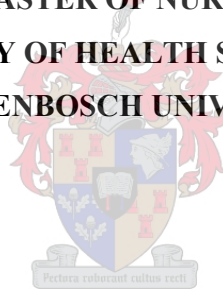


**KNOWLEDGE OF STUDENTS IN HIGHER EDUCATION REGARDING  
CONTRACEPTION**

**by  
Carine Kitshoff**

**Thesis presented in partial fulfillment  
of the requirements for the  
DEGREE OF MASTER OF NURSING SCIENCES  
FACULTY OF HEALTH SCIENCES  
STELLENBOSCH UNIVERSITY**



**Supervisor: Dr. I. Smit**

**December 2010**

**DECLARATION**

By submitting this research assignment electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the authorship owner thereof and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: December 2010

Signature: *C. Kitshoff*

**ABSTRACT**

South Africa's Department of Health has stated that knowledge about contraception and reproduction is generally poor, mentioning the substantial uncertainty and misperceptions concerning contraception (Department of Health, 2003:10). Students in higher education institutions are presumed to have a generally higher level of awareness of accessible methods regarding contraception and emergency contraception, but the request rate for the termination of pregnancy among students in higher education remains high (Roberts *et al.*, 2004:441). The researcher identified a need for a study to assess students' knowledge of contraception and emergency contraception. The goal of this study was to explore the scope of undergraduate students' knowledge on the matter and to determine to what extent students make use of contraception and emergency contraception. In this study a quantitative approach with an explorative-descriptive research design was applied.

The target population of this study included all the full-time undergraduate students at a particular university in South Africa (N=15 872). A non probability, convenience sample was used to select a sample size of 200 undergraduate students at the particular university. Reliability and validity were assured by means of a pilot test conducted over a period of two weeks. The researcher personally collected the data which was gathered by means of self-administered questionnaires. Ethical clearance for this study was obtained from the University Health Research Ethics Committee. As university students were involved this study, consent was also obtained from the university's Director of Institutional Research.

The raw data was entered on a Microsoft Excel spreadsheet. A statistician from the University Centre for Statistical Consultation was consulted regarding the analysis of the data by making use of *Statistica* version 9-software. Quantitative data was presented in histograms and tables, while qualitative data was analysed by means of Tesch's approach. The overall conclusion was that students at a higher education institution generally had a sound knowledge of contraception, but that their knowledge of emergency contraception was poor. The overall recommendation was that students should be provided with accurate, specific information regarding contraception and emergency contraception, and that this information would need to be user friendly, easily accessible and widely available in order to decrease students' misperceptions about contraception.

<b>OPSOMMING</b>
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Suid-Afrika se Departement van Gesondheid het die stelling gemaak dat kennis oor kontrasepsie en voortplanting oor die algemeen gebrekkig is en dat daar baie onsekerheid en wanopvattinge oor kontrasepsie bestaan (Department of Health, 2003:10). Studente aan hoërsonderwysinstellings is veronderstel om 'n algemene hoër vlak van bewustheid te hê omtrent toeganklike metodes van kontrasepsie en noodkontrasepsie, maar die aantal versoeke vir die terminasie van swangerskappe is steeds hoog onder hoërsonderwysstudente (Roberts *et al.*, 2004:441). Die navorser het die behoefte geïdentifiseer aan 'n studie om studente se kennis betreffende kontrasepsie en noodkontrasepsie te bepaal. Die doel van die studie was om die omvang van studente se kennis te ondersoek en vas te stel tot watter mate voorgraadse studente van kontrasepsie en noodkontrasepsie gebruik maak. In hierdie studie is 'n kwantitatiewe benadering met 'n ondersoekend-beskrywende navorsingsontwerp gevolg.

Die teikenpopulasie van die studie het alle voltydse voorgraadse studente aan 'n Universiteit in die Wes-Kaap (N=15 872) ingesluit. 'n Nieuwaarskynlike, gerieflikheidssteekproef is gebruik om 'n steekproefgrootte van 200 uit die voorgraadse studente van die betrokke universiteit te selekteer. Betroubaarheid en geldigheid is deur 'n loodsstudie verseker. Die loodsstudie het oor 'n periode van twee weke plaasgevind. Die navorser het die data wat deur middel van self-geadministreerde vraelyste ingewin is, persoonlik ingesamel. Etiese toestemming vir die studie is van die universiteit se Etiese Komitee vir Gesondheidsnavorsing verkry. Aangesien universiteitstudente by die studie betrokke was, is toestemming ook van die Direkteur van Institusionele Navorsing van die betrokke universiteit bekom.

Die rou data is op 'n Microsoft Excel werkblad ingevoer. 'n Statistiese ontleder van Stellenbosch Universiteit se Sentrum vir Statistiese Konsultasie is geraadpleeg omtrent die analise van data met behulp van *Statistica* weergawe 9-sagteware. Kwantitatiewe data is voorgestel deur histogramme en tabelle, en die kwalitatiewe data is geanaliseer deur middel van Tesch se benadering. Die hoofbevindinge was dat studente aan 'n hoërsonderwysinstelling se kennis van kontrasepsie oor die algemeen goed was, maar dat hulle nie voldoende kennis oor noodkontrasepsie gehad het nie. Die hoofaanbeveling was dat studente voorsien moet word van akkurate, spesifieke inligting rakende kontrasepsie en noodkontrasepsie, en dat die inligting verbruikersvriendelik, maklik toeganklik en wyd beskikbaar moet wees om studente se wanopvattinge ten opsigte van kontraseptiewe middels te verminder.

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***“I can do everything through him who gives me strength.”***

Philippians 4:13

## TABLE OF CONTENTS

<b>DECLARATION</b> .....	ii
<b>ABSTRACT</b> .....	iii
<b>OPSOMMING</b> .....	iv
<b>ACKNOWLEDGEMENTS</b> .....	v
<b>LIST OF TABLES</b> .....	xi
<b>LIST OF FIGURES</b> .....	xii
<b>1. SCIENTIFIC FOUNDATION OF THE STUDY</b>	
1.1 INTRODUCTION .....	1
1.2 PROBLEM STATEMENT AND RATIONALE .....	3
1.3 GOAL OF THE STUDY .....	3
1.4 OBJECTIVES OF THE STUDY .....	4
1.5 TERMINOLOGY .....	4
1.6 RESEARCH METHODOLOGY .....	5
1.6.1. Research approach and design .....	5
1.6.2 Target population and sampling.....	5
1.6.3 Inclusion and exclusion criteria .....	6
1.6.4 Data collection instruments.....	6
1.6.5 Pilot study .....	7
1.6.6 Reliability and validity .....	7
1.6.7 Ethical considerations .....	8
1.6.8 Data collection .....	9
1.6.9 Data analysis and interpretation.....	9
1.7 STUDY LAYOUT .....	9
1.8 SUMMARY .....	10

**2. LITERATURE REVIEW: CONTRACEPTION AND EMERGENCY CONTRACEPTION**

2.1 INTRODUCTION .....	11
2.2 HISTORICAL BACKGROUND OF CONTRACEPTION IN GENERAL .....	12
2.3 INTERNATIONAL EVENTS THAT INFLUENCED REPRODUCTIVE HEALTH.....	14
2.3.1 GOBI-FFF .....	14
2.3.2 Ottawa Charter .....	14
2.3.3 Meeting at Riga.....	14
2.4 LEGISLATION AND PROTOCOLS THAT HAD AN IMPACT ON FAMILY PLANNING.....	15
2.4.1 Abortion and Sterilization Act.....	15
2.4.2 Apartheid legislation .....	15
2.4.3 The legal capacity of women .....	15
2.4.4 Maputo Protocol.....	15
2.5 UNPLANNED AND UNWANTED PREGNANCIES .....	16
2.5.1 Terminations of pregnancy .....	16
2.5.2 Unplanned pregnancies .....	17
2.5.3 Risk factors for an unplanned pregnancy.....	19
2.5.4 Students in higher education and terminations of pregnancy .....	19
2.6 CONTRACEPTION .....	20
2.6.1 An overview of contraception.....	20
2.6.2 Contraception methods available for males .....	21
2.6.3 Contraception methods available for females .....	22
2.6.4 Knowledge of contraception .....	28
2.6.5 Attitudes and beliefs regarding contraception .....	29
2.6.6 Contraceptive use worldwide.....	29
2.6.7 The use of contraceptives by students in higher education in other parts of the world .....	29
2.6.8 Contraceptive use among students in higher education in Africa.....	31
2.6.9 Contraceptive use among students in higher education in South Africa .....	32
2.6.10 Sexual behaviour of students .....	32
2.7 EMERGENCY CONTRACEPTION .....	34
2.7.1 An overview of emergency contraception .....	34
2.7.2 Different types of emergency contraception used in South Africa.....	35
2.7.3 Knowledge of emergency contraception.....	35
2.7.4 Attitudes and beliefs regarding emergency contraception.....	38



2.7.5 Use of emergency contraception.....	39
2.8 CONCEPTUAL FRAMEWORK.....	40
2.9 SUMMARY.....	44
<b>3. RESEARCH METHODOLOGY</b>	
3.1 INTRODUCTION .....	43
3.2 RESEARCH METHODOLOGY.....	43
3.2.1 Research approach and design.....	43
3.2.2 Target population and sampling.....	44
3.2.3 Inclusion and exclusion criteria .....	46
3.2.4 Data collection instrument .....	46
3.2.5 Pilot study .....	47
3.2.6 Reliability and validity.....	47
3.2.7 Data collection .....	48
3.2.8 Data analysis.....	49
3.3 SUMMARY .....	50
<b>4. DATA ANALYSIS, INTERPRETATION AND DISCUSSION</b>	
4.1 INTRODUCTION .....	51
4.2 DATA ANALYSIS.....	51
4.2.1 Quantitative data analysis and interpretation.....	51
4.2.1.1 Section A: Demographic information.....	52
4.2.1.2 Section B: Knowledge of contraception .....	59
4.2.1.3 Section C: Knowledge of emergency contraception.....	63
4.2.1.4 Section D: Personal information.....	67
4.2.1.5 Section E: Contraception and emergency contraception accessibility.....	75
4.2.2 Qualitative data analysis and interpretation.....	78
4.3 SUMMARY .....	81
<b>5. CONCLUSIONS AND RECOMMENDATIONS</b>	
5.1 INTRODUCTION .....	82
5.2 CONCLUSIONS.....	82
5.2.1 Knowledge of students regarding contraception.....	83

5.2.1.1 Knowledge of students regarding contraceptives .....	83
5.2.1.2 Knowledge of students regarding emergency contraception .....	84
5.2.2 Students' utilisation of contraception .....	86
5.2.3 Reasons for not using contraception .....	90
5.2.4 Availability of information regarding contraceptives .....	91
5.2.5 Interventions to increase students' knowledge regarding contraceptives .....	92
5.3 RECOMMENDATIONS .....	93
5.3.1 Increasing students' knowledge regarding contraceptives.....	93
5.3.2 Encouraging students' utilisation of contraception.....	94
5.3.3 Minimising reasons for the non-usage of contraception.....	94
5.3.4 Increasing the availability of information regarding contraceptives .....	95
5.3.5 Establishing interventions to increase students' knowledge of contraceptives .....	95
5.4 LIMITATIONS OF THE STUDY.....	95
5.5 RECOMMENDATIONS FOR FURTHER STUDIES.....	96
5.6 SUMMARY .....	97
<b>BIBLIOGRAPHY</b> .....	98
<b>ADDENDUM A:</b> Information leaflet and consent for participation of undergraduate students...106	
<b>ADDENDUM B:</b> Questionnaire for undergraduate students.....110	
<b>ADDENDUM C:</b> Letter of approval from the Health Research Ethical Committee.....118	
<b>ADDENDUM D:</b> Letter of consent from the Director of Institutional Research at the University.....120	

<b>LIST OF TABLES</b>
-----------------------

Table 2.1:	National terminations of pregnancy statistics from 1997 to 2007.....	16
Table 3.1:	Population and sample size of each campus of the University.....	44
Table 4.1:	Time duration before contraceptive pill is effective.....	61
Table 4.2:	Number of days per month that women are prone to falling pregnant.....	61
Table 4.3:	The effect of smoking on hormonal contraceptives.....	62
Table 4.4:	Interpretation of the concept 'emergency contraception'.....	63
Table 4.5:	Reasons for using emergency contraception.....	69
Table 4.6:	Respondents' feedback on how to increase knowledge regarding contraception and emergency contraception.....	79

<b>LIST OF FIGURES</b>
------------------------

Figure 2.1:	Conceptual framework for this study.....	41
Figure 3.1:	Relationship of the upper and lower 95% limits of an estimated proportion of 50% .....	43
Figure 4.1:	Age of the respondents.....	52
Figure 4.2:	Marital status of the respondents.....	53
Figure 4.3:	Religion of the respondents.....	54
Figure 4.4:	Race of the respondents.....	55
Figure 4.5:	Various faculties of study.....	56
Figure 4.6:	Number of study years spent at the university.....	57
Figure 4.7:	Students' accommodation.....	58
Figure 4.8:	The effect of the contraceptive pill.....	59
Figure 4.9:	Respondents' feedback on sperm cell viability.....	60
Figure 4.10:	Time frame for taking all types of emergency contraception.....	64
Figure 4.11:	Time frame for taking the emergency contraceptive pill.....	65
Figure 4.12:	Type of contraception used by respondents.....	67
Figure 4.13:	Age of first sexual intercourse.....	68
Figure 4.14:	Intercourse frequency of respondents.....	69
Figure 4.15:	Frequency of the use of emergency contraception.....	70
Figure 4.16:	Duration of pregnancy for a legal termination.....	72
Figure 4.17:	Availability of contraception.....	74
Figure 4.18:	Information available on contraception for making informed choices.....	75
Figure 4.19:	Source of contraceptives.....	76
Figure 4.20:	Experiences when making use of contraception services.....	77

## CHAPTER 1

### SCIENTIFIC FOUNDATION OF THE STUDY

#### 1.1 INTRODUCTION

Young women are generally aware of contemporary hormonal contraceptives, but they do not have adequate knowledge of its effects and appropriate use (Williamson, Parkes, Wight, Petticrew & Hart, 2009a:5). Young people are sexually active and over the past years the initiation of sexual activity has started at an earlier age. Knowledge about means to protect themselves is often inadequate, resulting in unplanned and unwanted pregnancies (Roberts, Moodley & Esterhuizen, 2004:441).

Students in higher education are part of a significant high-risk group, as these young people find themselves at a stage where they start to discover their sexuality. They are no longer under parental guidance and they experience a feeling of freedom, and subsequently a feeling of independence. This feeling of independence often sets in at an age when young people need to make important choices, and wrong choices often lead to unwanted and unplanned pregnancies. Students in higher education institutions are generally presumed to have a higher level of awareness about accessible methods of contraception and emergency contraception, but the request rate for the termination of pregnancies remains high among young adults, and especially among students in higher education (Roberts *et al.*, 2004:441). Due to this state of affairs, the researcher identified the need for a study to assess students' knowledge of contraception and emergency contraception

The South African Department of Health has stated that knowledge about contraception and reproduction is generally poor, mentioning the substantial uncertainty and misperception concerning contraception (Department of Health, 2003:10). MacPhail, Pettifor, Pascoe and Rees (2007:1) conducted a national survey targeted at young adults aged between 15 and 24 years in all of South Africa's nine provinces. The study revealed that more than two-thirds (68,0%) of young South African women have had a sexual experience, and that 50,0% of them became pregnant, yet only half of them (52,0%) reported that they made use of contraception. This correlates with findings revealing that 75,0% of the males and 62,0% of the females between 12 and 28 years of age had sex without using contraception (Oni, Prinsloo, Nortje & Joubert, 2005:54). The World Health Organization (WHO) also

conducted a study in 2002, finding that 52,0% of the women who presented for the usage of emergency contraception, had not used contraception in the United Kingdom (Guillebaud, 2004:467).

According to national statistics, a total of 665 087 terminations of pregnancy were performed in South Africa between 1997 and 2007, with approximately 56 442 terminations in 2007 (Health System Trust, 2008). An increase in the use of contraception and emergency contraception could reduce the number of unwanted pregnancies and the number of terminations. Results obtained from the research conducted by Cleland, Bernstein, Ezeh, Faundes, Glasier and Innis, as cited in Williamson *et al.* (2009a:2), suggested that 90,0% of abortion-related and 20,0% of pregnancy-related morbidity and mortality, along with 32,0% of postpartum maternal deaths, could have been prevented by the use of effective contraception or emergency contraception. According to Williamson, Buston and Sweeting (2009b:310), a survey conducted in the United Kingdom (citing Black, Mercer, Johnson and Wellings, 2006), indicated that 7,0% of 16- to 19-year olds and 4,0% of 20- to 24-year old women could account for emergency contraception used in the year before the interview was conducted. These findings correlate with a national survey undertaken in the United States in 2002, revealing that only 9,0% of women between 18 and 24 years of age had used emergency contraception (Williamson *et al.* , 2009b:310).

Williamson *et al.* (2009a:2) estimated that about 14 million unwanted pregnancies occur each year. Almost 50,0% of these pregnancies occur among women between 15 and 24 years of age. Guillebaud (2004:492) supports the views of Williamson *et al.* (2009a:2), adding that although the media pays more attention to unwanted pregnancies among teenagers under the age of 16, unwanted pregnancy rates are higher among young adults between 20 and 25 years of age.

According to a reliable staff member at a particular university's health care service in the Western Cape, there are about three requests for terminations of pregnancy per month. This accumulates to about 36 to 40 requests for terminations per year at that specific health service (Anonymous, 2009).

As revealed by the preliminary literature review above, it is clear that numerous studies have already been conducted regarding unwanted pregnancies among women, as well as regarding contraception and emergency contraception among men and women in all age groups. However, specific studies on the knowledge of students in higher education institutions regarding contraception and emergency contraception have been insufficient.

## 1.2 PROBLEM STATEMENT AND RATIONALE

Although contraception and emergency contraception are readily available, the use of contraceptives among young adults is low according to Oyedeji and Cassimjee (2006:7). Results from previous studies revealed that young adults are generally aware of contraceptives and emergency contraception, but the actual utilisation of this awareness remains low. Against this background the researcher identified the need for a study that would assess higher education students' knowledge of contraception and emergency contraception.

From this scenario it was determined that a study involving students in higher education should be undertaken, and the primary research question was formulated as follows:

- What is the knowledge regarding contraception and emergency contraception among full-time undergraduate students attending a particular university in South Africa?

The following subsequent questions were asked:

- Is adequate information regarding contraception and emergency contraception available to students in higher education, enabling them to make informed choices regarding their reproductive health?
- If students do have knowledge regarding contraception and emergency contraception, why is there such a high incidence of unwanted pregnancies among students in higher education?

## 1.3 GOAL OF THE STUDY

The aim of this study was to explore and determine to what extent undergraduate students have knowledge and make use of contraception and emergency contraception in order to prevent unwanted pregnancies. Recommendations were based on the results of this study concerning the knowledge of contraception and emergency contraception among students in general.

## 1.4 OBJECTIVES OF THE STUDY

The objectives of this explorative-descriptive study were to:

- determine students' knowledge about contraception;
- explore students' utilisation of contraception;
- identify the reasons for not using contraception;

- ascertain whether adequate information is available to students regarding reproductive health and the utilisation of contraception; and
- determine what interventions needed to be put in place, should the knowledge of students regarding contraception and emergency contraception prove to be insufficient.

## 1.5 TERMINOLOGY

Frequently used terms and acronyms used in this study which might be unknown to the general reader are described as follows:

- *AIDS*: Acquired Immunodeficiency Syndrome
- *ANOVA*: analysis of variance
- *contraception*: ‘methods and practices to prevent unwanted or unplanned pregnancies and births’ (Marieb, 2004:1392)
- *DENOSA*: Democratic Nursing Organisation of South Africa
- *emergency contraception*: ‘any female method that is administered after intercourse but has its effects prior to the stage of implantation’ (Guillebaud, 2004:455)
- *HIV*: Human Immunodeficiency Virus
- *ICPD*: International Conference on Reproduction and Development
- *IUD*: intrauterine device
- *STD*: sexually transmitted disease
- *TOP*: termination of pregnancy
- *UNDP*: United Nations Development Programme
- *UNICEF*: United Nations Children’s Fund
- *WHO*: World Health Organisation.

## 1.6 RESEARCH METHODOLOGY

### 1.6.1. Research approach and design

According to Mouton, as cited in De Vos, Strydom, Fouché and Delport (2008:132), a research design is a plan of how one intends to accomplish the research. This study had an explorative-descriptive research design. The design was applied with a quantitative approach to determine the knowledge of university students regarding contraception and emergency contraception. According to De Vos *et al.*



(2008:106) the aim of exploratory research is to become familiar with a situation, while descriptive research strives to portray the specific features of a situation. This kind of research also focuses on the ‘how’ and ‘why’ questions. Data were collected by means of self-administered questionnaires. According to Mouton in De Vos *et al.* (2008:104) the unit of analysis refers to the ‘object, phenomenon, entity, process or event’ that forms the focus of the study. In this research, the unit of analysis comprised full-time undergraduate students studying at a particular university in South Africa.

### **1.6.2 Target population and sampling**

De Vos *et al.* (2008:194) describe a target population as ‘the total amount of persons, events, organization units, case records or other sampling units with which the research problem is concerned’. The target population of this study included all undergraduate students studying full-time at a particular University in South Africa (N=15 872) according to the updated statistics of 2009 provided by the university’s Institutional Research and Planning Department (Grobbelaar, 2009). The university consists of three campuses. For the sake of confidentiality, the campuses will be referred to as campus A, campus B, and campus C. At the time of the study campus A had 13 736 students, campus B 1730 students, and campus C had 406 students.

Arkava and Lane, as cited in De Vos *et al.* (2008:194), describe a sample as ‘elements of the population considered for actual inclusion in the study’. The researcher consulted a statistician from the university’s Centre for Statistical Consultation with regard to drawing the sample size of 200 students (n=200). A nonprobability, convenience sample was chosen. The purpose of this sample is to include any subject who crosses the researcher’s path and has something in common with the element under study, until the sample size is reached. According to De Vos *et al.* (2008:202) any element that is nearest and most easily available to the researcher is included, by ‘simply reaching out and taking the cases that are at hand, continuing the process until the sample reaches a designated size...’

### **1.6.3 Inclusion and exclusion criteria**

The students who were selected had to comply with the following criteria for inclusion in this study:

- a full-time, undergraduate student; and
- a student enrolled at the selected university.

The undergraduate students who felt too vulnerable to complete the questionnaire were excluded from the study, as questions were of a very sensitive nature and these students' responses could influence the outcomes of the study.

#### **1.6.4 Data collection instruments**

For the purposes of this study a self-administered questionnaire was compiled by the researcher and handed out to the respondents. The items in the questionnaire were based on the research objectives and reviewed literature. The questionnaire was designed to capture all the relevant information regarding the proposed research topic by means of a variety of question types. This structured questionnaire contained both open-ended and closed-ended questions for data collection. According to De Vos *et al.* (2008:174), the inclusion of both types of questions allows the researcher to obtain more insight into the respondents' opinions. Furthermore, responses of the respondents can be compared with one another. The researcher consulted a statistician from the Statistics Department at Stellenbosch University with regard to the feasibility of the designed data collection instrument and to check whether all the variables could be tested statistically.

An expert from the Department of Obstetrics and Gynaecology at Stellenbosch University was requested to provide feedback on the content and construction of the questions, as well as pointing out any confusing and/or unnecessary questions in the questionnaire. His recommendations were incorporated in the final questionnaire.

#### **1.6.5 Pilot study**

Huysamen, as cited in De Vos *et al.* (2008:206), describes a pilot study as an investigation of the feasibility of the proposed research and a way to identify possible inadequacies in the measurement procedure. The researcher however did a pilot test of the data collecting instrument only before the commencement of the main study. This was done by randomly asking a minimum of 10 undergraduate students to complete the proposed questionnaire until no further changes needed to be made. The respondents who were involved in the pilot test were selected from the same population as in the main research, but the respondents and the information were not included in the main study or the final data-analysis and results.

Respondents were requested to provide feedback on the construction and sequence of the questions, as well as on any confusing and/or unnecessary questions in the questionnaire. The feedback of the participating students was used to modify the measuring instrument until the questionnaire was finalised for implementation in the main research. The pilot test took place over a period of two weeks, from 26 April 2010 until 07 May 2010.

### **1.6.6 Reliability and validity**

Reliability refers to the steadiness of the measurement. This means that the variable that is measured will produce the exact measurements if measured under the same conditions each time (De Vos *et al.*, 2008:162). A pilot test was conducted to identify any possible practical problems and to ensure that the questionnaire was easy to understand and complete.

Validity refers to the degree to which the measuring process measures the variable it states to measure (De Vos *et al.*, 2008:160). Face validity refers to the measurement technique and whether it actually appears to be measuring what it is supposed to measure (De Vos *et al.*, 2008:161). Content validity is the assessment of the representativeness of all the elements of the variable to be measured (Brink, van der Walt & van Rensburg, 2006:160). This was ensured by presenting the questionnaire to an expert in the field of contraception, and preceded the actual data collection. The intention of the questionnaire was to determine knowledge, and this was ensured by asking relevant questions about the research topic. The researcher also presented the measuring instrument to a statistician to ensure that statistical analysis was possible, which would further increase the validity of the measuring instrument. The pilot test also ensured that the questionnaire was free of ambiguity and inaccuracies, thus enhancing its validity.

### **1.6.7 Ethical considerations**

The principles of the Declaration of Helsinki had been adopted and these statements of ethical principles for medical research involving human subjects were honoured and applied in this study. The ethical standards of nursing research, as described by the Democratic Nursing Organisation of South Africa (DENOSA, 1998), were used regarding the confidentiality and the quality of the research. This older resource was used because it was the most recent one. It consisted of the following:

- written consent for the research was obtained from the university involved as well as from the respondents, and only those who were willing to participate, were included in the research;
- no respondent's identity would be made known during the study or in any publication, and the information would be used for research purposes only;
- those respondents who were willing to complete the questionnaire, were not required to enter their names or to reveal any form of identity on the questionnaire;
- the consent form and questionnaire were separated to ensure the anonymity of the respondents; and
- the respondent's right to withdraw from the research at any time was respected without any form of discrimination or other negative effect.

