance on the part of healthcare professionals is attributed, amongst other reasons, to discomfort discussing the topic with their teenagers for fear of encouraging them into being sexually active at an early age (Tegegn et al., 2008:143). In this regard contrasting research results from the study of Rajapaksa-Heewageegana, et al., (2014:6) indicated that the majority of participants (37.8%) had said they received information on sexual issues from healthcare personnel; (14%) from their parents; (12.8%) from books and journals; (9.1%) from school teachers and (4.9%) from friends. The mean age of those girls was 17 years. Malleshappa, et al, (2011:309) point out in their study that reproductive healthcare education by health professionals has become more acceptable for teenage girls especially in urban areas which makes it appropriate to argue that the poor trust-relationship gap between teenagers and health professionals is closing. The poor relationship that has been stated in many studies has occurred because of the attitude of nurses and midwives that has been either discriminatory, judgmental or negative (James, et al., 2012:7; Tilahun, Mengistie, Egata & Reda, 2012:2).
The other question that was posed to the participants was from whom they would have preferred to have received more information regarding the changes that their bodies undergo during teenage years. Results indicate that the largest proportion (88%) of the learners agreed that they would have preferred to have received more such information from their parents/guardian, followed by also a large proportion (76%) indicating that they would have preferred more information from their teachers regarding the changes that their bodies undergo during teenage years. Results indicate that participants agreed n=78 (30%) and strongly agreed n=152 (58%) that they would have preferred to have received such information from their mother and father. The results from the majority of participants suggested a preference to hear from their parents about sex and sexuality matters. Such a result is true to the results in the study conducted in Kenya to find out from teenage mothers about their reasons for engaging in sexual relations at an early age (Omoni, 2009:26). In another study teenage girls affirmed their preference to engage with their parents on such a topic because they believed that their parents would not mislead them with incorrect information but would protect them from harm (Galloway, et al., 2017: 559).

Notably, the current LO curriculum dedicates little or no attention to human anatomy, puberty and reproduction; but instead just mentions teenage pregnancy in a lesson together with rape and sexual abuse (United Nations Educational, Scientific and Cultural Organization, 2012:64). Furthermore, the curriculum provides little or no information about sexually-transmitted infections (STI’s), reproduction, unintended pregnancy, condoms and contraception. (UNESCO, 2012:64) and is therefore not effectively serving the cause of reproductive healthcare.

Given the current consequences and prevalence of HIV among the youth in South Africa, one would expect more emphasis to be placed on HIV/ AIDS and reproductive healthcare even if learners are receiving separate education. The current statistics as communicated on 1st December 2016 (national HIV/AIDS day) reveal a staggering increase of new cases
especially in girls between 14 and 24 years (UNICEF, 2016:1). The report released by the United Nations warns that new HIV infections among teenagers are projected to rise from 250,000 in 2015 to nearly 400,000 a year by 2030 if progress stalls in reaching adolescents (UNICEF, 2016:1). The guidelines that are to be developed in this study will hopefully lead to improved knowledge thus access to reproductive healthcare services by the schoolgoing teenage girls.

5.3.2.2 Reproductive healthcare services and problems

Reproductive healthcare is a broad concept but important to females especially teenagers. How much schoolgoing teenage girls know and what, if anything at all, about the concept becomes even more important to investigate as the government has taken a step to assist learners in knowing about the concept. Below is a discussion relating to how much schoolgoing teenagers know about reproductive healthcare problems and immediately following that will be the discussion relating to how much schoolgoing teenage girls know about available reproductive healthcare services.

- Knowledge regarding reproductive tract infections
- Knowledge regarding vaginal itching as a sign of infection
- Knowledge regarding signs of breast development and abnormalities
- Knowledge regarding healthcare clinic attendance
- Knowledge regarding examination of patients younger than 15 years at the clinic

5.3.2.2.1 Knowledge regarding treatable reproductive tract infections

The results indicated that the majority of participants, (68%) agreed with the statement that genital infections were treatable while a third of participants (31%) did not know the answer to the question. The limited knowledge regarding symptoms of reproductive
healthcare infections displayed by participants is congruent with research results of a study that was investigating sexual and reproductive health among Ugandan youth during the years 2003-04 to 2012 (Galloway et al., 2017:s60 (Crossland, et al., 2015:396). The result revealed that, despite an increase in the knowledge about STIs by teenagers, that knowledge remained low, as only half of youths (check usage of word. This usually refers to boys if used in the Plural. Say rather ‘young people’) in the study were able to identify correctly signs and symptoms. This is consistent with other studies which found that young people often had inaccurate or inadequate knowledge relating to sexual and reproductive health Graffy, Goodhart , Sennett , et al., 2012:1022).

Furthermore, sexually-transmitted infections are also found more among girls in the age group of 14 to 16 years (Muliira, et al., 2011:87) than among the older teenagers. Given that these teenage girls who were participants in this current study had been exposed to the LO Programme with the inclusion of the reproductive healthcare component for at least three to six years of their school education one would imagine that they would at least know about the treatment of vaginal infections.

According to WHO, there are only four curable STI's (gonorrhoea, syphilis, chlamydia and trichomonas) with an infection rate of 25.7% in Sub-Saharan Africa among the population aged 15-49 years (Glasier, et al., 2006:5). United States data shows that young adults aged 15-24 years have acquired 48% of such sexually -transmitted infections indicating that these young adults have the most to lose as they will suffer the consequences by not reaching their full reproductive potential (Glasier, et al.,2006:5). Hence it is essential for teenagers to know about vaginal infections and their treatment. Results in this study indicate that the participants had very limited knowledge about reproductive health and treatable genital infections, thus giving an impression of their vulnerability to these infections.
5.3.2.2 Knowledge regarding vaginal itching as a sign of infection

Also as a concern to the researcher, a study done in Kenya by Kerubo, Laserson, Otecko, Odhiambo, Mason, Nyothach, Oruko, Bauman, Vulule, Zeh and Phillips-Howard, (2016:5) revealed that among teenage girls from South Africa and Kenya, 16- to-17-year-old sexually active girls reported minimal symptoms (2/60; 3.3%) while the prevalence of laboratory-confirmed RTI was very high. For example, out of 60 girls, 23 were diagnosed with bacterial vaginosis, 12 with C. albicans, 4, with T. vaginalis and 4, with C. trachomatis; but the teenagers had not reported any of these infections or related symptoms which indicates that, if participants do not know about symptoms of vaginal infections nor which ones are treatable, it is of grave concern. When such knowledge and behaviour gaps occur the result is harmful sexual and reproductive health outcomes (WHO, 2011:25). Results in the current study are congruent with existing literature thus forming a basis for the development of guidelines that will assist in improving the knowledge of schoolgoing teenage girls regarding reproductive healthcare problems.

Sexually-transmitted infections are found mostly among girls in the age group of 14 to 16 years (Muliira, et al., 2011:87). With reference to signs of infection participants had to indicate how they viewed the statement saying that vaginal itching was a sign of infection. The results indicated that the majority of participants, n=100 (34%) learners agreed and n=185 (63%) agreed that vaginal itching was a sign of infection. A third of participants, n=95 (32%) did not know the answer to the question. The researcher also noted the slight difference between the learners that agreed with the statement and the learners who did not know whether the statement was true or false and therefore indicated doubt in their knowledge levels.

Vaginal itching can be an indication of vaginitis; but most of the time it is not concerning if there are no other symptoms. It usually indicates an underlying cause, however, that
could lead to reproductive health complications. Based on these results the conclusion is that even though the majority of participants indicated that they had an understanding of the connection of vaginal itching to reproductive health a formidable number of the participants had limited to no knowledge at all as they either gave an incorrect response or did not know which response was correct. The result and conclusion arrived at by the researcher is supported by the knowledge that some existing literature confirms that teenagers have limited knowledge about signs and symptoms of STIs and when to report these symptoms (Crossland, et al., 2015:396)

5.3.2.2.3 Knowledge regarding signs of breast development and abnormalities

The other statement to respond to was regarding breast development. The results reflect that the majority n=187 (63%) out of n=299 (100%) participants agreed with the statement that painful lumps on the breast were a sign of growth and development while the minority (8%) disagreed. This is a negative result with reference to knowledge about breast development which supports the conclusion by the researcher that participants are not knowledgeable about breast development and abnormalities. During the problem formulation stage of the current study schoolgoing teenagers were also noted to be having leaking breasts but were not reporting this to the clinic or doctor. Since participants did not know that they were supposed to have reported such abnormalities it was necessary to include the statement in the questionnaire and get to bigger picture of this problem.

Breasts are different in size and texture. Age and hormones influence the development of breasts which at teenage level are normally small and firm while later in age they can become full and may sag. Hormonal influence should also be explained because during menstruation the breasts become full and tender. It is such information that schoolgoing teenage girls are supposed to be exposed to so as to be encouraged to do their own breast examination. Because breast cancer is one of the leading challenges of
reproductive healthcare illnesses it is wise to create awareness of this condition as early as at school level, hence the advice to include it in the LO programme and specifically the reproductive healthcare component.

Literature indicates that the beginning of breast development can feel uncomfortable and hard even though it is normal; but this can cause panic/alarm leading to one thinking there is a tumour (http://uhs.princeton.edu/health-resources/women’s-health) accessed 11/01/2017. It is further noted that the majority of breast masses with the exception of infection are first noticed because of incidental palpation of a lump by either the parent or the teenager herself (Fallat & Ignatio, 2008:312). According to the formerly mentioned authors, breast infection on the other hand may first be noticed as a firm area that is often sore to touch (Fallat & Ignatio, 2008:312). Teenage girls should therefore be encouraged to do self-breast examinations regularly in order to be familiar with the normal texture, size and shape of their breasts. Importantly such examinations will be useless in the absence of appropriate information regarding normal and abnormal lumps and development of the breasts. This updated information is envisaged by the researcher as motivating them in future them to speak to their peers, parents or teachers as soon as they recognize an unfamiliar shape or mass which could be detrimental to their health.

5.3.2.2.4 Knowledge regarding healthcare clinic attendance

Several studies highlight the challenge faced by teenagers in accessing reproductive healthcare services (Salam, Das, Lassi & Bhutta, 2016:588; Glasier, et al., 2006:1600). Besides emotional turmoil resulting from physical and physiological immaturity, accessibility to reproductive healthcare services by teenagers has been associated with barriers such as hours of service, attitudes of clinic staff and stigmatization of the use of these services by teenagers (Newton-Levinson, Leichliter & Chandra-Mouli, 2016:11).
Results from a systematic literature review of 16 studies regarding perceptions and experiences of barriers to care by youth and teenagers, revealed that in 12 of those studies accessibility was identified as a barrier. Currently, owing to staff shortages, most of the clinics operate during certain hours in the morning and the afternoon and as a result numbered tickets are issued or patients’ names are written down and patients called in accordingly. At times patients have to be booked for a certain day and date for specific assessments, for example, by a specialist doctor or professional. Some of the patients are given return dates for re-assessments or repeat medications and their names will be recorded in due registers.

Results indicate that the majority of participants (68%) disagreed with the statement that healthcare clinics were to be attended by appointment only while the minority (15%) agreed. Such results are an indication that probably, while visiting the clinics for own needs or accompanying friends and family members, participants had observed these procedures and made sense of them while a minority of them had become confused. Participants were noted to be knowledgeable of clinic attendance as not needing an appointment.

5.3.2.2.5 Knowledge regarding examination of patients younger than 15 years at the clinic

Results indicate that the majority (59%) agreed with the statement that patients younger than 15 years of age would not be examined at the clinics without the permission of their parents/guardians. A low n=28 (9%) participants disagreed with the statement; yet that was the correct response to the question as the minimum age of the participants was 16 years.

The South African law and constitution define children under the age of 18 years as minors and therefore may not give consent on many decisions regarding, amongst others,
medical treatment (Strode, Slack & Essack, 2010:247); however, according to Childrens’ Act: Act no. 38 of 2005 Section 130, children from age 14 are allowed to make their own decisions regarding seeking and implementing those decisions regarding contraception. Also, as indicated in the Child Care Act No. 74 of 1983, children from the age of 14 years may make their own decisions about seeking medical treatment. Seeing that South Africa is one of the global leaders in women’s and child healthcare these Acts are being taught at school through the LO Programme and other life-skills interventions, one would have expected participants in this study to possess this information and thus the result in this section of the questionnaire is acceptable and shows sufficient knowledge about processes concerning reproductive healthcare at the clinics. It is also evident enough regarding the fact that, were it not for other reasons that have already been mentioned in this study, teenagers would be seeking medical attention for reproductive healthcare concerns.

5.3.3 Contraception knowledge

Understanding the knowledge of schoolgoing teenage girls regarding contraceptives would help to determine the guidelines to be adopted in assisting with enhanced reproductive healthcare knowledge for young adults. Teenage pregnancy is globally attributed to multi-factors such as poor access to contraceptives, judgmental attitudes of healthcare workers, poverty and ignorance (Morrison & Rushwan, 2015:S41; Galloway et al., 2017:558). It is stated that in South Africa teenagers have been found to be exposed to some form of sex education and contraceptives; but are missing the specific knowledge needed to use contraceptives properly (Wilan, 2013:26). This knowledge gap needs to be given some close attention as limited knowledge leads to limited use, inconsistent use or non-use of contraceptives; and yet the teenagers remain sexually active. Of note to report is that in the findings in the study conducted to explore African-American and Latino teenage perceptions of contraception and access to reproductive healthcare, some of the
teenagers confirmed knowledge about the importance of contraceptives; but went further to state that self-control was an important aspect of that knowledge (Galloway et al., 2017:560). Participants in that study maintained that usefulness of contraceptives was assured only when contraceptives were used correctly and consistently. The current study is investigating the level of knowledge, amongst others, of the aspect of incorrect use and inconsistent use.

Frost, Duberstein and Finer (2012:107) state in their study that several authors have used various methods to measure the knowledge of participants regarding the association of reproductive healthcare, contraceptive methods and behaviour; but without conclusive findings. In assessing contraceptive knowledge, norms and attitudes of youth in association with their risky sexual behaviour, these authors found that the youth displayed distressing gaps in objective knowledge of major contraceptives (Frost, et al., 2012:110).

In a study done by Nsubuga, Sekati, Sempeera and Makumbi, (2016:4) participants displayed a 99.6% knowledge of contraceptives available with the most common known modern methods being pills, male condoms, injectables, implants, and female condoms while the withdrawal method was the commonly mentioned traditional method. Since disciplined and constant use of condoms was perceived as a hassle these young teenagers were prone to indulge increasingly in unprotected sex (Frost, et al., 2012:111). In this regard the researcher in this study investigated the knowledge regarding contraceptive use by the participants using a range of questions on different variables ranging. Questions were as follows:

- Knowledge of schoolgoing teenage girls regarding the use of condoms
- Knowledge regarding intra-uterine devices
- Knowledge regarding female/male sterilization
- Knowledge of schoolgoing teenage girls regarding contraceptive pills
• Knowledge regarding contraceptive injections
• Knowledge regarding prescription of contraceptives
• Knowledge regarding whether contraceptives are good or not good for teenagers
• Knowledge of schoolgoing teenagers regarding contraceptive costs
• Knowledge regarding contraceptives as a protection against sexual transmitted infections
• Knowledge regarding condoms as a most accessible contraceptive form for teenagers

5.3.3.1 Knowledge of schoolgoing teenage girls regarding the use of condoms

The results indicate that the majority of participants (n=212 (70.29%) agreed that a condom was useful as long as it was from its packet while the minority disagreed. The overall results indicate that the participants were knowledgeable about the condom as a useful contraceptive option. Such a result could be because condoms are easily available and accessible. Participants do not have to go to the clinic or ask from an adult healthcare professional and condoms are found in female bathrooms hence participants using or preferring them more than the other contraceptive types. Welti, Wildsmith and Manlove (2011:5) also suggest that probably the most frequently used contraceptive method is a condom and that teenage girls are more likely to report using condoms at most recent sexual encounters. This is, of course, against the background that the teenager had protected sex which these participants are unlikely to be engaging in.

The finding of increased knowledge of the condom use by participants in this study is congruent with some existing studies (Marstron & King, 2006:1584; Råssjö & Kiwanuka, 2010:160; Crossland et al., 2015:397). The major factor cited by Crossland et al. (2015:397) is the probability of many healthcare institutions being more sensitive to the
increased rates of STIs and thus becoming positive about providing more access points to condoms.

5.3.3.2. Knowledge regarding intra-uterine devices

The intra-uterine device (IUD) is a form of long-acting reversible contraceptive which could be a convenient form of contraceptive for teenagers considering their lifestyle habits. Among teenagers aged 15-19 years, the IUD use increased from virtually none to 3.6% in 2006-2008 (Carr & Espey, 2013:22). This is despite the perceived risk of pelvic inflammatory disease (PID) cited as the most common reason adolescents and young adults are considered poor candidates for the intra-uterine device (Carr & Espey, 2013:22). A prior study has demonstrated that teenagers have higher contraceptive continuation and lower pregnancy rates with methods that do not require daily maintenance (Schmidt, James, Curran, Peipert & Madden, 2015:382) and thus the use of IUD could be encouraged for them. Furthermore, Deans & Grimes (2009:418) are of the opinion that adolescents (teenagers) could benefit from the easy-to-use and “forgettable” type of contraceptives and IUD could be one of them.