For obtaining informed consent, the respondents were given accurate and complete information regarding the purpose of the study, their responsibilities and the benefits and risks of the study. This was done prior to their participation in the study to ensure that all respondents understood the proposed research, enabling them to make an informed decision about their possible participation. Furthermore, participation was voluntary and all data was handled in a confidential manner. The participants were given an opportunity to ask questions about the research. The researcher was available at all times to answer any questions.

The only risk related to participating in the study was the fact that some of the questions were of a very sensitive nature and could possibly be experienced as distressful by a vulnerable participant. Due to the sensitive information that was requested, respondents were referred to an appropriate psychologist if they needed emotional support. As the proposed study involved human subjects, ethical clearance for this study was obtained from the Health Research Ethics Committee at the university (Ethics reference number: N10/02/026). As university students were involved in this study, consent was also obtained from the Director of Institutional Research from the involved University.

### **1.6.8 Data collection**

The researcher personally collected the data that was obtained by means of self-administered questionnaires. According to De Vos *et al.* (2008:168) the biggest advantage of self-administered questionnaires is that the respondent can complete it on his/her own, while the researcher is available if problems arise. All students who complied with the inclusion criteria were asked for voluntary

participation in the study. This process continued until the sample reached the designated size, namely 200 students from the specific university. The data collection took place during May 2010.

### **1.6.9 Data analysis and interpretation**

Given that a descriptive design was chosen for this study, descriptive statistics were used for analysing the quantitative data. MS Excel was used to capture the data, while *Statistica* version 9-software was used for the analysis. Appropriate inferential statistical tests were applied in consultation with a statistician of Stellenbosch University (Maltby, Day & Williams, 2007:117). Distributions of variables were presented by means of histograms and/or frequency tables. The qualitative data that was generated by the open-ended questions in the questionnaire was analysed by means of Tesch's approach, as described by De Vos (2001:343), with the purpose to identify, categorise and group together the essential data into one descriptive framework.

## **1.7 STUDY LAYOUT**

### *Chapter 1: Scientific foundation of the study*

In this chapter the problem statement and rationale are discussed. The goal and objectives of the study, the terminology and the research methodology are described.

### *Chapter 2: Literature review*

The literature review presented in this chapter includes the historical background of contraception, international events that influenced reproductive health, legislation and protocols, unplanned pregnancies and termination of pregnancy, and contraception available for males and females. The knowledge, attitudes, beliefs and use of contraception and emergency contraception among students are discussed in detail.

### *Chapter 3: Research methodology*

In this chapter the research methodology is described in detail, including the population and sampling, instrumentation, pilot test, reliability, validity and data collection.

### *Chapter 4: Data analysis, interpretation and discussion*

The results of the study are presented, analysed, interpreted and discussed in this chapter.

*Chapter 5: Conclusions and recommendations*

The thesis is concluded and recommendations made, based on the scientific evidence of the study.

**1.8 SUMMARY**

A preliminary literature review identified a gap in research regarding the knowledge and use of, and the attitude towards using contraception and emergency contraception among undergraduate students. If the level of knowledge is known, the researcher has a basis to work from. Recommendations can then be made to determine the best way of increasing knowledge about contraception and emergency contraception among students in general, with a view to decreasing the number of unwanted pregnancies, and consequently the request rate for the termination of pregnancies.

A general overview was given about the proposed research problem. The researcher identified the need for a study to assess students' knowledge of contraception and emergency contraception. The research process was discussed briefly in order to place the study in context and to give the reader an overview of the steps that were followed to achieve the research aim and objectives. It was clear that an in-depth study was necessary in to ensure that measures could be taken to address the high rates of unwanted and unplanned pregnancies among students in higher education.

An extensive literature review on contraception will be discussed in detail in chapter 2.

<p style="text-align: center;"><b>CHAPTER 2</b></p> <p style="text-align: center;"><b>LITERATURE REVIEW:</b></p> <p style="text-align: center;"><b>CONTRACEPTION AND EMERGENCY CONTRACEPTION</b></p>
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## 2.1 INTRODUCTION

The goal of a literature review is to contribute towards a better comprehension of the significance and nature of the identified problem (De Vos *et al.*, 2008:123). A thorough literature review is necessary to investigate all matters regarding the problem, and to find evidence in academic literature that confirms the need for the proposed research.

A literature study was conducted with the aim to:

- acquaint the researcher with the current utilisation, knowledge and attitudes regarding contraception and emergency contraception;
- become familiar with the viewpoints and findings of other authors and researchers on the problem;
- acquire a thorough background knowledge of the research problem in order to complete a significant study; and
- present and identify the field of knowledge that the study proposed to expand.

The availability of contraception empowers couples to plan their future regarding families and to prevent unplanned pregnancies. It enables people to plan if and when they want a family. Yet, despite the availability and effectiveness of contraception, some studies report that there is a lack of knowledge about reproduction, as well as substantial uncertainty and misunderstanding with regard to contraception (Department of Health, 2003:10). Young people's limited knowledge about sexuality, reproduction and contraception in terms of protecting themselves against unwanted pregnancies and sexually transmitted diseases (STDs) seems to have catastrophic consequences (Roberts *et al.*, 2004:441). The use of family planning services by many young women is postponed or requested only after sexual activity has started (Kallipolitis, Stefanidis, Loutradis, Siskos, Milingos & Michalas, 2003:145). Statistics on unwanted pregnancies and requests for the termination of pregnancy (TOP) among young people demonstrate the far-reaching effects of unprotected sex. A TOP is 'the separation and expulsion, by medical or surgical means, of the contents of the uterus of a pregnant woman' (RSA,

1996). Unplanned pregnancies present a significant challenge to young adults and their reproductive health (Aziken, Okonta & Ande, 2003:84).

## **2.2 HISTORICAL BACKGROUND OF CONTRACEPTION IN GENERAL**

A critical analysis of the historical background of contraception is essential to understand current sexual and reproductive health care in South Africa. Events in the 1930s could account for the beginning of family planning services in South Africa. It started with clinics that provided poor white women with birth control methods and offered guidance to ensure the development of the white population by regulating the number of children born to poor white women (Department of Health, 2003:5).

After the 1930s an increase in the non-white population coincided with a decrease in the white population. This alerted the white community to the fact that they might be outnumbered by large numbers of non-white people. This led to the initiation of a national programme for family planning by the government in the 1960s in an effort to decrease the growth rate of the non-white population (Department of Health, 2003:5).

In 1974 the National Family Planning Programme was officially implemented. All racial groups had access to family planning free of charge. During the 1980s, South Africa promoted family planning services as a means to regulate the population. The Family Planning Programme met with substantial disapproval, as the emphasis was on population regulation rather than on the improvement of women's health by means of birth control. During the late 1980s, international trends were followed and family planning services were incorporated with primary health care services (Department of Health, 2003:6).

In 1994 the International Conference on Population and Development (ICPD) was held in Cairo. The achievement of reproductive health became an important aspect of reproductive health rights. The following definition of reproductive health was endorsed by 165 nations. This definition was adapted from the WHO definition of health to suit a definition of reproductive health:

‘Reproductive health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and



safe sex life and that they have the capacity to reproduce and the freedom to decide if, when and how often to do so...’(Stevens, 2009:28).

In 1995 the definition of reproductive health and rights was affirmed and countries were called upon to consider reviewing laws that punished women for having illegal abortions. The matter was addressed at the Fourth World Conference on Women in Beijing. The definition of reproductive rights was extended to include sexuality:

‘The human rights of women include their right to have control over and decide freely and responsibly on matters related to their sexuality, including sexual and reproductive health, free of coercion, discrimination and violence’ (Stevens, 2009:29).

Marked progress was made when the Maputo Protocol was introduced with regard to reproductive health. The African Union adopted this protocol in 2003. On 25 November 2005 this protocol was implemented and a total of 45 countries signed the protocol. By December 2008 a total of 25 of those countries had approved and supported the protocol. Reproductive Health is referred to in Article 14 of the Maputo Protocol (also known as the Protocol to the African Charter on Human and People’s Rights and the Rights of Women in Africa) which states that State Parties must ensure that sexual and reproductive health is respected and promoted (Stevens, 2009:29). This entails that women have the right to:

- control their fertility;
- decide if and when they want to have children and to control the number of children they choose to have and the spacing of their children;
- choose any contraceptive method;
- self-protection, enjoying protection against STDs including the Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS);
- be informed of their own and their partner’s health status, especially if the partner is infected with a STD, including HIV or AIDS; and
- receive education regarding family planning (Stevens, 2009:29).

The WHO’s reproductive health and research department provides definitions of sexual health and rights. However, much still has to be done regarding sexual and reproductive health and rights to enable all people, men and women, to achieve reproductive health (Stevens, 2009:28).

## **2.3 INTERNATIONAL EVENTS THAT INFLUENCED REPRODUCTIVE HEALTH**

### **2.3.1 GOBI-FFF**

GOBI-FFF was a primary health care initiative introduced by the United Nations Children's Fund (UNICEF) based on activities to accomplish a decrease in infant and child morbidity and mortality, including family planning services. It comprises the following activities:

- G - growth monitoring
- O - oral rehydration
- B - promotion of breast feeding
- I – immunisation expansion
- F – food supplementation
- F – female literacy
- F – family planning.

This programme has been accepted as a component of primary health care. It entailed that women should be educated to realise that they have choices as to when, and how many children they wish to have (Dennil, King & Swanepoel, 2002:12).

### **2.3.2 Ottawa Charter**

On 21 November 1986 a conference on health was held in Ottawa. It focused on the aim to accomplish 'health for all' by the year 2000 (Dennil *et al.*, 2002:12). The intention was to find ways that would allow people to enhance the management of their personal health, as well as to promote their health by developing personal skills. This was accomplished by providing health education and information to assist people to make healthy choices (Dennil *et al.*, 2002:13).

### **2.3.3 Meeting at Riga**

In 1988 a meeting held in Riga was attended by experts from all areas of the WHO, UNICEF, United Nations Development Programme (UNDP) and nongovernmental organisations (Dennil *et al.*, 2002:14). Decisions were made to address problems that were obvious in many countries and included the empowerment of people towards making the right decisions. This is achieved by supplying them with the essential information and assistance to take accountability for their own health (Dennil *et al.*, 2002:15).

## **2.4 LEGISLATION AND PROTOCOLS THAT HAD AN IMPACT ON FAMILY PLANNING**

### **2.4.1 Abortion and Sterilization Act**

The Abortion and Sterilization Act (RSA, 1975) held extremely limited criteria that made abortion unlawful or unavailable for women. In 1996 the Choice on Termination of Pregnancy Act (RSA, 1996) was published. It states that men and women have a right to be knowledgeable about family planning, as well as having access to secure, efficient, affordable and satisfactory methods of family planning of their own choice. This Act endorses the rights of reproduction and expands the choice of freedom by granting every person the permission to have a termination of pregnancy in agreement with the individual's personal beliefs.

### **2.4.2 Apartheid legislation**

According to the Department of Health (2003:7), several Acts, such as the Group Areas Act of 1950 and 1957, and the Reservation of Separate Amenities Act of 1953, notably affected the lives of people of all race groups, as well as their access to health services. An amalgamation of apartheid laws affected the legal status of an individual.

### **2.4.3 The legal capacity of women**

A woman was under the authority of her spouse's marital authority (Department of Health, 2003:7). Women had to obtain consent from their spouses for sterilisation, and even for employing any method of family planning. The Matrimonial Property Act (RSA, 1984) abolished the common law rule.

### **2.4.4 Maputo Protocol**

This protocol promises comprehensive rights to women and includes the right to be a part of political processes, the right to be equal with men, socially and politically, and to control their reproductive health. This Protocol was adopted in the African Charter on Human and Peoples' Rights. Article 14 of the Protocol refers to Health and Reproductive Rights (Stevens, 2009:29).

## 2.5 UNPLANNED AND UNWANTED PREGNANCIES

### 2.5.1 Termination of pregnancy

According to national statistics, 665 087 terminations of pregnancy were performed in South Africa between 1997 and 2007, with approximately 56 442 terminations taking place in 2007 (Health System Trust, 2008). An increase in the use of contraception and emergency contraception could reduce the number of unwanted pregnancies and the number of terminations. Results obtained from research conducted by Cleland, Bernstein, Ezeh, Faundes, Glasier and Innis, as cited in Williamson *et al.* (2009a:2), suggested that 90,0% of abortion-related and 20,0% of pregnancy-related morbidity and mortality, along with 32,0% of postpartum maternal deaths, could have been prevented by the use of effective contraception or emergency contraception.

South Africa is a country with nine provinces. National statistics about terminations of pregnancy, as provided by the Department of Health (2007), are summarised in Table 2.1. According to these statistics, the Western Cape performed the second most terminations of pregnancies in the country.

**Table 2.1**  
**National termination of pregnancy statistics from 1997 to 2007**

Year:	Provinces of South Africa									TOTAL:
	EC	FS	GP	KZN	LP	MP	NC	NW	WC	
1997	2670	2527	13497	1259	570	1489	429	218	3796	26455
1998	2938	4107	19005	5167	823	1857	552	455	5008	39912
1999	3109	4062	19195	5766	1288	2269	642	2166	5741	44238
2000	3264	6919	15172	11592	1962	3697	583	2286	6697	52172
2001	4652	4824	19970	4688	4254	3520	738	3021	8300	53967
2002	5814	3949	18227	9592	4706	3218	910	3070	10065	59551
2003	6819	4952	29021	11015	4236	2206	779	2011	10513	71552
2004	6210	8343	37806	10602	4587	3757	1408	3165	11157	87035
2005	10034	8890	33727	12706	4357	1346	1305	2336	15149	89850
2006	10015	7834	32464	9679	4241	Unknown	1418	4948	13314	83913
2007	Unknown	7142	21844	3883	6506	Unknown	1734	1377	13959	56445
<b>TOTAL:</b>	55525	63549	259928	85949	37530	23359	10498	25053	103699	665090

(The Department of Health, 2007)

### 2.5.2 Unplanned pregnancies

In general young women are aware of contemporary hormonal contraceptives, but they have inadequate knowledge of its effects, or how to use it appropriately (Williamson *et al.*, 2009a:5). Young people are sexually active, and over the past years the initiation of sexual activity has started at an earlier age. Knowledge about how to protect themselves is often inadequate, resulting in an unplanned and unwanted pregnancy (Roberts *et al.*, 2004:441). Unplanned pregnancies are a global concern, and this is just as big a problem among South African young adults (Oyededeji & Cassimjee, 2006:8).

Students in higher education institutions are part of the significant high-risk group, as these young adults find themselves at a stage where they begin to discover their sexuality. They are free from parental guidance, which gives them a feeling of freedom, and in turn, cultivates a feeling of independence. This feeling of independence is often acquired at an early age when young people need to make important choices, some of which are not always to their advantage. This view is supported by Lefkowitz, Gillen, Shearer and Boone (2004:150) who point out that people start to explore their sexuality between 18 to 25 years, rather than during adolescence.

The results of regrettable choices often lead to unwanted and unplanned pregnancies. Williamson *et al.* (2009a:2) estimated that about 14 million unwanted pregnancies occur each year. Almost 50,0% of these unwanted pregnancies occur among women between 15 and 24 years of age. This correlates with the findings of Vahratian, Patel, Wolff and Xu (2008:103) who reported that 60,0% of all unplanned pregnancies occur among 20- to 24-year olds (citing Finer & Henshaw, 2006). Guillebaud (2004:492) supports the views of Williamson *et al.* (2009a:2) and Vahratian *et al.* (2008:103), adding that although the media pays more attention to teenagers under the age of 16 years with unwanted pregnancies, young adults between 20 and 25 years of age are responsible for a higher number of unwanted pregnancy.

College women between 20 and 24 years of age show some of the highest rates of unplanned pregnancies because of not using any family planning method (Bryant, 2009:12). The research of Lang, Joubert and Prinsloo (2005:54) indicated that an unexpected pregnancy was the most general reason for the termination of pregnancy under the women in their study. A major problem pertaining to the prevention of unplanned pregnancies is the reality that many young women obtain contraception services only after the initiation of sexual activities (Kallipolitis *et al.*, 2003: 148).

According to Corbett, Mitchell, Taylor and Kemppainen, (citing Henshaw, 1998) almost 50,0% of all pregnancies in the United States are unplanned (2006:161). According to Bryant (2009:12, citing Mosher, Matinez, Chandra, Abama & Wilson, 2004) the United State's unplanned pregnancy rates are among the highest in the world. It is suggested that up to 60,0% of all pregnancies are unplanned (Bryant, 2009:12, citing Bensyl, Iuliano, Carter, Santelli & Gilbert, 2005). This accumulates to about 3,1 million unplanned pregnancies per annum (Vahratian *et al.*, 2008:103). Bryant (2009:12) points out (citing The Henry J. Kaiser Family Foundation) that among women who are at risk for an unplanned pregnancy, those not using any method of family planning are 19,0% of girls aged 15 to 19 years, 9,0% of women aged 20 to 24, and 6,0% of women aged 25 to 29. Ogunbanjo and Knapp van Bogaert describe the situation in Europe where one in three women requests a termination of pregnancy despite the availability of contraception (2004:37).

In Jamaica 40,0% of the women fall pregnant before the age of 20, and 80,0% of these pregnancies are unplanned (Sorhaindo, Becker, Fletcher & Garcia, 2002:262). In Turkey a study by Sahin among male university students reported that 6,9% of the students who did not make use of contraception had experienced an unplanned pregnancy with their partner (2008:394).

In South Africa a study by Lang *et al.* found that 19,1% of the respondents in their study have previously had a termination of pregnancy. Of those who have already had a termination of pregnancy, 74,6% were not using any method of contraception and 76,0% were between 22 and 30 years of age. A total of 16,6% of the participants saw the termination of pregnancy as a method of contraception (2005:54). A national survey by MacPhail *et al.* included 15- to 24-year old South African women (2007:1). A total of 67,9% of the women in the study reported that they had sex before, but only 52,2% were using contraceptives at the time. Half of the sexually experienced women reported that they had been pregnant before, and 65,0% said that the pregnancy was unwanted. Only 2,6% had terminated a pregnancy previously.

### 2.5.3 Risks factors for an unplanned pregnancy

According to the Department of Health (2009) the following factors can be considered as risk factors for having an unplanned or unwanted pregnancy:

- sexual intercourse without using any contraception;
- a broken or damaged condom or a condom that has slipped off during sexual intercourse;
- hormonal pills not taken or injections that have been missed;
- displaced intrauterine device (IUD);
- having sex during the menstruation period;
- having sex while in the lactational period after the birth of a child;
- faulty calendar method calculations;
- vomiting within one hour after taking the regular contraceptive pill;
- vomiting within three to four hours after taking the emergency contraceptive pill; and
- in case of sexual violence.

### 2.5.4 Students in higher education and terminations of pregnancy

According to Roberts *et al.* (2004:441) students in higher education institutions are presumed to have a generally higher level of awareness of accessible methods of contraception and emergency contraception, but the request rate for the termination of pregnancy remains high among young adults, and especially among students in higher education.

In other parts of the world the research of Kallipolitis *et al.* reported that young women's abortion rate was 1,8% to 2,3% in their particular study (2003:147). They also mentioned that the abortion rate was 2,5% for women in Norway aged between 20 and 24, and 2,1% to 2,4% for women in the United States.

In Africa a study was conducted in Nigeria among female undergraduates. Aziken *et al.* reported that 34,0% of all the females in their study had an induced abortion before (2003:85). In Ghana 10,0% of the students at a university indicated that they or they partner had an abortion (Addo & Tagoe-Darko, 2009:207).

Roberts *et al.* (2004:44) reports that 8,0% of the respondents in their study among university students in Durban, South Africa, had been pregnant before, and that 83,3% of these pregnancies were not planned. Twenty-four respondents out of 465 (5,2%) had a termination of pregnancy. According to a reliable staff member at a university's health care service in South Africa, they receive about three requests per month for the termination of pregnancy, accumulating to about 36 to 40 requests for terminations per year at that specific health service (Anonymous, 2009).

## **2.6 CONTRACEPTION**

### **2.6.1 An overview of contraception**

Lindeque (2008:13) describes contraception as a means of assisting people to space and plan children by preventing the occurrence of an unplanned and unwanted pregnancy. Contraception that is reliable and safe, whether reversible or not, and designed for either females or males, offer people the chance to enjoy a healthy and positive sex life (Ogunbanjo & Knapp van Bogaert, 2004:37).

Guillebaud (2004:10) describes the ideal contraceptive to be:

- 100,0% effective;
- 100,0% convenient;
- 100,0% reversible;
- 100,0% safe; and
- cheap and easily accessible.

Furthermore contraception should:

- not be dependent on the medical professions;
- be acceptable to all cultures and religions; and
- have beneficial non-contraceptive effects, such as offering protection against HIV.

Family planning is necessary as it holds advantages for every family member, and prevents the serious social and ecological effects of overpopulation on national and global levels (Theron & Grobler, 2000:xi). In family planning, the role and responsibility of the user are important. There are many options available for planning and regulating fertility. The user's desire to avoid an unplanned and unwanted pregnancy is an important factor in determining the methods that are right for her or him. Factors that must be kept in mind when choosing a contraceptive method, are the duration and efficiency of protection required, preferences of the person who wants to use the method, contra-



indications, cultural and religious preferences, as well as the person's intellectual abilities (Theron & Grobler, 2000:11).

## **2.6.2 Contraception methods available for males**

### Abstinence

This is the most effective method of contraception, but also the most unpopular (Theron & Grobler, 2000:16), and refers to the voluntary avoidance of sexual intercourse. Abstinence requires commitment and self-control as well as high levels of motivation on the part of those who apply this method.

### Coitus interruptus

This is the withdrawal of the male penis out of the female vagina before ejaculation to ensure that sperm is deposited outside the vagina and thereby preventing pregnancy (Guillebaud, 2004:43). Disadvantages of this method include a high failure rate and the fact that it offers no protection against STDs, while also lowering the pleasure of sexual intercourse (Gebbie, 2000:158).

### Condoms

A condom is designed to cover the penis and prevent semen entering the vagina (Guillebaud, 2004:46). Condoms are mostly made of latex rubber. They are available in many sizes, varying from lubricated, spermicide-containing, flavoured, coloured and scented to textured types (Gebbie, 2000:147). The male condom is one of the most effective among the currently available methods to prevent HIV (Steyn, Groenhof & Schaalma, 2009:77).

### Vasectomy

This is the dividing or occlusion of the vas deferens to prevent sperm passing through (Glasier, 2000:184). The vas deferens carries the sperm from the testes to the penis. Seminal fluid is produced during ejaculation, but it contains no sperm (Glasier, 2000:197). This method is suitable for couples who are convinced that their families are complete, or do not wish to have any children. It is also indicated for partners who carry an inherited disorder, or suffer from a chronic disease that affects the couple's ability to raise children (Glasier, 2000:189).

### 2.6.3 Contraception methods available for females

#### Abstinence

Like men, women can also practise abstinence (Theron & Grobler, 2000:16).

#### Natural methods

These include the calendar method, the body temperature method, the ovulation method, cervical palpation method, the symptothermal method, the multiple index method and the personal fertility monitor. The lactational amenorrhea method is also considered as a natural method of contraception (Theron & Grobler, 2000:10).

The *calendar method* is also known as the rhythm method. Menstrual cycles are recorded over six to twelve months and 20 days subtracted from the shortest cycle, which will identify the first fertile day. Eleven days must be subtracted from the longest cycle. This will identify the last fertile day. For instance, if a woman's cycle varies in length from 28 to 34 days, then the fertile day starts on day eight and ends on day 23. This amounts to 16 days of abstinence (Green, 2000:164).

When ovulation takes place, there is a rise in body temperature of approximately 0,2°C to 0,4°C until the start of the menstrual cycle. The rise in body temperature is an indication that ovulation has taken place. This *body temperature method* identifies the end of the fertile period. Sexual intercourse must be abstained from before ovulation (Green, 2000:164).

In the *ovulation method*, also known as the mucus or Billings method, the characteristics of cervical mucus must be taken into account. When fertile mucus is first identified, abstinence must be practised until three days after the peak day when infertile mucus appears; this is an indication of the end of the fertile period (Green, 2000:166).

The *cervical palpation method* entails that the cervix is palpated daily. During the infertile period, the cervix will be lower in the vagina and the cervix will also feel firm and dry. Prior to ovulation the cervix rises up for about one to two centimeters towards the uterus's body. It will feel wet and soft and the cervical os will be slightly open (Green, 2000:167).

The *symptothermal method* is a combination of the temperature and mucus method. Other hormonal changes namely pain, bleeding, breast tenderness, mood swings and bloatedness are used as indicators of when ovulation might take place (Green, 2000:168).

The *multiple index method* entails that both the calendar and cervical mucus methods are used to identify the beginning of the fertile phase, while the end of this phase is identified by means of the temperature and mucus methods (Green, 2000:168).

The *personal fertility monitor* is a combination of a 'mini-laboratory' and 'micro-computer' as it measures the urinary levels of oestrone-3-glucuronide and luteinizing hormone (Guillebaud, 2000a:112). It consists of a hand-held monitor and dipsticks that are to be discarded after use. The device displays a light that turns green if it is 'safe', and red when it is 'unsafe' to have sexual intercourse. It is therefore used as a personal hormone monitoring system, as the monitor indicates the fertile days as well as the infertile days (Green, 2000:168).

Breastfeeding can be a satisfactory method of contraception if it complies with the following three criteria, namely amenorrhoea must be present since the lochia stopped; the baby must be younger than six months; and the mother must exclusively breastfeed the baby. The risk of a pregnancy before six months is 2,0% when using the *lactational amenorrhoea method* (Guillebaud, 2004:38).

### Barrier methods

Gebbie avers that a barrier method acts by the blockage of sperm from the male to the female to prevent fertilization (2000:127). In this category, there are the diaphragm, cervical cap, vault cap, the condom and the female condom.

The *diaphragm* is a thin, latex rubber, shaped like a hemisphere, which is inserted diagonally across the cervix. During sexual intercourse, the diaphragm acts as barrier by preventing the sperm to reach the mucus of the cervix (Gebbie, 2000:129). There are different types available, namely the flat spring, the coil-spring and the arching-spring diaphragm (Guillebaud, 2004:69).

The *cervical cap* is designed to fit close over the cervix. It acts by creating a barrier to sperm, preventing it to enter the cervical canal. The precise fitting and suctioning of the cap onto the cervix keep it in position (Gebbie, 2000:138). The *vault cap* is, according to Gebbie (2000:141), a rubber

dome-shaped bowl that is designed to fit onto the vaginal vault. It stays in position by means of suctioning, and it covers the cervix, but does not fit closely onto the cervix. The *vimule* is almost the same as the vault cap and is used for longer cervixes. The dome is prolonged and has a hat shape (Gebbie, 2000:142).

Regarding the *female condom*, Guillebaud (2004:83) is of the opinion that the Femidon is the most effective female condom. It is made of polyurethane and has a silicone lubricant. Guillebaud (2000a:109) explains that this condom comprises an outer rim at the introitus and a loose inner ring. It has a retaining action.

#### Sterilisation:

As pointed out by Glasier (2000:177), female sterilisation involves the blocking of both fallopian tubes by executing a laparotomy or laparoscopy. The other alternative is the removal of either the tubes or the womb, the latter being referred to as a hysterectomy.

According to Theron and Grobler (2000:109), sterilisation holds the following advantages:

- it is highly effective;
- patient mistakes cannot be made;
- it is a once-off, permanent, effective procedure and there is no further need for systemic, mechanical or chemical contraceptive methods;
- there is no side-effects, except for possible post-surgical complications;
- there is no metabolic interference; and
- female sterilisation takes effect immediately.

#### Spermicides:

These chemically formulated substances act by destroying sperm without damaging other body tissue, while blocking sperm and preventing it from progressing into the cervix. However, the use of spermicides only is not recommended; it should only be used to improve the contraceptive effect of other barrier methods. Spermicides are used in conjunction with diaphragms, condoms and coitus interruptus to increase the effectiveness of these methods (Gebbie, 2000:150).

According to Guillebaud (2004:85), the active ingredients of spermicides are classified into five main types, namely:

- surface-active agents like nonoxynol-9;
- enzyme inhibitors;
- bactericides;
- acids; or
- local anaesthetics and other membrane-active agents.

Spermicides are available in different forms, such as creams and gels, vaginal pessaries, foaming tablets, aerosol foams and spermicidal film (Gebbie, 2000:150). It should be inserted into the vagina about 20 minutes before sexual intercourse and should not be cleaned until eight hours after sexual intercourse (Theron & Grobler, 2000:22).

#### Oral hormonal methods:

*Combined oral contraceptives* consist of an oestrogen and a progestin (Guillebaud, 2004:106). Different types of combined oral contraceptives are available, namely monophasic, biphasic and triphasic contraceptives (Theron & Grobler, 2000:37). The primary action of the combined oral contraceptives is to prevent pregnancy by preventing ovulation, as well as impairing the transport of sperm by changing the cervical mucus (Guillebaud, 2004:107). It also causes changes in the endometrium by inhibiting implantation (Guillebaud, 2000b:34).

Monophasic contraceptives consist of oestrogen and a progestin. There are 21 active tablets and each contains the same amount of hormones. This is used daily for 21 days, followed by seven placebo tablets (Theron & Grobler, 2000:37). Examples of monophasic products which are available in South Africa include Dianne 35®; Brevinor®; Ovral®; Nordette®; Marvelon®; Femodene®; Mercilon®; Minulette®; and Ginette® (Theron & Grobler, 2000:54).

Biphasic contraceptives consist of a constant dose of oestrogen in 21 active tablets and a low dosage of progestin in the first 11 active tablets, whereas the next 10 tablets contain a higher dosage of progestin, followed by seven placebos (Theron & Grobler, 2000:37). An example of biphasic products available in South Africa is Biphasil® (Theron & Grobler, 2000:54).

Triphasic contraceptives consist of both types of hormones in a low dosage. It is divided into three phases with different dosages, followed by seven placebo tablets (Theron & Grobler, 2000:37). Examples of triphasic products available in South Africa are Trinovum®; Triphasil®; Triodene®; Tri-Minulette®; Tricelest®; and Logynon® (Theron & Grobler, 2000:54).

A new combined oral contraceptive, namely Yaz®, was recently introduced in South Africa. It contains a low dose of drospirenone and ethinylestradiol and has three registered indications, namely as an oral contraceptive; for treating acne vulgaris; and for treating premenstrual symptoms. It is a good choice for women starting to take an oral contraceptive for the first time, or for those who want to change to another oral contraceptive (Bayer Schering Pharma, 2009).

The first *progestogen-only contraception* in a tablet format was introduced in 1969 (Theron & Grobler, 2000:60). This method is less effective than the combined oral contraceptives, but has some indications for use, namely:

- during lactation;
- when oestrogen products are contra-indicated;
- oral contraceptive is preferred by the user;
- before surgery, as an alternative to combined oral contraceptives; and
- for women with conditions such as diabetes mellitus, migraine or hypertension (Fraser, 2000:89).

Examples of progestogen-only contraception include Microval® and Micro-novum® (Theron & Grobler, 2000:61).

#### Injectable hormonal contraceptives:

In South Africa two injectable agents are available: Depo-provera® or Petogen®; and Nur-Isterate®. *Depo-Provera*® or *Petogen*® injectables contain 150mg/ml of medroxyprogesterone acetate, which is administered in the gluteus or deltoied muscle of the female every three months (Theron & Grobler, 2000:67). According to Steyn and Kluge (2010:5) it is considered as effective, with a failure rate of 0.3% over one year if used correctly. The *Nur-Isterate*® injectable contains 200mg norethisterone enantate in an oil-base which is administered every two months intra-muscularly (Theron & Grobler, 2000:79).

### Transdermal combined contraceptive system

This product, known as Evra®, is a transdermal patch which releases 150µg norgestromin and 20µg ethinyl oestradiol daily (Guillebaud, 2004:269). A new patch is applied every week for a three-week period after which no patch is applied for a week. Withdrawal bleeding occurs during this week. It has the same contra-indications as the combined oral contraceptives and is considered as effective, with less than one failure per 100 women in one year, if used correctly (Guillebaud, 2004:270).

### Sub-dermal implants:

Implanon® is the only registered product in South Africa that can be used as a subdermal implant to prevent pregnancy. It is inserted subdermally on the inner, upper arm and it contains 68mg etonogestrel. The implant stays in position for up to three years. According to Guillebaud (2004:347) sub-dermal implants are considered as highly effective, as it has no failure rate.

### Intrauterine device (IUD):

Guillebaud (2004:367) explains that the IUD is an object that is maintained in the uterus and acts by preventing pregnancy. The CuT380A® and Dalcept Cu375® are *copper containing IUD's* available in South Africa. It acts by having an inflammatory reaction on the endometrium, thus preventing fertilization (Steyn & Kluge, 2010:6). The *Levonorgestrel IUD*, known as the Mirena®, is also available in South Africa and contains levonorgestrel. It acts by inhibiting implantation of the ovum and reduces the penetration of sperm through the cervical mucus (Steyn & Kluge, 2010:6). It releases 20µg of levonorgestrel in 24 hours. This device can be used effectively for five years (Guillebaud, 2004:436).

Guillebaud (2004:375) describes the following advantages of the IUD:

- it is highly effective and according to Guillebaud (2004:371) the failure rate is 0,2 to 2,0 per 100 women in one year;
- it is safe, with no known unwanted systemic effects;
- it is not dependent on sexual intercourse;
- no daily actions are required, such as taking a pill every day;
- it is a cost-effective method and easily obtainable;
- it has no effect on milk volume and the composition of milk during lactation;
- a woman can control her own reproduction;

- rates for continuation of this method are high (according to Guillebaud, 2004:375);
- it is reversible; and
- it can be used effectively for a few years, depending on the type of IUD.

#### **2.6.4 Knowledge of contraception**

South Africa's Department of Health (2003:10) has stated that knowledge about contraception and reproduction is generally poor, mentioning the substantial uncertainty and misperception concerning contraception. Kallipolitis *et al.* (2003:146) found that 30,0% of university students participating in their study did not know when ovulation takes place and 63,5% did not know where conception takes place. They also established that the students in their particular study had little knowledge of contraception (2003:145), and suggested that students should be provided with accurate, specific information regarding contraception and conception. However, Oyedeki and Cassimjee (2006:13) mentioned that all the respondents in their quantitative study were aware of contraceptives for women, although 45,0% of the males and 30,0% of the females knew only one contraception method available to men. They concluded that students are prepared to take responsibility for the use of contraception if they are given correct and sufficient information about the usage of contraceptives, different methods and the functioning thereof.

In a systematic review of qualitative research by Williamson *et al.* (2009a:5), the researchers noted that all studies asserted that young women had inadequate knowledge of how contraceptives worked, or how to use it correctly. The study by Williamson *et al.* (2009a:5) pointed out that the young women were not correctly informed about the risk of pregnancy. Some thought that they could not get pregnant when having sexual intercourse for the first time, or by having sex in the standing position. In another study that they reviewed, it was obvious that young women were seldom informed about contraception and sex in general.

In a study by Bryden and Fletcher (2001:223) it was found that 80,6% of the respondents in their study on the risks and benefits of oral contraceptives felt that oral contraceptives had a drug interaction with other medications, but they could not identify these medications. The majority of respondents (60,0%) knew that smoking, while on the pill, could lead to increased blood pressure and the risk of a stroke (2001:225).



Sahin (2008:394) found that 98,5% of the male university students in his study knew at least one contraceptive method, although only 73,0% of the students made use of a contraceptive method. The respondents' primary sources of information about contraceptives were the media (75,2%), friends (71,8%) health professionals (19,8%) and family (19,5%). A study conducted by Lang *et al.* (2005:53) in the Free State Province, South Africa, revealed that 84,3% of the respondents had previously received information on contraception, and that 73,5% had used it before.

### **2.6.5 Attitudes and beliefs regarding contraception**

Sahin (2008:395) found that almost 20,0% of the students had negative attitudes towards condoms. According to the students' responses their negative attitudes in this regard were due to the fact that the condom reduced sexual pleasure, and that it is uncomfortable and unnecessary.

### **2.6.6 Contraceptive use worldwide**

In a study by Orji and Onwudiegwu (2002:540) it was found that among rural women in Nigeria, all the respondents had some knowledge of contraceptives. While 78,0% of the respondents were sexually active, only 18,8% used any form of contraception. The researchers concluded that 38,3% of the respondents made use of the IUD, 29,8% took oral contraception pills and 23,4% used a condom, while only 8,5% made use of injectable contraceptives. The respondents mentioned that their source of contraceptives ranged from government family planning clinics (46,8%) to private family planning clinics (40,2%). About 14,9% obtained contraceptives from a pharmacy, and 8,1% from friends.

This correlates with findings by Oni *et al.*, (2005:54) stating that 75,0% of males and 62,0% of females between 12 and 28 years of age had sex without using any form of contraception. A study conducted by the WHO in 2002, reported that 52,0% of the women in their particular study did not make use of contraception (Guillebaud, 2004:467).

### **2.6.7 The use of contraceptives by students in higher education in other parts of the world**

Oyedeji and Cassimjee (2006:11) stated that students in higher education institutions should be perceived as an empowered part of the population, and that it is reasonable to conclude that their needs are met and acknowledged. Bryant (2009:14) found that 46,7% of the respondents in his study among

female college students in New York used contraceptives, while 53,3% did not. Reasons given for not using contraception ranged from the fear of side effects (26,3%), concerns about their health (18,8%), an opposition to the use of contraception (6,3%), wanting to have children (5,0%), and not having sufficient knowledge about contraception (1,3%).

In Greece Dinas, Hatzipantelis, Mavromatidis, Zepiridis and Tzafettas (2008:78) conducted a study among female medical students. Their results showed that 45,1% of the students used condoms as family planning method; 7,8% used coitus interruptus and 16,7% were not using any method of family planning at all, although 91,2% claimed they were knowledgeable on family planning. In a study by Aras, Orcin, Ozan and Semin (2006:125), 47,7% of the students indicated that they made use of a condom on their first sexual encounter.

In other studies, as reported by Aras *et al.* (2006:130), the use of condoms during the first experience of sexual intercourse was found to be 28,8% among students in Antalya (citing Donmez, 1999). The rate was reported to be 85,0% in the Netherlands (citing Berne & Huberman, 1999) and 10,0% of females and 67,0% of males at the university in Cambodia (citing Glaziou, Bodet, Loy, Vonthanak, El-Kouby & Sainte Marie, 1999). The latter also found that 68,9% of males and 71,9% of females made use of contraceptive methods regularly.

In the study undertaken by Kallipolitis *et al.* (2003:146), which included 162 female students at a university in Greece, 79,0% of the students were sexually active. The most common method of contraception was the male condom (64,2%), followed by coitus interruptus (24,0%), and the contraceptive pill (14,8%). As many as 55,0% of the students who were sexually active, did not use the contraceptive pill because they were afraid of taking hormones.

In a study conducted among university students, Corbett *et al.* (2006:165) found that 78,4% of the respondents had been sexually active before, while only 56,7% had used contraception. The main methods of contraception used were either the pill (40,2%), male condom (19,6%), withdrawal (7,2%), the patch (4,1%), or the injection (3,1%). In Jamaica, a study among university students conducted by Sorhaindo *et al.* (2002:263), revealed that 71,0% of the students were sexually active and almost all of them (93,0%) had used some form of contraception in their life. Condoms were the most popular method used (89,0%), followed by the withdrawal method (44,0%) and oral contraceptives (34,0%).

A study conducted by Sahin (2008:393) among male students from universities in Istanbul in Turkey revealed that 75,2% of the students had experienced sexual intercourse and 73,0% of them had used contraception during their first sexual experience. Sahin (2008:393) found that contraceptives ranged from condoms (69,5%) to withdrawal (26,3%) and oral contraceptives (4,2%). It seems that a large number of students in other parts of the world had experienced sexual intercourse before. Utilisation and knowledge regarding contraception seem to be satisfactory, but misperceptions about contraception still remain a problem among students in other parts of the world.

### **2.6.8 Contraceptive use among students in higher education in Africa**

A study in this regard was conducted by Addo and Tagoe-Darko (2009:206) at the Kwame Nkrumah University of Science and Technology in Ghana. According to the responses, condoms were the most widely used contraceptive method (59,2% for men and 56,0% for women). This was followed by the withdrawal method (15,15% for men and 29,3% for women).

Sunmola (2005:462) reported that 69,0% of the men and 57,0% of the women in his study among university students in Nigeria, had used condoms during their last sexual intercourse. Only 30,0% of the women and 37,0% of the men had intentions to use a condom in their next sexual encounter. This was despite programmes on the use of condoms that had been running in Nigeria for a prolonged period, with the aim to increase university students' knowledge about protective measures against HIV and AIDS.

From a study conducted by Aziken *et al.* (2003:85) in Nigeria, it appeared that 43,0% of the female undergraduate respondents were sexually active. Only 39,0% of these students had used contraception before. Amongst them, 45,0% made use of the withdrawal method, 26,0% of the condom, 7,0% of the pill, 5,0% of the IUD and 4,0% of the injection. Ikeme, Ezegwui and Uzodimma's study under female undergraduates in Nigeria revealed that 95,0% of all females were aware of contraception. Contraceptive use among the respondents ranged from condoms (35,2%) and oral pills (9,5%) to withdrawal (14,3%), while 1,0% made use of the IUD (2005:492). This finding is similar to that of Obisesan, Adeyemo, Fawole and Fakokunde (1998:135) who established that 94,3% of the respondents in their study, also conducted in Nigeria, were aware of contraception, but only 12,0% had ever visited a clinic for family planning. It seemed that the condom was the most frequently used type of contraceptive among higher education students in Africa.

### **2.6.9 Contraceptive use among students in higher education in South Africa**

MacPhail *et al.* (2007:1) conducted a national survey among young adults aged between 15 and 24 years in all of South Africa's nine provinces. The study revealed that more than two-thirds (68,0%) of young South African women have had a sexual experience and 50,0% of them fell pregnant, yet only half of them (52,0%) reported that they had made use of contraception.

Oyedeki and Cassimjee (2006:10) reported that the condom was the preferred method of contraception among the students participating in their study at a university in KwaZulu-Natal. The use of condoms among males was 81,0%, and among females, 46,0%. Of these students, 77,0% of the males were satisfied with the male condom and 85,0% of the females who used the male condom were satisfied as well. Only 19,0% of the males made use of the withdrawal method, whereas the other methods used by 54,0% women included pills and injections. Oyedeki and Cassimjee (2006:13) concluded that the students were willing to take responsibility for the use of contraception if they had correct and adequate information regarding contraception. Roberts *et al.* (2004:443) noted that 39,9% of the respondents who were sexually active used a condom, while 14,0% used the contraceptive pill. A further 17,0% of the respondents did not make use of any form of contraception.

According to the above findings, it seemed that higher education students in South Africa followed the same trend as students in other parts of Africa in terms of using contraceptives. Among the students who made use of contraceptives, the condom was the most popular means.

### **2.6.10 Sexual behaviour of students**

Aras *et al.* (2006:121), in a study that explored the sexual behaviour of students in Turkey, reported that the mean age of first sexual intercourse was lower among males (18.0 years) than among females (19,6 years). Ares *et al.* (2006:127) reported that sexual behaviour and attitudes differ from males to females. They found that factors influencing students' sexual behavior were based on individual wishes and values. Requirements pertaining to their religious convictions and protection against STDs were more important to males, whereas the protection of their virginity and avoiding pregnancy were important to females. Addo and Tagoe-Darko (2009:206) studied the sexual behaviour of students at a university in Ghana. Five of the men had nine sexual partners and one of the women had five sexual partners. The students reported that they, or their sexual partner, had used contraception.

Sunmola (2005:457) conducted a survey under students at a university in Nigeria which revealed that 45,0% of the female students had only one sex partner, 40,0% had two partners and 12,0% had three sexual partners. Almost 30,0% of the male students reported that they had only one sexual partner, while 50,0% had two partners and 16,0% three partners. About 40,0% of the male students indicated that they frequently had unplanned sexual encounters, compared to 25,0% of the female students. This researcher mentioned that 58,0% of the students had no knowledge about their HIV status. There is an increased risk of contracting a STD, including HIV, in a situation where multiple sexual partners are customary. Sunmola (2005:462) found that the respondents' reasons for not using condoms ranged from decreasing sexual pleasure and causing health problems to decreasing their sexual interest.

In the United States a study was conducted among undergraduates who were in a sexual relationship. Condoms were the most popular method of contraception (77,0%) and hormonal contraceptives were the second most popular (14,0%) during the first month of the relationship. Those who had not made use of a condom, reported that they knew their partners' sexual history (25,0%), that sex was not planned (18,2%) or that they made use of other contraceptive methods (17,0%) (Civic, 2000:100).

A study among medical students in Turkey pointed out that 51,1% of the first-year male students and 5,0% of the first-year female students had sexual intercourse, while 86,0% of sixth-year male and 20,0% of sixth-year female students had sexual intercourse. Only 43,5% of first-year students who had sexual intercourse and only 48,6% of sixth-year students made use of any form of contraception (Aras *et al.*, 2006:174). Another study among medical students in India revealed that 83,5% of the participants were aware of contraception, while only 11,8% reported that they ever had sexual intercourse. Condoms were used regularly by 52,5% of the respondents and 32,5% reported that they never used condoms (Aggarwal, Sharma & Chhabra, 2000:228). In a study conducted among university students in Durban it was found that 31,2% of the respondents were having sex without protection. The mean age of first sexual intercourse was 17 years (Roberts *et al.*, 2004:442).

According to the above findings, it seemed that students generally engaged in risky sexual behaviour and contraceptives were not used as efficiently as it should be.

## **2.7 EMERGENCY CONTRACEPTION**

An unplanned and unwanted pregnancy has a significant effect on any individual's life. Apart from the obvious physical implications, there are various social, psychological and financial implications that play a significant role when an unplanned pregnancy occurs (Corbett *et al.*, 2006:161). Corbett *et al.* (2006:162) also mention that although emergency contraception is available and effective, it is under-utilised by those who run the biggest risk of having to deal with an unwanted pregnancy. Steyn and Mason (2009:127) reported that despite the increase in emergency contraception, it has not been proved that it reduces unplanned pregnancy rates.

Globally, and also in South Africa, unplanned pregnancies and the termination of pregnancies are a widespread problem. Roberts *et al.* (2004:441) argue that a more widespread and effective use of emergency contraception can play a significant role to decrease the number of unplanned pregnancies and requests for the termination of pregnancy, but nevertheless, the use of emergency contraception remains under-utilised to a large extent. Emergency contraception is a safe method and products are available over the counter without a prescription (Steyn & Mason, 2009:127).

### **2.7.1 An overview of emergency contraception**

Emergency contraception is used after having unprotected sexual intercourse, failed contraception or after the incidence of rape (Lindeque, 2008:18). It is either a drug or device to protect a woman against an unwanted or unintended pregnancy. Emergency contraception should be introduced in the period after sexual intercourse had taken place, but before the occurrence of pregnancy (Steyn & Mason, 2009). Emergency contraception can decrease the risk of an unwanted pregnancy by as many as 75,0% to 89,0% if it is taken within 72 hours after engaging in unprotected sexual intercourse. It is considered to be reasonably effective if taken or inserted from 72 to 120 hours after unprotected sexual intercourse had taken place (Vahratian *et al.*, 2008:103) As the name implies, emergency contraception should only be taken or inserted in cases of emergency and not be used as a regular contraceptive (Steyn & Mason, 2009:128).

Mifepristone, which is not available as emergency contraception in South Africa, and levonorgestrel are extremely effective and have few adverse effects. Levonorgestrel can be taken in a single dose (1,5mg) instead of taking two dosages 12 hours apart. This is preferred to the combination of oestrogen and progestogen preparations. If taken within 120 hours after sexual intercourse, emergency

contraception can be effective, but the earlier it is taken, the more effective it is (Steyn & Mason, 2009:128).

### **2.7.2 Different types of emergency contraception used in South Africa**

#### Levonorgestrel-only regimen:

Oral emergency contraception consisting of progestin only, is available as Escapelle®, Norlevo® and Microval®. Escapelle® contains 1,5mg levonorgestrel and is available as a single oral dose (Steyn & Mason, 2009:128). It should be taken within 120 hours after unprotected sexual intercourse to be effective. Norlevo® is available as a two-tablet dose, each tablet containing 0.75mg levonorgestrel. The two tablets should be taken 12 hours apart, but can also be taken simultaneously as a single dose (Steyn & Mason, 2009:128). Microval® is an option if other regimens are not available. This type of contraceptive is available in two dosages of 25 tablets each. The first dose is to be taken within 120 hours after engaging in unprotected sexual intercourse, and the second dose of 25 tablets 12 hours after the first dose. This is not generally a popular method due to the large intake of tablets (Steyn & Mason, 2009:128).

#### Combined oestrogen-progestin (Yuzpe) regimen:

Two dosages of at least 100µg ethinyl estradiol and 0,5mg levonorgestrel should be taken within 120 hours after unprotected sexual intercourse, followed by a second dose 12 hours later. Certain contraceptives can be used in a particular combination for this regime (Steyn & Mason, 2009:128).

#### Copper IUD:

This device may be inserted five to seven days after the estimated time of ovulation. This method is highly effective and should be considered by women who need a form of emergency contraception if they present between 72 and 120 hours after unprotected sexual intercourse. An added benefit is that this device can be left in situ as a long-term contraceptive method (Steyn & Mason, 2009:128).

### **2.7.3 Knowledge of emergency contraception**

In a study conducted by Corbett *et al.* (2006:164) among university students in the United States, 75,3% of the students believed that a woman could do something to prevent pregnancy after unprotected sexual intercourse had taken place. As many as 96,0% of the students had previously heard about emergency contraception, 35,0% of whom were informed about emergency contraception by

friends or relatives, and only 4,0% by their physician (Corbett *et al*, 2006:165). In another study conducted in the United States, 94,0% of the students said they had been aware of emergency contraception. Their main sources of information were the media (43,0%), friends (22,0%) and schools (18,0%). Only 5,0% of the students could give the correct time frame within which emergency contraception should be taken or inserted in order to be effective (Vahratian *et al*, 2008:105). In a study by Kallipolitis *et al*. (2003:148) 60,5% to 80,0% of the women had never learnt about emergency contraception.

At a university in India it was found that only 7,3% of the female students knew about emergency contraceptives, of whom only 14,7% knew within what period of time it should be used. The study revealed that the knowledge of emergency contraception was very poor among female students, with 12,2% of them believing that home remedies such as jumping backwards or blowing one's nose offered protection against an unwanted pregnancy (Puri, Bhatia, Swami, Singh, Sehgal & Kaur, 2007:338).

A Korean study explored students' intentions, knowledge and attitudes regarding emergency contraception. Kang and Moneyham (2008:780) found that students generally lacked knowledge about emergency contraception and held misconceptions in this regard. As few as 21,3% of the students reported that they had previously received information on emergency contraception, while 79,6% felt that they needed more information on the matter. The study also revealed that the female students knew more about emergency contraception than their male counterparts. Less than 50,0% of the respondents knew that emergency contraception cannot prevent a STD (Kang & Moneyham, 2008:778).

Sorhaindo *et al*. (2002:264) found that 88,0% of the students in their study conducted in Jamaica were aware that the emergency contraceptive pill should be used after sexual intercourse, but only 28,0% knew that the first dose should be taken within the first 72 hours after engaging in unprotected sex. The most important sources of information on emergency contraception were said to be friends, followed by newspapers or magazines, television, radio and a class. Only 7,0% of the respondents had heard about emergency contraception from health care providers. The students also had certain fears about the side effects of emergency contraceptives and thought that it could have permanent effects on a woman's health.

In Africa a study was conducted in Nigeria among female undergraduates, where 58,0% of the respondents were aware of emergency contraception. However, only 18,0% could identify the correct



time limit for taking oral emergency contraceptives. As many as 48,0% of the respondents thought that emergency contraception should be taken within 24 hours after engaging in unprotected sex to be effective. Although the period of 24 hours falls within the 72-hour limit, an incorrect perception might prevent a person from making use of emergency contraception, because of the impression that the time of effectiveness had been missed (Aziken *et al.*, 2003:85). Aziken *et al.* (2003:86) concluded that young adults lacked knowledge about emergency contraception, and needed to be informed about the available methods and correct timing of emergency contraception. This finding is supported by Ikeme *et al.* (2005:492) who reported that the majority of undergraduate students in their study did not know the time limits for using emergency contraceptives. A study by Ikeme *et al.* (2005:492) conducted among undergraduate female students in Nigeria further revealed that 61,0% of the respondents were aware of emergency contraception and 31,0% had actually used it.