The current study results indicate that the majority of participants n=227 (76%) did not know the answer to the question while the minority n=33 (11%) agreed with the statement saying intra-uterine devices were no longer used. The results could be an indication that participants are not familiar with this form of contraceptive. Hence this contraceptive form, together with the implant, is more common in developed countries (Carr & Espey, 2013:22).

However, in developed countries as well it has been found that teenagers have little knowledge about intra-uterine devices. For example, in two studies that were conducted in the United States, in one study, out of 72 teenagers 74% of them were using
contraceptives; but only 19% had ever heard of intra-uterine device method (Whitaker, Johnson, Harwood, Chiappetta, Creinin & Gold, 2008:215). In the second study of 190 pregnant women aged 14 to 25 only 50% knew about the intra-uterine device contraceptive method. Of that number only 58% of the participants knew of the efficacy of the method (Stanwood & Bradley, 2006:1419).

Participants had no knowledge about intra-uterine device as a method of contraceptive.

5.3.3.3 Knowledge regarding female/ male sterilization

Results in the current study indicate that participants did not know the answer to the statement. Many of them, n=181 (62%), indicated that they did not know the answer to the question; n=82 (28%) disagreed with the statement that male/female sterilization only worked for three years while the minority n=13 (4%) strongly agreed. The results could be an indication that participants did not have knowledge regarding this form of contraception which could be the reason for this response.

Male and female sterilization are permanent methods of contraception and the most widely -used methods worldwide (Jayaraman & Mann, 2012:85). As further stated by Jayaraman and Mann, (2012:85) female sterilization is far more common that male sterilization (vasectomy); yet the vasectomy is safer, simpler and about half the cost of female sterilization and more effective. Usually such a decision is usually due to a difficult labour and possible averting of a negative pregnancy or labour outcome. Too often it occurs that teenagers and young women make life -changing decisions such as having the sterilization procedure based on emotions at the time, for example, during labour and not being knowledgeable that the procedure is irreversible. It is therefore advisable to provide teenagers with information on the different types of contraceptive forms even though not suited for them at that specific time; but having the knowledge will allow them to make informed decisions when the time comes. The reproductive healthcare
component in the LO Programme at school could serve as an ideal starting point for such discussions.

5.3.3.4 Knowledge of schoolgoing teenage girls regarding contraceptive pills

The results indicate that participants did not have sufficient knowledge about contraceptive pills as they indicated either not knowing whether contraceptive pills expired or not or disagreeing with the statement that these pills expired. From these results it is evident to the researcher that the learners have limited knowledge about contraceptive pills as a whole. The statement takes meaning from the earlier discussion about condom use which related to the fact that teenage girls were inclined to use condoms more than other methods of contraception, which is probably why they felt they were safe if the condom was sealed in the packet and not broken before use. It is also confirmed that teenage girls are less likely than young adult women (67% versus 86%) to use a hormonal/long-acting method of birth control (Welti et al., 2011:6). Furthermore, teenagers are reported by Wilan (2013:27) to have some form of knowledge of contraceptives; but they have limited knowledge of how to use them hence the defaulting. The above-stated results of disagreeing and strongly disagreeing with the statement is a reflection of the presence of at least an acceptable number which accounts for the majority of schoolgoing teenage girls that will do the correct thing when it comes to safe sex principles.

The preferred use of condoms over pills is most suitable for the schoolgoing teenage girls to secure compliance for reasons mentioned in the previous discussion about the knowledge regarding use of condoms. Such a statement is a result of research findings that state that teenagers may at times find difficulty with compliance in the use of contraceptives because they have to present themselves at the healthcare clinics for
injections or contraceptive pills (James, et al., 2011: 6; Manene-Netshikweta, 2007:190). The difficulty is due to either school and clinic hours that are conflicting with each other or the experience of discomfort and embarrassment from being shouted at by the nurses in the healthcare setting (Willan, 2013:30). Teenagers are often said to be concerned about the confidentiality of services (Welti et al., 2011:6) hence shying away from collecting pills. Access to contraceptives has been cited as one of the biggest barriers by teenagers and youth mainly because of the attitudes of healthcare workers towards them (James, et al., 2012:5; Wood & Jewkes, 2006:114; Tabane & Peu, 2015:11). Clinics not being open after school hours was identified as a factor hindering access (James et al., 2012:6). In this regard Ramkinson, et al., (2010: 36) also suggest that healthcare services should extend work hours to accommodate schoolgoing teenage girls.

5.3.3.5 Knowledge regarding contraceptive injections

A total number of n=69 (28%) participants knew that the injection contraceptive should be taken monthly while n=88 (35%) indicated 2 -monthly/ 3- monthly in order to prevent pregnancy. The indication is that participants knew about the different prescription periods which is an indication that they know and probably that some of them are using injectables. Of concern is the number of n=82 (33%) that did not know the answer to the question. During a study conducted by Wood and Jewkes, (2006:110) one of the main reasons for non-compliance of contraceptive use by teenagers was the judgemental attitudes of nurses at the clinics who were exerting pressure and forcing the girls to use injectable forms of contraceptives.; therefore, injectable forms of contraceptives are currently the most commonly -used contraceptive form since 2004 (Spevack, 2013:27; Wood & Jewkes, 2006:110); yet teenagers still seem to use them inconsistently. According to Frost et al. (2012:111), teenagers are inclined to use contraceptives that attract less attention and, according to the researcher, that could be one of the reasons why injectables are most popular to this age group of users. The results show that
schoolgoing teenage girls do get some correct information and knowledge regarding injectable contraceptives at school.

5.3.3.6 Knowledge regarding prescription of contraceptives

Results indicate that the participants agreed with the statement that contraceptive injections were only good if given by a doctor. The response could be associated with the participants knowing that medicines are prescribed by a doctor. The statement is also viewed on the premise that teachers at school, the clinic nurses and midwives will emphasize the danger of prescriptions and/or over-counter medications. Furthermore, substance and drug abuse are rife amongst schoolgoing teenagers and health education in that regard will insist on the importance of doctors’ prescription if only to avoid dependency. It could therefore be assumed that these participants had been exposed to such health education hence believing that injectables are to be prescribed by a doctor. Results indicates that participant lack the correct information regarding prescription of contraceptives.

5.3.3.7 Knowledge regarding whether contraceptives are good or not good for teenagers

Results in this section indicate that more participants n=136 (46%) did not know the answer to the question while n=72 (24%) disagreed and n=89 (29%) agreed with the statement that contraceptives were not good for teenagers. This is incorrect information an indication of participants ‘limited knowledge regarding the use of contraceptives.

Numerous studies make note of the fact that parents and adults in general are against talking about and use of contraceptives by teenagers as they view them as encouraging early and unacceptable sexual activity by teenagers (Miller, 2014:3; Cavazos-Regh, et al., 2013:470). A few of schoolgoing teenagers who happen to know about the emergency
contraception are said to be having difficulty accessing it as the doctors are reluctant to prescribe it for them at that early age (Pediatrics, 2012: 1178). In Uganda it was also found that pharmacists would at times refuse to dispense contraceptives to teenagers despite legal prescriptions (Willan, 2013:33). A few studies have reported of how teenagers who seek contraceptives are being shouted at or mistreated at clinics by nurses and midwives (Wood & Jewkes, 2006:115; American Academy of Pediatrics, 2017:1137). All these attitudes towards the teenagers can be interpreted by them as a sign that contraceptives are not good for teenagers which may leave them more confused and is probably why the majority of participants in this study did not know the answer to the question. Also it has been mentioned in this chapter already that some teenagers prefer to get the information about reproductive healthcare from their parents as they believe in parental protection (Galloway et al., 2017:560); so it is assumed that teenagers who think like that will not question the attitudes of the parents who are against their using contraceptives and believe that they are not good.

5.3.3.8 Knowledge of schoolgoing teenagers regarding contraceptive costs
Results indicate that the participants knew that contraceptives were free of charge though there were those who did not know. South Africa is one of the countries that are firm on family planning and reproductive healthcare of women and youth. To facilitate access and availability of contraceptives the country has increased facilities where these contraceptives can be dispensed and accessed by the public (DoH, 2012:26) free of charge (DoH, 2012:33). In view of the last -mentioned statement one concludes that learners know that contraceptives can be obtained from public healthcare facilities free of charge. It is possible that participants who knew about the cost implications were using the contraceptives, had seen family members or friends that used them, had been to the healthcare institutions or other institutions where they saw this free service or had read or seen in media about the matter. Furthermore, previously in this document it was stated
that a couple of studies reported that teenagers and youth knew about the different forms of contraceptives and were exposed to them; but were not consistent in their use (Willan, 2013:27).

In the context of this study and based on these results the researcher concludes that schoolgoing teenage girls are aware of the fact that contraceptives are free of charge in the country, available to them and it is up to them to make an effort to access and use them.

5.3.3.9 Knowledge regarding contraceptives as a protection against sexually-transmitted infections

Results indicate a slight difference of 3% in the responses of the participants of ‘Yes’ and ‘No’ in this section of the questionnaire; however, n=86 (28%) participants did not know the answer to the question. Taking the latter -indicated responses the researcher concludes that participants knew less about the infection protective role of other contraceptive methods. The promotion of healthy and responsible sexual decisionmaking is one of the goals when it comes to counselling teenagers on contraception (American Academy of Pediatrics, 2017:1135). Condom use (other than abstinence) serves a dual purpose as protection against pregnancy as well as STI's (WHO, 2004:11; Kalpana, Nandkeshav, Aparna & Prakash, 2014:2099). Young women and female adolescents are also more susceptible to STI’s than their male counterparts due to their body anatomy (Augustine, 2010:2). Furthermore, as revealed by literature, female teenagers tend to experience much greater levels of HIV than their male counterparts (Idele, et al., 2014:151). Also girl teenagers seem to have less knowledge of HIV across the board than their male counterparts (Idele, et al., 2014:151). As indicated from the results of the study, if participants have limited knowledge of the signs of STIs it is possible that they may not know how to protect themselves against these infections.
Most teenage mothers reportedly have made limited use of contraception hence the unwanted pregnancies; but following the pregnancy most of those teenagers start using injectables which in any case will protect them from a repeat of an unwanted pregnancy. Still, this does not protect them against STI’s or especially HIV, indicating that the increased rate of HIV/AIDS and STI’s among teenagers could be associated with this behaviour. In this regard it is concluded that teenage schoolgoing girls would benefit if they became aware of the advantage of dual protection should the condom be a problem to use as their only method of contraception.

Results from a study conducted by James & Abieyuwa, (2013:60) indicated that, from the total number of 163 participants, n=48 (29.4%) favoured having unprotected sex while n=37 (22.7%) expressed not wanting or liking the use of condoms. Others of these participants, n=82 (50.3%), had said that their male partners disliked condoms. These results suggest that teenagers are not utilizing contraceptives adequately not only because of lack of knowledge but also owing to negligence of some sort or domination of male partners' opinions. Results in the current study indicate that there was not much difference between those who knew and those who did not know about the advantage of dual protection when using condoms and thus some education is still needed.

Providing them with the information regarding the correct use of condoms will not only assist in pregnancy and HIV prevention but will also equip them with the knowledge to make informed decisions regarding safe sex. Frost et al., (2012:115) agree in this regard, arguing that improving the knowledge of youth and excluding misperceptions about the concept by contraceptive users will not only assist with consistency but also with attitude and behaviour, which should encourage young people to make informed decisions.
Notably, according to the American Academy of Pediatrics, (2017:1135), latex condoms significantly reduce the transmission of some sexually-transmitted infections and therefore all sexually active teenagers should be encouraged to use them, regardless of whether an additional method of contraception is used.

5.3.3.10 Knowledge regarding condoms as the most accessible contraceptive for teenagers

Results indicate that the majority agreed with the statement that condoms were the most accessible contraceptive for teenagers while the minority disagreed. It is found that male condoms are one of the more common methods of contraceptives being used in Africa and Europe (UN, 2015:2) while findings from a study done by James & Abieyuwa, (2013:60) indicated that participants chose condom use as the most frequently used contraceptive to prevent pregnancy. This could also be seen as the most accessible/convenient contraceptive form for them at the time despite these findings contradicting the findings from the same study done by James & Abieyuwa, (2013:60), namely, that out of a total of 163 participants, n=112 (68%) participants indicated that one of the reasons why they did not use contraceptives was because they felt embarrassed or ashamed to use/purchase condoms/contraceptives while n=82 (50.3%) participants indicated that their male partners disliked condoms. Such findings are a clear indication of the immaturity and low knowledge level of teenage girls when it comes to contraceptive uptake.

In view of the current study, even though participants indicated condom use as the most accessible form of contraceptives for them, they will benefit especially from further information that could be included in the teaching of the reproductive healthcare component within the LO Programme at school. Included in that additional information to the teaching of the reproductive healthcare subject could be the various forms of
contraceptives which could be used in conjunction with the condoms to ensure dual protection.

5.3.4 Conception knowledge

Literature highlights limited knowledge of youth and teenagers of the reproductive system’s anatomy and physiology, hence the inconsistent use of contraceptives or misperceptions regarding menstruation (Wood & Jewkes, 2006:115; Garg et al., 2012:768; Rajapaksa-Hewageegana, et al., 2015:5; Lawan, et al., 2010:202). Also teenagers have been found to have limited understanding of the concept of conception and seemingly this is a factor in teenage pregnancy and unwanted pregnancies (Kanku & Mash, 2014:568; Lawan, et al., 2010:202). Several studies have reported concern regarding the gap between the availability of contraceptives and the constantly increasing number of pregnancies among young people and teenagers, especially school-going teenagers.

Participants had to respond to a question that indicated several options to choose from and indicate that under those circumstances they would not fall pregnant. Options to the question that related to conception knowledge were: I will not fall pregnant:

• if I have sex while menstruating;
• if I miss one dose of tablets/ injection but have sex;
• on the first time I have sex
• nausea and vomiting as a sign of pregnancy

5.3.4.1 Knowledge regarding having sex while menstruating

Responses to this question were needed as a measure of how much information school-going teenage girls learn from school. Menstruation and related hygiene are a
definite part of the LO Programme curriculum and reproductive healthcare component at high school level. Participants would have been exposed to this information in at least three different classes of their schooling and therefore it was fair and important to ask the question for the purposes of the study. Results indicate that the majority of participants agreed that it was advisable to abstain from sexual activity during menstruation in order to prevent infection while almost a third of participants did not know the answer to the question.

The mixed type of responses could be a result of many things. As observed from literature it is generally known that amongst especially the young teenagers there will be those that are uncomfortable about talking or discussing matters of reproductive health, (Yadeta, Bedane & Tura, 2014: 7; Nu-Oo, Zaw, Than, Mg, Mar & Aye, 2011:45). It could therefore be concluded that the participants who indicated not knowing might also be those who did not want to engage in the topic. In that regard it would be of concern as to how to assist the participants who did not know the answer to the question with the necessary knowledge without offending them.

Religion and tradition at times also play a role in abstention by females from sexual activity during their menstruation. For instance, Muslim women are prohibited from any form of sexual conduct during their menstrual period (Garg, et al., 2011:768). Even though such behaviour is based on religious and cultural grounds there are still girls who follow these practices which also encourages safe menstrual practices. For example, as stated by Sommer, et al., (2016:2), teenage girls in lower- and middle -income countries know that sexual activity during menstruation should be avoided to prevent infection. Despite this knowledge these teenagers are found to be highly prone to coercive sex as well as sexual and reproductive harmful acts due to pressure at times; so to obtain money for sanitary pads overwhelms them (Sommer, et al., 2016:2).

It is concluded from the results of this study that schoolgoing teenage girls know that they could promote reproductive infection or get pregnant should they engage in unprotected
sex while menstruating. Such a result confirms that there is some positive knowledge among schoolgoing teenage girls of the concept regarding conception and that knowledge also ensures the positive nature of information shared by participants at school.

5.3.4.2 Knowledge regarding what happens when one misses a dose of contraception pill and still engages in sexual activities

In the context of this question the insight into these consequences is not clear. Seemingly participants knew how to respond to the question; but in terms of the already discussed sections about responses regarding the use of condoms and contraceptive pills these participants indicated limited knowledge.

5.3.4.3 Knowledge regarding the possibility of pregnancy on the first-time sexual encounter

Results indicate that participants know that one can fall pregnant on the very first time of having sex. In some studies it has been found that most teenagers are sexually active as early as at 13 years of age and are reported to have the first and the last sexual encounters without any form of protection ((Crossland, et al., 2015:396; Galloway, et al., 2017:S57; Salam, et al., 2016:S11). Also, Crossland, et al. (2015:396) acknowledge an improvement in the use of sexual protection by teenagers; but insist that such knowledge is still low especially among teenage girls. They are not always prepared for sexual encounters which takes the argument further to issues of equity (Crossland, et al., 2015:397). In view of the fact that the current study included teenage girls only, the latter argument seems to justify the results.

Consistent with previous studies, participants in this study showed a good understanding of the consequences of their behaviour which could result in conception if they failed to
use contraceptives while engaging in sexual activity and this is even on the first time (Manene-Netshikweta, 2007:149; Somba, Mbonila, Obure & Mahande, 2014:6).

5.3.4.4 Knowledge of the fact that feeling sick and vomiting are signs of being pregnant

Different women respond in different ways to pregnancy because signs and symptoms are not identified the same way by all women. It is reported that some women will only notice their pregnancy when they feel foetal movements; yet one of the main symptoms of pregnancy is nausea and vomiting especially in the morning (morning sickness) during the first trimester (Stables & Rankin, 2013:404). Most of the teenagers seem to be misdiagnosing themselves when pregnant until morning sickness sets in. One could probably attribute this reaction to the notion that some of the teenagers believe a onetime unprotected sex encounter will not lead to pregnancy. It is also noted that teenagers have limited knowledge about the physiological symptoms of development and adaptation of the body to pregnancy and will not identify morning sickness (Maputle, 2006:89).

5.3.5 Reproductive hygiene

Reproductive hygiene will be discussed under the themes of:

- sanitary pad changing
- genital cleanliness
- change of underwear
- disposal of sanitary pads
- sexual activity while menstruating
5.3.5.1 Knowledge of schoolgoing teenage girls regarding sanitary-pad changing

The results indicate that the majority of participants disagreed with the statement that girls should change their sanitary pad while menstruating only after school while the minority did not know the answer to the question.

In view of these findings, it is evident that the majority of participants did not feel that sanitary pads should only be changed after school but more regularly. Similar results were found by Lawan, et al., (2010:206) as participants indicated that menstrual absorbents should be changed not only after school but during school hours as well as at night. As further stated by Lawan, et al., (2010:206), participants agreed that increased frequency of washing during menstruation also encouraged good menstrual hygiene practices. In that study it was found that out of n=228 participants 57% indicated they were aware that poor hygiene predisposed them to infection (Lawan, et al.,2010:204).

Sommer, et al., (2016:2) indicate that girls in lower and middle-income countries face many challenges when managing their menstruation at school, which ultimately causes them to drop out or be absent for the duration of the menstrual period of school as a result (van Eijk, Sivakami, Thakkar, Bauman, Laserson, Coates & Phillips-Howard, 2016:8; Sommer, 2010:528; Adukia, 2014:1: Bodat, Ghate & Majumdar, 2013:214). As further stated by Sommer, et al. (2016:2), these schools lack proper water, sanitation and hygiene (WASH) facilities and are unable to provide learners with water, soap, privacy and space to change which ultimately limits girls to changing their sanitary pad only after school when they are back home. Consequently, it is not always lack of knowledge that compels teenagers to neglect sufficient changing of sanitary pads but socio-economic circumstances. A justification of such a statement by the researcher is the statement from a study that was conducted in India that reported of a majority of rural schoolgirls who, owing to their low socio-economic status, used old clothes but sanitized the materials by boiling and drying them before use and re-use (Thakre, et al., 2011:1031). According to these aforementioned authors it was evident that the schoolgirls knew that such practices
offered protection against possible infection (Thakre, et al., 2011:1031). However, as a finding in another study similar to the current one, because disposable sanitary pads were unavailable in their local shops or were too expensive for them to buy, most of the learners had to use cloths as sanitary pads (Boosey, Prestwich & Deave, 2014:4; Thakur, Aronsson, Bansode, Lundborg, Dalvie & Faxelid, 2015:5). Of importance to note is the fact that participants indicated that they were unable to discard those “sanitary cloths” and most likely had to wash and re-use them at a later stage (Boosey, et al., 2014:4; Thakur, et al., 2015:5). The message is that the participants knew about changing and using clean materials because they were washing and even keeping them for next time.

Currently a few countries including South Africa have projects that are focusing on providing teenage girls with the relevant information regarding the correct use of sanitary pads and managing of their menstruation cycles, aiming to keep them at school while assisting with their reproductive health hygiene and preservation of dignity (https://www.brandsouthafrica.com) accessed 13/01/17. Limited means or access to adequate menstrual period hygiene are the major concern rather than the knowledge regarding such hygiene needs.

5.3.5.2 Knowledge regarding cleanliness of the genital area

Participants demonstrated positive knowledge regarding reproductive hygiene during menstruation and insist on regular sanitary pad changing. Menstrual hygiene is an issue that every girl and woman must deal with in her life; but there is a lack of awareness regarding the process of menstruation and proper requirements for managing menstruation among teenage girls (Kapoor & Kumar, 2017:959). As further stated by Kapoor and Kumar (2017:959), menstruation hygiene has not received adequate attention in the reproductive health and water, sanitation and hygiene (WASH) sectors in developing countries and its relationship with and impact on achieving many millennium
development goals is rarely acknowledged. Furthermore, as stated by Kapoor and Kumar (2017:961), the concern arose because their study results revealed that among hygienic practices during menstruation the majority indicated that they had at least one bath during menstruation.

Results in the current study indicate that the majority of participants agreed with the statement that the genital area should be washed each time the sanitary pad was soaked. Similar findings by were found by Gultie, Hailu & Workineh (2014:4) in their study on age of menarche and knowledge about menstrual hygiene management among adolescent school girls in Amhara Province, Ethiopia. In that study the findings indicated that the participants agreed that the external genitalia should be washed with water and soap frequently during menstruation. The findings in that study further indicated that participants had a high knowledge level regarding menstrual hygiene management (Gultie, et al., 2014:4).

For the purposes of this current study, though participants are knowledgeable regarding reproductive hygiene, it is important to continue to provide them with adequate knowledge regarding healthy practices during menstruation so as to ensure that they maintain safe sexual and reproductive lifestyles. Such a statement is made due to the fact that there were a few of the participants who indicated not knowing the answer to the question of a need for cleanliness of genital area during menstruation.

5.3.5.3 Knowledge regarding whether the genital area should be washed each time when the sanitary pad is soaked

Cleanliness during menstruation is even more crucial than normally so as to prevent ascending infection. In previous studies conducted with the view to assessing knowledge
of teenagers regarding maintaining hygiene during menstruation it was found that they were bathing infrequently and that this was a trend in both between urban and rural settings. The findings indicated that daily baths were taken even less frequently during menstruation than during ordinary times of the month (UNICEF, 2012; 33. Shanbhag, Shilpa, D’Souza, 2012:1558). Consequently, some of the teenagers were restricted regarding menstrual washing periods for a range of reasons from socio-economic conditions to culturally-related beliefs and misconceptions (Ade & Patil, 2013:3014; Salve, Dase, Mahajan, 2012:68; Shamima, Sarmila, Nirmalya, 2013:63; Arunmozhi & Antharam, 2013:211). Results in this current study, which was conducted in urban and semi-urban areas, reveal that the majority of participants agreed that the genital area should be washed each time the sanitary pad was soaked.

5.3.5.4 Knowledge regarding changing of underwear

Results indicate that the majority of participants knew that underwear should be changed and washed daily during the menstruation period. These findings are similar to those reported by Lawan, et al., (2010:201). The similarities were that the number of times the participants changed any form of menstrual protection (dressings) was ranging from 1-5 times per day (Lawan, et al., 2010:201). These findings can be an indication of the frequency with which the underwear was soaked and needed to be changed. The findings reveal that the majority of learners have knowledge regarding changing of underwear during menstruation which is an indication that the information sessions during the lessons of the reproductive healthcare subject are of benefit to them.

5.3.5.5. Knowledge regarding disposing of sanitary pads

Disposing of sanitary material during menstruation forms a major concern if not done correctly. Commercial pads were commonly used in urban settings or schools, while girls in rural areas were mainly dependent on cloths (van Eijk et al., 2016:6). Schoolgoing
teenage girls in all these areas had different but mostly unhygienic ways of disposal of the sanitary pads or materials used as they either threw them away with ordinary waste or threw them along the road while a few burned or buried them (van Eijk et al., 2016:6; Kapoor & Kumar, (2017:961). Results in the current study indicate that the majority of participants agreed with the statement that sanitary pads should be disposed of every evening. The statement does not clarify how; but, based on the other responses in this section, it is assumed that the participants know that sanitary pads have to be disposed of safely.

Health education should however be the main focus when addressing learners on effective sanitary usage and disposal of such material, whether it may be in the form of pads or pieces of clot, in order to limit the spread of infection.

5.3.5.6 Knowledge regarding abstaining from sexual activity while menstruating to prevent infections

Results indicate that the majority of participants agreed that it was advisable to abstain from sexual activity during menstruation in order to prevent infection while almost a third of participants did not know the answer to the question. The results therefore show that the majority of participants felt that one should abstain from sexual activity during menstruation in order to prevent infection. Religion and tradition at times also play a role in prohibiting females from engaging in sexual activity during their menstruation. For instance, Muslim women are prohibited from any form of sexual conduct during their menstrual period (Garg, et al., 2011:768). Even though such behaviour is based on religious and cultural grounds there are still girls who follow these practices which also encourages safe menstrual practices. For example, as stated by Sommer, et al. (2016:2), teenage girls in lower- and middle -income countries know that sexual activity during menstruation should be avoided to prevent infection. These countries are known to have
strong cultural and religious convictions. Despite this knowledge their women increase their vulnerability owing to coercive sex as well as sexual and harmful reproductive acts due to pressure at times; so to obtain money for sanitary pads overwhelms them (Sommer, et al., 2016:2).

Safe and alternative ways of managing menstrual bleeding should therefore also be discussed and encouraged in class during reproductive healthcare talks in LO Programme classes especially for those learners who are unable to afford sanitary pads, in order to prevent them from going to the extreme of engaging in sexual acts. Teachers should also note that this is a very sensitive topic to discuss as learners may feel embarrassed and ashamed of their poor socio-economic status; therefore, the most delicate manner of addressing this issue should be considered. It is thus important to consider this recommendation at the section that will deal with the development of guidelines in this study.

5.3.6 Reproductive healthcare

The concept of reproductive healthcare is being viewed in the context of this study as inclusive of the awareness of reproductive healthcare behaviour and strong mental awareness of occurrence or impending disease. For that reason, it was important for the researcher to have an understanding of what the level of awareness of the schoolgoing teenage girls was of reproductive healthcare in that regard. The following content will be discussed under reproductive healthcare:

- Knowledge regarding breast examinations to check for lumps
- Knowledge regarding meaning of rashes on body
- Knowledge regarding not allowing boys and men to touch one inappropriately
- Knowledge regarding body odours
• Knowledge regarding breast examination before menstruation begins

5.3.6.1 Knowledge regarding breast examinations to check for lumps

Breast cancer is a global health concern and a leading cause of morbidity and mortality among all the cancers that affect women (Oladimeji, Tsoka-Gwegweni, Igboedekwe, Twomey, Akolo, Balarabe, Atilola, Jegede & Oladimeji, 2015:2). The high breast cancer mortality rate in Sub-Saharan Africa has been attributed to a lack of public awareness of the disease which often leads to late diagnosis of the disease (Sambanje & Mafuvadze, 2012:1). Teenagers and young women are therefore encouraged to do breast self-examinations on a monthly basis to get to know what their breasts feel like so that they can notice any changes such as lumps, dimpling, puckering of the skin or nipple discharge (Breast Health Education for Young Women, 2012:15).

A study done by Trupe, Rositch, Dickerson, Lucas and Harvey, (2017:1) highlighted the fact that breast cancer was the most common form of cancer diagnosed in women in both high- and low-resource settings. As further stated by Trupe et al. (2017:1), it was found that n=129 (53.1%) participants identified a lump in the breast as a known symptom of breast cancer and were therefore familiar with this part of their reproductive healthcare.

The current study results indicate that the majority of participants agreed with the statement that reproductive healthcare involved checking one’s breasts every month for lumps. Even though detecting a lump in the breast should make one take note, it is not a confirmation that it could be cancerous and therefore should not cause panic; but one should rather present at one’s nearest reproductive healthcare clinic for further management. Findings by Sambanje & Mafuvadze (2012:3) indicated that the majority of
participants indicated that, even though they had some knowledge regarding breast self-examination, they did not feel comfortable doing a breast self-examination. According to that study participants subscribed to the misconception that lumps in breasts were cancerous and painful. Such misconceptions further confirm the need to provide more information regarding breast cancer especially early warning signs and risk factors which will assist teenagers and young women in feeling more comfortable in performing breast self-examinations.

In another study done by Ranasinghe, Ranasinghe, Rodrigo, Seneviratne and Rajapakse, (2013:3) on awareness of breast cancer among adolescent girls in Colombo, Sri Lanka, results indicated that over two-thirds of participants were aware of the relationship between breast cancer and established risk factors. The fact that they did not feel comfortable in performing a breast self-examination could have been due to their poor knowledge of the methods for early detection of breast cancer. The LO teaching programme at school should provide a comfortable setting to allow young girls access to such sensitive information.

5.3.6.2 Knowledge regarding meaning of rashes on body

Results indicate that the majority of participants agreed that looking for unfamiliar rashes on the body formed part of reproductive healthcare. It is further noted that almost a third of participants did not know the answer to the question while the minority disagreed. Keeping that in mind, the researcher feels that it is evident from the results that the need for more information regarding reproductive healthcare should be a priority.

Rashes are at times associated with excessive perspiration that the teenager may be having due to activity and hormonal changes. The skin pores become clogged, the person
develops a skin rash and a foul-smelling odour develops if the person is neglecting her personal hygiene. At times the rash leads to acne with the teenager which also necessitates medical attention. It is for that reason that schoolgoing teenage girls should be informed of the need to report body rashes.

5.3.6.3 Knowledge regarding not allowing boys and men to touch one inappropriately

Touch is one of the most essential elements of human development, a profound method of communication and a critical component of health and growth. (http://www.zurinstitute.com/touchintherapy.html:) accessed 6 June 3017. Although touch forms part of our daily existence, there are certain boundaries that one must consider when we come in contact with another human being as an innocent touch could easily be misinterpreted as being of a sexual nature.

Sexual abuse involves forcing a child or young person to take part in sexual activities, not necessarily involving a high level of violence, but may involve physical contact, including assault by penetration or non-penetrative acts such as masturbation, kissing, rubbing and touching outside of clothing (HM Government, 2015:93). Teenagers, especially teenage girls, are among the vulnerable groups who should be cautioned and protected against sexual predators, who most of the time turn out to be someone they know.

In the current study results indicate that the majority of participants agreed with the statement that reproductive healthcare involved not allowing boys and men to touch one inappropriately. Even though girls know that it is wrong of boys/ men to force themselves onto them they may feel powerless and are faced with the consequences thereafter. In a study done by James & Abieyuwa, (2013:60) teenage girls reported that one of the reasons why they became pregnant was because they were being forced/ coerced by
boys/men who refused to use a condom as protection. Girls should therefore be encouraged to take back their power and stop allowing boys and men to take advantage of them.

5.3.6.4 Knowledge regarding body odours

Results indicate that the majority of participants agreed that reporting of offensive smells on the body to the clinic also formed part of reproductive healthcare while the minority of participants disagreed with the statement. Results therefore indicate that even though the majority of learners had knowledge regarding reproductive healthcare, the need for more knowledge cannot be ignored.

Each individual has his or her characteristic body smell. At times the normal characteristic smell changes to an offensive odour and as such is associated with infection, poor personal hygiene or hormonal influence, (http://www.phaa.com./smelly-female-bodyodortreatment-prevention.htm) accessed 11/01/2017, in females’ armpits and their pubic area because of the thickness of hair that grows in those areas; and perspiration tends to be the worst offender as far as body odours are concerned (http://www.phaa.com./smelly-female-body-odor-treatment-prevention.htm) accessed 11/01/2017. Personal hygiene is the main treatment under these circumstances unless there are foul-smelling discharges as well. Likewise, the participants in this study agreed with the need to report offensive body smells though quite a substantial number of them did not know what to do in such a case.
5.3.6.5 Knowledge regarding breast examination before menstruation begins

Results indicate that the majority of participants agreed with the statement that reproductive healthcare involved checking that the breast might feel slightly heavier before menstruation began, while almost half of the participants did not know the answer to the question.

Research has shown that amongst all signs and symptoms that characterize the premenstrual syndrome, mammary (breast) swelling, engorgement and pain constitute some of the more frequent ones( http://www.nelsoninginecologia.med.br) accessed 21 June 2017. It further states that on the days that precede menstruation, many women who do not complain about other premenstrual disturbances often report viable degrees of mammary congestion and/or pain ( http://www.nelsoninginecologia.med.br) accessed 21 June 2017). It is therefore important for young girls to understand the anatomy of their bodies and familiarise themselves with how their breasts look and feel so as to be able to detect any changes in their breasts as early as possible (Mohamed, El-Magrabi & Ahmed, 2013:1143). The College of Nursing has emphasized that nurses play an important role in teaching Breast Self-Examination (BSE) as they are in an important position to teach breast-cancer awareness with no cost involved (Mohamed, et al., 2013:1143).

In the current study it is noted that almost half of the participants did not know the answer to the question, which can also imply that they are not familiar with the changes that their bodies undergo and are therefore not aware of its role in forming part of reproductive healthcare. The LO Programme at school can however provide more insight into this sensitive topic to young girls and encourage them to visit their healthcare clinics where they will receive more relevant information and practical demonstrations on how to perform (BSE) at home.
5.3.7 Information received from teachers regarding contraceptives

A vast majority of teenage pregnancies are said to be unintentional (Welti, et al., 2011:1; Mu, 2015:1) but with reference to these results one tends to question the meaning of the statement. In view of such a query the researcher feels that the knowledge of schoolgoing teenage girls regarding this issue will assist in clarifying the statement. Indeed, to find out how much teenagers knew about using contraceptives at their exposure was crucial. Participants had to indicate what information they received from their teachers regarding the following issues.