A study undertaken in Ghana found that 51,4% of university students had heard of emergency contraception before. Print and electronic sources were the main sources of information on this matter. (51,3%). A total of 49,1% of the male and 47,9% of the female students were unaware of emergency contraception. However, only 25,2% of the men and 39,3% of the women correctly identified the time limit for the effective use of emergency contraception. A total of 23,0% of the men and 17,4% of the women were under the impression that emergency contraception could be used effectively before sexual intercourse to prevent an unwanted pregnancy. The study revealed that knowledge about emergency contraception was poor, pointing towards an urgent need to provide students with the correct information regarding this method (Addo & Tagoe-Darko, 2009:208).

In Ghana university students' perceptions about emergency contraception were studied by Baiden, Awini and Clerk (2002:25). They found that less than half of the students in their study were aware of modern methods of emergency contraception. Only 11,3% of the students could correctly identify the recommended time limits. As many as 25,8% of the students regarded emergency contraception as a form of abortion. Some students thought that the intake of concentrated sugar solutions, or even enemas or douching could protect a woman against an unwanted pregnancy. It is evident that there was a moderate awareness of emergency contraception among the students. Almost all of them (97,4%) indicated that they would like to know more about emergency contraception.

A South African study among university students revealed that 56,5% of the respondents had already heard of emergency contraception (Roberts *et al.*, 2004:443). Only 3,0% of the respondents knew that

the IUD could be used as emergency contraception. About 11,8% of the respondents knew the right time frame within which to take oral contraceptives after having unprotected sex. About 15,0% of the respondents thought it should be used within 24 hours after engaging in unprotected sex, while 53,4% did not know what the time frame was for the contraceptives to be effective. The researchers further mentioned that 11,4% of the respondents thought that emergency contraception could lead to fertility problems in future. Almost 70,0% of the respondents did not know how efficient emergency contraception is (Roberts *et al*, 2004:443).

Roberts *et al*. (2004:445) also pointed out that 49,0% of the respondents did not know if regular contraceptives were safer than emergency contraceptives. A total of 9,8% of the respondents thought that emergency contraceptives offered protection against HIV or other STDs. Roberts *et al*. concluded that there was a high occurrence of unprotected sex among students and that their knowledge and use of emergency contraception were limited.

It seemed that students had a general lack of knowledge about emergency contraception and held misconceptions regarding emergency contraception, especially regarding the correct time frame in which emergency contraception should be taken to be effective.

#### **2.7.4 Attitudes and beliefs regarding emergency contraception**

A study by Corbett *et al*. (2006:165) found that 67,0% of university students regarded unplanned and unwanted pregnancies as a major problem. As many as 66,0% of the students saw themselves as having a moderate to high risk of falling pregnant when sexual intercourse takes place without any form of contraception. When asked about their feelings with regard to obtaining emergency contraception, 29,9% of the students replied that they would feel embarrassed.

The respondents' main source of information regarding emergency contraception was friends and family (35,0%). In their study among university students Addo and Tagoe-Darko (2009:208) reported that 54,1% of the males and 48,1% of the females felt that emergency contraception should be provided on campus, while 43,7% of the males and 37,1% of the females said that they would use emergency contraception in future. The majority of the males (72,9%) and females (75,2%) would recommend the use of emergency contraception if needed. This correlates with the findings of Sorhaindo *et al*. (2002:265) who also found that 86,0% of the students reported a willingness to recommend emergency

contraceptive pills to others, while 77,0% responded that they would use it themselves, should the need arise.

Vahratian *et al.* (2008:106) found that 93,0% of the students approved of the use of emergency contraception if a woman was raped. In the same study 86,0% of students approved of its use in cases where the contraception method failed and 68,0% approved of this method being used after unprotected sexual intercourse. It is significant that 60,0% of the students felt that emergency contraception should be available over the counter, while 33,0% of the students said that they would buy a supply before the need arises. It seemed that students regarded unplanned and unwanted pregnancies as a serious problem and they would recommend the use of emergency contraception when it was needed.

### **2.7.5 Use of emergency contraception**

Corbett *et al.* (2006:165) states that in their study among university students in the United States, 12,2% of the respondents had previously taken emergency contraception. Almost half of the respondents (45,0%) knew somebody who had taken emergency contraception in the past. More than half of the female respondents (67,1%) indicated that they would use emergency contraception if their method of contraception failed. Only 46,0% of the men indicated that they would recommend emergency contraception to their partner in case of contraception failure.

According to Williamson, Buston and Sweeting (2009b:310), a survey conducted in the United Kingdom (citing Black, Mercer, Johnson and Wellings, 2006) pointed out that 7,0% of 16- to 19-year olds and 4,0% of 20- to 24-year old women could account for emergency contraception used in the year before the interview took place. These findings correlate with a national survey conducted in the United States in 2002, revealing that only 9,0% of women aged between 18 and 24 had used emergency contraception (Williamson *et al.*, 2009b:310).

In a study among students in Jamaica, 19,0% of the students reported that they had been pregnant or had made somebody pregnant, although 84,0% of the students had heard of emergency contraception before and only 10,0% reported that they or their partners used emergency contraception (Sorhaindo *et al.*, 2002:263). Reasons given for using emergency contraception were that the condom had perished or had slipped off during sexual intercourse (35,0%), or that the withdrawal method had failed (30,0%), while 20,0% reported that they did not use any form of contraception. A concerning fact is that seven

students reported that they or their partner had made use of emergency contraception between two and six times in the past year.

In Poland Olszewski, Olszewska, Abacjew, Chmylko and Gaworska-Krzeminska (2007:862) conducted a survey among young women aged between 18 and 30. About 73,0% of the women were students in higher education and 27,0% were secondary school students older than 18 years. Almost 64,0% of all these students reported that they had already had sexual intercourse, 14,9% of whom had used emergency contraception ranging from one to eight times. The reasons given for making use of emergency contraception were either condom breakage (39,6%), or not using any contraception method at all (22,5%). Obtaining emergency contraceptives did not seem to be a problem for 80,2% of the respondents. Of the students who had used emergency contraception before, 60,7% reported that they had two or more sexual partners, whereas among those who had not used this form of contraception before, 66,1% had only one sexual partner.

In Africa 31,0% of female students in Nigeria had used emergency contraceptive pills (Ikeme *et al.*, 2005:493). In a similar study done by Aziken *et al.*, (2003:85) only 2,0% of the female students had used emergency contraceptive pills, although 34,0% reported that they already had an induced abortion. In South Africa, 11,8% of the university students in a study conducted by Roberts *et al.* (2004:443) admitted that they had used emergency contraception before. Of the 772 students included in the study, 16 indicated that they had used emergency contraception four or more times. Half of the respondents (50,0%) reported that they would either use emergency contraception themselves if they had to, or recommend it to others.

It seemed that only a few students had made use of emergency contraception before, but many more would make use of it if they had to. Most students made use of emergency contraception either because of a faulty or broken condom, or because they had not used any contraceptive method at all.

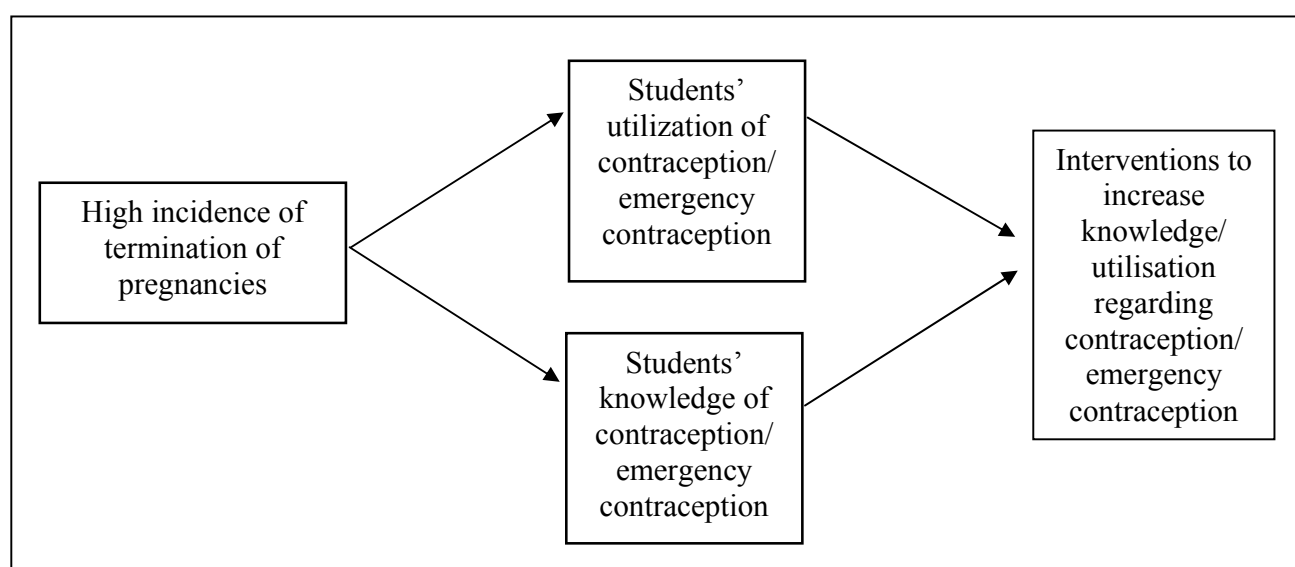
## **2.8 CONCEPTUAL FRAMEWORK**

According to De Vos *et al.* (2008:34) a conceptual framework is a model that determines what questions need to be answered by the person conducting the research, as well as how empirical procedures are to be used as instrument when answering these questions. The researcher identified the following concepts and variables as an important part of the conceptual framework:

- contraception;
- emergency contraception;
- knowledge;
- students; and
- termination of pregnancy.

There is a high incidence of the termination of pregnancy, or requests for the termination of pregnancy among students in general, as indicated in paragraph 2.5. This points towards a need to explore to what extent students have knowledge and make use of contraception and emergency contraception. Once the students' knowledge and utilisation, or lack thereof, are known, interventions can be made to increase their knowledge and utilisation of contraceptives to prevent unplanned and unwanted pregnancies.

Figure 2.1 illustrates the conceptual framework of this study.



**Figure 2.1**

**Conceptual framework of this study**

## **2.9 SUMMARY**

This chapter provided an overview of the historical background of contraception in general. International events that influenced reproductive health and legislation, as well as protocols that had an impact on family planning, were discussed. The incidence of unplanned pregnancies and the termination of pregnancies among students in higher education institutions were studied. This was followed by an overview of contraception methods available to males and females. Students' knowledge, attitudes, beliefs and use of contraception, including emergency contraception, were discussed in detail. The methodology for studying students' knowledge at a particular higher education institution in the Western Cape will be discussed in Chapter 3.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

The literature relating to the research topic was reviewed in Chapter 2 and the researcher introduced concepts that influenced the development of the structured questionnaire as a data collection instrument for the study. In this chapter the different phases of the research methodology will be discussed in depth. Mouton (2008:56) points out that the research methodology concentrates on each step in the research process, including the development of the data gathering instrument(s) and actions to be taken.

#### **3.2 RESEARCH METHODOLOGY**

##### **3.2.1 Research approach and design**

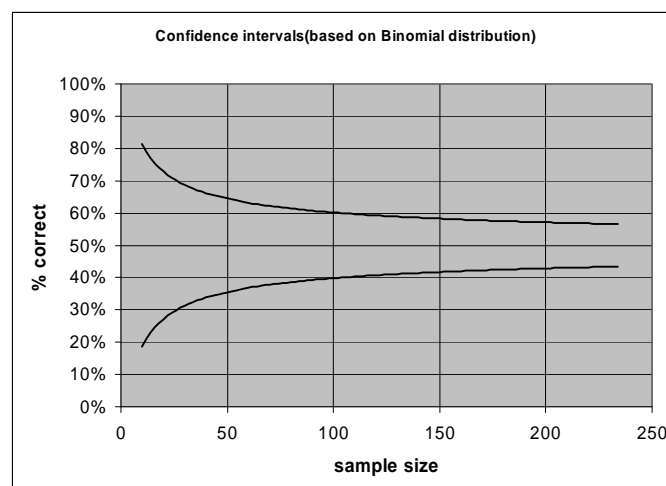
According to Mouton, as cited in De Vos *et al.* (2008:132), a research design is a plan of how one intends to accomplish the research. This study had an explorative-descriptive research design. The design was applied with a quantitative approach to determine the knowledge of university students regarding contraception and emergency contraception. De Vos *et al.* (2008:106) explain that the aim of exploratory research is to become familiar with a situation. In answering to a specific need, descriptive research strives to portray the specific features of a situation. This kind of research also focuses on ‘how’ and ‘why’ questions. Data was gathered by means of self-administered questionnaires.

Mouton, in De Vos *et al.* (2008:104), mentions that the unit of analysis refers to the ‘object, phenomenon, entity, process or event’ that forms the focus of the study. In this study, the unit of analysis comprised full-time undergraduate students enrolled at a particular university in South Africa.

### 3.2.2 Target population and sampling

De Vos *et al.* (2008:194) describe a target population as ‘the total amount of persons, events, units, case records or other sampling units with which the research problem is concerned’. The target population of this study included all full-time undergraduate students studying at a particular university in South Africa (N=15 872) according to updated statistics of 2009 of the university’s Institutional Research and Planning Department (Grobbelaar, 2009). The university consists of three campuses which include campus A, campus B and campus C. When the study was undertaken, campus A had 13 736 students, campus B 1730 and campus C had 406 students.

The researcher consulted a statistician from Stellenbosch University’s Centre for Statistical Consultation to determine the sample size. According to Clopper and Pearson (1934:404) the accuracy of the proportions that are estimated from the sample increases marginally with a sample of more than 200. It was therefore concluded that a sample size of approximately 200 undergraduate students would be sufficient ( $n = 200$ ) for inclusion in this study (see Figure 3.1). This particular outdated source was used because the use of the binomial distribution has not changed since 1934. For this reason it is still used today for determining the sample size.



**Figure 3.1**

**Relationship of the upper and lower 95%  
limits of an estimated proportion of 50%**



Arkava and Lane, as cited in De Vos *et al.* (2008:194), describe a sample as ‘elements of the population considered for actual inclusion in the study’. A non-probability convenience sample was chosen to ensure that any subject who crossed the researcher’s path and had something in common with the element under study could be included until the sample size was reached. According to De Vos *et al.* (2008: 202) it is justified to include any element that is nearest and most easily available for the researcher by ‘simply reaching out and taking the cases that are at hand, continuing the process until the sample reaches a designated size...’

To enable the researcher to make generalizations from the sample applicable to the population, representation was ensured by the intention to include all undergraduate students of the three mentioned campuses of the particular university proportionally. According to Kidd (2009) from the Centre for Statistical Consultation, the students of campus A constituted 86,5% of the target population, students of campus B 11,0%, and students of campus C 2,5%. These percentages were calculated by dividing the number of students from each campus by the total number of students of the particular university, and then multiplying it with 100 to obtain a calculation expressed in terms percentages. The representativeness of the sample would be ensured by drawing the same percentage of subjects from the sample size of 200 that was estimated, namely 86,5% of 200 ( $n = 200$ ), giving a total of 173 ( $n = 173$ ) students from campus A, 11,0% of 200 added to a total of 22 ( $n = 22$ ) students from campus B, and 2,5% of 200 giving a total of 5 ( $n = 5$ ) students from campus C. Any student who complied with the inclusion criteria who happened to cross the researcher’s path was requested to participate in the study voluntarily. This process was continued until the sample reached the designated size of  $n=200$ .

**Table 3.1**

**Population and sample size of each campus of the particular university**

<b>Campus</b>	<b>Number of students on campus</b>	<b>% of students on each campus</b>	<b>Number of students to be included in sample</b>
Campus A	13 736	86,5	173
Campus B	1730	11,0	22
Campus C	406	2,5	5
<b>Total:</b>	<b>15 872</b>	<b>100,0</b>	<b>n=200</b>

### 3.2.3 Inclusion and exclusion criteria

The students who were selected for inclusion in this study had to comply with the following criteria:

- a full-time, undergraduate student; and
- studying at the particular selected university.

Undergraduate students who felt too vulnerable to complete the questionnaire were excluded from the study, as the questions were of a very sensitive nature and might upset a vulnerable participant and probably influence the outcomes of the study.

### 3.2.4 Data collection instrument

A self-administered questionnaire was compiled by the researcher and handed out to the respondents. The items in the questionnaire were based on the research objectives and reviewed literature. The questionnaire was designed to collect all the relevant information regarding the proposed research topic by means of a variety of question types. This structured questionnaire contained both open-ended and closed-ended questions for data collection. According to De Vos *et al.* (2008:174) the inclusion of both types of questions allows the researcher to obtain more insight into the research problem. Furthermore, responses of the various respondents could be compared, thus increasing the reliability of both the data and the findings. The researcher consulted a statistician from Stellenbosch University's Statistics Department with regard to the feasibility of the designed data collection instrument, and to ascertain whether all the variables could be tested statistically.

The questionnaire consisted of five sections. The questions were mainly of the closed-ended type. The first section included questions that generated the demographic data of all respondents. The second section contained 11 questions regarding the respondents' knowledge of contraception. The next section consisted of 10 questions referring to the respondents' knowledge of emergency contraception. In the fourth section, respondents had to provide personal information, for example their sexual activity and their use of contraception and emergency contraception. The last section explored the accessibility of contraception and emergency contraception among the respondents.

An expert from the Department of Obstetrics and Gynaecology at Stellenbosch University was requested to provide feedback on the content and construction of the questions, as well as identifying

any confusing and/or unnecessary questions in the questionnaire. His recommendations were incorporated in the final questionnaire.

### **3.2.5 Pilot study**

Huysamen, as cited in De Vos *et al.* (2008:206), describes a pilot study as an investigation of the feasibility of the proposed research, and a way to identify possible inadequacies in the measurement procedure. However, the researcher launched a pilot test of the data gathering instrument only before the commencement of the main study. This was done by randomly asking undergraduate students to complete the proposed questionnaire. The respondents involved in the pilot test were selected from the same population as the main research, but the respondents and the data were not included in the main study or the final data analysis and results.

The pilot test took place over a period of two weeks, from 26 April 2010 until 07 May 2010. It was planned that a minimum of 10 students would take part in the pilot test until no further changes needed to be made to the questionnaire. Respondents were requested to provide feedback on the construction and/or sequence of the questions, as well as pointing out any confusing and/or unnecessary questions in the questionnaire. The student feedback was used to modify the measuring instrument until the questionnaire was finalised for inclusion in the main research.

Modifications to the pilot test included changes in the order of some of the questions, while unclear terms were either excluded or changed to make them more understandable. Additional options to some of the answers were also included in the questionnaire, as recommended by the respondents.

### **3.2.6 Reliability and validity**

Reliability refers to the steadiness of the measurement. This means that the variable that is measured will produce the exact measurements if measured under the same conditions each time (De Vos *et al.*, 2008:162). Internal consistency is the degree to which all items in a test or scale calculate the same concept according to the Bureau of Justice Assistance (2010:1). A pilot test was conducted to identify any possible practical problems and to ensure that the questionnaire was easy to understand and complete.

Validity refers to the degree to which the measuring process measures the variable it states to measure (De Vos *et al.*, 2008:160). Face validity refers to the measurement technique, and if it actually appears to be measuring what it is supposed to measure (De Vos *et al.*, 2008:161). Content validity is the assessment of the representativeness of all the elements of the variable to be measured (Brink *et al.*, 2006:160). Validity was ensured by presenting the questionnaire to an expert in the field of contraception. This preceded the actual data collection. The intention of the questionnaire was to determine knowledge, and this was ensured by posing relevant questions about the research topic. The researcher presented the measuring instrument to a statistician to ensure that statistical analysis was possible, which would further increase the validity of the measuring instrument. The pilot test also ensured that the questionnaire was free from ambiguity and inaccuracies, thus ensuring the validity.

### **3.2.7 Data collection**

The researcher personally collected the data obtained by means of self-administered questionnaires. According to De Vos *et al.* (2008:168) the biggest advantage of self-administered questionnaires is that respondents can complete them on their own, while the researcher is available if problems arise. Students who complied with the inclusion criteria were randomly approached for voluntary participation in the study. This process continued until the sample reached the designated size, namely 173 students from campus A, 22 students from campus B and five students from campus C (n=200). Data collection took place during May 2010. Two days per week were allocated for the data collection, which totalled to approximately eight days during the month of May, allowing for the collection of 173 questionnaires from students on campus A. One day in April 2010 was allocated for collecting 22 questionnaires from students on campus B, and one day for collecting five questionnaires from students on campus C. Students were recruited between lectures, as well as during off-lectures in various student cafeterias on campus. As students participating in this study were allowed to complete only one questionnaire, they were asked beforehand whether they had already completed the questionnaire to ensure that no student would complete the questionnaire more than once.

The researcher was informed that additional consent would be needed for collecting data at the campus C. Due to time constrictions, and the fact that only five respondents (n=5) (2,5% of the total sample) from campus C were needed for participation in the study, the researcher recruited an additional five students from campus B in order to reach the designated sample size of 200 undergraduates. Furthermore, the inclusion of campus C was not considered a necessity, as it was not the intention of

the researcher to compare the different campuses of the particular university. Campus C would merely be included to ensure representativeness of the sample. Consequently campus C did not form part of the study, as was initially planned.

Due to the sensitive nature of the information that was requested from the respondents, they were referred to an appropriate psychologist to assist them, should they need emotional support. Campus A has a 24-hour crisis service that also offers free sessions with a psychologist, whereas The Centre for Student Counseling and Development at campus B offers free sessions with a psychologist for all their students. Campus C offers a variety of services in terms of psychological assistance that is also available to enrolled students free of charge. Students who felt distressed, or experienced a need for psychological assistance, could make use of the appropriate services for students. However, none of the students who participated in the study felt a need to be referred to an appropriate psychologist.

### **3.2.8 Data analysis**

MS Excel was used to capture the quantitative data. Given that a descriptive design was chosen for this study, descriptive statistics was used for analysing the data, with the assistance of a statistician and using *Statistica* version 9-software. Distributions of variables were presented by means of histograms and frequency tables. Relationships between variables were analysed with appropriate inferential tests, namely the analysis of variance (ANOVA) and an appropriate chi-square test (see paragraph 4.2.1).

In order to analyse the qualitative data generated by the open-ended questions in the questionnaire, the researcher made use of analytical abstraction by using Tesch's approach as described by De Vos (2001:343). Tesch proposed eight steps in the analysis of qualitative data, namely:

Step 1: The researcher should read the entire transcript to obtain a sense of the whole and to identify some ideas.

Step 2: The underlying meaning of the information is summarised in the margin.

Step 3: A list is made of all the themes or topics, and similar themes or topics are clustered together.

Step 4: The researcher finds the most descriptive wording for the themes or topics and categorises them.

Step 5: The themes or topics are abbreviated as codes, which are written next to the appropriate segments of the transcripts.

Step 6: The researcher makes a final decision on the abbreviation for each category and alphabetises the codes.

Step 7: The data material relating to each category is assembled and a preliminary analysis is performed.

Step 8: The researcher recodes existing data if necessary.

### **3.3 SUMMARY**

In this chapter the researcher reflected on the research process that was implemented in this project. It included detailed information regarding the research approach and design, the target population and sampling, inclusion and exclusion criteria, data collection instruments and the pilot test. Furthermore, the reliability and validity of the study and the data collection were discussed. The data analysis and interpretation thereof will be discussed in detail in Chapter 4.

## **CHAPTER 4**

### **DATA ANALYSIS, INTERPRETATION AND DISCUSSION**

#### **4.1 INTRODUCTION**

De Vos *et al.* explain that for data to be analysed, it must be categorised, ordered and summarised. The purpose of analysis is to condense all the data into a compact form which can be interpreted for the purposes of studying and testing the data, and for drawing conclusions. Furthermore, interpretation comprises the search for the broader meaning and implications of the research results (2008:218). Chapter 3 contained a detailed discussion of the research methodology, explaining how the data were collected. In Chapter 4 this is followed up with a discussion regarding the interpretation of the analysed data.

#### **4.2 DATA ANALYSIS**

Once the raw data was obtained, it was entered on a Microsoft Excel spreadsheet. A statistician from the Centre for Statistical Consultation at Stellenbosch University was consulted with regard to analysing the data, using *Statistica* version 9-software. This study was mainly quantitative in nature, with a much smaller qualitative component. Thus two types of data analysis were involved, namely:

- a descriptive analysis where quantitative data, obtained from the questionnaire, was analysed in percentage form and presented in histograms and tables (see paragraph 3.2.8); and
- the analysis of qualitative data, obtained through comments of the respondents who completed the open-ended questions in the questionnaire (see paragraph 3.2.8).

##### **4.2.1 Quantitative data analysis and interpretation**

Given that a descriptive design was chosen for this study, descriptive statistics were used for analysing the quantitative data. Quantitative data comprises information which is presented in numerical form. Microsoft Excel (Microsoft Office) was used to capture the data and the *Statistica* version 9-software program was used for its analysis. Where relationships between variables were analysed, appropriate inferential statistical tests, namely the ANOVA and an appropriate chi-square test, were applied in consultation with a statistician of Stellenbosch University, (Maltby *et al.*, 2007:117). The distributions of variables were presented by means of histograms and/or frequency distribution tables.

The non-probability convenience sample of undergraduate students, as discussed in paragraph 3.2.2, consisted of 200 respondents. A total of 200 questionnaires were returned. The 100% return rate can be ascribed to the fact that the researcher personally handed out and collected the completed questionnaires. For the purposes of this research report, all percentages were rounded off to the first decimal. The numbering of the questions in this discussion agrees with the numbering on the questionnaire.

The questionnaire comprised five sections, namely:

- Section A: Demographic information (Questions 1 to 10);
- Section B: Knowledge of contraception (Questions 11 to 21);
- Section C: Knowledge of emergency contraception (Questions 22 to 31);
- Section D: Personal information (Questions 32 to 56); and
- Section E: Contraception and emergency contraception accessibility (Questions 57 to 62).