- Where can one obtain contraceptives?
- How often should one take the pill in order to prevent pregnancy?
- How often should take the injection in order to prevent pregnancy?
- When should one take the emergency contraceptive to prevent pregnancy?

5.3.7.1 Knowledge regarding where to obtain contraceptives

Results reflect that the majority of participants indicated that they knew contraceptives could be obtained from the clinic while the minority indicated other areas where they could be obtained. The results therefore indicate that the participants are knowledgeable about the various places where contraceptives can be obtained. Even though the majority indicated that contraceptives could be obtained at clinics, from doctors and pharmacies there was still a proportionate number who indicated that they did not know where to obtain contraceptives. These results are similar to those of a study done by Nsubuga, et al., (2016:4) where the findings revealed that the most common sources of contraceptives were hospitals, followed by clinics and pharmacies. A study done by Jones, Biddlecom,
Herbert & Milne (2011:10) indicated that the majority of participants received information about contraceptives and where to obtain them from their teachers, parents and friends. In the current study participants’ responses indicate that the majority of participants know where to obtain contraceptive services.

5.3.7.2 Knowledge regarding how often to take the pill in order to prevent pregnancy

Results reflect that participants have limited knowledge regarding how often to take the contraceptive pill as fewer than half of the participants indicated that the contraceptive pill needed to be taken every day in order to prevent pregnancy. Their limited knowledge could also be the reason why they prefer to use another form of contraceptive method such as the condom. Similar results were found from a study conducted in Kenya where it was indicated that among many female learners who were sexually active very few of them used a modern form of contraceptive such as oral contraceptives (Mashereni, 2014:19). The behaviour was associated with a possible lack of knowledge about the contraceptive pill by these learners (Mashereni, 2014:19) an assumption agreed to by Williamson, Parkes, Wright, Petticrew and Hart (2009:2); Wilan (2013:27). Such information will be useful in the development of the proposed guidelines in this study.

5.3.7.3 Knowledge regarding how often one needs to take the injection in order to prevent pregnancy

Injectables have been proven to be unpopular amongst the teenagers (Welti, et al., 2011:2; Wood & Jewkes, 2006:111) mainly due to their side effects; yet they could be a preferred contraceptive method due to their longer-lasting effect whilst also being convenient for women who do not want to have to remember to take their pill each day
(American Academy of Pediatrics, 2017:1140). Based on the perceived and annotated attitudes of nurses and midwives at the healthcare institutions towards teenagers who come seeking for contraceptives one would assume that injectables would be the preferred choice (Wood & Jewkes, 2006:111). Furthermore, based on that assumption one would expect teenagers to be interested in knowing how to use this type of contraceptive correctly and that they would therefore seek for relevant information to this effect. It is expected that the teenagers will ask for information and clarity about the topic from their teachers during the reproductive healthcare subject lessons at school as much as possible. For that reason and for the purpose of this study it was useful to know how much the schoolgoing teenage girls knew about how to prevent pregnancy using injectables. Results revealed that even though the majority of participants indicated that the injectable contraceptive needed to be taken 2-monthly / 3-monthly, the percentages of participants who indicated that they did not know the answer to the question were almost the same. Such results therefore indicate the need to impart more knowledge regarding contraceptive injections to learners which could be provided during the LO Programme at school.

5.3.7.4 Knowledge regarding when one should take the emergency contraceptive to prevent pregnancy

In view of the increased finding that teenage pregnancies are unwanted or unplanned emergency contraception could be a useful solution. Emergency contraception is a form of contraception that could reduce the risk of pregnancy if used correctly. According to the American Academy of Pediatrics (2013:1174), the reduction of pregnancy when emergency contraception is used could be up to 120 hours after unprotected intercourse or contraceptive failure; but it is most effective if used within the first 24 hours.
The most commonly used method of contraception reported by teenagers who have had intercourse is the condom, followed by withdrawal and the oral contraceptive pill (Martinez, et al., 2011:30). Research has shown that many teenagers use contraceptive methods inconsistently (American Academy of Pediatrics, 2013::1175) hence the suggestion to use emergency contraception; but large numbers of teenagers still do not have much knowledge about emergency contraception or its correct use (American Academy of Pediatrics, 2013::1178, Kalpan et al., 2014:2099). Also results in this current study are in line with that statement as they show that participants had limited knowledge of emergency contraception.

The limited number of schoolgoing teenagers who happen to know about emergency contraception disclosed that there were barriers that led them not to be able to access the service. Teenagers mentioned amongst other challenges worries about confidentiality, inability to get emergency contraception depending on age, adverse effects and lack of finances and transportation to obtain the medication (Mollen, Barg, Hayes, Gotcsik, Blades, Schwarz, 2008:284). To take note of is the fact that the latter mentioned authors observed that when possible teenagers were given advanced access to the emergency contraceptive and yet there was no increase nor decrease in sexual activity regarding ongoing contraceptive use among adolescents.

5.3.8 Scores for knowledge factors regarding reproductive healthcare

The study results indicate that learners have low overall knowledge levels regarding reproductive healthcare with an overall knowledge mean of 5.43 on the scale of 0 (0% knowledge) to 10 (10% knowledge). These findings are similar to those of RajapaksaHewageegana, et al., (2014:7) whose study indicated alarmingly low levels of sexual and reproductive knowledge in the group among older teenagers. In the current study, on the basis of data analysis, participants had specifically low levels of
contraceptive knowledge with a mean of 4.17 which is much lower than the acceptable value of 6.67 respectively. A study done in Thiruvananthapuram, India, revealed that the majority of teenagers had poor knowledge about reproductive sexual health matters, particularly contraceptives (Kotwal, et al., 2014:3). Also the study results of RajapaksaHewageegana, et al., (2014:7), indicated that the majority of participants lacked contraceptive awareness specifically as well as the risks associated with first intercourse. Researchers have increasingly suggested uptake of contraceptive services, socioeconomic empowerment and education of teenagers on sexuality/ family life as a means of curbing the menace of teenage pregnancy (James & Abieyuwa, 2013:61).

The findings are in contrast with the findings of Ojong, et al., (2014:24) whose results revealed that the participants, who were also secondary school learners, were significantly aware of all reproductive health issues. These results agreed with the findings of Kotwal, et al. (2006:150) whose results showed highly scored aspects of reproductive health specifically identification of family planning methods. As stated by Frost, et al., (2012:115), their study provided valuable evidence that improving contraceptive knowledge and dispelling misperceptions about methods and their use might have the potential to influence teenagers’ behaviour positively.

In view of the alarmingly high rate of teenage pregnancy associated with STI's, it is crucial for teenage girls to gain as much information as possible so as to be knowledgeable about their current reproductive health status, which will in turn guide them in leading healthy lifestyles.
5.3.9 Correlations for the dimensions of knowledge regarding reproductive healthcare

The study results display correlations that are both statistically and practically significant as they depict the relationship amongst the different knowledge factors as displayed in Table 4.19. During the scrutinising of study results correlations were noted between the following:

- reproductive healthcare services and contraceptive knowledge;
- reproductive healthcare and reproductive hygiene; and conception knowledge and reproductive hygiene.

In contrast, a study done by Mattebo, Elfstrand, Karlsson & Erlandsson, (2015:28) displayed a non-significance value on the knowledge of teenagers regarding sexual and contraceptive knowledge as well as reproductive healthcare problems especially the sexually-transmitted ones. Results further indicate that almost one third of participants in that study did not know they could contract an STI after having sexual intercourse once, while one misconception included the idea that a condom could be used multiple times.

A study done by Rajapaksa-Hewageegana, et al. (2014:7) revealed result findings that indicated the majority of respondents lacked knowledge awareness on risks associated with first intercourse as forming part of conception knowledge as well as contraceptive knowledge.

Another study done by Malleshappa, et al. (2011:309) revealed that the teenage girls were ignorant of many aspects of reproductive healthcare especially contraceptive methods. James & Abieyuwa, (2013:58) have also revealed that the high rate of teenage pregnancy has been attributed to the participants’ lack of knowledge of sexuality as well as
knowledge and/or effective use of contraceptives. That study showed that the teenagers were not utilizing contraceptives effectively (James & Abieyuwa, 2013:60). To conclude, it was found that schoolgoing teenage girls in the current study displayed limited knowledge regarding the different dimensions of reproductive healthcare.

5.3.10 Relationships between demographic variables and knowledge regarding reproductive healthcare

The results of this study revealed that schoolgoing teenage girls in the Eastern Cape Province displayed an overall low level of knowledge regarding reproductive healthcare. Furthermore, the three demographic variables which were selected during the study for comparison were: Age, Level and Menstrual age. Regarding the knowledge factor, it was deduced from the results in Tables 4.19 to 4.30 that none of the knowledge factors was significantly related to age.

The study results are contradictory to those of Deans and Grimes, (2009:422) whose survey was done on adolescents of different age groups regarding their knowledge of IUD’s as a form of contraceptive. It was found during that study that 72 teenage girls aged 14-18 years who were using contraceptives revealed little knowledge about IUD’s with only 19% having ever heard of this contraceptive method compared to those of 14-25 years displaying 58%. 55% knew about IUD’s, their high efficacy and routine use beyond 1 year. Another study was done by Lawan, et al. (2010:203) which revealed that the participants’ knowledge was significantly associated with their age group.

During the study finding, it was noted that there were significant relationships found between the learners’ education level and their overall knowledge regarding reproductive healthcare. This is in contrast to the results of the study done by Trupe, et al., (2017:5)
whose findings indicated no variations between education level and knowledge about breast health.

The results further display that there were significant relationships found between the learners’ menarche and knowledge factors regarding reproductive healthcare services as well as reproductive hygiene. The menarche group 16-19 years displayed significantly lower levels of knowledge than the other two groups of 10-13 years and 14-15 years respectively. A study done by Gultie, et al., (2014:4) revealed that the mean age of menarche was found to be 14.7 with participants displaying high levels of knowledge about menstrual hygiene management. A similar result was noted by Lawan, et al., (2010:203) who found that participants with the menarche age of 11-15 years and a mean age of menarche being 12.9 displayed a high level of knowledge regarding menstruation and menstrual hygiene. The findings from another study done by Kapoor & Kumar (2017:961) had results which were similar to the current study finding revealing that even though learners displayed some knowledge regarding menstruation as forming part of reproductive hygiene, 50.76% of its participants were ignorant about menstruation before menarche.

5.4 Conclusion

This chapter presented discussions of the data-analysis results of the responses of grade 10, 11 and 12 schoolgoing teenage girls aged 12-19 years to questions about their knowledge regarding reproductive healthcare. Discussion revealed that the overall schoolgoing teenage girls’ knowledge regarding reproductive healthcare was limited. Teenagers are exposed to and know about contraceptives; but do not know how they work in their bodies, hence the inconsistency in their use. The schoolgoing teenage girls had no knowledge regarding emergency contraceptives and also did not know about dual
protection. Knowledge regarding reproductive healthcare hygiene was good but was limited knowledge regarding the use of contraceptives.

For demographic data such as age, level of education class/grade at school and menstrual age none of the knowledge factors was significantly related to age; but knowledge regarding reproductive healthcare services and contraception; reproductive healthcare; reproductive hygiene; conception and reproductive hygiene showed some correlations.
6.1 Introduction

An immense effort has been put into protecting the reproductive health of women, youth and teenage girls in South Africa (Ramkissoon, et al., 2010:34). To this effect Government had developed a variety of policies that spoke to freedom of choice and a right to safe reproductive healthcare and service among this group of its citizens, knowledge about and availability of contraceptives being one of those policies that were developed. However, teenagers in the country are still found to be almost unaware of the availability of these policy documents and are thus continuing with inconsistent use of contraceptives and reproductive healthcare services. Reasons given for this limited knowledge about the availability of these policies and reproductive healthcare services are cited as disparities in the interpretation and implementation of these policies (Ramkissoon, et al., 2010:34). The main affected policies as observed by the latter -mentioned authors are those that are specially referring to the youth and teenagers (Ramkissoon, et al., 2010:34). In support of this perception, Morrell, Bhana and Shefer (2013:8) maintain that these policies are broadly supportive of enabling teenage girls to remain in school while pregnant; but afterwards implementation seems to remain a significant barrier.

Since prioritising reproductive healthcare and HIV prevention is so important, it is thus a global focus. For that reason, access to healthcare, especially for the youth and
teenagers, is a high priority in many countries and particularly the developing countries (Juszczak, Melinkovich & Kaplan, 2003:108). In 2009 as reported by UNICEF (2011:1) young people aged 15-24 years accounted for 41% of all new HIV infections globally and more than half of other sexually-transmitted infections (STI’s); therefore developing ‘and introducing appropriate sexual and reproductive healthcare preventative programmes as early as possible in their school career is essential.

In this chapter the researcher presents the guidelines that have been developed as guided by the empirical results from the data collected during the current study, literature review conducted and results from the other two related studies mentioned in chapter one. In doing so the researcher hopes to present assistance that will enhance knowledge regarding reproductive healthcare for schoolgoing teenage girls. It is further hoped that such knowledge will be in future used by the schoolgoing teenage girls to access the available services in the Eastern Cape Province regarding reproductive healthcare.

6.2 Rationale for the guidelines

The guidelines developed were one of the objectives of the study. Reproductive healthcare services are freely available for everyone who needs them at different Government-owned clinics and hospitals throughout South Africa, including the municipal areas such as the Nelson Mandela Metropolitan Bay (NMMB) area. Despite this free reproductive healthcare service, teenage pregnancy and sexually-transmitted infections still seem to be a huge problem in the country and especially the Eastern Cape Province. An observation made by the researcher is that of an increased number of schoolgoing teenage girls that become affected by STIs or become unintentionally pregnant while at school in the NMMB area. The concern is due to the fact that these teenage girls become infected with STIs and fall pregnant unintentionally though they should be able to protect themselves using the knowledge from information gained from formal teaching of the
reproductive healthcare component in the LO Programme at school. The concern is that the phenomenon of STIs and unwanted pregnancies amongst schoolgoing teenage girls brings with it complications that could otherwise have been prevented, not necessarily medically but merely by a healthy lifestyle were the necessary knowledge in place.

In view of the results from data analysis of this current study it is evident that even though learners demonstrated some knowledge regarding reproductive healthcare, that knowledge was limited with no insight shown on the subject by the teenagers. For example, participants’ responses to questions regarding contraceptive information which they received from their teachers indicated the following gaps in their knowledge:

- Out of 242 participants n=137 (57%) indicated that the contraceptive pill needed to be taken every day in order to prevent pregnancy while n=85 (35%) indicated that they did not know the answer to the question.
- Out of 248 participants n=88 (35%) said the contraceptive injection should be taken monthly while n=82 (33%) knew that it is 2 to 3 months was indicated by
- The majority of 213 participants, n= 132 (62%), did not know about the use of the emergency contraceptive method.

To questions relating to the use of contraceptives (condoms, injectables and the pill) responses were the following:

- Out of 294 participants n=100 (34%) did not know whether contraceptive pills/injections had an expiry date, while n=79 (25%) strongly disagreed with the statement.
- Out of 303 participants n=103 (34%) disagreed with the statement saying that contraceptives were also protection against sexually-transmitted infections while n=86 (28%) participants did not know the answer to the question. n= 114 (37%) agreed with the statement.
These shortfalls were therefore some of the driving force which inspired the researcher to develop the guidelines now being presented in this chapter, but guided by the theoretical framework adopted for the study.

6.3 Theoretical framework

In this study the Precede Procede Model was used as a lens through which to view and explore the knowledge of reproductive healthcare for schoolgoing teenage girls in the Eastern Cape Province. The Precede Procede Model was developed with the intention of facilitating and promoting a change in community behaviour in order to optimize general health outcomes but at a low cost (Binkley & Johnson, 2014:1). In the context of this study the intention is to develop guidelines that will assist enhancement of knowledge schoolgoing teenage girls regarding reproductive healthcare. In the long run it is envisaged that the enhanced knowledge will facilitate a change of behaviour among schoolgoing teenage girls and persuade them to behave in such a manner that they protect themselves from acquiring STIs and from unwanted pregnancy, amongst others. Enhanced knowledge of reproductive healthcare and a change of behaviour among schoolgoing teenage girls will protect them from unwanted pregnancies and their complications thus further helping to limit school absenteeism which at times leads to an increased rate of attrition.

The Precede Procede Model functions within two phases, namely, planning and evaluation. The planning phase, which is the phase of choice for this study, is further divided into several steps that include identification of what needs to be done and how it is to be done. The steps as applied in this study were guided by all three objectives:

- Step one: Identification of what needs to be done
This includes identification of predisposing factors that result in schoolgoing teenage girls knowing or not knowing about reproductive healthcare and identification of what needs to be done to empower them and how to reinforce the knowledge needed.

This step was achieved by setting objective one and two, namely,

- to explore and describe the knowledge of schoolgoing teenage girls regarding reproductive healthcare in the Eastern Cape Province and to determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school Life-Orientation subject

Step two: Identification of how it is to be done

This step was achieved by setting objective three, namely,

- to use data-analysis results to develop guidelines to enhance the knowledge of schoolgoing teenage girls regarding reproductive healthcare in the Eastern Cape Province

Objectives one and two of the planning phase were implemented by conducting a survey using a structured self-developed questionnaire to collect the required data. The questionnaire was self-administered with the assistance of two fieldworkers. Data was analysed in order to develop guidelines which was the ultimate action of the planning phase.

Clinical guidelines are useful, and systematically developed evidence-based statements that could be of assistance in the clinical practice environment (WHO, 2003:1). Healthcare providers and the different stakeholders could benefit from the clinical
guidance so as to be better able to make informed decisions about appropriate healthcare interventions (WHO, 2003:1). According to the World Health Organization (WHO), clinical guidelines are developed from recommendations regarding health interventions. (WHO, 2012:1); however, according to Vermeulen, D'Angelo, de Sutter and Nelen (2015:5), clinical guidelines are intended as an aid to clinical judgement and are intended neither to take away authentic clinical knowledge and freedom nor the responsibility to make such decisions (Vermeulen, et al., 2015:5).

Since guidelines are developed for different purposes, one should be clear about the purpose beforehand (WHO, 2010:5). According to WHO handbook for guideline development (2010: 5), there are three types of guidelines, namely:

- rapid guidelines which are useful to respond to emergency health circumstances and which take a short interval of one to three months to development;
- standard guidelines which are developed in response to a request for guidance in change in practice or controversy in a single clinical or policy area and which take at least up to nine months to develop; and
- full guidelines which are for a new area or topic to be dealt with, cover the full scope of the topic and which could take up to three months to develop.

The guidelines that were developed in this study were the standard type.

6.4 Process of development of guidelines to enhance knowledge of reproductive healthcare for schoolgoing teenage girls in the Eastern Cape Province

According to Vermeulen, et al., (2014:5); WHO (2010:11) the process of development of guidelines includes the development stage, implementation and evaluation stages which
are all a cycle of interdependent activities. The key steps within the process are topic selection, synthesis of evidence, formulation of recommendations, consultation and review. The guidelines that were developed in this study are short term and are meant for school teachers for the benefit of the schoolgoing teenage girls. The researcher used the process followed for the development of healthcare clinical guidelines as suggested by WHO (2010:11) and Vermeulen, et al., (2014:5); but chose steps of the process that were relevant to the current study.

The guidelines developed are aimed to enhance the knowledge of schoolgoing teenage girls regarding reproductive healthcare in the Eastern Cape Province. The knowledge is hoped to facilitate and enhance knowledge and access to reproductive healthcare by schoolgoing teenage girls and youth. The school curriculum, specifically the reproductive healthcare section of the Life Orientation Programme, aims at improving on the insight of the learners and teachers themselves. The steps that were followed are the following.

- **Topic selection**

  The topics for the guidelines were arrived at from the data-analysis results of the data collected for current study using the survey format. The main result that emerged highlighted how limited the knowledge of schoolgoing teenage girls was regarding reproductive healthcare despite having lessons on the subject at school.

- **Synthesis of evidence**

  A literature review was conducted to obtain clarity on the concept of knowledge of schoolgoing teenage girls regarding reproductive healthcare. Although the focus for the literature review was on international and national studies and on school curriculums internationally it was mainly nationally so as to gather information of what and how the subject was being taught in South African schools with regard to reproductive healthcare. The focus was also on the type of assistance in place as a means to assist schoolgoing teenage girls with this type of care and, as a result, amongst others, existing policies,
strategy documents and guidelines were reviewed. The documents are not discussed; but were considered in the development of the guidelines. Examples of these documents to mention include:

- The Global Strategy for Women’s, Children’s and Adolescents’ Health [GSWCAH] (2016–2030)
- Youth Coalition for Sexual and Reproductive Rights (2013)
- United States of America, Health Education Regulation (851 of 2013)
- Department of Education. 2007. Measures for the prevention and management of learner pregnancy.


• Jacobs, A. 2011. Life Orientation as experienced by learners: A qualitative study in North-West Province.

The information gained was summarised and notes made of the areas of concern that were not fully addressed in these documents. Areas of note were, for example, assistance to the teachers of the background to reproductive healthcare, support service to the teachers from healthcare professionals, involvement of parents at school in the teaching of reproductive healthcare and engaging with teachers on their need to teach the subject successfully. The recommendations that were formulated following from the results of this study are aimed at facilitating the access to information and services relating to reproductive healthcare of schoolgoing teenage girls. The findings of the study were summarised and conclusions given from which guidelines to be developed were further identified. Following is a list of recommendations that could assist with the final guidelines. The recommendations will be for the LO -Programme teachers and healthcare providers. This is a key priority in order to strengthen coordination and collaboration between all the above-mentioned stakeholders, to improve the state of teenagers’ sexual reproductive health and rights in South Africa (DOSD, 2015:29).
6.4.1 Recommendations for healthcare providers

The results of the study portray a need to facilitate the access to information and services relating to reproductive healthcare of schoolgoing teenage girls. Following now is a list of recommendations that could assist with the long-term guidelines.

- Nurses and midwives should provide all learners with information and health education regarding reproductive healthcare, which can be attained through the provision of individual or group health education.
- Pamphlets and information leaflets pertaining to reproductive healthcare related complications and concepts should be available in clinics.
- Visual aids such as posters should be displayed on the walls in the waiting areas and in the consulting rooms of the clinics.
- Reproductive healthcare-awareness days should be held at hospitals and healthcare centres once or twice a year to create awareness among teenage girls on safe reproductive healthcare lifestyle habits.
- Parental involvement should be encouraged during reproductive healthcare-awareness days in order to encourage parent child relationship.

Teenage girls should be made aware of the need to go for pap smears every two years and continue monthly breast examination tests

6.4.2 Recommendations to the Department of Education (LO-programme teachers)

Since teachers play a crucial role in a child’s educational upbringing, they need to be encouraged to continue to provide learners with the necessary knowledge, information and life skills they need which will ultimately affect all aspects of their lives. Likewise
parents and healthcare providers should also collaborate with LO Programme teachers at school to provide these teenagers with continuous and consistent information on safe reproductive healthcare lifestyles to enable them to reach their adult years with minimum reproductive healthcare-related complications. The researcher therefore suggests the following recommendations that could assist LO Programme teachers that are involved in the teaching of the reproductive healthcare subject at their schools.

Following are the recommendations that were formulated for the purpose of teaching the subject.

- Information sessions should be held for parents/guardians of teenagers to discuss reproductive healthcare teaching at school which will include their concerns relating to the content.
- A healthcare provider/ clinic sister should be invited to give a talk to parents regarding reproductive healthcare.
- Practical sessions should be held to promote and improve communication skills between parents and teachers.
- Learners should be included in separate sessions with the parents and teachers to strengthen continuous parent-child-relationships.
- Teachers should be given a chance to engage with the principals to discuss the subject content and teaching

Recommendations that were formulated assisted with the finalisation of the guidelines. Three principal guidelines were therefore developed and are, namely:

- to provide age-appropriate reproductive healthcare information for learners in each grade;
• to provide an opportunity for a parent-teacher collaboration to discuss age-appropriate reproductive healthcare and service teaching, for learners in each grade; and
• to provide an opportunity for the appropriate learning about reproductive healthcare to be given as well as access to the relevant services.

These guidelines are all connected to one another as the environment where the assistance will be provided is the school.

Besides the sources of information presented earlier on in this chapter the guidelines were further constructed from information gained from other sources such as:

• experiences of expert educationists
• parents
• founded on the theoretical framework chosen for this study
• personal clinical experiences of the researcher and media reports.

Below is the figure presenting the principal guidelines that were developed to enhance reproductive healthcare knowledge of schoolgoing teenage girls.

The principal guidelines are presented in figure 6.1 below.
6.4.3 Purpose of the guidelines

The purpose of guidelines is to articulate clearly standards of good clinical practice in research that are also relevant to local realities and contexts (DoH, 2006:8). Guidelines are also for the purpose of ensuring that clinical trials conducted on human participants are designed and conducted within the framework of good clinical practice and according to authentic scientific and ethical standards (DoH, 2006:8). Though the guidelines in this study were not clinical but educational the above -stated principles were adopted. Those strict principles were followed during the development of the guidelines in this study as the researcher conducted the study after it had been approved by the necessary authorities and used a valid, reliable and properly- tested questionnaire to collect data from the appropriate participants. Scientific information regarding existing guidelines with
regard to reproductive healthcare knowledge among schoolgoing teenage girls was sought for and reviewed for gaps and appropriateness of the current proposed ones.

As further stated by Venneti (2002:79), clinical practice guidelines are clear on the importance of gaining cultural competence and seeking to increase knowledge, changing attitudes and improving skills. Consequently, the current guidelines seek to increase knowledge and change attitudes of schoolgoing teenage girls while improving the skills of the teachers through provision of relevant reproductive healthcare information. The guidelines will also make room for consistency in the information being given to the schoolgoing teenage girls by parents, teachers and healthcare providers.

### 6.4.4 Target population for the guidelines

The guidelines are intended for the school teachers in the Eastern Cape Province to utilise in the LO programme for the benefit of schoolgoing teenage girls and parents too. Below is the tabular presentation of the guidelines, sub-guidelines and action to be taken as a means to implement the developed guidelines.

<table>
<thead>
<tr>
<th>PRINCIPAL GUIDELINES</th>
<th>SUB-GUIDELINES</th>
<th>APPLICATION OF THE GUIDELINES</th>
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Table 6.1: Guidelines to enhance the knowledge of reproductive healthcare for schoolgoing teenage girls in the Eastern Cape Province
<table>
<thead>
<tr>
<th>1: Provide age appropriate reproductive health care information for learners in each grade.</th>
<th>1.1 Formulate standards to guide the teaching of an age-appropriate reproductive healthcare component within the LO programme</th>
<th>1.1.1 Collaborate with LO teachers to formulate the framework which clearly describes the content of information for each grade that is age appropriate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.2 Start with an evaluation assessment to find out what the learners know regarding specific topics being discussed; and</td>
<td>1.1.3 Consult parents before formulating the framework</td>
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</tbody>
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2: Provide an opportunity for a parent-teacher collaboration to discuss an age-appropriate reproductive healthcare and service, for learners in each grade.

<table>
<thead>
<tr>
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<th>2.1 Develop an environment conducive to standards for the parent/teacher collaboration</th>
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<td></td>
<td>2.1.1 Arrange that you have a discussion meeting that includes teachers and parents to discuss the aspects of the subject content related to reproductive healthcare.</td>
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<td>2.1.2 Guide parents/guardians with correct information and eliminate any myths/misconceptions they may have regarding the reproductive healthcare topics being discussed.</td>
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<td>2.1.3 Organize an open day specifically for parents/guardians to assist them on how to communicate with their children.</td>
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<td>3: Provide an opportunity for the appropriate learning and access regarding reproductive healthcare.</td>
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<td>3.1.2 Arrange with a specific local clinic to provide times for attending to schoolgoing teenage girls on certain days in the week.</td>
<td>3.1.3 Help teachers to facilitate access of teenagers to reproductive healthcare services</td>
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Below follows the discussion of each one of the guidelines. To allow easier reading and clarity the discussion will adopt the format of presenting:

- the principal guideline
- sub-guideline with the associated proposed application and
- supported by rationale and action steps for operational implications.
6.4.4.1 Principal Guideline 1: Provide age-appropriate reproductive healthcare information for learners in each grade

The word ‘age-appropriate’ refers to a child’s developmental stage. It is a concept implying that certain activities may be deemed appropriate or inappropriate to a level of development (Cassidy, 2013:83). Teenagers are seen as the vulnerable members of the community and as such not necessarily able to understand certain concepts which would lead to taking well-informed decisions. Certain ages, for example, ages 10-16 are termed very young while 17-19 are older teenagers and therefore the level of understanding differs as the age rises.

In the context of this study, age-appropriate reproductive healthcare information will refer to the information that learners are receiving in their grade that is thought to be appropriate for their age, which in this study was 12-19 years of age.

Rationale for the formulation of standards to guide the teaching of an age-appropriate reproductive healthcare LO module.

In order for learners to be able to grasp the content of information better with each grade they move up to, which goes hand in hand with their maturity, they should not be bombarded with too much information which they are not yet ready to understand.

Sub-guideline 1.1: Formulate standards to guide the teaching of an age-appropriate reproductive healthcare LO module.

The standards that were formulated will strive to measure the quality and effectiveness of the teaching provided. The researcher envisages that the reproductive healthcare content of the LO module should provide guidance and insight to the learners, their parents and the teachers, which it is hoped will ultimately lead to a positive change in behaviour.
Application and operational implications

The application steps for sub-guideline 1.1 are presented in figure 6.2 below.

1.1.1 Collaboration between LO teachers to formulate the framework which clearly describes the content of information for each grade that is age appropriate.

1.1.2 Start with an evaluation assessment to find out what the learners know regarding specific topics being discussed.

1.1.3 Consulting with parents before formulating the framework.

Figure 6.2: Sub-guideline 1.1 and application

In order to achieve this guideline the following action is recommended.
Sub-guideline application 1.1.1: Collaborate with LO-Programme teachers to formulate the framework which clearly describes the content of information for each grade that is age-appropriate

Steps need to be taken towards the required collaboration that will culminate in the formulation of the needed framework, namely:

- facilitating a meeting between all the LO teachers of the schools and discussing the idea;
- facilitating such a meeting with the school principal or head of department;
- outlining the possible content appropriate for each grade;
- discussing the content and reaching an agreement and
- facilitating a meeting with schools in the immediate area (township or suburb)

Sub-guideline application 1.1.2: Start with an evaluation assessment to find out what the learners know regarding specific topics being discussed.

Steps guiding the envisaged evaluation and assessment of the learners' current knowledge of the topic being discussed are:

- facilitation of the meeting with the LO Programme teachers from the different schools and highlighting of the content regarding reproductive healthcare topics that they teach at their respective schools;
- discussion of each topic included into the reproductive healthcare content to find out if it is appropriate for each specific grade; and
- reaching of consensus and discussion of final draft with the head of department or school principals.
Sub-guideline application 113: Consult parents before formulating the framework

The following steps can be used for guiding the recommended consultation session.

Teachers should consult parents before formulating the framework to ensure that they are also on board and can provide their continued co-operation in reproductive healthcare teaching at home.

A meeting should be held at the school with the LO-programme teacher and the parents to discuss the content before formulating the framework should be organized.

Then the teachers should discuss with them each topic regarding the content and explain its relevance according to the learner's specific age.

The parents should be allowed time to ask questions and address certain areas which may seem unclear to them.

Only then should teachers formulate a draft of the framework and hand it over to the school principal or head of department to discuss its feasibility.

6.4.4.2 Principal Guideline 2: Provide an opportunity for parent/teacher collaboration to discuss an age-appropriate reproductive healthcare and service for learners in each grade.

A collaborative approach is defined as one that integrates the intended users of the science in the development of the proposal and implementation of the project (Karl, Scarlet, Vargas-Moreno & Flaxman, 2012:142). In order for the teaching of the LO subject to be successfully implemented, the parents, teachers and healthcare providers need to collaborate and reach an agreement to ensure consistency in the information being given to the learners. An opportunity is a time when a particular situation makes it possible to achieve something (Oxford Advanced Learners’ Dictionary 2010:1032); so schools should
take this opportunity to involve parents more in the education of their children by encouraging their input into the changes being made to the reproductive healthcare content.

In the context of this study the researcher would like to organize an opportunity to make it possible for the parents and teachers to come together to discuss measures on how they plan to provide learners in each grade with age-appropriate reproductive healthcare information and services

**Rationale for the development of an environment that is conducive to the standards for parent/teacher collaboration**

The rationale here aims to ensure there is no contradiction between parents/guardians and teachers when giving learners health education regarding reproductive healthcare.

**Sub-guideline 2.1: Develop an environment conducive to the standards for parent teacher collaboration**

Figure 6.3 below presents principal guideline 2 and the recommended application.
Figure 6.3: Application actions for sub-guideline 2.1

An environment that is conducive to certain actions or behaviour is one that is stimulating and enriches learning in order to help learners grow and thrive (Stronge, 2013:65). As further stated by Marzano (2003:88), it is the provision of procedures necessary to establish and maintain an environment in which constructive instruction and learning can occur. Providing this opportunity for parents/guardians and teachers to come together in an environment where constructive learning can occur, will facilitate collaboration between them. This will further ensure consistency in reproductive healthcare information given to teenagers.

The content of the reproductive health topics being discussed at school should be available to all parents/guardians to encourage their input in order to ensure continuity of health education in the home environment.
Application and operational implications

In order to achieve this guideline, it is recommended that the following action steps be observed.

Sub-guideline application 2.1.1: Have a representative from all the parents with children at the school to sit on the panel of LO Programme teachers.

The steps followed to have a parent representative on the panel of LO Programme teachers are that the teacher should:

send a request to the parents/guardians, asking them to choose a person who will represent them during meetings with the school LO Programme teachers;

facilitate the meeting at the school between the LO Programme teachers and the parents to discuss the content;

outline the possible appropriate content for each grade;

allow the representative to give his input from the parents, regarding their concerns; and

discuss the content and try to reach an agreement

Sub-guideline application 2.1.2: Arrange an open day specifically for parents/guardians to assist them on how to communicate with their children.

Steps needed to arrange an open day at school which will assist parent/guardians on communication skills are that the teacher should:

fix a date for a meeting with school principals of the schools in the immediate areas and discuss the idea;

develop an information pamphlet to distribute;
send invitations to the parents/guardians;
invite a social worker to speak and advise on social issues at that meeting;
also invite an expert on culturally sensitive matters regarding reproductive healthcare; and
Invite a few LO Programme teachers to inform the parents of the nature of information being shared during the class of reproductive healthcare

Sub-guideline application 2.1.3: Provide parents/guardians with correct information and eliminate any myths/misconceptions they may have regarding the reproductive healthcare topics being discussed.