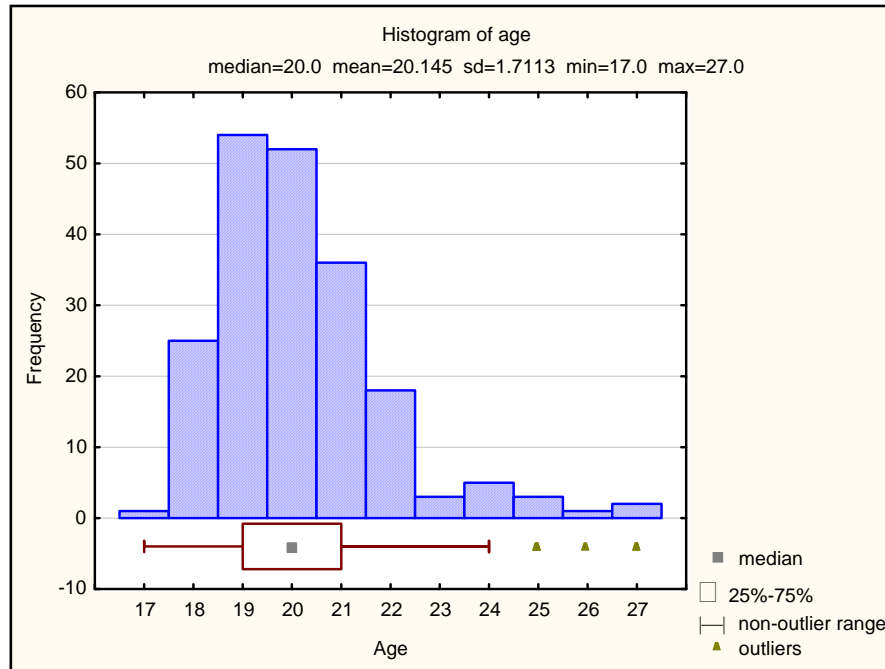
#### **4.2.1.1 Section A: Demographic information**

The data obtained from questions one to ten contained the respondents' demographic information, providing the researcher with the background detail of each respondent who completed the questionnaire. The purpose was to compile a profile of the respondents' age, sex, marital status, religion and race, the faculty where the respondents were studying, the number of study years spent at university, the place where the students were staying and whether they had children or previous pregnancies.

##### **Question 1: How old are you? (n=200)**

Figure 4.1 indicates the age of the undergraduate students, hereafter referred to as respondents, who were involved in the study. The majority of the respondents were 19 (n=54 or 27,0%) and 20 (n=52 or 26,0%) years of age, followed by the age groups of 21 (n=35 or 17,5%) and 18 (n=25 or 12,5%). The sharp decline in the number of respondents in the age group 17 years and 22 to 27 years who studied full-time, can be ascribed to the fact that the 17-year olds were still at school when the study was conducted, while the 22- to 27-year olds were mostly post-graduate students. Most of the respondents were between 18 and 22 years of age (n =185 or 92,5%). The mean age of the respondents who participated in this study was 20,1 years. According to De Vos *et al.* (2008:233) the mean is 'the sum of the measurements divided by the amount of measurements'.





**Figure 4.1**

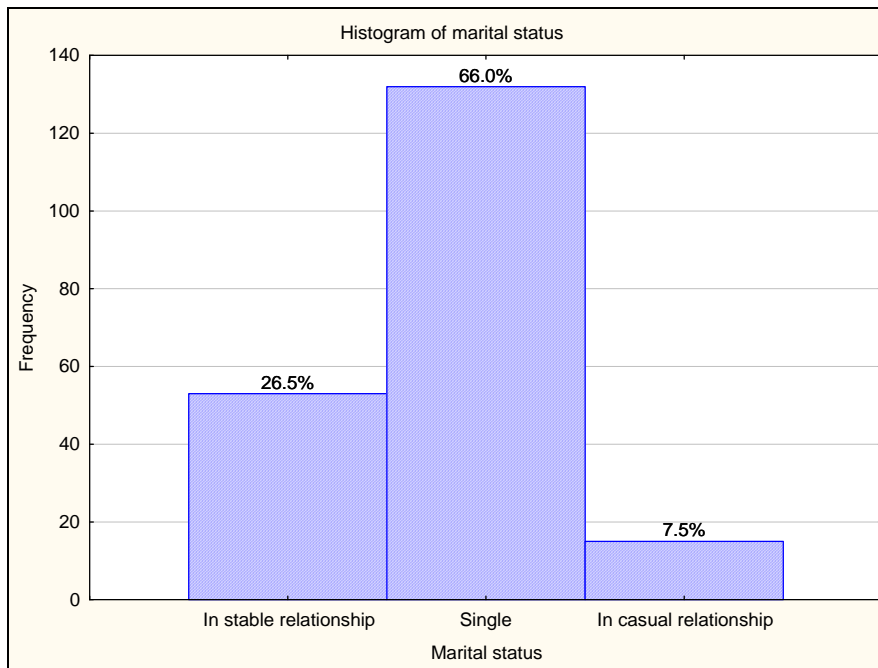
**Age of the respondents**

**Question 2: What is your gender? (n=200)**

The majority of the respondents who took part in this study were male students (n=112 or 56,0%), and the other 44,0% (n=88 or 44,0%) consisted of female students.

**Question 3: What is your marital status? (n=200)**

As indicated in figure 4.2, the majority of the respondents (n=132 or 66,0%) were either single, or in a stable relationship (n=53 or 26,5%). None of the respondents was married, divorced, a widow/widower or in a polygamous relationship.

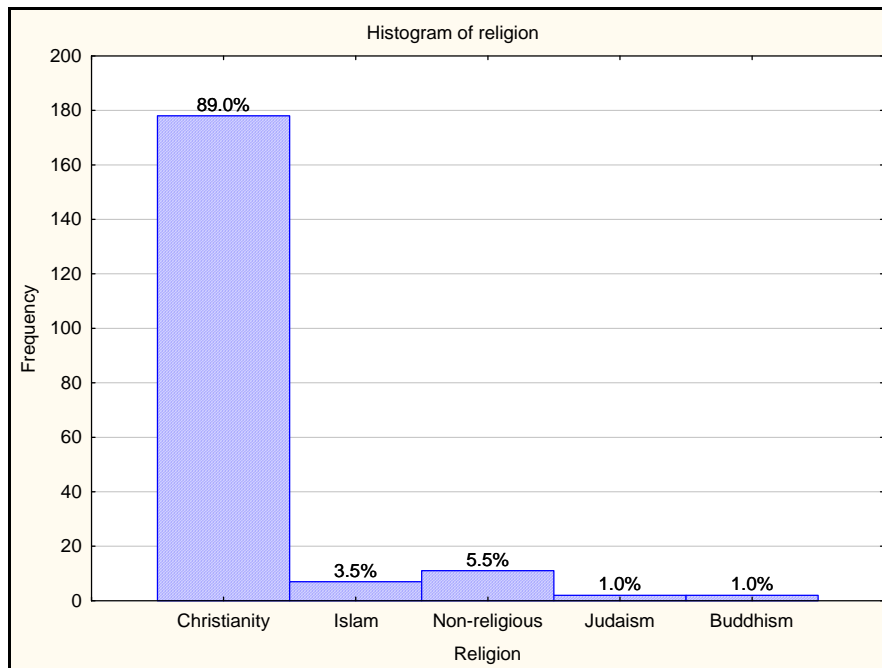


**Figure 4.2**

**Marital status of the respondents**

**Question 4: What is your religion? (n=200)**

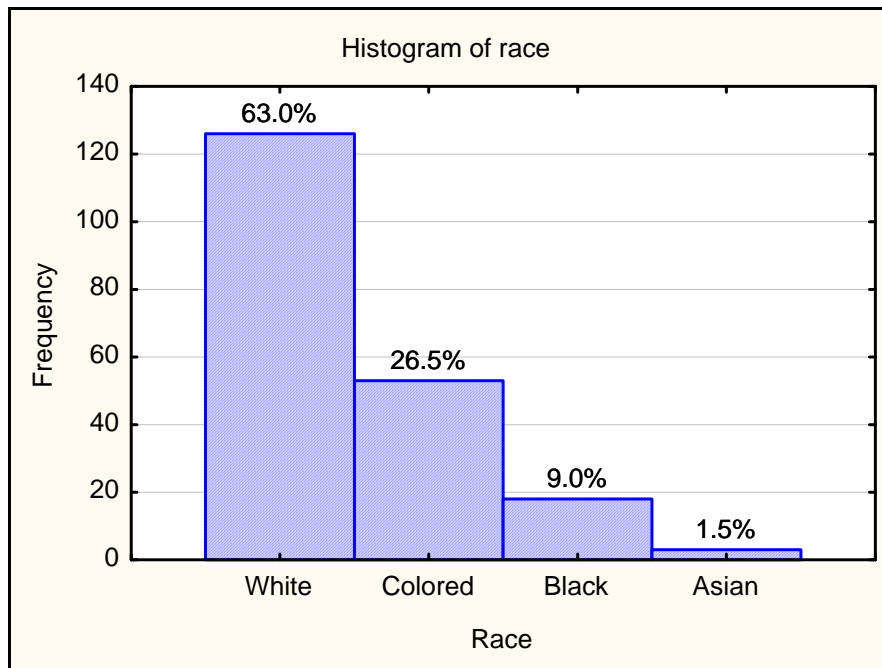
As indicated in figure 4.3, the majority of the respondents were Christians (n=178 or 89,0%). The minority of the respondents were either non-religious (n=11 or 5,5%) or Islamic (n=7 or 3,5%). However, none of the respondents indicated any 'other religion'.



**Figure 4.3**  
**Religion of the respondents**

**Question 5: Indicate your race (n=200)**

As indicated in figure 4.4, the majority of the respondents who participated in the study were either white (n=126 or 63,0%) or coloured (n=53 or 26,5%). Only 9,0% (n=22 or 9,0%) of the respondents were black and 1.5% were Asian (n=3 or 1,5%). None of the respondents indicated that they belonged to any other race. Race was included to ensure that various ethnic groups were represented in this study.



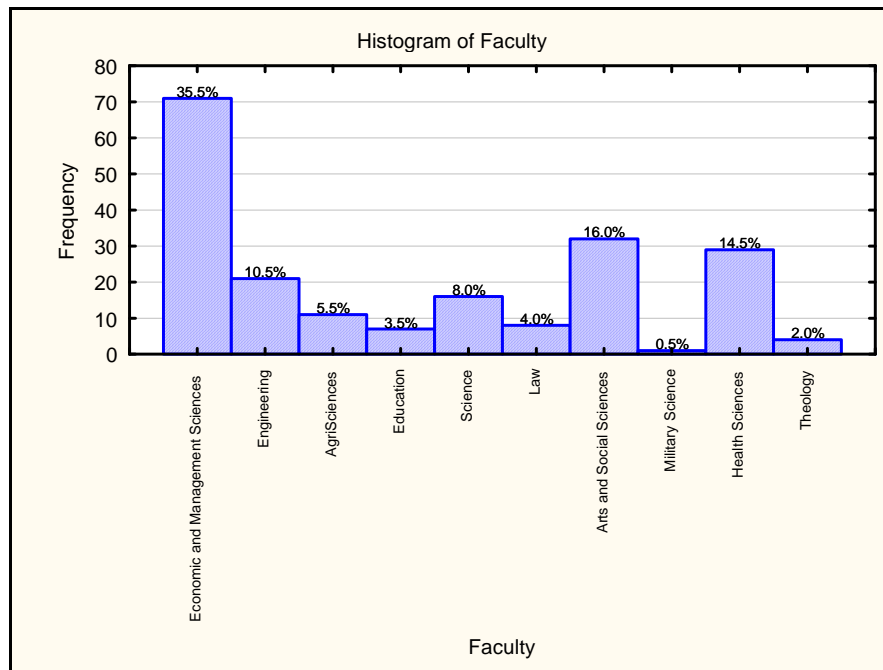
**Figure 4.4**  
**Race of the respondents**

**Question 6: At what faculty do you study? (n=200)**

As it was not the researcher's intention to compare faculties with one another, a convenience sample as discussed in paragraph 3.2.2 allowed the researcher to include the cases at hand until the sample reached the designated size. Therefore the percentages, as displayed in figure 4.5, do not necessarily represent the actual size of the particular faculty.

The majority of the respondents studied at the Faculty of Economic and Management Sciences (n=71 or 35,5%), the Faculty of Arts and Social Sciences (n=32 or 16,0%) or the Faculty of Health Sciences (n=29 or 14,4%). Although campus C was eventually excluded from the study (see paragraph 3.2.7), one respondent from this campus completed the questionnaire while visiting campus A.

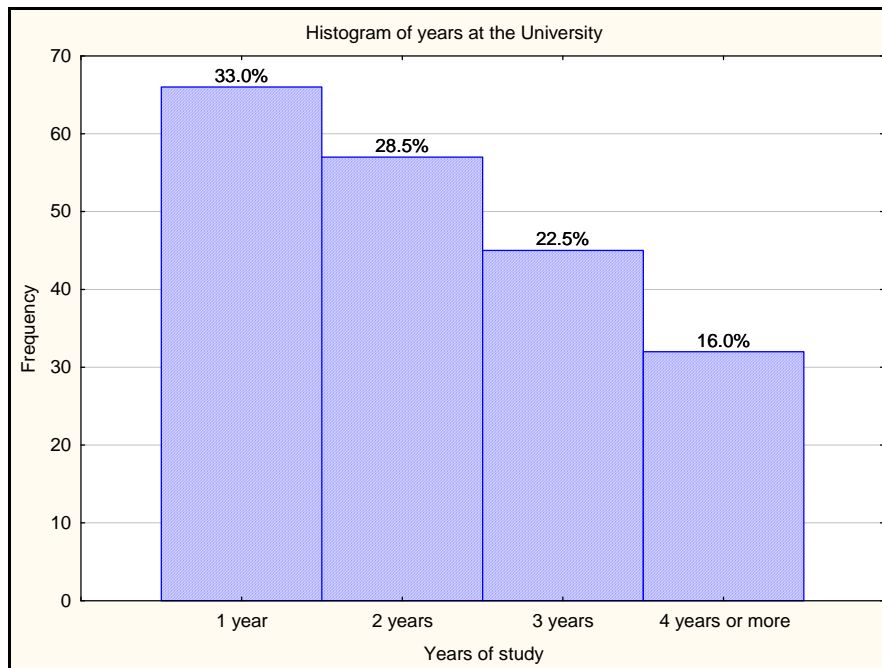
Representation was ensured by including all undergraduate students proportionally from campus A and campus B of the particular university. Campus A constituted 86,5% of the population and the researcher collected 173 (86,5%) of the questionnaires from this campus. Students from campus B constituted 11,0% of all the students at the particular university, and the researcher collected 27 (13,5%) of the questionnaires from campus B.



**Figure 4.5**  
**Various faculties of study**

**Question 7: For how many years have you been studying at the university? (n=200)**

Despite the fact that the researcher took the cases at hand, not knowing whether the respondents were first-, second-, third- or fourth-year students, the findings, as displayed in figure 4.6, correlate proportionally with the actual percentage of the undergraduate students in each year group. The first-year students from the three campuses amounted to a total of 4 679 students. First-year students comprised 29,5% of all the students studying at the particular university. The researcher's sample, consisting of 33,0% of first-year students, could therefore be considered as representative. According to figure 4.6 this tendency applied for the other year groups as well.

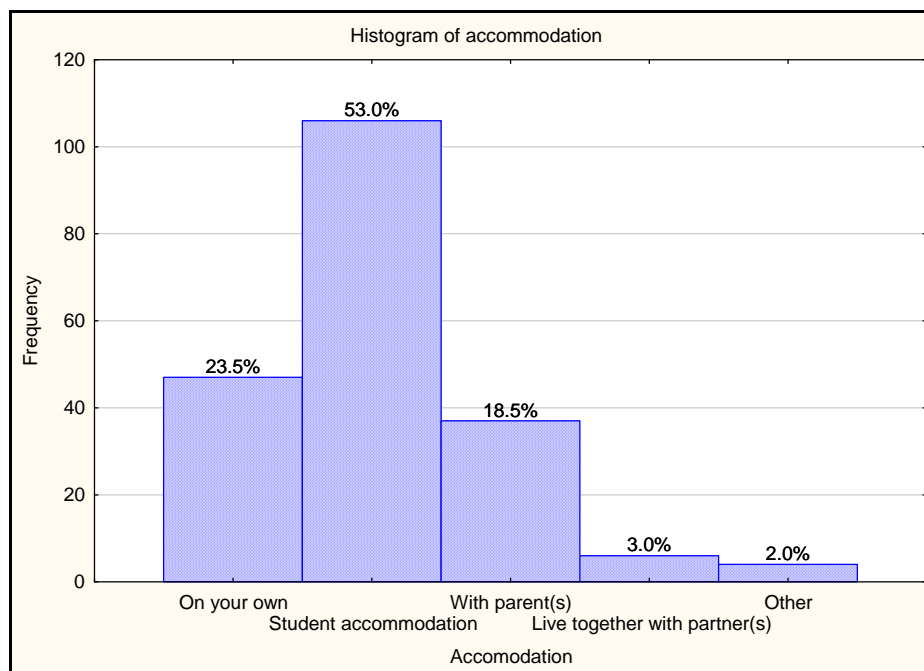


**Figure 4.6**

**Number of study years spent at the particular university**

**Question 8: Where are you staying? (n=200)**

Although the majority of respondents (n=106 or 53,0%) were accommodated in students' accommodation, a total of 47 respondents (n=47 or 23,5%) was staying on their own, while only 3,0% of the respondents (n=6 or 3,0%) were living with their partners. Four respondents (n=4 or 2,0%) ticked the 'Other' option on the questionnaire. Two respondents (n=2 or 1,0%) who ticked the 'Other' option did not specify where they were staying, while one respondent (n=1 or 0,5%) lived with his/her family and the other student (n=1 or 0,5%) lived with his/her friends.



**Figure 4.7**  
**Students' accommodation**

**Question 9: How many children do you have, if any? (n=200)**

Almost all the respondents (n=198 or 99,0%) indicated that they had no children. One respondent had one child and another had two children.

**Question 10: Have you or your partner ever been pregnant before? (n=200)**

Although almost no respondents or their partners (n=197 or 98,5%) had been pregnant before, three respondents (n=3 or 1,5%) mentioned that they had indeed been pregnant previously.

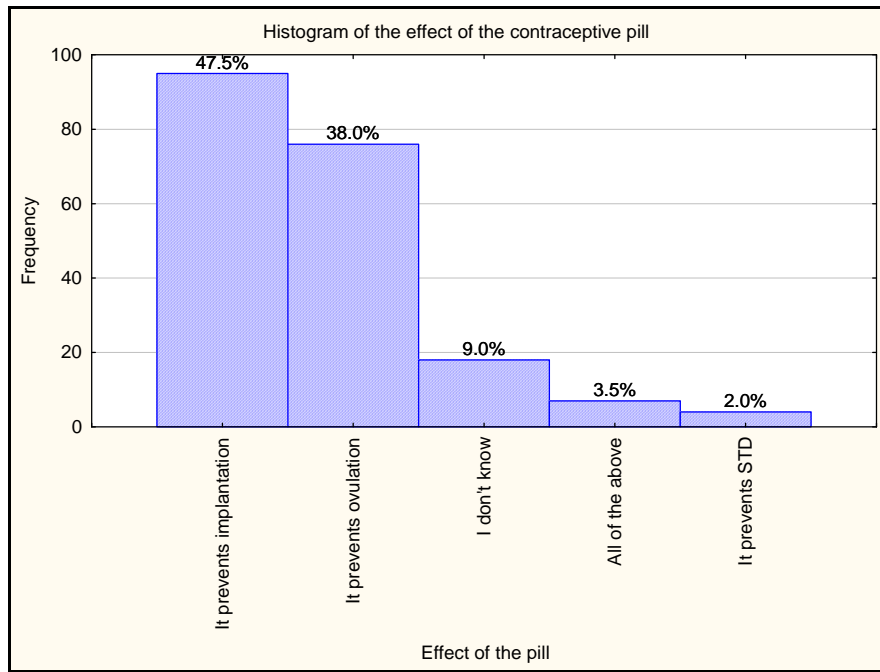
**4.2.1.2 Section B: Knowledge of contraception**

The following questions (11 to 21) were included to determine the respondents' knowledge of contraception. This section contained 11 questions regarding contraceptives.

**Question 11: What is the effect of the oral contraceptive pill? (n=200)**

As indicated in figure 4.8, the majority of the respondents mentioned that oral contraceptives either prevent implantation of the fertilised ovum (n=95 or 47,5%), or prevent ovulation (n=76 or 38,0%). Taking in consideration that all the respondents were studying at a tertiary institution, it is a matter of

concern that students either did not know the effect of the oral contraceptive pill (n=18 or 9,0%), or mentioned that the contraceptive pill prevents STDs (n=4 or 2,0%). Some did not know what the effects of oral contraceptives were at all (n=7 or 3,5%).



**Figure 4.8**

**The effects of the contraceptive pill**

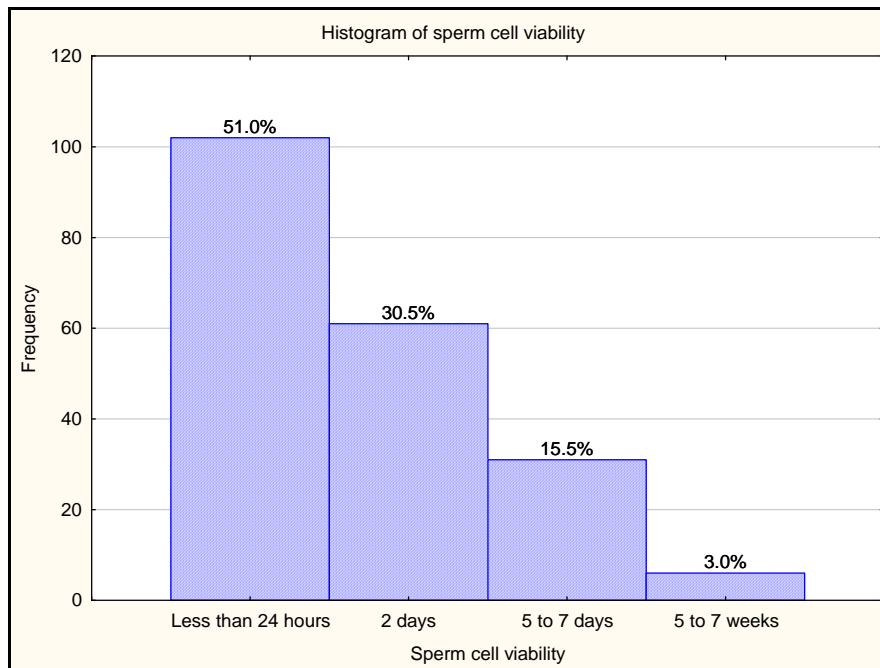
**Question 12: How many times can you use a single condom? (n=200)**

Replying to the above question, the majority of the respondents (n=197 or 98,5%) mentioned that a condom could be used only once. One student (n=1 or 0,5%) indicated that a condom could be used twice, while another two respondents (n=2 or 1,0%) mentioned that a single condom could be used multiple times.

**Question 13: An ovum is viable for about 24 hours after ovulation. For how long are sperm cells viable? (n=200)**

Replying to the above question, more than half of the respondents (n=102 or 51,0%) mentioned that sperm cells are viable for less than 24 hours, while six respondents (n=6 or 3,0%) indicated that sperm cells are viable for five to seven weeks. Only 61 respondents (n=61 or 30,5%) knew that sperm cells are viable for two days.





**Figure 4.9**

**Respondents' feedback on sperm cell viability**

**Question 14: Can you fall pregnant if you/your partner is not using a condom, but uses the withdrawal method? (n=200)**

Most of the respondents (n=187 or 93,5%) knew that one can fall pregnant if one does not use a condom, but relies on the withdrawal method, while only 13 respondents (n=13 or 6,5%) were of the opinion that it is impossible to fall pregnant if only the withdrawal method is used.

**Question 15: Can you fall pregnant if you have sex during the menstruation period? (n=200)**

Almost half of the respondents (n=94 or 47,0%) were of the opinion that one cannot fall pregnant if one has sex during the menstruation period, while 106 respondents (n=106 or 53,0%) knew that one can indeed fall pregnant if one has sex during the menstruation period.

**Question 16: Effective alternatives to a condom are household wrap or a balloon. (n=200)**

In reply to the above statement, the majority of the respondents (n=198 or 99,0%) knew that household wrap or a balloon is not an effective alternative to a condom, as they had ticked the 'False' category. Two respondents (n=2 or 1,0%) mentioned that household wrap or a balloon does indeed serve as an effective alternative to a condom.

**Question 17: You need to have an orgasm while having sex to become pregnant. (n=200)**

The majority of the respondents (n=181 or 90,5%) ticked 'False' in reply to the above statement, while 19 respondents (n=19 or 9,5%) mentioned that it is necessary to have an orgasm in order to become pregnant.

**Question 18: How long does it take for 'the pill' to become effective? (n=200)**

The majority of the respondents (n=83 or 41,5%) knew that the contraceptive pill takes effect after about two weeks. However, 57 respondents (n=57 or 28,5%) mentioned that the contraceptive pill is effective right away (see table 4.1).

**Table 4.1****Time duration before contraceptive pill is effective**

Category	<i>f</i>	%
It is effective right away	57	28,5
After about 2 weeks	83	41,5
Only after one month	60	30,0
<b>Total</b>	<b>200</b>	<b>100%</b>

**Question 19: For how many days per month are women most prone to becoming pregnant? (n=200)**

As indicated in table 4.2, the majority of respondents (n=141 or 70,5%) correctly indicated that women are most prone to becoming pregnant between four and six days per month.

**Table 4.2****Number of days per month women are prone to becoming pregnant**

Category	<i>f</i>	%
All the days of the month	40	20,0
4 to 6 days per month	141	70,5
1 to 2 days per month	19	9,5
<b>Total</b>	<b>200</b>	<b>100%</b>

**Question 20: Can certain antibiotics decrease the effectiveness of hormonal contraceptives? (n=200)**

The majority of the respondents (n=167 or 83,5%) correctly indicated ‘Yes’ on the question whether certain antibiotics can decrease the effectiveness of hormonal contraceptives, whereas the rest of the respondents (n=33 or 16,5%) indicated that antibiotics could not decrease the effectiveness of hormonal contraceptives.

**Question 21: Smoking, while using hormonal contraceptives, can lead to: (n=200)**

Referring to table 4.3, it is interesting to note that the majority of respondents (n=83 or 41,5%) indicated that smoking makes the pill less effective, while only 67 respondents (n=67 or 33,5%) correctly mentioned that smoking, in combination with hormonal contraceptives, puts one at a higher risk for getting a heart attack and stroke.