The following steps are needed to provide correct information regarding reproductive healthcare to parents/guardian, namely, to:

organise an information day at school to have a closed session with the parents/teachers;
prepare a programme to be sent to the parents together with the invitation;
develop a pamphlet with questions and answers for the parents/guardians to take home;
invite an expert midwife to give a talk about reproductive healthcare matters; and
stipulate that school policies encourage parental involvement when it comes to discussing such sensitive content with the learners to ensure their continued involvement and support.

6.4.4.3 Principal Guideline 3: Provide an opportunity for the appropriate learning and access regarding reproductive healthcare.

Rogoff’s (2003:284) definition of learning is that it is a ‘process of changing participation in community activities and a process of taking on new roles and responsibilities’. For
generations teachers have always been very uncomfortable and distant when it comes to discussing content on reproductive healthcare with their learners; but, owing to the rapid increase in unwanted pregnancies among schoolgoing teenagers and their vulnerability to exposure to HIV/AIDS, especially in the Eastern Cape Province, teachers need to take the responsibility by playing an active role in the education of these teenagers regarding their reproductive healthcare.

In view of the current study the researcher would like to create an opportunity for the healthcare provider to take on a new role in assisting LO Programme teachers to have access to reproductive healthcare services and information. By doing so, the teachers will be better equipped to educate learners regarding reproductive healthcare content which is consistent with the information provided by the healthcare providers.

Figure 6.4 below presents the application actions for sub-guideline 3.1

3.1.1 Arrange for healthcare providers to visit schools and update teachers on any new changes on policies and protocols relating to teenage girls’ reproductive healthcare

3.1.2 Arrange with a specific local clinic times for attending to schoolgoing teenage girls teenage only on certain days in the week.

3.1.3 Assist teachers week. to facilitate access of reproductive healthcare services to the teenagers

Figure 6.4: Application steps for sub-guideline 3.1
Rationale for providing an opportunity for the appropriate learning and access regarding reproductive healthcare

The rationale for this section is to ensure that there is consistency in reproductive healthcare information being given by both teacher and healthcare provider.

Sub-guideline 3.1: Develop standards for the access of appropriate reproductive healthcare and services information

LO-programme teachers will receive appropriate and recent information regarding reproductive healthcare which they will be able to use in their teaching at school.

Application and operational implications

In order to achieve this sub-guideline it is necessary for teachers to follow the steps as stated below.

Sub-guideline application 3.1.1: They should arrange for healthcare providers to visit schools and update teachers on any new changes on policies and protocols relating to teenage girls’ reproductive healthcare.

In order for healthcare providers to update teachers on new changes made to policies/protocols regarding teenage girls’ reproductive healthcare these steps need to be followed the teacher should:

- arrange a meeting with the school principal in order to give permission for the healthcare provider to gain entry to the school and address the LO Programme teachers;
- identify a nearby clinic and start the negotiations with the authorities for its direct involvement;
arrange for the LO Programme teachers and healthcare provider to meet on a specific day to discuss the content on any changes made to policies/protocols relating to teenage girls’ reproductive healthcare;
discuss each new policy/protocol which is to be changed and evaluate its relevance to the specific age and grade of the learners; and facilitate acceptance of adaptations to these protocols and subject content where possible

Sub-guideline application 3.1.2: They should arrange with a specific local clinic times for attending to schoolgoing teenage girls only on certain days in the week

The following steps are needed to arrange specific clinic time for teenage girls on certain days.

Arrange a meeting with the sister in charge of the local clinic and a community representative in order to discuss specific times for teenagers to attend the clinic for services rendered.
Outline and explain the guidelines regarding reproductive healthcare being implemented by the schools and its benefits to the teenagers.
Explain to the community representative the need to give feedback to the community to gain their full co-operation and support to allow smooth running of the clinic times which will benefit everyone.
Meet with the LO-Programme teachers and give feedback on the decision made regarding the specific local clinic times, in order to relay the message back to the learners.
Sub-guideline application 3.1.3: Teachers should be assisted in facilitating access to reproductive healthcare services for the teenagers

Steps needed for teachers to facilitate access of reproductive healthcare are as follows. They should:

arrange a meeting for the local clinic sister and LO Programme teachers of schools in the surrounding area to discuss the content for the LO Programme subject regarding reproductive healthcare and the services being rendered at that specific clinic;

arrange for the healthcare provider to visit the school and give lectures to the learners regarding the reproductive healthcare content on certain days during their LO Programme period;

make use of visual props and pamphlets as they provide better insight and understanding; and

inform the parents regarding the changes made to the curriculum to ensure their full co-operation

The guidelines are for short term and will be implemented only after they have been evaluated and finalized to be practical by experts and stakeholders.

6.5 Conclusion

Schoolgoing teenage girls have limited knowledge relating to sexual and reproductive healthcare. The guidelines developed in this chapter are intended to closing the gap between what participants know, have been told and the facts about reproductive healthcare. Literature review and analysis of data were conducted as a means to identify the topics that could be used as guidelines, recommendations compiled and thereafter guidelines were formalized. The guidelines developed are short term as they will
ultimately assist with the development of a model as a bigger project that will assist with the teaching and knowledge of reproductive healthcare at schools. The aim of the bigger project is to enhance the knowledge regarding and access to reproductive healthcare of women and youth in the Eastern Cape Province.

Guidelines were developed and application steps for each of the guidelines to be successful were provided. Steps included collaboration of school teachers, healthcare providers as well as the parents and encouraging provision of consistent but constant relevant information regarding reproductive healthcare to the teenage girls.
CHAPTER SEVEN
SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

7.1. Introduction

Chapter seven presents the final discussions and comments on the research report, thus the summary of the study. Following the summary report there will be a presentation of the conclusions about the results of the study as well as about the limitations encountered during the process of the study. Lastly the report ends with some recommendations for further research as a means to enhance the guidelines that were developed as well as to cover other areas of importance that may not have been adequately accommodated in the guidelines.

The researcher of the current study is part of a broader project which is focusing on enhancing knowledge of and access to reproductive healthcare services for women and youth in the Eastern Cape Province. Results and guidelines developed in this study will therefore at a later stage form part of the model that will be developed for the project to enhance knowledge of and access to reproductive healthcare services for women and youth in the Eastern Cape Province. The model will be developed in two years’ time from the completion of this current study as the other two studies which form part of the objectives of the project are almost complete as well.

Reproductive healthcare of teenage girls has been noted as a major health concern, as the teenagers have been observed to experience their sexual debut at this early age of their lives (Rajapaksa-Hewageegana, et al.,2014:3). Over a period of nine years the
researcher has noted as a personal observation that there has been an increase in the number of teenage pregnancies of girls between the ages of 12 and 19 years in the Nelson Mandela Metropolitan Bay Municipal area which is a municipality in the Eastern Cape Province. Alarming statistics further reveal that fifty-four (54) teenage girls at one high school in Port Elizabeth, Eastern Cape alone, were pregnant in 2016 while in that same school four new pregnancies had already been reported for January of the start of new school calendar of 2017 (Chetty, 2017:1).

The concern is that these pregnancies happen despite free access to contraceptives and services in South Africa. Free access to contraceptives and services is the country’s response to the reproductive healthcare need’s statement of the International Conference on Population and Development Programme in 2012; therefore, the trend of teenage pregnancy in South Africa and especially in the Eastern Cape is a grave concern.

School-based sex-education programmes are noted to be playing an essential role in equipping teenagers with the knowledge they require to make safe and informed sexual and reproductive healthcare decisions (Rajapaksa- Hewageegana, et al., 2015:3). Furthermore, in this regard, the primary and high school curriculums include a LifeOrientation Programme which furnishes the relevant information to empower teenagers regarding reproductive healthcare; however, several pertinent questions have been raised regarding this programme, chief among them being the effectiveness of sex education (Chetty, 2017:1). The questions are fuelled by the ever-rising rate of teenage pregnancies at school and sexually-transmitted infections (Chetty, 2017:1) observed from clinic records and national healthcare statistics reports. Against this background the current study became a possibility.
The purpose of the research was to explore the knowledge regarding reproductive healthcare of schoolgoing teenage girls in the Eastern Cape Province. In order to satisfy the need of the purpose the study had to respond to the following two questions.

- What knowledge do schoolgoing teenage girls have regarding reproductive healthcare?
- What school-based information do schoolgoing teenage girls have regarding reproductive healthcare?

To respond to these questions research objectives were developed and a data-collection tool developed. The research objectives were:

- to explore the knowledge of schoolgoing teenage girls in the Eastern Cape Province regarding reproductive healthcare and
- to determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school Life-Orientation Programme.

The collected data and results from data analysis were a third objective, namely,

- to develop guidelines that could assist the stakeholders in health and education professions in enhancing the knowledge of schoolgoing teenage girls regarding reproductive healthcare.

7.2 Summary of the study

Following below is the presentation of the summary of the evolvement of the study.
Chapter One

In chapter one the researcher presented an overview of the study so as to orientate the reader to the context of the study. The overview was in the form of an introduction to the title and background of the study. The introduction was presented by means of a brief literature review. Then in chapter one the researcher presented the problem statement, purpose and objectives of the study including the description of the main concepts of the study and also the research theoretical model for the study was briefly introduced. Following on these sections was the presentation of the orientation to the methodology, that of a quantitative survey, data analysis, validity and reliability of the study. Ethical considerations for the study were also briefly discussed.

Chapter Two

An in-depth discussion of the literature conducted for the study was presented in chapter two with the presentation the study’s research paradigm and model chosen in conjunction with the research objectives and design. The Procede Precede Model was adopted in this study as it was seen to be suitable to the required effect of the outcome of the study. The model seeks to contribute to the benefit of knowledge of reproductive healthcare and thus contribute towards a change of behaviour among schoolgoing teenage girls for a healthy reproductive healthcare outcome.

Chapter Three

In chapter three the researcher presented an in-depth discussion of the methodology especially the methods of the study. The purpose of the study and research paradigm were provided, discussed and placed in the context of the study. The study assumed a quantitative explorative, descriptive and contextual research design. Permission to
conduct the study was achieved by means of formal requests from all the stakeholders and authorities, namely, the NMMU, the principals of the different high schools in the Nelson Mandela Bay Municipal area, Sarah Baartman and Cacadu districts, the participants and their parents/guardians.

The methods included deciding on and identifying of a suitable population, identification of a suitable site and entry requirements to the site; the data-collection process, including the development of the data-collection tool and analysis of data. The researcher used a structured, self-developed and administered questionnaire to collect data. The questionnaire, which was developed with the guidance of the statistician and assistance of the research supervisors, had two sections for participants to complete. Section A was for demographic data and section B was for the participants’ knowledge related to reproductive healthcare. To ensure a clear response to the research questions section B was further divided into seven sub-sections (questions), namely,

- sources for reproductive health information;
- reproductive healthcare services and problems;
- contraceptive knowledge;
- conception knowledge;
- reproductive hygiene;
- reproductive healthcare; and
- information that the participants receive from the teachers regarding contraceptives.

The role of the statistician in the development of the questionnaire and the use of fieldworkers was appraised while recognising the immediate site for data collection. There were 42 questions excluding the 6 biographical data questions. Data analysis was done using STATISTICA Version12 software. Descriptive results were the focus of the study;
but the researcher presented some other results such as cross-tabulations and correlations. Results were presented in chapter four.

Chapter Four

The results of the data analysis were presented and interpreted in chapter four. The researcher made use of tables to present the results and conclusions thereof. Presenting results independently from the discussions helped the researcher to create a clear picture of the results as indicated in the responses of the participants to the different questions on the data-collection tool. This manner of presentation of results made it easy for the researcher to identify shortcomings such as duplication of responses and thus provide clarity in the discussions in chapter five. Even though the schoolgoing teenage girls had some knowledge of reproductive healthcare, the results revealed that their knowledge was limited.

The areas of major results follow below.

- Sources for reproductive health information were mainly the parents though many of the participants indicated that they still preferred the information to come from the teachers as they believed it would be scientific information.
- Participants had limited knowledge regarding reproductive healthcare services and problems as there was a narrow difference between those who knew where the services were and those who did not. Significance of the presence of lumps and pain in breasts was poorly known.
- Contraceptive knowledge was good though participants were merely aware of the condom as a contraceptive; but were not sure of how the contraceptive worked
and when it was safe to use it. There was no knowledge regarding the emergency contraceptive or its use.

- Participants knew that they should use contraceptives while being sexually active; but there were some consistencies in the knowledge regarding how and when to use in order to prevent pregnancy.
- Participants had good knowledge and practice regarding reproductive hygiene.
- Participants had limited knowledge regarding reproductive healthcare especially about breast examination.
- Information that the participants received from the teacher regarding contraceptives was limited as some of the participants did not know about the examination of breasts before and after menstruation and meaning of body odours and rashes.

Guidelines to address the needs of the participants were developed and will be presented in the summary discussions in chapter six.

**Chapter Five**

Chapter five was an important chapter for the study as the data in it provided the necessary clarity to the research questions aforementioned. Discussions were itemised so as to not miss the meaning of the responses given and how the researcher came to the conclusion of the findings besides using statistical data results. Literature from different legitimate and legal scientific sources was used to verify results and arguments put forward in this chapter thus improving authenticity of the study. Based on the fact that they had been exposed to the teaching of the subject of reproductive healthcare at school and the lean statistical differences between knowing and use of the reproductive healthcare information, it was clear that participants had limited knowledge and would need some assistance. A summary of responses to each of the research questions is indicated below:
• What knowledge do schoolgoing teenage girls have regarding reproductive healthcare?

The teenagers had some knowledge regarding certain reproductive healthcare concepts; some showed no insight in answering the questions and rather answered randomly; but generally the teenagers were clear on where they received the information on the changes in their bodies during their teenage years; and from whom they would prefer to have received the information. Participants knew mainly of the condom as the contraceptive method and preferred injectables to pills. They were not sure of the correct manner to use the contraceptives to prevent pregnancy. Participants had limited knowledge regarding the correct use of the contraceptives, physiological development symptoms as well as protection against sexually-transmitted infections.

• What school-based information do schoolgoing teenage girls have regarding reproductive healthcare?

Teenagers were clear on where to go to access reproductive healthcare services pertaining to contraceptives; but some of them did not know when and how often one should take precautions in order to prevent pregnancy. Most of them were not aware of the different services involved in reproductive healthcare and as such were unable to identify that all the concepts included in the questionnaire formed part of a normal reproductive healthcare system. Participants could not connect the relationship between examination of breasts for lumps and menstruation and thus could not respond correctly to the question regarding breasts and development. Condoms could not be related to protection of sexually-transmitted infections as well; but they were mainly known as a contraceptive method. Such information indicated limited information regarding reproductive healthcare.
In this regard the researcher confirms that objectives one and two were successfully met, hence her proceeding to the third objective which was to develop guidelines that would help to enhance the reproductive healthcare knowledge of schoolgoing teenage girls.

**Chapter Six**

Chapter six dealt with the third and last objective of the study, namely, that of development of guidelines for the stakeholders in health and education professions in enhancing levels of knowledge of schoolgoing teenage girls regarding reproductive healthcare.

The three principal guidelines that were developed in this chapter are presented below. The guidelines are to provide:

- age-appropriate reproductive healthcare information for learners in each grade;
- an opportunity for a parent/teacher collaboration to discuss an age-appropriate reproductive healthcare and service, for learners in each grade; and
- an opportunity for appropriate learning about and access to reproductive healthcare among schoolgoing teenage girls

Below is the figure presenting the guidelines and sub-guidelines that were developed.
In addition to the principal guidelines there were sub-guidelines and actions for the application of the guidelines that were developed. Below is the presentation of the different application steps for each of the developed sub-guidelines.

**Figure 7.1: Principal and Sub-guidelines developed**
7.3 Conclusions of the study

Although all the set objectives of the study were met, making it possible to develop the necessary guidelines, the study had its own barriers that could be seen to have limited the quality of this study. As the limitations were not major they did not affect the process of the study and the researcher then concludes that at this stage of the study, despite the limitations encountered, it would be appropriate to conclude that the study was a success.

7.4 Limitations of the study

Limitations of the research study are those theoretical and methodological restrictions or weaknesses in a study that may decrease the generalizability of the findings (Grove, et
They entail the aspects of how the study was conducted that create uncertainty concerning the conclusion that can be derived from the study as well as the decisions that can be based on it (Rebar, et al., 2011:393). The following limitations emerged in the current study.

- The data-collection process was hindered by the poor return rates of permission letters. Also, permission and access challenges delayed the data-collection target.
- Most of the grade 12 learners at the schools were given an opportunity to opt out from the research as they were already in the process of preparing for the final examinations during the time of the data collection, hence the results indicated that n=35 (11%) participants were in grade 12 out of the total number of 313.

7.5 Recommendations

Following the development of guidelines and results of this study further need for recommendations for future research was identified.

7.5.1 Recommendations for further research

Based on the findings and limitations of the study the following research recommendations are made: A researcher could conduct:

- a similar study to determine the LO-programme teachers’ knowledge level regarding the reproductive healthcare content they teach at school, to assist in improving knowledge levels;
- a study including both teenage girls and boys to find out and discuss how they view their own roles in ensuring safe reproductive healthcare lifestyles; and
• a study to determine how the parents of schoolgoing teenagers regard the effectiveness of the LO programme at school.