**Table 4.3**

**The effect of smoking on hormonal contraceptives**

Category	<i>f</i>	%
It puts one at a higher risk for getting a heart attack and stroke	67	33,5
It increases the chances of getting lung cancer	50	25,0
Smoking makes the pill less effective	83	41,5
<b>Total</b>	<b>200</b>	<b>100%</b>

**4.2.1.3 Section C: Knowledge of emergency contraception**

The following questions (22 to 31) were included to assess the respondents’ knowledge of emergency contraception. This section contained ten questions regarding emergency contraceptives.

**Question 22: What is emergency contraception? (n=200)**

Although the majority of the respondents (n=105 or 52,5%), as indicated in table 4.4, mentioned that emergency contraception is the ‘morning-after pill’ which should be taken on the morning after having unprotected sex, only 48 respondents (n=48 or 24,0%) knew that emergency contraception is a device or drug to prevent pregnancy after engaging in unprotected sex.

Table 4.4

## Interpretation of the concept 'emergency contraception'

Category	<i>f</i>	%
Given only in an emergency situation when a person has been raped	36	18,0
High dose of ordinary contraceptive pill and causes a termination of pregnancy	11	5,5
Device or drug to prevent pregnancy after unprotected sex	48	24,0
'Morning-after pill' taken the morning after having unprotected sex	105	52,5
<b>Total</b>	<b>200</b>	<b>100 %</b>

**Question 23: Emergency contraception must be taken the morning after having unprotected sex to be effective. (n=200)**

Only 36 respondents (n=36 or 18,0%) ticked 'False' in reply to the above statement, whereas the majority of respondents (n=164 or 82,0%) incorrectly mentioned that emergency contraception should be taken the morning after having unprotected sex to be effective.

**Question 24: Emergency contraception also protects you from sexually transmitted diseases. (n=200)**

Almost all the respondents (n=190 or 95,0%) ticked 'False' in reply to the above statement, whereas ten respondents (n=10 or 5,0%) incorrectly mentioned that emergency contraception also protects one from sexually transmitted diseases.

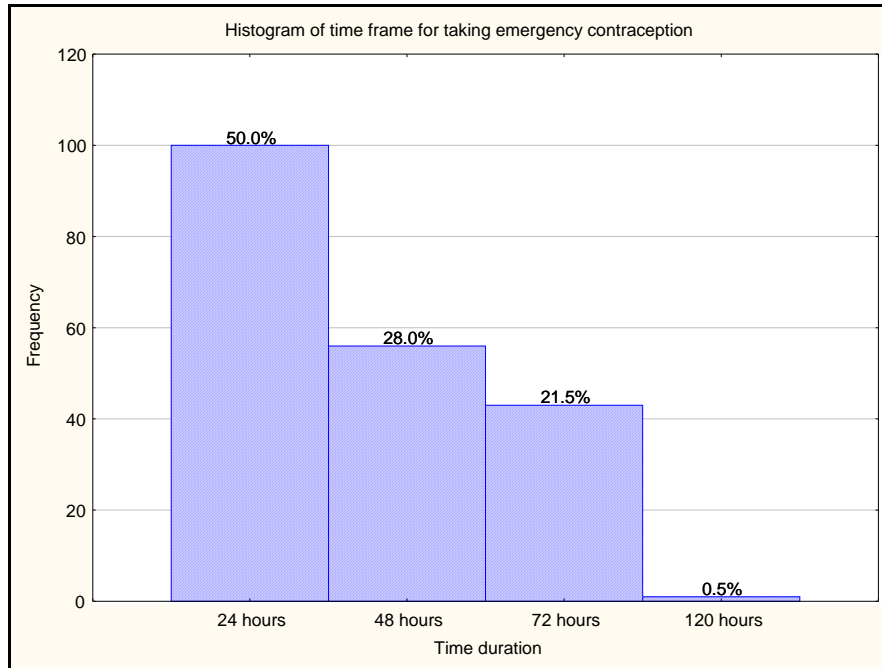
**Question 25: Emergency contraception causes a termination of pregnancy. (n=200)**

Almost two-thirds of the respondents (n=135 or 67,5%) mentioned that emergency contraception causes a termination of pregnancy, whereas only 65 respondents (n=65 or 32,5%) correctly indicated 'False' in reply to the above statement.

**Question 26: For how many hours can *all types* of emergency contraception (including the intrauterine device) be taken after sex and still be effective: (n=200)**

As indicated in figure 4.10, only one respondent (n=1 or 0,5%) knew that *all types* of emergency contraception could be taken for up to 120 hours after engaging in unprotected sex, and still be effective in preventing an unplanned pregnancy. It seemed that the majority of respondents were under

the impression that *all types* of emergency contraception need to be taken either within 24 hours (n=100 or 50,0%), 48 hours (n=56 or 28,0%) or 72 hours (n=43 or 21,5%).

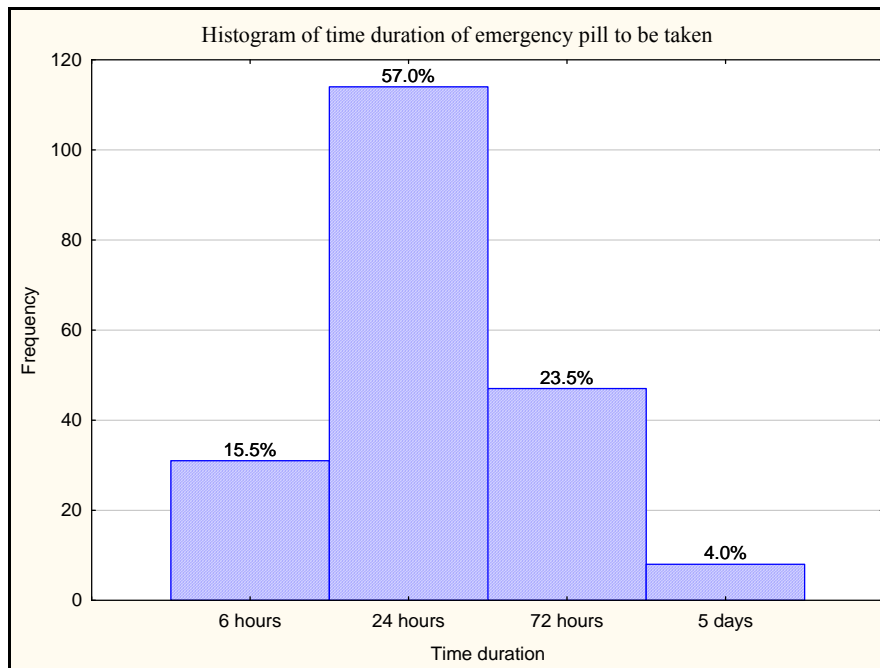


**Figure 4.10**

**Time frame for taking all types of emergency contraception**

**Question 27: For how long after unprotected sex is the *emergency pill* effective? (n=200)**

As indicated in figure 4.11, only eight respondents (n=8 or 4,0%) knew that the emergency pill could be taken for up to five days after having unprotected sex and still be effective in preventing an unplanned pregnancy. It seemed that the majority of respondents were under the impression that the emergency pill needs to be taken either within 24 hours (n=114 or 57,0%), 72 hours (n=47 or 23,5%), or even six hours (n=31 or 15,5%) after unprotected sex in order to prevent an unplanned pregnancy.



**Figure 4.11**

**Time duration of emergency contraceptive pill to be taken**

**Question 28: Emergency contraception is only effective once. After having unprotected sex again, one should make use of a termination of pregnancy. (n=200)**

The majority of the respondents (n=152 or 76,0%) identified the above as a 'False' statement. However, a significant number of respondents (n=48 or 24,0%) indicated that emergency contraception is only effective once and after having unprotected sex again, one should make use of a termination of pregnancy.

**Question 29: You can take emergency contraception when you are pregnant, and it will terminate the pregnancy. (n=200)**

The majority of the respondents (n=181 or 90,5%) ticked the above statement as 'False'. The minority of respondents (n=19 or 9,5%) indicated that emergency contraception will terminate the pregnancy.

**Question 30: Emergency contraception can be used as a regular form of contraception taken after unprotected sex, instead of other contraceptives. (n=200)**

The majority of the respondents (n=143 or 71,5%) identified the above as a 'False' statement, whereas 57 of the respondents (n=57 or 28,5%) indicated that emergency contraception could be used as a regular form of contraception taken after unprotected sex, instead of other contraceptives.

**Question 31: Can the emergency contraceptive pill fail? (n=200)**

Most of the respondents (n=194 or 97,0%) knew that the emergency contraceptive pill could fail, whereas six of the respondents (n=6 or 3,0%) indicated that it could not fail.

**4.2.1.4 Section D: Personal information**

The following questions (32 to 56) were included to compile a background of each respondent's sexual history and his/her use of contraceptives and emergency contraceptives. Questions 36, 55 and 56 generated qualitative data which is excluded from the quantitative analysis. However, the data is coded and summarised in paragraph 4.2.2.

**Question 32: Are you sexually active at the moment? (n=200)**

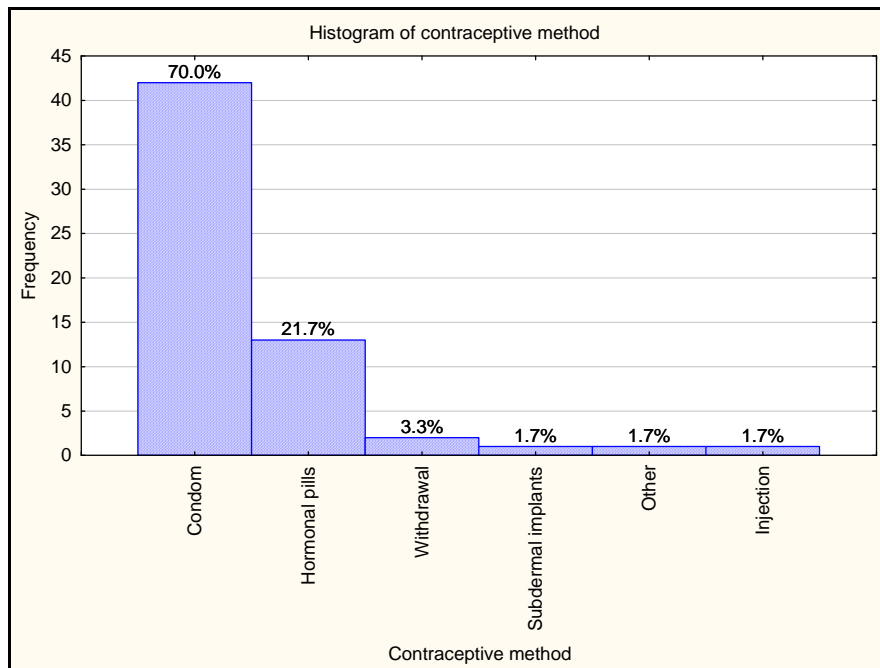
The majority of the respondents (n=126 or 63,0%) indicated that they were not sexually active at the time, whereas 74 respondents (n=74 or 37,0%) indicated that they were sexually active.

**Question 33: Are you using contraception? (n=200)**

The majority of the respondents (n=140 or 70,0%) indicated that they were not using contraception, whereas 60 respondents (n=60 or 30,0%) mentioned that they were indeed using contraception. On comparing the responses of questions 32 and 33, it seemed that those who were sexually active (37,0%) did make use of some means of contraception (30,0%).

**Question 34: If your answer is YES in question 33, what contraception are you using? (n=60)**

As mentioned above, a total of 60 respondents (n=60 or 30,0%) mentioned that they were using some form of contraception. Of those respondents, the majority used either condoms (n=42 or 70,0%) or hormonal pills (n=13 or 21,7%), as indicated in figure 4.12.



**Figure 4.12**

**Type of contraception used by respondents**

**Question 35: If you have chosen “OTHER” in question 34, please specify: (n=60)**

Only one respondent (n=1 or 1,7%) indicated ‘Other’ in question 34. The respondent made use of a balloon as contraceptive method.

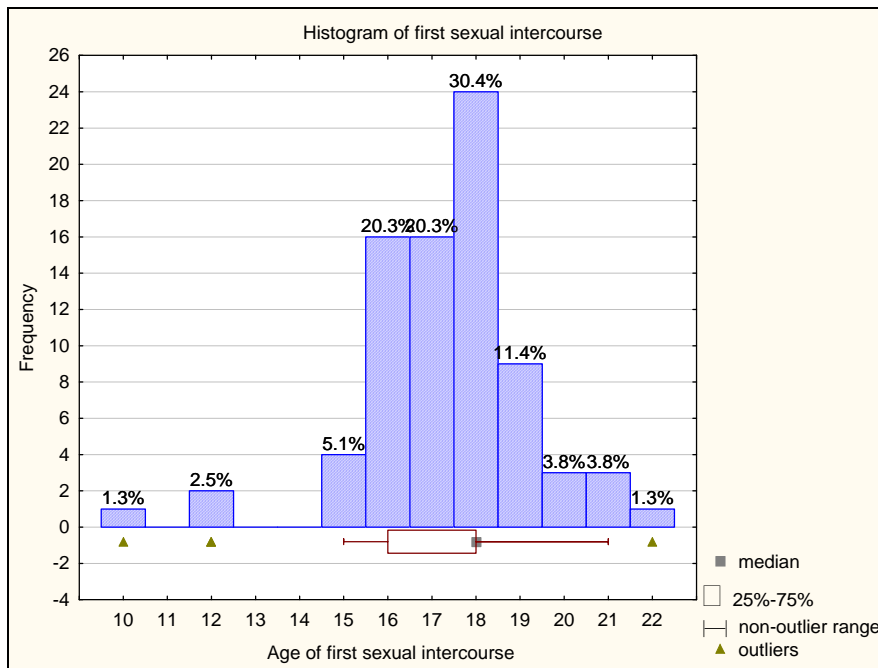
**Question 36: If you DO NOT USE contraception, what are your reason(s)?**

(See paragraph 4.2.2 regarding the qualitative analysis of the responses to this question)

**Question 37: At what age did you have sexual intercourse for the first time? (n=200)**

As indicated in figure 4.13, a total of 79 (n=79 or 39,5%) respondents already had sexual intercourse. The mean age was  $X=17,3$ . According to De Vos *et al.* (2008:233) the mode is the value that occurs most frequently in a distribution (Mo=18), whereas the median is the middlemost point in a distribution, capturing the central point (Me=18). The mean, mode and median regarding the age of the respondents correlated in these findings.



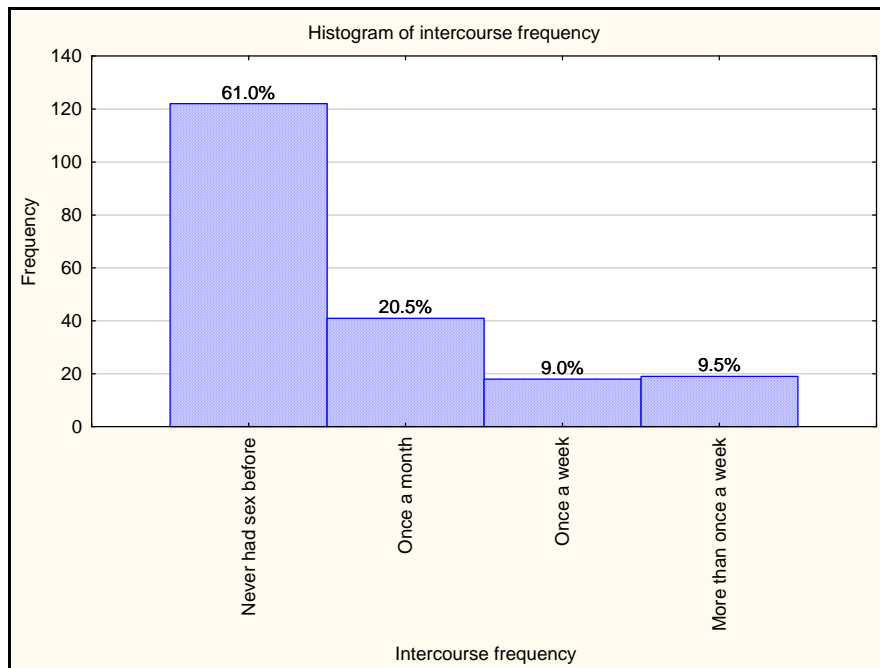


**Figure 4.13**

**Age of first sexual intercourse**

**Question 38: Intercourse frequency: (n=200)**

As indicated in figure 4.14, the majority of respondents (n=122 or 61,0%) mentioned that they never had sex before. This correlates with the findings in Question 32 where 63,0% of the respondents mentioned that they were not sexually active at the time. However, it is still a matter of concern that 39,0% (n=78) of the respondents were sexually active.



**Figure 4.14**

**Intercourse frequency of respondents**

**Question 39: Have you or your partner ever made use of emergency contraception? (n=200)**

The minority of the respondents (n=30 or 15,0%) mentioned that he/she or his/her partner had made use of emergency contraception before. The rest of the respondents (n=170 or 85,0%) had never made use of emergency contraception.

**Question 40: What is your reason for using emergency contraception? (n=30)**

Only 30 respondents completed this question. The reasons for using emergency contraception are displayed in table 4.5. It is evident that the respondents used emergency contraception due to either having had unprotected sex (n=12 or 40%), or to prevent pregnancy (n=11 or 36,7%).

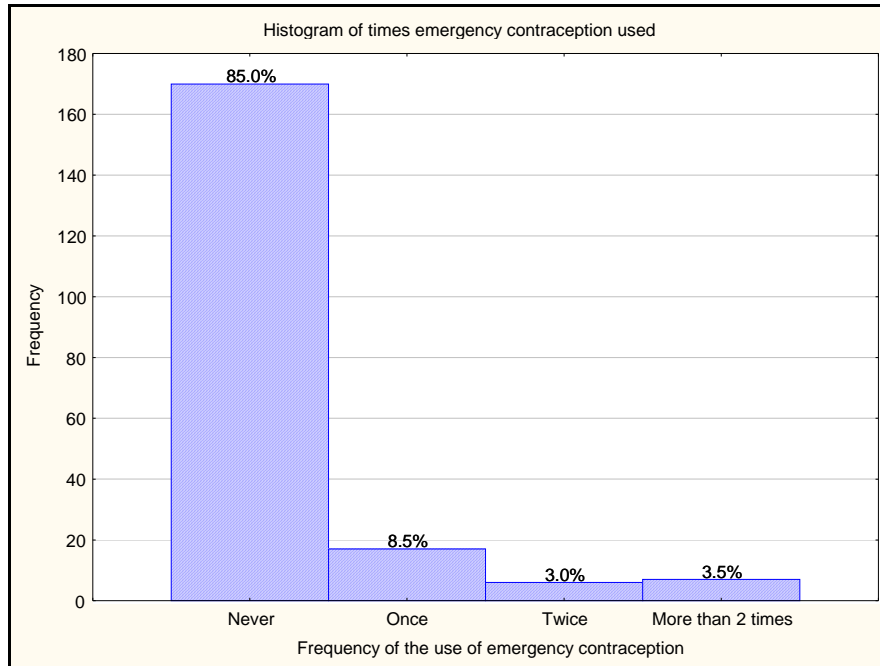
**Table 4.5**

**Reasons for using emergency contraception**

Reasons	<i>f</i>	%
Do not want to get a STD	1	3,3
Had unprotected sex	12	40,0
Faulty condom	5	16,7
To prevent pregnancy	11	36,7
Might have been pregnant	1	3,3
<b>Total</b>	<b>n=30</b>	<b>100%</b>

**Question 41: How many times have you made use of emergency contraception? (n=200)**

According to figure 4.15, the majority of respondents (n=170 or 85,0%) mentioned that they had never made use of emergency contraception. This correlates with the findings in question 39 where 85,0% of the respondents also indicated that they had never made use of emergency contraception.

**Figure 4.15****Frequency of the use of emergency contraception****Question 42: Will you consider using emergency contraception after having unprotected sex? (n=200)**

The majority of the respondents (n=159 or 79,5%) mentioned that they would consider using emergency contraception after having unprotected sex, whereas 41 respondents (n=41 or 20,5%) answered 'No' to this question.

**Question 43: Have you ever had more than one sexual partner over the same period of time? (n=200)**

As many as 15 respondents (n=15 or 7,5%) had more than one sexual partner over the same period of time, whereas the majority of the respondents (n=185 or 92,5%) answered 'No' to this question.

**Question 44: Are you forced by anybody to use contraception? (n=200)**

Only four respondents (n=4 or 2,0%) mentioned that they were forced to use contraception, whereas 98,0% (n=196 or 98,0%) indicated 'No'.

**Question 45: Do you discuss contraception or emergency contraception with your partner? (n=200)**

The minority of the respondents (n=64 or 32,0%) indicated that they discussed contraception or emergency contraception with their partners, whereas the rest (n=136 or 68,0%) answered 'No' to this question.

**Question 46: Have you ever terminated a pregnancy? (n=200)**

Only three respondents (n=3 or 1,5%) mentioned that they had a pregnancy terminated before, whereas the majority of the respondents (n=197 or 98,5%) answered 'No' to this question.

**Question 47: Have you ever considered a termination of pregnancy? (n=200)**

A total of 21 respondents (n=21 or 10,5%) mentioned that they had considered a termination of pregnancy before, whereas the majority of the respondents (n=179 or 89,5%) indicated 'No'.

**Question 48: Do you feel that you have sufficient knowledge to protect yourself from an unwanted pregnancy? (n=200)**

The majority of the respondents (n=166 or 83,0%) indicated that they had sufficient knowledge to protect themselves from an unwanted pregnancy, whereas a number of respondents (n=34 or 17,0%) mentioned that they did not have sufficient knowledge.

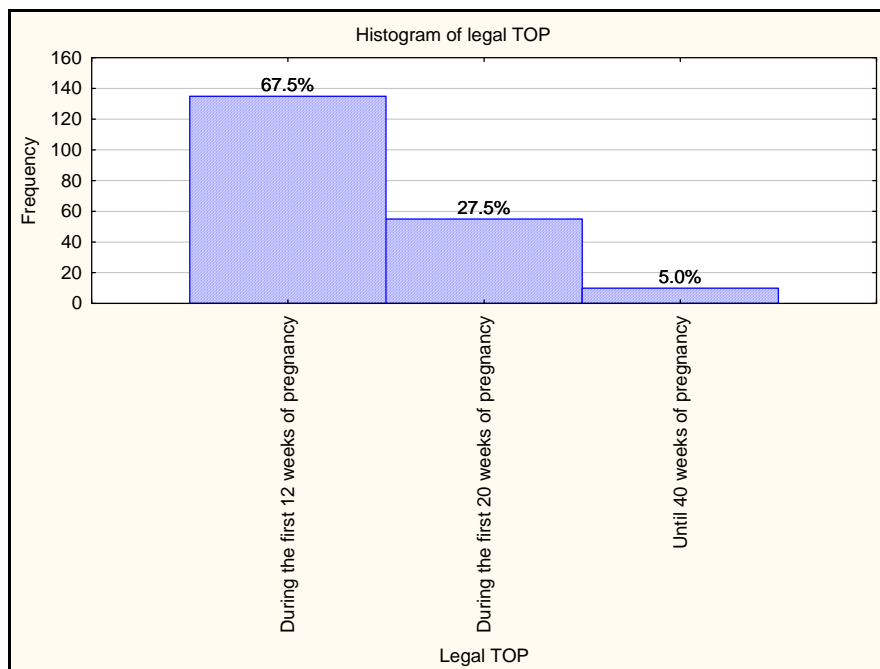
ANOVA was applied to determine whether there was a relationship between the age (see question one in paragraph 4.2.1.1) and students' knowledge regarding protecting themselves against an unwanted pregnancy (see question 48, paragraph 4.2.1.4). The researcher found that there was no significant correlation ( $p=0.82$ ) between the age and the knowledge of students regarding protecting themselves against an unwanted pregnancy, as  $p>0.05$  indicates that there is no significant correlation between any variables.

The number of years that the students had been studying at the university (see question seven, paragraph 4.2.1.1) was correlated with the students' knowledge of how to protect themselves from an

unwanted pregnancy (see question 48, paragraph 4.2.1.4). According to the Chi-square test, there was no significant correlation ( $p=0.43$ ) between the variables, as  $p>0.05$  indicates that there is no significant correlation between any variables.

**Question 49: Up to how many weeks of pregnancy may a pregnancy be terminated legally upon request? (n=200)**

Although the majority of the respondents ( $n=135$  or 67,5%) knew that a pregnancy may be terminated upon request within the first 12 weeks of pregnancy, a third of the respondents thought that a pregnancy can be terminated upon request up to the first 20 weeks of pregnancy ( $n=55$  or 27,5%), or even up to 40 weeks of pregnancy ( $n=10$  or 5,0%).



**Figure 4.16**

**Duration of pregnancy for a legal termination**

**Question 50: If you are using contraception, do you know how to use it? (n=200)**

The majority of respondents ( $n=141$  or 70,5%) indicated that they did not use any contraception. A total of 58 of the respondents ( $n=58$  or 29,0%) mentioned that they knew how to use contraception, whereas the rest of the respondents ( $n=1$  or 0,5%) did not know how to use it correctly.

**Question 51: If you are using contraception, do you know the contra-indications? (n=200)**

The majority of respondents (n=141 or 70,5%) indicated that they did not use any contraception. The majority of the respondents who used contraception mentioned that they knew the contra-indications (n=43 or 21,5%), whereas the rest of the respondents (n=16 or 8,0%) did not know the contra-indications for contraception.

**Question 52: If you are using contraception, are you aware of the side effects? (n=200)**

The responses to this question correlated with the respondents' responses on their knowledge regarding contra-indications for contraception (70,5% did not use contraception; 21,5% responded 'Yes'; and 8,0% responded 'No').

**Question 53: If you are using contraception, do you know how it works? (n=200)**

The majority of respondents (n=141 or 70,5%) indicated that they did not use any contraception. The majority of the respondents (n=57 or 28,5%) who used contraception, mentioned that they knew how the contraception worked, whereas the rest of the respondents (n=2 or 1,0%) did not know.

**Question 54: Are you satisfied with your choice of contraception? (n=200)**

As mentioned, the majority of respondents (n=141 or 70,5%) indicated that they did not use any contraception. The majority of the respondents (n=54 or 27,0%) who used contraception were satisfied with their choice of contraception, whereas the rest of the respondents (n=5 or 2,5%) were not satisfied with their choice.