7.6. Conclusion of the study

The study focused on exploring the knowledge levels of schoolgoing teenage girls in the Eastern Cape Province about reproductive healthcare. The study was based on the increased number of teenage pregnancies of girls between the ages of 12 and 19 years in the Nelson Mandela Metropolitan Bay Municipal area as observed by the researcher over the last nine years.

The study illustrates the fact that the schoolgoing teenage girls had some knowledge regarding reproductive healthcare; but it was very limited. Parental attitudes are still noted to be somewhat of a barrier regarding the needs of the schoolgoing teenage girls with regard to reproductive healthcare knowledge. It is therefore imperative for a collaboration relationship between the school and parents to discuss the teaching of the subject of reproductive healthcare. Also, it is of importance that the LO-Programme teachers who are responsible for the subject reproductive healthcare to be assisted with additional information that is age appropriate for teaching the subject. Other important stakeholders where possible should be consulted to be of assistance in the LO Programme curriculum.
REFERENCE LIST


Adukia A. Sanitation and education. Harvard University, 2014.


Davis, A., Postles, C. & Rosa, G. 2013. *A girl’s right to say” No” to marriage* Plan Limited. Woking


Department of Social Development. 2015. **National adolescent sexual and reproductive health and rights framework strategy: 2014–2019.**


Dittman, R. Female Reproductive Hygiene & its Relationship to Human Fertility, Candida & STD's. *Explore, November 4, 2008 Volume 17,*


Fallat, M.E. & Ignatio, R.C., 2008. **Breast Disorders in Children and Adolescents,** University of Louisville. USA.


Galloway, CT., Duffy, JL., Dixon, RP., & Fuller, TR. Exploring African-American and Latino teens; perceptions of contraception and access to reproductive health care services. *Journal of Adolescent Health 60 (2017) S57-S62*


Gupta N, Mathur AK, Singh MP. & Sexena NC; Reproductive health awareness of school going unmarried, rural adolescents. *Indian Journal of Pediatrics, 2004; 71(9): 797-801.; 10.*


Idele, P., Gillespie, A., Porth, T., Suzuki, C., Mahy, M., Kasedde, S. & Luo, C. Epidemiology of HIV and AIDS Among Adolescents: Current Status, Inequities, and Data
Gaps. Acquired Immune Deficiency Syndrome. 2014, 66 (2) S144-s153


Maputle. M. Becoming a mother: teenage mother’s experiences of first pregnancy. Curationis 2006 29 (2): 87-95


Miller LM. College student knowledge and attitudes toward emergency contraception. *Contraception*. 2011;83(1):68–73


Mshweshwe-Pakela, N., 2015. Knowledge, Attitudes and Use of Contraceptives Amongst Female Learners Attending a High School in Mdantsane. Available at; **URI**: [http://hdl.handle.net/10500/18692](http://hdl.handle.net/10500/18692)


Newton-Levinson, A., Leichliter, JS. & Chandra-Mouli, V. sexually transmitted infection services for adolescents and youth in low-middle-income countries: Perceived and experienced barriers to accessing care. *Journal of adolescent Health 59 (2016) 7-16*


Omoni, GM. 2009. Teenage mothers in Kenya: seduced, coerced and at risk of HIV.


Sambanje, M.N. & Mafuvadze, B. 2012: Breast cancer knowledge and awareness among university students in Angola. Department of Biomedical Sciences, University of Missouri, Colombia, United States of America.


Stanwood, NL. & Bradley, KA. Young pregnant women’s knowledge of modern intrauterine devices. *Obstertrics and Gynecology.* 2006 (108)1417-22


Planned Parenthood Foundation, UK
Tabane, N.S. & Peu, M.D. Perceptions of female teenagers in Tshwane District on the use of contraceptives in South Africa. *Curationis* 2015.38(2)


Terry, A.J., 2012. **Clinical Research for the Doctor of Nursing Practice.** Jones & Bartlett Learning, Burlington, Massachusetts


UNESCO: **Strategy for HIV and AIDS**: United Nations Educational, Scientific and Cultural Organisation (UNESCO), Education Sector, Division of Education for Peace and Sustainable Development Section of Education and HIV and AIDS; 2011


United Nations Educational Scientific and Cultural Organization. 2012. **Sexuality Education: A ten country review of school curricula in East and Southern Africa**. UNESCO and UNFPA. France, USA


van Eijk AM, Anna Maria van Eijk, M Sivakami, Mamita Bora Thakkar, Ashley Bauman, Kayla F Laserson, Susanne Coates, Penelope A & Phillips-Howard. Menstrual hygiene management among adolescent girls in India: a systematic review and meta-analysis. Published by group.bmj.com BMJ Open 2016;6: e010290. doi:10.1136/bmjopen2015010290

New York.


Whitaker, AK., Johnson, LM., Harwood, B., Chiappetta, L., Creinin, MD. & Gold, MA. Adolescent and young adult women’s knowledge of and attitudes toward the intrauterine device. Contraception. 2008 (78)211-7


(http://www.avert.org/about-hiv-aids/symptoms) accessed on 10th April 2017


(http://www.brandsouthafrica.com) accessed 13/01/17.

(http://www.nelsoninginecologia.med.br) accessed 21 June 2017.
ANNEXURE A
PREMISSION LETTERS
Dear Parents /Guardians

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN SCHOOLS

My name is Luzane Titus and I am a Master’s degree student at the Nelson Mandela Metropolitan University in Port Elizabeth. The research I wish to conduct for my Master’s degree qualification is entitled: **Enhancing reproductive healthcare: exploring schoolgoing teenage girls’ knowledge on reproductive healthcare in the Eastern Cape Province.** This project will be conducted under the supervision of Prof S. James and Miss N. Rall (NMMU).

I am hereby seeking your consent for your daughter to participate in my project. The questions to be answered in this project are the following.

- What knowledge do schoolgoing teenage girls have regarding reproductive healthcare?
- What school-based information do schoolgoing teenage girls have regarding reproductive healthcare?

The objectives of the study are as follows:

- to explore the knowledge level of schoolgoing teenage girls regarding reproductive health in the Eastern Cape Province.;
- to determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school Life-Orientation subject; and
- to develop a framework of actions that could assist the stakeholders in health and education professions in enhancing levels of knowledge regarding
reproductive healthcare of schoolgoing teenage girls and improving their access to related services.

The project will be in the form of a survey that will necessitate completion of responses on a questionnaire. The study has the approval of the Department of Nursing Science, Faculty of Postgraduate studies Committee and Research Ethics Committee (Human). The Department of Basic Education in the Eastern Cape and School principal have also provided permission for this study.

The questionnaire to be completed has been developed with the assistance of a statistician and supervision of the research supervisors. The questions to be asked relate to personal particulars, religion and knowledge of reproductive healthcare (healthcare related to women’s conditions) and will take an average of 20 minutes to complete. Your child will be needed for at least two hours, including travelling to and from the venue which will be away from school and take place on a Saturday. All costs related to transport will be the responsibility of the researcher. The information and particulars of the school and participants will be kept confidential and private and participating schoolgirls will also be informed to keep their responses a secret. The school principal and teachers will not be part of the information session.

The information from the project will be kept for five years after completion of the study for verification, auditing, publications and possible re-use for further research. A feedback session will be arranged for you at your request. I therefore need your permission for the possible re-use of data.

I invite you to contact me should you need further explanation about my request to you. Should you agree to the conditions of the study and my request kindly complete the information below.

I…………………………………………………………(father/mother/guardian) of
………………………..agree to her participation in the study.

Signature :……………………………………………………….. Date:
I am available telephonically on Cell no: 0710624840, email address: luzanetitus12@gmail.com

Supervisors:

Prof S. James 041 504 2253 Email: Sindiwe.James@nmmu.ac.za

Co–supervisor:

Miss N. Rall 041 504 2122 Email: Nadine.Rall@nmmu.ac.za

Thank you for your time and consideration in this matter.

Kind regards

Luzane J. Titus

Principal investigator
## RESEARCHER'S DETAILS

<table>
<thead>
<tr>
<th>RESEARCHER'S DETAILS</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title of the research project</strong></td>
<td>Enhancing reproductive healthcare: Exploring schoolgoing teenage girls’ knowledge on reproductive healthcare in the Eastern Cape Province</td>
</tr>
<tr>
<td><strong>Reference number</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Principal investigator</strong></td>
<td>Luzane Titus</td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td>1 Daniel Crescent, Scheepershooitge, Uitenhage</td>
</tr>
<tr>
<td><strong>Postal Code</strong></td>
<td>6229</td>
</tr>
<tr>
<td><strong>Contact telephone number</strong></td>
<td>041-504 2122</td>
</tr>
</tbody>
</table>

### A. DECLARATION ON BEHALF OF PARTICIPANT

<table>
<thead>
<tr>
<th>A. DECLARATION ON BEHALF OF PARTICIPANT</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>I, the undersigned</td>
<td></td>
</tr>
<tr>
<td>ID number</td>
<td></td>
</tr>
<tr>
<td>I, in my capacity as</td>
<td></td>
</tr>
<tr>
<td>of the participant</td>
<td></td>
</tr>
<tr>
<td>Address (of participant)</td>
<td></td>
</tr>
</tbody>
</table>

### A.1 HEREBY CONFIRM AS FOLLOWS:

<table>
<thead>
<tr>
<th>A.1 HEREBY CONFIRM AS FOLLOWS:</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>I, the (parent/guardian of the)participant, was invited to participate in the above-mentioned research project</td>
<td></td>
</tr>
<tr>
<td>that is being undertaken by</td>
<td>Luzane Titus</td>
</tr>
<tr>
<td>from</td>
<td>The Nursing Science Department</td>
</tr>
<tr>
<td>of the Nelson Mandela Metropolitan University.</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td><strong>Aim:</strong></td>
</tr>
<tr>
<td>2.2</td>
<td><strong>Procedures:</strong></td>
</tr>
<tr>
<td>2.3</td>
<td><strong>Risks:</strong></td>
</tr>
<tr>
<td>2.4</td>
<td><strong>Possible benefits:</strong></td>
</tr>
<tr>
<td>2.5</td>
<td><strong>Confidentiality:</strong></td>
</tr>
<tr>
<td>2.6</td>
<td><strong>Access to findings:</strong></td>
</tr>
<tr>
<td>2.6</td>
<td><strong>Voluntary participation / refusal / discontinuation:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. THE INFORMATION ABOVE WAS EXPLAINED TO ME BY:

<table>
<thead>
<tr>
<th>Luzane Titus</th>
</tr>
</thead>
<tbody>
<tr>
<td>in Afrikaans</td>
</tr>
</tbody>
</table>

using simple language that I could understand

I was given the opportunity to ask questions and all these questions were answered satisfactorily.

4. No pressure was exerted on me to consent for my child to participate and I understand that she may withdraw at any stage without penalisation.

5. Participation in this study will not result in any additional cost to myself.

A.2 I HEREBY VOLUNTARILY CONSENT TO MY CHILD PARTICIPATING IN THE ABOVE-MENTIONED PROJECT:

<table>
<thead>
<tr>
<th>Signed/confirmed at</th>
<th>on 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature of witness:</td>
<td></td>
</tr>
<tr>
<td>Full name of witness:</td>
<td></td>
</tr>
</tbody>
</table>

Signature or right thumb print of participant

B. STATEMENT BY INVESTIGATOR

1. Luzane Titus declare that:

1. I have explained the information given in this document to (name of patient/participant) and / or his / her representative (name of representative)

2. He / she was encouraged and given ample time to ask me any questions;
3. This conversation was conducted in  [ ] Afrikaans  [ ] English  [x] Xhosa  [ ] Other  

And no translator was used

<table>
<thead>
<tr>
<th>Signed/confirmed at</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Signature of interviewer</th>
<th>Signature of witness:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full name of witness:</td>
</tr>
</tbody>
</table>


NELSON MANDELA METROPOLITAN UNIVERSITY
INFORMATION AND INFORMED CONSENT FORM FOR PARTICIPANTS OVER 18 YEARS

RESEARCHER’S DETAILS

| Title of the research project | Enhancing reproductive healthcare: Exploring schoolgoing teenage girls’ knowledge of reproductive healthcare in the Eastern Cape Province |
| Reference number |
| Principal investigator | Luzane Titus |
| Address | 1 Daniel Crescent, Scheepershoogte, Uitenhage |
| Postal Code | 6229 |
| Contact telephone number (private numbers not advisable) | 041-504 2122 |

C. DECLARATION BY PARTICIPANT

I, the participant and the undersigned (full names)

ID number of the participant

Address (of participant)

A.1 HEREBY CONFIRM AS follows:

I, the participant, was invited to participate in the above-mentioned research project that is being undertaken by Luzane Titus from Department of Nursing Science of the Nelson Mandela Metropolitan University.
<table>
<thead>
<tr>
<th></th>
<th>THE FOLLOWING ASPECTS HAVE BEEN EXPLAINED TO ME, THE PARTICIPANT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td><strong>Aim:</strong> The investigator is conducting a study to explore access to and the knowledge levels regarding reproductive healthcare of schoolgoing teenage girls in the Eastern Cape Province. Determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school Life-Orientation programme. The information will be used to determine what assistance is needed to enhance the effectiveness of the Life-Orientation subject at school level and further enhance access to and the knowledge levels regarding reproductive healthcare of schoolgoing teenage girls in the Eastern Cape Province.</td>
</tr>
<tr>
<td>2.2</td>
<td><strong>Procedures:</strong> I understand that I will be asked to complete a questionnaire on my knowledge about reproductive healthcare. I therefore give my permission for the possible re-use of data.</td>
</tr>
<tr>
<td>2.3</td>
<td><strong>Risks:</strong> No physical harm will come to me and I do not have to answer questions with which I do not feel comfortable.</td>
</tr>
<tr>
<td>2.4</td>
<td><strong>Possible benefits:</strong> As a result of my participation in this study it would assist the researcher to develop a framework of actions that could assist the stakeholders in the health and education professions in promoting knowledge regarding reproductive healthcare of schoolgoing teenage girls and thus enhancing access of schoolgoing teenage girls to these healthcare services.</td>
</tr>
<tr>
<td>2.5</td>
<td><strong>Confidentiality:</strong> I agree to participate in the study and will post my consent letter in a sealed envelope in the marked sealed box in the designated area during break time or after school when no-one is around. I will not write my name or personal information on the questionnaire at any stage; my identity will not be revealed in any discussion, description or scientific publications by the investigator and only code names will be used.</td>
</tr>
<tr>
<td>2.6</td>
<td><strong>Access to findings:</strong> Any new information or benefit that develops during the course of the study will be shared as follows: a compiled report will be submitted to Department of Basic Education (Eastern Cape Province) and the schools taking part in the research study. A feedback session will be arranged for you at your request.</td>
</tr>
<tr>
<td>2.6</td>
<td>My participation is voluntary</td>
</tr>
</tbody>
</table>
**Voluntary participation / refusal / discontinuation:**
My decision whether or not to participate will in no way affect my present or future care / employment / lifestyle

**TRUE**  **FALSE**  

---

3. **THE INFORMATION ABOVE WAS EXPLAINED TO ME THE PARTICIPANT BY:**

(Luzane Titus)

<table>
<thead>
<tr>
<th>Language</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrikaans</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>x</td>
</tr>
<tr>
<td>Xhosa</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

and I understand this language

I was given the opportunity to ask questions and all these questions were answered satisfactorily.

---

4. No pressure was exerted on me to consent to participation and I understand that I may withdraw at any stage without penalisation.

---

5. Participation in this study will not result in any additional cost to myself.

---

A.2 I HEREBY VOLUNTARILY CONSENT TO PARTICIPATE IN THE ABOVE-MENTIONED PROJECT:

<table>
<thead>
<tr>
<th>Signed/confirmed at</th>
<th>on</th>
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<tbody>
<tr>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Signature or right thumb print of participant

Signature of witness:

Full name of witness:

---

D. **STATEMENT BY INVESTIGATOR**

1. Luzane Titus declare that:

2. I have explained the information given in this document to (name of patient/participant) and / or his / her representative (name of representative)

2. He / she was encouraged and given ample time to ask me any questions;
3. This conversation was conducted in

<table>
<thead>
<tr>
<th>Afrikaans</th>
<th>English</th>
<th>X</th>
<th>Xhosa</th>
<th>Other</th>
</tr>
</thead>
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<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Signature of interviewer

Signature of witness:

Full name of witness:
10 August 2016

Principal Investigator
Luzane Titus
1 Daniel crescent
Scheepershoogte
Uitenhage

Dear Participant

Assent Form
My name is Luzane Titus and I am a Masters’ Degree student at the Nelson Mandela Metropolitan University. I wish to embark on a study in your school as a requirement to complete my degree. I hereby invite you to consider taking part in this research. This study meets the requirements of the Research Ethics Committee (Human) of the NMMU.

Title: Enhancing reproductive healthcare: exploring schoolgoing teenage girls’ knowledge of reproductive healthcare in the Eastern Cape Province.
If you are a girl between the ages of 12 and 19 years, I am hereby seeking your permission for your participation in a study to learn more about your knowledge regarding reproductive healthcare.