**Question 55: If you answered 'NO' in question 54, give a reason(s)**

(See paragraph 4.2.2 regarding the qualitative analysis of the responses on this question.)

**Question 56: What interventions do you think should be put in place to increase students' knowledge regarding contraception and emergency contraception?**

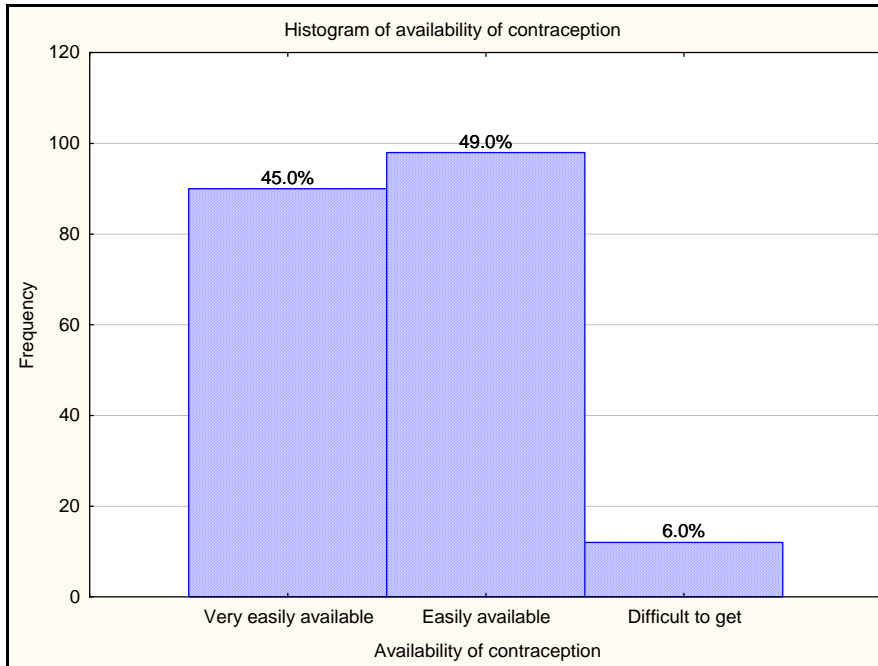
(See paragraph 4.2.2 regarding the qualitative analysis of the responses on this question.)

**4.2.1.5 Section E: Contraception and emergency contraception accessibility**

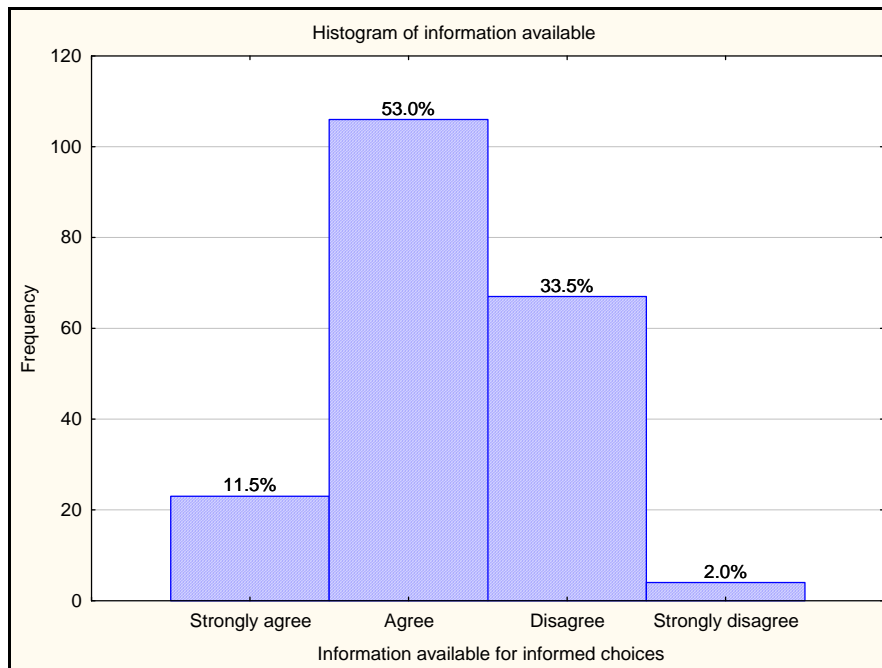
The following questions (57 to 62) were included to determine how accessible contraception and emergency contraception were according to the respondents. This section contained six questions.

**Question 57: How available is contraception? (n=200)**

As indicated in figure 4.17, the majority of the respondents mentioned that contraception was either easily available (n=98 or 49,0%) or very easily available (n=90 or 45,0%). No respondent ticked the option that contraception was 'very difficult to get'.

**Figure 4.17****Availability of contraception****Question 58: Students have adequate information available regarding contraception and emergency contraception to make informed choices regarding their reproductive health (n=200)**

Although the majority of respondents either strongly agreed (n=23 or 11,5%) or agreed (n=106 or 53,0%) with the above statement, a third of the respondents disagreed (n=67 or 33,5%) with the above statement, as indicated in figure 4.18.



**Figure 4.18**

**Information available regarding contraception for informed choices.**

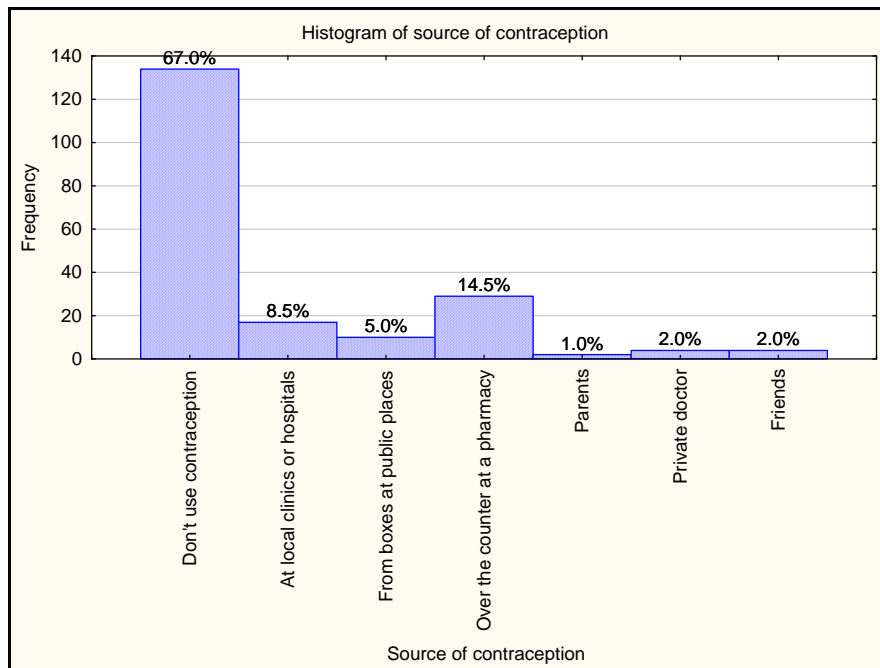
**Question 59: Do you think students should have more access to contraception and emergency contraception? (n=200)**

Although the majority of respondents held the opinion that contraception was easily (n=98 or 49,0%) and very easily available (n=90 or 45,0%) as indicated in figure 4.17, the majority of respondents (n=158 or 79,0%) felt that students should have more access to contraception and emergency contraception. The rest of the respondents (n=42 or 21,0%) answered 'No' to the above question.

**Question 60: How do you obtain contraception or emergency contraception? (n=200)**

As indicated in figure 4.19, the majority of the respondents obtained contraception or emergency contraception either over the counter at a pharmacy (n=29 or 14,5%) or from local clinics/hospitals (n=17 or 8,5%).





**Figure 4.19**

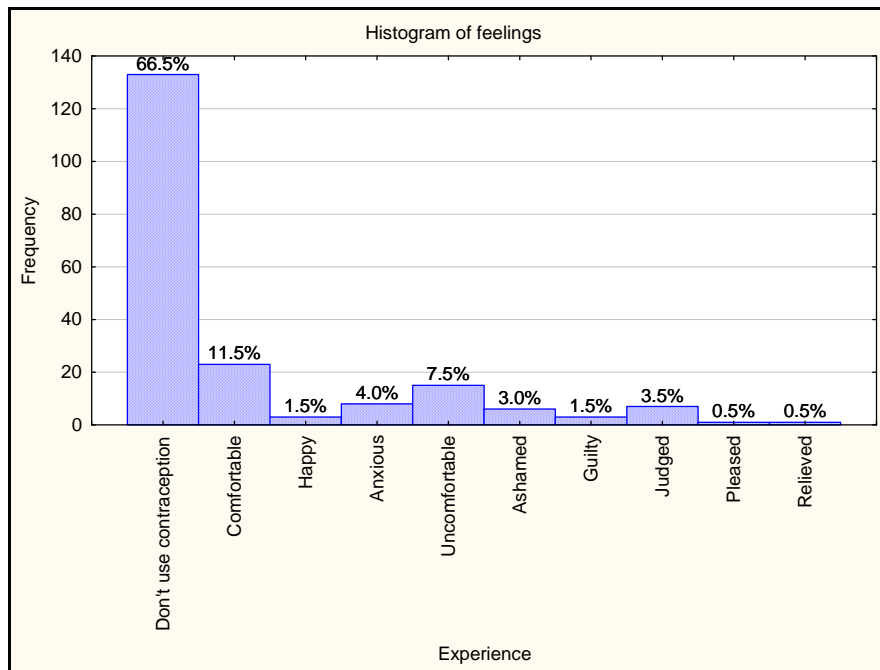
**Sources of contraception**

**Question 61: Do you find the service that you use is user friendly? (n=200)**

The majority of the respondents (n=127 or 63,5%) did not answer this question, because they did not make use of the services indicated in figure 4.19. The majority of respondents (n=64 or 32,0%) found the services indicated in figure 4.19 user friendly, whereas the rest (n=9 or 4,5%) answered 'No' to this question.

**Question 62: How do you feel when you make use of the mentioned service? (n=200)**

Although the majority of respondents (n=123 or 66,5%) ticked that they did not use contraception, the rest of the respondents had varied feelings/experiences when they made use of contraception services, as indicated in figure 4.20.



**Figure 4.20**

**Experience when making use of contraception services**

**4.2.2 Qualitative data analysis and interpretation**

The qualitative data is the smaller part of this research and aimed at obtaining in-depth information from the respondents. Qualitative data was obtained through open-ended questions (question 36, 55 and 56) in the questionnaire where respondents were requested to provide reasons or recommendations in respect of these particular questions.

To analyse the qualitative data, the researcher made use of analytical abstraction by applying Tesch's approach, as described in De Vos (2001:343), with the purpose to identify, categorise and group together the essential data into one descriptive framework.

**Question 36: If you DO NOT USE contraception, what are the reason(s)?**

Respondents gave the following reasons for not using contraception:

- “Not sexually active” (n=114 );
- “No reason” (n=9);
- “Abstinence is the best form of contraception” (n=2);
- “It is for religious reasons” (n=2);
- “Sometimes don’t have condoms” (n=2);
- “Causes frustration and lack of sensitivity” (n=1);
- “Do not know much about it” (n=1);
- “I don’t have enough money” (n=1);
- “I don’t like taking medication” (n=1);
- “I don’t believe in sex before marriage” (n=1);
- “Long term complications of the pill” (n=1);
- “To lazy to get a condom” (n=1); and
- “Too much effort to use contraception” (n=1).

**Question 55: If answered ‘NO’ in question 54, give a reason(s):**

Respondents, who were not satisfied with their choice of contraception, gave the following reasons:

- “Don’t like the idea of taking medication” (n=1);
- “The pill is not 100,0% effective. You have to remember to take it the same time every day” (n=1);
- “The condom is not always effective, but it is better than using nothing” (n=1);
- “It is not foolproof and I am scared that I can still get my partner pregnant” (n=1); and
- “Using condoms the feeling is not the same” (n=1).

**Question 56: What interventions do you think should be put in place to increase students’ knowledge of contraception and emergency contraception?**

The respondents' feedback on how to increase students’ knowledge of contraception and emergency contraception is summarised below. Data was categorised into main and sub-categories according to themes that became apparent on analysing the data. Examples of the interventions that respondents thought should be put in place to increase students’ knowledge regarding contraception and emergency contraception, are included.

Table 4.6

**Respondents' feedback on how to increase knowledge regarding contraception and emergency contraception**

Main category	Sub-categories	Example of intervention
<b>Personal (n=9)</b>	<ul style="list-style-type: none"> <li>• Religion</li> <li>• Parents</li> <li>• Implement knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• “Everyone should go to church”</li> <li>• “Parents have to inform their children about contraception”</li> <li>• “Implement knowledge that one has”</li> </ul>
<b>Media (n=94)</b>	<ul style="list-style-type: none"> <li>• Television and radio</li> <li>• Newspapers</li> <li>• Internet (E-mail, online access and websites)</li> <li>• Pamphlets and posters</li> <li>• Information on packaging</li> <li>• Notice boards</li> </ul>	<ul style="list-style-type: none"> <li>• “More campaigns to promote safe sex on the television and radio”</li> <li>• “Article in <i>My Matie</i> that students can read about contraceptives”</li> <li>• “E-mails to students with information about contraception” and “online access to questions regarding contraception”</li> <li>• “Hand out pamphlets and put up posters which educate students about contraception”</li> <li>• “Explanation of contraception on packaging of contraception products”</li> <li>• “Notice boards with information on regarding contraception”</li> </ul>
<b>Formal education (n=33)</b>	<ul style="list-style-type: none"> <li>• School</li> <li>• Compulsory lectures</li> </ul>	<ul style="list-style-type: none"> <li>• “More talks at school about contraception” and “Include talks in school’s curriculum in life orientation”</li> <li>• “Compulsory lectures for students in their first year and lectures for first-year students in orientation week”</li> </ul>
<b>Informal education (n=81)</b>	<ul style="list-style-type: none"> <li>• Public talks</li> <li>• Classes, workshops and seminars</li> <li>• Campaigns, shows, display, awareness days/weeks and projects</li> <li>• Face to face</li> </ul>	<ul style="list-style-type: none"> <li>• “More talks and information sessions can be held regarding contraception”</li> <li>• “Classes and workshops regarding contraception and more seminars regarding contraception”</li> <li>• “Awareness campaigns regarding contraception, awareness days and shows about contraception”</li> <li>• “Comfortable situations to openly discuss contraception”</li> </ul>
<b>Increase access to sources (n=15)</b>	<ul style="list-style-type: none"> <li>• Access to information</li> <li>• Access to free contraception</li> <li>• Access to experts</li> <li>• Access to clinics</li> </ul>	<ul style="list-style-type: none"> <li>• “More readily available information regarding contraceptives”</li> <li>• “Distribution of available and free contraceptives on campus”</li> <li>• “Personal consultations with experienced persons”</li> <li>• “Make birth control clinics available for students”</li> </ul>

### **4.3 SUMMARY**

In this chapter the data was analysed and interpreted. The results revealed that the respondents generally had a good knowledge of contraception, while their knowledge about emergency contraception was poor. Altogether of 37,0% of the respondents were sexually active at that moment, while 30,0% of all the respondents made use of contraception. Although most respondents agreed that students have adequate information available regarding contraceptives, 79,0% thought that students should have more access to contraception and emergency contraception.

In the final chapter, conclusions will be drawn and appropriate recommendations made.

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

In Chapter 4 the results regarding the findings of the research project were discussed. Chapter 5 presents a discussion of the main findings, together with the conclusions based on the objectives set in Chapter 1, paragraph 1.4. In addition, certain recommendations based on the research findings are made.

The aim of this study was to explore and determine to what extent undergraduate students had knowledge and made use of contraception and emergency contraception. The primary research question in this study was aimed at determining the knowledge of contraceptives among full-time undergraduate students who attended a particular university in South Africa. Two subsequent questions were asked: firstly, whether adequate information on contraception was available to higher education students, enabling them to make informed choices regarding their reproductive health; and, secondly, why the incidence of unwanted pregnancies tends to be high among students in higher education who had sufficient knowledge about contraception and emergency contraception. The objectives were of an explorative-descriptive nature, and the data collection was based on the said objectives (see paragraph 1.4).

#### **5.2 CONCLUSIONS**

The conclusions were based on the objectives set out in paragraph 1.4. The data analysis, as described in paragraph 4.2.1.1, provided a profile of the respondents who participated in the study. It appeared that the mean age of the particular respondents was 20,1 years, and most of the respondents (92,5%) were between 18 and 22 years old. The majority of the respondents were males (56,0%) and more than half of the respondents were single (66,0%). The respondents were mainly white (63,0%) and Christianity was found to be the most common religion among all the students (89,0%).

The majority of the respondents were drawn from the Faculty of Economic and Management Sciences (35,5%), Arts and Social Sciences (16,0%) and Health Sciences (14,4%). The respondents were mostly

first-year (33,0%) or second-year (28,5%) students at the particular university. More than half of the respondents (53,0%) made use of student accommodation, while only 3,0% were living with their partners. Almost all the respondents (99,0%) reported that they did not have any children, while 98,5% of all the respondents or their partners had not been pregnant before.

### **5.2.1 Knowledge of students regarding contraception**

This objective was discussed in terms of the students' knowledge of both contraception and emergency contraception.

#### **5.2.1.1 Knowledge of students regarding contraceptives**

It was a matter of concern that 9,0% of the respondents were unaware of the effects of the oral contraceptive pill, while 2,0% of the respondents mentioned that it could prevent a STD (see question 11, paragraph 4.2.1.2). The majority of the respondents (98,5%) knew that a condom could be used only once (see question 12, paragraph 4.2.1.2). Only 30,5% of respondents knew that sperm cells are viable for two days (see figure 4.9, paragraph 4.2.1.2), but most of them (93,5%) knew that it is possible to fall pregnant if only the withdrawal method is used (see question 14, paragraph 4.2.1.2). Almost half of the respondents (47,0%) were under the impression that it is not possible to fall pregnant when having sex during the menstruation period (see question 15, paragraph 4.2.1.2). Almost all the respondents (99,0%) knew that using household wrap or a balloon is not an effective alternative to a condom (see question 16, paragraph 4.2.1.2).

The majority of respondents (90,5%) knew that having an orgasm during sexual intercourse is not a prerequisite for falling pregnant (see question 17, paragraph 4.2.1.2). A significant proportion of the respondents (41,5%) knew that the contraceptive pill becomes effective after about two weeks. Although the majority ticked the correct answer, a significant 28,5% were under the impression that the contraceptive pill takes effect immediately (see table 4.1, paragraph 4.2.1.2). Most respondents (70,5%) also knew that women are most prone to falling pregnant during four to six days per month (see table 4.2, paragraph 4.2.1.2).

Most respondents (83,5%) knew that certain antibiotics can decrease the effectiveness of hormonal contraceptives (see question 20, paragraph 4.2.1.2). This finding is supported by Bryden and Fletcher

(2001:223) who found that 80,6% of the respondents in their study thought that oral contraceptives had a drug interaction with other medications (see paragraph 2.6.4). The researcher noted that only 33,5% of the respondents knew that smoking, while using hormonal contraceptives, can increase the risk of a heart attack and stroke (see table 4.3, paragraph 4.2.1.2). This finding is much lower than that of Bryden and Fletcher (2001:225) who established that the majority of the respondents in their study (60,0%) knew that smoking, while on the pill, could lead to increased blood pressure, thus increasing the risk of a stroke (see paragraph 2.6.4).

Williamson *et al.* (2009a:5) found that young women's knowledge of how contraception actually works, was inadequate. Kallipolitis *et al.* (2003:146) also pointed out that students taking part in their study had little knowledge about contraception (see paragraph 2.6.4). The study under discussion indicated that respondents generally had a good knowledge of contraception.

It is a cause for concern that there were substantial uncertainties and misperceptions about contraception among respondents who were generally supposed to have a higher awareness of contraception (see paragraph 1.1). Overall, the full-time undergraduate students attending a particular university in South Africa were generally well-informed about contraception, but certain misperceptions among students regarding contraception might make them prone to an unplanned pregnancy.

#### **5.2.1.2 Knowledge of students regarding emergency contraception**

Only 24,0% of the respondents knew that emergency contraception is a device or drug that is used to prevent pregnancy after engaging in unprotected sex (see table 4.4, paragraph 4.2.1.3), while as many as 82,0% of the respondents thought emergency contraception was to be taken the morning after having unprotected sex to be effective (see question 23, paragraph 4.2.1.3). This finding was much higher than that of Aziken *et al.* (2003:85) who reported that 48,0% of their respondents thought emergency contraception should be taken within 24 hours after engaging in unprotected sex in order to be effective. Although the 24-hours period falls within the correct time limit, this misperception that emergency contraception can only be taken within 24 hours might prevent someone from using it to prevent an unplanned pregnancy, thinking that the time of effectiveness had been missed (see paragraph 2.7.3). Addo and Tagoe-Darko (2009:208) also found that only 25,2% of the men and 39,3%



of the women in their study correctly identified the time limit for the effective use of emergency contraception (see paragraph 2.7.3).

Although nearly all the respondents (95,0%) knew that emergency contraception does not protect one against contracting a STD, some respondents (5,0%) held the misperception that contraception does indeed protect one against a STD (see question 24, paragraph 4.2.1.3). This finding was similar to those reported in a study by Roberts *et al.* (2004:443), where 9,8% of the respondents thought that emergency contraceptives could protect a person against contracting HIV or other STDs. Kang and Moneyham (2008:778) found that less than 50,0% of the respondents in their study knew that emergency contraception could not prevent a STD (see paragraph 2.7.3).

It is significant that more than half of the respondents (67,5%) thought that emergency contraception causes a TOP (see question 25, paragraph 4.2.1.3). This figure was much higher than those in the findings of Baiden *et al.* (2002:25) who pointed out that 25,8% of the students regarded emergency contraception as a form of abortion (see paragraph 2.7.3).

In respect of the time limit for emergency contraception to be taken in order to be effective, only one respondent knew that all types of emergency contraception could be taken for up to 120 hours after engaging in unprotected sex and still prevent an unplanned pregnancy (see figure 4.10, paragraph 4.2.1.3). More than half of the respondents (57,0%) thought that the emergency pill is effective only if taken within 24 hours after having unprotected sex (see figure 4.11, paragraph 4.2.1.3). This finding is similar to the finding of Vahratian *et al.* (2008:105) who indicated that only 5,0% of the students in their study could give the correct time period within which emergency contraception should be taken in order to be effective. Puri *et al.* (2007:338) reported that only 14,7% of their respondents knew the time limits for the efficient use of emergency contraceptives (see paragraph 2.7.3). Roberts *et al.* (2004:443) found that about 11,8% of the respondents in their study were well-informed about the time frame for taking oral contraceptives after having unprotected sex (see paragraph 2.7.3).

A total of 24,0% of the respondents thought that emergency contraception can be used only once, and that a TOP should subsequently be used after engaging in unprotected sex (see question 28, paragraph 4.2.1.3). The figures in this finding were far lower than those presented in the findings of Roberts *et al.* (2004:443), the latter reporting that 70,0% of the respondents in their study had little knowledge of the efficiency of emergency contraception (see paragraph 2.7.3).

A total of 9,5% of the respondents thought that emergency contraception would terminate a pregnancy (see question 29, paragraph 4.2.1.3). Most respondents (71,5%) knew that emergency contraception cannot be used as a regular form of contraception (see question 30, paragraph 4.2.1.3), whereas Roberts *et al.* (2004:443) pointed out that a much lower rate of 49,0% of their respondents did not know whether regular contraceptives were safer than emergency contraceptives. However, nearly all the respondents in this study (97,0%) knew that emergency contraception might fail (see question 31, paragraph 4.2.1.3).

A study by Puri *et al.* (2007:338) indicated that knowledge about emergency contraception was very poor. This finding is supported by Kang and Moneyham (2008:780) who established that students had a general lack of knowledge about emergency contraception and also held misconceptions regarding emergency contraception. The study by Addo and Tagoe-Darko (2009:208) also revealed that students' knowledge about emergency contraception was poor, concluding that there was an urgent need to provide students with correct information with regard to emergency contraception (see paragraph 2.7.3).

The results of this study indicate that the respondents' knowledge of emergency contraception was generally poor, thus supporting the findings of the researchers mentioned above. It is evident that respondents' knowledge regarding the time limits relating to the use and effectiveness of emergency contraception was generally extremely poor. Overall, it was concluded that full-time undergraduate students who attended a particular university in South Africa had very little knowledge of emergency contraception, as the results of the study pointed toward substantial uncertainty and misperceptions on the matter. These students could be expected to have a higher general awareness of emergency contraception (see paragraph 1.1). The misperceptions and lack of knowledge might lead to non-use or misuse of emergency contraception, resulting in unplanned pregnancies that could have been prevented.

### **5.2.2 Students' utilisation of contraception**

A total of 37,0% of the students indicated that they were sexually active at the time (see question 32, paragraph 4.2.1.4). The results of this finding were much lower than in the study conducted by Kallipolitis *et al.* (2003:146) at a university in Greece, where the researchers concluded that 79,0% of the students were sexually active. The study by MacPhail *et al.* (2007:1) also revealed that 68,0% of

young South African women students have experienced sexual intercourse. In another study conducted in Africa, Aziken *et al.* (2003:85), found that 43,0% of the female undergraduate respondents in their study were sexually active, which is more in line with the findings of this study.

A total of 70,0% of respondents in this study indicated that they were not using any form of contraception (see question 33, paragraph 4.2.1.4). Similar findings were reported by Bryant (2009:14) who concluded that 53,3% of female college students in his study did not use contraceptives. These findings are supported by MacPhail *et al.* (2007:1) who also indicated that only half of the respondents (52,0%) confirmed that they made use of contraception.

From this study it appeared that students using contraception relied either on condoms (70,0%) or hormonal pills (21,7%), as indicated in figure 4.12 (see paragraph 4.2.1.4). These findings were similar to those of Roberts *et al.* (2004:443) who noted that 39,9% of the respondents who were sexually active used the condom, while 14,0% used the contraceptive pill (see paragraph 2.6.9). Kallipolitis *et al.* (2003:146) also found that the most common method of contraception was the male condom (64,2%), statistically followed by the withdrawal method (24,0%) and the contraceptive pill (14,8%), as indicated in paragraph 2.6.7. The results of a study by Dinas *et al.* (2008:78) revealed that 45,1% of the students used condoms as a family planning method, with 7,8% using the withdrawal method (see paragraph 2.6.7). According to my study, only 3,3% of students made use of the withdrawal method (see figure 4.12, paragraph 4.2.1.4). This figure was much lower than those mentioned in other studies. While Sahin (2008:393) reported that 26,3% of the respondents made use of the withdrawal method, (see paragraph 2.6.7) Aziken *et al.* (2003:85) found that 45,0% used the withdrawal method (see paragraph 2.6.8).