**Explanation of the study (What will happen to me in this study?)**

I have observed an increase in the number of teenage pregnancies and sexually-transmitted infections among schoolgoing teenage girls in the Nelson Mandela Metropolitan Municipal area. Teenage girls become pregnant despite the Life-Orientation subject at school and free access to reproductive healthcare services provided by the government. I would like to invite you to meet with me and other girls from your school to participate in a research project consisting of two sessions that will last for about two hours each. The first session will be an information session for which an appointment will be fixed through the school principal to address all the learners regarding the project, its objectives, method of data collection, ethics and right to participate or withdraw at any stage of the project as well as the venue, date of data collection and transport arrangement where possible. The second session will be the data-collection process that will take place at a neutral venue and not the school premises, ensuring that your privacy is maintained at all times. We will occupy at least 2 hours of your time and the completion of the questionnaire will take half an hour. I will be responsible for all costs involved in the project.

**Risks or Discomforts of Participating in the Study (Can anything bad happen to me?)**

You may feel some embarrassment in having to respond to some of the questions in the questionnaire. It is a reversible risk which could be resolved through calming you down and light counselling by means of a debriefing session. I will have a clinical psychologist on standby to refer such cases after a debriefing session. Those of you that are referred will be followed for at least a week after the data-collection date to make sure of recovery. I will also leave the contact details of the clinical psychologist with you for such use.

**Benefits of Participating in the Study (Can anything good happen to me?)**
There are no benefits accrue to you at the present moment.

Confidentiality (Will anyone know I am in the study?)

You will not be writing your names or personal information on the questionnaire at any stage. All information obtained during the information sessions will be kept safe and locked away at all times and the key kept only by the supervisor and co-supervisor. No-one else will have access to the data. The data-collection process will take place at a neutral venue away from the school. The school principal and teachers will not be part of the information sessions.

Compensation for Participation/medical Treatment (What happens if I get hurt?)

There is neither remuneration nor compensation for taking part in this project.

Contact Information (Who can I talk to about the study?)

Researcher: Luzane Titus – 0710624840
Supervisor: Prof S. James – 041 504 2253
Co-supervisor: Ms N. Rall – 041 504 2122

Voluntary Participation (What if I do not want to do this?)

You are allowed the freedom to decide if you would like to participate in the study and can withdraw at any time during the study if you wish without any intimidation.

I do understand this study and am willing to participate.

Kindly tick the box relevant box below.

YES  NO

Signature of Participant:__________________     Date: _________________
10 August 2016

District School Director

Ms Ethel Valentine

Sutton Road,
North End
Fax: (041) 451 0193

For attention: Director of the schools

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN SCHOOLS

Dear………………………………

My name is Luzane Titus and I am a Master’s degree student at the Nelson Mandela Metropolitan University in Port Elizabeth. This is a research master’s thesis and the title of my research is: *Enhancing reproductive healthcare: exploring schoolgoing teenage girls' knowledge of reproductive healthcare in the Eastern Cape Province.* This project will be conducted under the supervision of Prof S. James and Miss N. Rall (NMMU).

I am hereby seeking consent to approach different primary as well as high schools in the Eastern Cape Province to provide participants for this project. The questions to be answered in this project are:

- What knowledge do schoolgoing teenage girls have regarding reproductive healthcare?
What school-based information do schoolgoing teenage girls have regarding reproductive healthcare?

The objectives of the study are as follows:

- to explore the knowledge levels of schoolgoing teenage girls regarding reproductive health in the Eastern Cape Province;
- to determine the nature of information given to schoolgoing teenage girls regarding reproductive healthcare through the school Life-Orientation subject; and
- to develop a framework of actions that could assist the stakeholders in health and education professions in enhancing levels of knowledge regarding reproductive healthcare of schoolgoing teenage girls and improving their access to related services.

The research design is a quantitative survey that will be descriptive, exploratory and contextual. The research population will include schoolgoing teenage girls in the Eastern Cape within the Nelson Mandela Bay Municipal area, the Cacadu district and the Sarah Baartman district. A convenience non-probability sampling method will be used to select the participants facilitated by a set of selection criteria, namely, schoolgoing teenage girls of 12-19 years of age, in public schools that present the LO module (subject) in the school curriculum and in grades 10-12. All the schools in the identified areas will be notified and asked to participate by means of a formal letter faxed to the school and participation will be according to the first-come, first-served principle. Learners to participate will be chosen as soon as the school accepts the invitation and is next in line. An information session will be conducted following fixing an appointment through the school principal to address all the learners about the project, its objectives, method of data collection, ethics and right to participate or withdraw at any stage of the project as well as the venue, date of data collection and transport arrangement where possible. The school principal and teachers will not be part of the information session.

A self-developed questionnaire will be self-distributed and assisted by two fieldworkers to collect the data. The data-collection process will take place in a neutral venue which will be away from the school premises but on a Saturday to ensure that privacy of the
learners is maintained. I will ensure that ethical considerations protecting the participants are maintained throughout the study. The ethics include protection of privacy and confidentiality, respect for humans, justice and autonomy of participants. Data collected will be re-used to write and submit articles for publication in at least two scientific journals. Based on the findings of the study, a framework of action, which at the moment is not yet known, will be developed to assist healthcare professionals and school teachers in enhancing access to and knowledge regarding reproductive healthcare of schoolgoing teenage girls. Results will be published by means of two bound copies of the report submitted to the university library, a copy to your department and another copy presented to each of the principals of the participating schools. Results will also be presented at academic conferences and seminars conducted with the teachers of the different participating schools as well as by means of publications in scientific and accredited journals. A feedback session will be arranged for the parents/guardians at their request.

This letter accompanies the entire research proposal and other relevant documents that would assist you in making your decision on this matter. I undertake to provide the Department of Basic Education (Eastern Cape) with a full research report on completion of the study.

If you require further information please do not hesitate to contact me on cell no: 0710624840, email address: luzanetitus124@gmail.com

Supervisor:
Prof S. James 041 504 2253 Email: Sindiwe.James@nmmu.ac.za

Co–supervisor:
Miss N. Rall 041 504 2122 Email: Nadine.Rall@nmmu.ac.za

Thank you for your time and consideration in this matter.

Kind regards

Luzane J. Titus
To whom it may concern

Thursday grant permission to Barone Plus to conduct research on reproductive health with the female students at my school on a voluntary basis. Parents must sign the consent letter before such research is to be conducted.

Yours sincerely,

Mrs A. Van Wyk
Principal
To whom it may concern

Hereby I, Pierre Stoffberg Principal at Cillié High School acknowledge that permission was granted to Luzane Titus for her research amongst our female learners. It took place during September 2016.

Regards

[Signature]

P. Stoffberg
PRINCIPAL

1 November 2016.
Dear Ms Titus

PERMISSION TO DO RESEARCH

Good day Ms Titus. It is indeed a huge honour and privilege to be part of the personal development of yourself.

Permission is hereby granted to yourself to do research in terms of your topic: Reproductive healthcare amongst school-going teenage girls.

Once again congratulations and strength with your project and future endeavours.

Good luck.

(S. E. de Bruin)

(Principal)
To whom it may concern.

We were privileged to have the following student at our school:

Luzane Titus.

Her talks included the grade 11 and 12 pupils, but she based her research more on the grade 12 learners. With all the health problems in South Africa, the research will go far in helping reproductive health for all South Africans.

The research she is doing will be valuable for future reference. It was a pleasure hosting her here at McCarthy Comprehensive School.

We hope that with her knowledge and research that she will go far.

Thank you for including our school in your research.

Yours sincerely

[Signature]

(Principal)
Department of Nursing Science
Nelson Mandela University
Port Elizabeth
6000

Dear Madam

ACKNOWLEDGEMENT OF YOUR CORRESPONDENCE

We acknowledge receipt of your request to conduct research in our school. You are therefore granted permission to conduct your research with our pupils.

In the midst of high pregnancy rate in our school, starting from grade 8 pupils, it will also be our interest to know what our pupils know about sexuality.

Kind regards

S. Muthige (Principal)
Chairperson: Research Ethics Committee (Human)
Tel. +27 (0)41 504-2235

Ref: [116-HEA-NUR-010/Approved]
Contact person: Mrs U Spies

16 August 2016

Prof S James
Faculty: Health Sciences
North Campus

Dear Prof James,

ENHANCING REPRODUCTIVE HEALTHCARE: EXPLORING SCHOOL GOING TEENAGE GIRLS’ KNOWLEDGE ON REPRODUCTIVE HEALTHCARE IN THE EASTERN CAPE PROVINCE

PRP: Prof S James
PI: Ms L Titus

Your above-cited application served at Research Ethics Committee (Human) for approval. The ethics clearance reference number is H16-HEA-NUR-910 and is valid for three years. Please inform the REO and via your faculty representative, if any changes (particularly in the methodology) occur during this time. An annual affirmation to the effect that the protocols in use are still those for which approval was granted, will be required from you. You will be reminded minimally of this responsibility, and will receive the necessary documentation well in advance of any deadline.

We wish you well with the project. Please inform your co-investigators of the outcome, and convey our best wishes.

Yours sincerely,

[Signature]

Prof C Caller
Chairperson: Research Ethics Committee (Human)

cc: Department of Research Capacity Development
Faculty Officer: Health Sciences
ANNEXURE B

PRECEDE PROCEDE MODEL
Figure 1: Precede Procede Model as depicted by Dr L. Green
ANNEXURE C
STRUCTURED QUESTIONNAIRE
Study title: Enhancing reproductive healthcare: Exploring schoolgoing teenage girls’ knowledge of reproductive healthcare in the Eastern Cape Province.

Dear participant

Please complete the following questionnaire on exploring knowledge levels regarding reproductive healthcare of schoolgoing teenage girls in the Eastern Cape Province: Facilitating access to reproductive healthcare at schools. Where indicated, please mark with an "X" on the relevant number on a scale of 5-1 and a choice of 1-2/3 where needed and according to your response.

THANK YOU FOR YOUR TIME AND CO-OPERATION

Researcher:

Ms Luzane Titus

Contact details: 0710624840 (cell)

Email: luzanetitus124@gmail.com

Supervisor:

Prof S. James

041 504 2253

Email: Sindiwe.James@nmmu.ac.za

Co-supervisor:

Miss N. Rall

041 504 2122

Email: Nadine.Rall@nmmu.ac.za

MCur student No: s212269267

Department of Nursing Science

Nelson Mandela Metropolitan University
SECTION A: DEMOGRAPHICAL DATA

COMPLETE AND MARK YOUR ANSWER WITH AN X IN THE APPROPRIATE BOX

**ETHNICITY**

<table>
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<tr>
<th>Ethnicity</th>
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<tbody>
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<tr>
<td>Coloured</td>
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<tr>
<td>Indian</td>
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<td>Other</td>
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**AGE**

<table>
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<tr>
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<tbody>
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<td>18 - 19</td>
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**LEVEL OF CURRENT STUDY**

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<td>Grade 10</td>
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**TYPE OF YOUR CURRENT SCHOOL**

<table>
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</tr>
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<tbody>
<tr>
<td>Boys and girls attending</td>
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<tr>
<td>Girls –only school</td>
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AGE AT FIRST MENSTRUATION

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<td>4</td>
</tr>
<tr>
<td>18 - 19</td>
<td>5</td>
</tr>
</tbody>
</table>

RELIGION

<table>
<thead>
<tr>
<th>Religion</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglican</td>
<td>1</td>
</tr>
<tr>
<td>Methodist</td>
<td>2</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>3</td>
</tr>
<tr>
<td>Muslim</td>
<td>4</td>
</tr>
<tr>
<td>Jewish</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
</tr>
</tbody>
</table>

SECTION B: KNOWLEDGE RELATED TO REPRODUCTIVE HEALTHCARE

COMPLETE AND MARK WITH AN X YOUR MOST SUITABLE RESPONSE FOR EACH OF THE STATEMENTS BELOW

<table>
<thead>
<tr>
<th>Question</th>
<th>Item</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Do not know</th>
<th>Do not agree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOURCES FOR REPRODUCTIVE HEALTH INFORMATION</td>
<td>The most frequent source of information for me on the changes that the bodies of girls and boys will undergo during teenage years has been my:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School teacher</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Mother and father/guardian</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other family members</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Doctors and nurses</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Books/ magazines/television</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

I would have preferred to have received more information on this topic from:
<table>
<thead>
<tr>
<th>School teacher</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother and father/guardian</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other family members</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Doctors and nurses</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Books/magazines/television</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**REPRODUCTIVE HEALTHCARE SERVICES AND PROBLEMS**

<table>
<thead>
<tr>
<th>I know that:</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genital infections are treatable</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Vaginal itching is a sign of infection</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Painful lumps on my breasts are a sign of growth and development</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Healthcare clinics are attended by appointment only</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Patients of the age that is fewer than 15 years will not be examined at the reproductive healthcare clinics without the permission of their parent/guardians</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**CONTRACEPTIVE KNOWLEDGE**

<table>
<thead>
<tr>
<th>I know that</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A condom is useful as long it is from its packet</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Intra-uterine devices (Loop) are no longer used</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Female/male sterilization works only for three years</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Contraceptive Pills/Tablets do not expire</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Contraceptive injections are only good if they are given by the doctor</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**I know:**

| That contraceptives are not good for us teenagers | 5 | 4 | 3 | 2 | 1 |
| That contraceptives are free of charge | 5 | 4 | 3 | 2 | 1 |
| That contraceptives are also protecting us from sexual transmitted infections | 5 | 4 | 3 | 2 | 1 |
| That condoms are contraceptives that are most accessible for me | 5 | 4 | 3 | 2 | 1 |

What information did I receive from my teacher regarding the following:

1. Where can I obtain contraceptives?
2. How often do I need to take the pill in order to prevent pregnancy?
(3.) How often do I need to take the injection in order to prevent pregnancy?

(4.) When do I take the emergency contraceptive to prevent pregnancy?

<table>
<thead>
<tr>
<th>CONCEPTION KNOWLEDGE</th>
<th>I know that:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I will not fall pregnant if I have sex while menstruating</td>
</tr>
<tr>
<td></td>
<td>I will not fall pregnant if I miss one dose of tablets or one day of my injections but have sex with my boyfriend.</td>
</tr>
<tr>
<td></td>
<td>I cannot get pregnant the very first time that I have sex</td>
</tr>
<tr>
<td></td>
<td>Feeling sick and vomiting are signs of being pregnant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REPRODUCTIVE HYGIENE</th>
<th>During menstruation period:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girls should change their sanitary pad only after school</td>
</tr>
<tr>
<td></td>
<td>The genital area should be washed each time when the sanitary pad is soaked</td>
</tr>
<tr>
<td></td>
<td>Underwear should be changed and washed daily or when soiled</td>
</tr>
<tr>
<td></td>
<td>Sanitary pads should be disposed of every evening</td>
</tr>
<tr>
<td></td>
<td>It is advisable to abstain from sexual activity to prevent infections</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REPRODUCTIVE HEALTHCARE</th>
<th>I know that reproductive healthcare involves:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Checking my breasts every month for lumps</td>
</tr>
<tr>
<td></td>
<td>Looking for unfamiliar rashes on my body</td>
</tr>
<tr>
<td></td>
<td>Not allowing boys and men to touch me inappropriately</td>
</tr>
<tr>
<td></td>
<td>Reporting any funny smells on my body to the clinic</td>
</tr>
<tr>
<td></td>
<td>Checking that my breasts may feel slightly heavier before menstruation begins</td>
</tr>
</tbody>
</table>
ANNEXURE D

ETHICS

(BELMONT REPORT)
| **Beneficence** | Brink (2012:37) has stated that in order to adhere to the principle of beneficence, the researcher needs to secure the well-being of the participant, who has a right to protection from discomfort and harm which can be physical, psychological, emotional, spiritual, economic, social or legal.  
| | Regarding non-maleficence, no physical harm will come to the participants and they do not have to answer questions with which they do not feel comfortable. |
| **Respect for persons** | The prospective participants have been informed and will also be informed of the right to decide voluntarily whether to participate in this study without the risk of penalty or prejudice from the researcher (Polit & Beck, 2014:84). On the first day the researcher will have an information session with all schoolgoing teenagers and provide them with information regarding the purpose of the research study. After this session they will be allowed to decide if they would like to participate and be invited to a separate venue. In this venue it would be explained that if they feel uncomfortable at any time or they do not want to continue with participation in the research study, they are free to do so. All possible participants will receive an assent and informed consent form to be signed by their parents/guardians that day. On the second day signed forms from research participants will be collected and they will be allowed to participate in the study and complete the questionnaire. |
| **Justice** | The principle of justice states that human subjects should be treated fairly in terms of the benefits and the risks of the research.  
| | The researcher will honour all agreements made with the participants and show respect for the beliefs and lifestyles of participants from different backgrounds (Polit & Beck, 2014:85; Burns & Grove, 2011:108; Leedy & Ormrod, 2012:108). |
- Participants will be allowed privacy and the right to respond only to questions with which they are comfortable.
- Permission will be obtained from NMMU, the Department of Education and the parents of the under-age learners (see Annexure A).
ANNEXURE E
REC-H FORM
ANNEXURE F

LETTER FROM LANGUAGE EDITOR
To whom it may concern

This is to certify that I have proofread the relevant chapters of the work of Ms. Luzane Titus to be submitted to Prof. Sindiwe James at the Department of Nursing Science at NMMU.

Rosemary Batchelor(Mrs)
041-3672307/0835909222