In my study the mean age of a first sexual intercourse was 17,3 years (see figure 4.13). This was similar to the findings of Roberts *et al.* (2004:442) who noted that the mean age of first sexual intercourse was 17 years (see paragraph 2.6.10). This is further supported by Aras *et al.* (2006:121) who reported that in his study the mean age of first sexual intercourse was lower among males (18 years) than among females (19,6 years), as indicated in paragraph 2.6.10.

A total of 15,0% of the respondents had previously made use of emergency contraception (see question 39, paragraph 4.2.1.4). This figure was higher than those appearing in the findings of other studies. Corbett *et al.* (2006:165) stated that 12,2% of the students had previously taken emergency

contraception. In a study done by Sorhaindo *et al.* (2002:263), 10,0% of the students reported that they or they partners had used emergency contraception. Olszewski *et al.* (2007:862) noted that 14,9% of the respondents had used emergency contraception before. In South Africa, 11,8% of the university students in a study conducted by Roberts *et al.* (2004:443) indicated that they had previously used emergency contraception (see paragraph 2.7.5).

Reasons given for using emergency contraception were either because the respondents had engaged in unprotected sex (40,0%), or because they wanted to prevent pregnancy (36,7%). It is a cause for concern that 3,3% of the respondents used emergency contraception because they presumed that they were already pregnant, while 3,3% used it to prevent contracting a STD (see table 4.5 in paragraph 4.2.1.4). The reasons provided in this study were similar to findings appearing in other studies. In a study by Sorhaindo *et al.* (2002:263) the reasons for using emergency contraception were because the condom had perished or slipped off during sexual intercourse (35,0%), or because the withdrawal method had failed (30,0%). Olszewski *et al.* (2007:862) found that 39,6% of the respondents used emergency contraception because of condom breakage, while 22,5% did not make use of any form of contraception (see paragraph 2.7.5).

Only 3,5% of the respondents in my study made use of emergency contraception more than twice (see figure 4.15, paragraph 4.2.1.4). According to a study conducted by Sorhaindo *et al.* (2002:263), seven students reported that they or their partners had made use of emergency contraception between two and six times during the past year. In the study by Roberts *et al.* (2004:443) 16 respondents stated that they had used emergency contraception four or more times (see paragraph 2.7.5).

In my study as many as 79,5% of the respondents mentioned that they would consider using emergency contraception after engaging in unprotected sex (see question 42, paragraph 4.2.1.4). Roberts *et al.* (2004:443) supported this finding, reporting that 50,0% of their respondents would use emergency contraception if they had to, or they would recommend it to others. According to Corbett *et al.* (2006:165), 67,1% of their respondents indicated that they would use emergency contraception if their method of contraception had failed, with 46,0% of the men indicating that they would recommend emergency contraception to their partner in case of contraception failure (see paragraph 2.7.5).

A total of 7,5% of the respondents had more than one sex partner over the same time period (see question 43, paragraph 4.2.1.4). This figure is much lower than the finding of Olszewski *et al.*

(2007:862) who noted that of those students who had made use of emergency contraception, 60,7% reported that they had two or more sexual partners. Addo and Tagoe-Darko (2009:206) established that five of the male students had nine sexual partners and one of the women had five sexual partners. Sunmola (2005:457) constituted that 40,0% of the respondents had two partners, while 12,0% had three sexual partners. About 40,0% of the male students pointed out that they frequently had unplanned sexual relations, as opposed to 25,0% of the female students (see paragraph 2.7.5).

Almost all the respondents (98,0%), as indicated in question 44, paragraph 4.2.1.4, mentioned that they were not forced to use contraception. Despite Lindeque's (2008:13) contention that contraception should assist people to space and plan children by preventing unplanned and unwanted pregnancies (see paragraph 2.6.1), it is a cause for concern that less than half of the respondents (32,0%) discussed contraceptives with their partners (see question 45, paragraph 4.2.1.4).

Although a reliable staff member (Anonymous, 2009) at the university's health care service reported that their facility received about three requests for terminations of pregnancy per month, accumulating to about 36 to 40 requests per year (see paragraph 1.1), only 1,5% of the respondents in this study mentioned that they had previously undergone a termination of a pregnancy (see question 46, paragraph 4.2.1.4), whereas 10,5% had considered a termination of pregnancy (see question 47, paragraph 4.2.1.4). This figure was much lower than those appearing in findings from other studies. Aziken *et al.* reported that 34,0% of all the females in their study had an induced abortion before (2003:85). In Ghana, 10,0% of the students at a local university indicated that they or they partner had previously undergone a TOP (Addo & Tagoe-Darko, 2009:207). Roberts *et al.* (2004:44) reported that 8,0% of the respondents in their study had been pregnant before and 5,2% respondents had undergone a TOP (see paragraph 2.5.4). A significant number of respondents (67,5%) knew that a pregnancy may be terminated legally upon request within the first 12 weeks of pregnancy (see question 49, paragraph 4.2.1.4).

Of the respondents who did make use of contraceptives, only 0,5% did not know how to use it (see question 50, paragraph 4.2.1.4), while 8,0% did not know the contra-indications for (see question 51, paragraph 4.2.1.4) and side-effects (see question 52, paragraph 4.2.1.4) of contraceptives. Only 1,0% had no knowledge of how contraceptives work. Only 2,5% of the respondents were not satisfied with their choice of contraception (see question 54, paragraph 4.2.1.4) and their reasons were that they "don't like the idea of taking medication"; "the pill and condom is not always effective"; "I am scared

that I can still get my partner pregnant”; or “with condoms the sensation is not the same” (see question 55, paragraph 4.2.2).

It is evident that students’ utilisation of contraception was similar to what was reported in other studies. The respondents were generally aware of contraception, but they had inadequate knowledge of how to use it appropriately. Although the respondents were sexually active, they seemed to be uninformed about ways to protect themselves against unwanted pregnancies, as discussed in paragraph 5.2.1.

### **5.2.3 Reasons for not using contraception**

Reasons for not using contraception were obtained by means of open-ended questions, where respondents could give their own particular reasons for not using contraception (see question 36, paragraph 4.2.2). Although a total of 114 respondents indicated that they were ‘not sexually active’, the respondents’ reasons for not using contraception included that it was either “for religious reasons”; that they did not “believe in sex before marriage”; or that the “condom causes frustration and lack of sensitivity.” Some respondents reported that they “sometimes don’t have condoms”; that they were “to (sic) lazy to get a condom”; or that it was “too much effort to use contraception.” Other respondents either did not “kn[o]w much about it”; “did not like taking medication”; or did not like the “long-term complications of the pill.” Other students reported that “abstinence is the best form of contraception” or that they “don’t have enough money for contraception” (see question 36, paragraph 4.2.2).

Sahin (2008:395) found that almost 20,0% of the respondents in their study had a negative attitude towards condoms, some of the reasons being that the condom either reduced sexual pleasure, or was uncomfortable and unnecessary (see paragraph 2.6.5). In a study by Sunmola (2005:457) the respondents mentioned that condoms decreased sexual pleasure; caused health problems or lowered their sexual interest (see paragraph 2.6.10). According to Bryant (2009:14) the respondents’ reasons for not using contraception included a fear of side effects and concerns about their health, while others were either opposed to the use of contraception, wanted children, or had insufficient knowledge about contraception (see paragraph 2.6.7). Kallipolitis *et al.* (2003:146) found that as many as 55,0% of the respondents who were sexually active did not use the contraceptive pill because they were afraid of taking of hormones (see paragraph 2.6.7). This is supported by Sorhaindo *et al.* (2002:264) whose study also showed that the respondents had fears about the side effects of emergency contraceptives, and thought that it could have permanent effects on the woman’s health (see paragraph 2.7.3).

The researcher came to the conclusion that the respondents' reasons for not using contraceptives were mostly similar to those put forth in other studies on this subject. It was evident that there were respondents who either did not have adequate information regarding contraceptives or held misperceptions in this regard, and therefore did not make use of contraception.

#### **5.2.4 Availability of information regarding contraceptives**

Williamson *et al.* (2009a:5) found that young women were seldom informed about contraceptives and sex in general (see paragraph 2.6.4). Although 53,0% of the respondents agreed or strongly agreed (11,5%) that students had adequate information available regarding contraception and emergency contraception (see figure 4.18, paragraph 4.2.1.5), 33,0% of the answers pointed to the contrary. These respondents mentioned that adequate information enabling students to make informed choices regarding their reproductive health was not available (see figure 4.18, paragraph 4.2.1.5). As many as 17,0% of the respondents felt that they did not have enough information on how to protect themselves against an unwanted pregnancy (see question 48, paragraph 4.2.1.4). This finding is similar to that of Kang and Moneyham (2008:780) who reported that 21,3% of the students in their study had received information regarding emergency contraception, although 79,6% needed more information about emergency contraception (paragraph 2.7.3). Dinas *et al.* (2008:78) found that 16,7% of the respondents were not using any method of family planning, although 91,2% claimed they were knowledgeable on the matter (paragraph 2.6.7).

Kallipolitis *et al.* (2003:146) suggested that students should be provided with accurate, specific information regarding contraception and emergency conception, while Oyedeji and Cassimjee (2006:13) concluded that students were prepared to take responsibility for the use of contraception if they were given correct and sufficient information about the usage of contraceptives, different methods and the functioning thereof (paragraph 2.6.4).

The researcher came to the conclusion that students did not have adequate information available to make informed choices regarding their reproductive health and ways to protect themselves from an unwanted pregnancy. Furthermore, students should have more access to contraception and emergency contraception.

### 5.2.5 Interventions to increase students' knowledge of contraceptives

The respondents' feedback on how students' knowledge of contraception and emergency contraception could be increased, was analysed and categorised into main and sub-categories according to themes that emerged during an analysis of the data, as displayed in table 4.6 (also see paragraph 4.2.2).

Of all the respondents, 94 indicated that the media would be a good source of knowledge to inform students about contraception and emergency contraception. The media included the television or radio; newspapers; the internet (including electronic mail, online access and informative websites); pamphlets and posters; notice boards; and details appearing on the packaging of contraceptive products. These findings were similar to those reported in Sahin's (2008:394) study (see paragraph 2.6.4), where the primary source of information about contraceptives was considered to be the media (75,2%), followed by friends (71,8%); health professionals (19,8%); and family (19,5%). A study by Addo and Tagoe-Darko (2009:208) found that the printed and electronic media (51,3%) were the main sources of information regarding emergency contraception. Vahratian *et al.* (2008:105) also found that the main sources of information on emergency contraception were the media (43,0%); followed by friends (22,0%) and schools (18,0%), as discussed in paragraph 2.7.3.

Another category that emerged as a source of information about contraceptives was *informal education*, which included public talks, classes on contraceptives, workshops, seminars, campaigns, shows, displays, awareness days or weeks and projects, as well as face-to-face situations where contraceptives could be discussed. A total of 81 students were of the opinion that informal education is a better source to increase knowledge regarding contraceptives.

A few respondents (n=33) mentioned that knowledge should be increased by means of *formal education*, whereas 15 respondents felt that access to sources should be increased. Nine respondents were of the opinion that that one should either use the knowledge that one has, or that religion or parents should play a role to increase the knowledge of contraceptives among students. This finding was in contrast with the findings of Corbett *et al.* (2006:165) in whose study respondents (35,0%) stated that friends and family should be the main source of information regarding emergency contraception, as discussed in paragraph 2.7.4.



The researcher came to the conclusion that the majority of the respondents felt that knowledge regarding contraceptives should be increased, as discussed in paragraph 5.2.4, and that this could be achieved by means of the media and informal education, which is supported by the findings of other studies.

### **5.3 RECOMMENDATIONS**

Recommendations were made in agreement with the objectives as indicated in paragraph 1.4. All the recommendations were based on either the literature review discussed in Chapter 2, and/or the empirical findings discussed in Chapter 4 and the conclusions drawn and discussed in paragraph 5.2.

#### **5.3.1 Increasing students' knowledge of contraception**

The study revealed that the knowledge regarding contraception of full-time undergraduate students attending this particular university in South Africa was generally good, although the knowledge of emergency contraception was generally poor. There were substantial misperceptions among students regarding contraceptives (see paragraph 5.2.1).

Generally students' knowledge of reproduction, contraceptives and emergency contraception in particular, should be improved (see paragraph 5.2.1). Particularly the usage and the correct timing of emergency contraceptives to be effective should be emphasised (see paragraph 5.2.1.2). Accurate and detailed information should be provided in order to decrease misperceptions that students may have about contraception (see paragraph 5.2.3). Misperceptions in this regard should be rectified by means of correct and detailed information (see paragraph 5.2.5). To increase students' knowledge of contraceptives, respondents proposed interventions as indicated in table 4.6 (see paragraph 4.2.2). The media (including television, radio, newspapers, internet, pamphlets, posters, information on packaging and notice boards) were the most popular means of intervention recommended by students. This was followed by informal education (including public talks, classes, workshops and seminars, campaigns, shows, displays, projects, awareness days/weeks and face-to-face talks on contraceptives). Some students (n=33) recommended that knowledge of contraceptives could be introduced by means of formal education. This included training at school and compulsory lectures on contraception at university. Students' access to various sources of contraceptives should be increased. Furthermore, religion and parents should play a role to increase knowledge in this regard.

### **5.3.2 Encouraging students' utilisation of contraception**

Respondents were indeed sexually active, but their knowledge of ways to protect themselves against STDs and unplanned and unwanted pregnancies was inadequate, as discussed in paragraph 5.2.1. Respondents were generally aware of contraception and emergency contraception, but they lacked the necessary knowledge to apply these measures correctly (see paragraph 5.2.1.2).

The use of contraceptives, and emergency contraception in particular, needs to be emphasised among students. They should be educated and encouraged to use contraception wisely, as the effectiveness of contraceptives depends on a sound knowledge of the different methods and their use, as well as on knowledge where contraceptives could be obtained (see paragraph 5.2.1). This view is supported by Addo and Tagoe-Darko (2009:208) who identified an urgent need for providing students with information about emergency contraception (see paragraph 2.7.3).

In order to encourage the use of contraception, interventions to increase students' knowledge of contraception, as indicated in table 4.6 (see paragraph 4.2.2), should be implemented. An increased access to various sources and the media, as well as to informal and formal education, should be utilised to encourage the use of contraception among students.

### **5.3.3 Minimising reasons for the non-usage of contraception**

It is evident that many respondents did not have sufficient information regarding contraceptives, or held misperceptions in this regard, and therefore did not make use of it (see paragraph 5.2.3). It should be kept in mind that if students lack adequate knowledge, contraceptives will not be used in the appropriate manner. Misperceptions about contraception could be rectified by providing information, as discussed in paragraph 5.2.5.

Correct and comprehensive information should be provided to students in order to minimise their reasons for not using contraception. This can be achieved by applying certain interventions, as indicated in table 4.6 (see paragraph 4.2.2). As already mentioned, the media; informal and formal education; and an increased access to sources should be utilised to increase students' knowledge of contraceptives, thereby minimising the reasons for the non-usage of contraception by sexually active students.

### **5.3.4 Increasing the availability of information regarding contraceptives**

The findings of this study revealed that students did not have adequate information to either make informed choices regarding their reproductive health, or protect themselves against an unplanned pregnancy (see paragraph 5.2.4). Students should therefore be provided with accurate, specific information regarding contraception and emergency contraception. This information should be user friendly, easily accessible and widely available. The university could become more involved by implementing the interventions recommended by students, as indicated in table 4.6 (see paragraph 4.2.2). To increase the availability of information on topics such as safe sex and the use of contraceptives, the following means could be considered: radio and the local university newspaper; e-mails and online access for all students; posters, pamphlets and information boards; compulsory lectures and face-to-face information; public talks, workshops, seminars, campaigns, shows, displays, projects and awareness days/weeks for students; as well as free contraception and the availability of experts and clinics for attending to students' needs.

### **5.3.5 Establishing interventions to increase students' knowledge of contraceptives**

It is clear that the majority of the respondents felt that knowledge regarding contraceptives should be increased, as discussed in paragraph 5.2.4. Interventions to meet this need must be put in place and should include the media and informal education (see paragraph 5.2.5). Other interventions would comprise the use of the internet, the distribution of pamphlets, public talks, campaigns and classes regarding contraceptives (see table 4.6).

## **5.4 LIMITATIONS OF THE STUDY**

Certain limitations to this study, such as using only a university student population as a sample group, might have a negative effect on the validity of the findings. This study was conducted among a higher education population, and therefore students who were not enrolled at universities, as well as other sexually active groups, were excluded from this study. Therefore, research among a larger variety of students representing all fields of study would be needed to determine whether the study's findings could apply to all students.

Furthermore, this study was limited in that information was gathered by means of a questionnaire only. The results of this study were dependent on the accuracy and truthfulness of the participants' responses,

and due to the sensitive nature of this topic the researcher could not explore issues like self-reported sexual behaviour in more depth. The participants' disclosure of personal information and their honesty might have affected the data that was obtained. In-depth interviews with some students might help to collaborate and expand the findings in this regard.

The researcher initially intended to include all three campuses of the particular university in the study. However, the researcher was informed to obtain additional consent from campus C, and due to time constraints, data could not be collected at this campus.

## **5.5 RECOMMENDATIONS FOR FURTHER STUDIES**

Due to the boundaries set by the formulated objectives of this study, the following issues were raised for further investigation.

Although the researcher found that a specific health service at the university where the study was conducted (see paragraph 1.1) received about three requests for terminations of pregnancy per month, only 1,5% of the respondents mentioned that they had previously had a termination of pregnancy (see question 46, paragraph 4.2.1.4). This was in contrast with the findings of other studies as discussed in paragraph 2.5. Future studies could focus specifically on those individual students who had a previous TOP in order to determine their knowledge of contraceptives in more detail.

As this study was conducted among university students, and their knowledge regarding contraceptives was found to be poor, further studies could explore how universities could play an active role in educating students regarding contraceptives, as well as on the prevention of STDs and HIV, and whether the provision of such education does in fact increase contraceptive use among students. The researcher did not attempt to study the students' knowledge regarding STDs and HIV. Further studies could reveal students' actual knowledge about STDs and HIV, as well as their HIV status and whether they were aware of their current status.

## **5.6 SUMMARY**

The problem statement and aim of this study were identified (see paragraph 1.2 and paragraph 1.3) and supported by an extensive literature review on the topic (see Chapter 2). An appropriate research

methodology was selected for this study (see paragraph 3.2). The gathered data was analysed in Chapter 4 and a synthesis of the empirical findings and appropriate literature was also discussed in this chapter.

The overall conclusion was that students' knowledge regarding contraception at a higher education institution was generally good, but their knowledge of emergency contraception was poor. It was evident that there were respondents who either did not have adequate information regarding contraceptives, or held misperceptions regarding contraceptives, and therefore did not make use of it.

The overall recommendation was that students should be provided with accurate, specific information regarding contraception and emergency contraception which should be user friendly, easily accessible and widely available in order to decrease students' misperceptions about contraceptives. These misperceptions could be changed by providing the correct information on the matter. Interventions to increase students' knowledge should include the media and informal education. It can therefore be concluded that in this study the research goal was achieved, the primary research question and subsequent questions answered, and the objectives met.

**BIBLIOGRAPHY**

Addo, V.N. & Tagoe-Darko, E.D. 2009. Knowledge, practices, and attitudes regarding emergency contraception among students at a university in Ghana. *International Journal of Gynaecology and Obstetrics*. 105, pp.206-209.

Aggarwal, O., Sharma, A.K. & Chhabra, P. 2000. Study in sexuality of medical college students in India. *Journal of adolescent health*. 26, pp. 226-229.

Anonymous. 2009. Personal interview: Registered Professional Nurse. 15 July, Stellenbosch.

Aras, S., Orcin, E., Ozan, S. & Semin, S. 2006. Sexual behaviours and contraception among university students in Turkey. *Journal of Biosocial Sciences*. 39, pp. 121-135. Cambridge University Press.

Aziken, M.E., Okonta, P.I. & Ande, A.B.A. 2003. Knowledge and perception of emergency contraception among female Nigerian undergraduates. *International Family Planning Perspectives*. 29(2), pp. 84-87.

Baiden, F., Awini, E. & Clerk, C. 2002. Perception of university students in Ghana about emergency contraception. *Contraception*. 66, pp. 23-26.

Bayer Schering Pharma - introduces a new paradigm in oral contraception with the launch of Yaz. 2009. *Obstetrics & Gynaecology Forum*. 19, pp. 104.

Brink, H., van der Walt, C. & van Rensburg, G. 2006. *Fundamentals of research methodology for health care professionals*. 2<sup>nd</sup> edition. Cape Town: Juta.

Bryant, K.D. 2009. Contraceptive use and attitudes among female college students. *Association of Black Nursing Faculty Journal*. 20(1) Winter, pp. 12-16.

Bryden, P.J. & Fletcher, P. 2001. Knowledge of the risks and benefits associated with oral contraception in an university-aged sample of users and non-users. *Contraception*. 63, pp. 223-227.

Bureau of Justice Assistance. 2010. Centre for program evaluation and performance measurement. [Online] Available at: [http://www.ojp.usdoj.gov.BJA/evaluation/glossary/glossary\\_i.htm](http://www.ojp.usdoj.gov.BJA/evaluation/glossary/glossary_i.htm) [Accessed: 09 June 2010].

Civic, D. 2000. College students' reasons for nonuse of condoms within dating relationships. *Journal of Sex & Marital Therapy*. 26, pp. 95-105.

Clopper, C.J. & Pearson, E.S. 1934. The use of confidence or fiducial limits illustrated in the case of a binomial distribution, *Biometrics*. 26, pp. 404-413.

Corbett, P.O., Mitchell, C.P., Taylor, J.S. & Kempainen, J. 2006. Emergency contraception: Knowledge and perceptions in a university population. *Journal of the American Academy of Nurse Practitioners*. 18(4), pp. 161-168.

Dennil, K., King, L & Swanepoel, T. 2002. *Aspects of primary health care. Community health care in Southern Africa*. 2<sup>nd</sup> edition. Cape Town: Oxford University Press.

DENOSA. 1998. *Ethical Standards for Nursing Research*. Pretoria.

Department of Health. 2003. National Contraception Policy Guidelines. [Online] Available at: <http://www.doh.gov.za/docs/factsheets/guidelines/contraception/contraception01.pdf> [Accessed: 19 March 2009].

Department of Health. 2007. Health Statistics. [Online] Available at: <http://www.hst.org.za/healthstats/47/data> [Accessed: 25 March 2009].

Department of Health. 2009. Pamphlet. Single Tablet dose Emergency Contraception. Escape with Escapelle single tablet dose. Pretoria: Government Printer.

De Vos A.S. 2001. *Research at Grass Roots: A primer for the caring professions*. Pretoria: Van Schaik Publishers.

De Vos, A.S., Strydom, H., Fouché, C.B. & Delpont, C.S.L. 2008. *Research at grass roots. For the social sciences and human service professions*. 3<sup>rd</sup> edition. Pretoria: Van Schaik Publishers.

Dinas, K., Hatzipantelis, E., Mavromatidis, G., Zepiridis, L. & Tzafettas, J. 2008. Knowledge and practice of contraception among Greek female medical students. *The European Journal of Contraception and Reproductive Health Care*. 13(1), pp. 77-82.

Fraser, I.S. 2000. Progestogen-only contraception. In: Glasier, A. & Gebbie, A. (eds). 2000. *Handbook of family planning and reproductive healthcare*. 4<sup>th</sup> edition. London: Harcourt, pp. 77-103.

Gebbie, A. 2000. Barrier methods. In: Glasier, A. & Gebbie, A. (eds). 2000. *Handbook of family planning and reproductive healthcare*. 4<sup>th</sup> edition. London: Harcourt, pp. 127-159.

Glasier, A. 2000. Sterilization. In: Glasier, A. & Gebbie, A. (eds). 2000. *Handbook of family planning and reproductive healthcare*. 4<sup>th</sup> edition. London: Harcourt, pp. 177-200.

Green, L. 2000. Natural family planning. In: Glasier, A. & Gebbie, A. (eds). 2000. *Handbook of family planning and reproductive healthcare*. 4<sup>th</sup> edition. London: Harcourt, pp. 161-176.

Grobbelaar, N. 2009. Voorgraadse studente-statistiek. E-mail to C. Kitshoff [Online], 10 Sept. Available E-mail: [cjgr@sun.ac.za](mailto:cjgr@sun.ac.za).

Guillebaud, J. 2000a. *Contraception Today*. 4<sup>th</sup> edition. London: Martin Dunitz.

Guillebaud, J. 2000b. Combined oral contraception. In: Glasier, A. & Gebbie, A. (eds). 2000. *Handbook of family planning and reproductive healthcare*. 4<sup>th</sup> edition. London: Harcourt, pp. 29-76.

Guillebaud, J. 2004. *Contraception. Your questions answered*. 4<sup>th</sup> edition. Edinburgh: Churchill Livingstone.

Health System Trust. 2008. Health Statistics: Termination of pregnancies. [Online]. Available at: <http://www.healthlink.org.za/healthstats/47/data> [Accessed 19 March 2009].



Ikeme, A.C.C., Ezegwui, H.U. & Uzodimma, A.C. 2005. Knowledge, attitude and use of emergency contraception among female undergraduates in Eastern Nigeria. *Journal of Obstetrics and Gynaecology*. 25(5), pp. 491-493.

Kang, H.S. & Moneyham, L. 2008. Use of emergency contraceptive pills and condoms by college students: a survey. *International Journal of Nursing Studies*. 45, pp. 775-783.

Kidd, M. 2009. Personal interview. 18 November, Tygerberg.

Kallipolitis, G., Stefanidis, K., Loutradis, D., Siskos, K., Milingos, S. & Mihalas, S. 2003. Knowledge, attitude, and behavior of female students concerning contraception in Athens, Greece. *Journal of Psychosomatic Obstetrics and Gynecology*. 24(3), pp. 145-151.

Lang, F., Joubert, G. & Prinsloo E.A.M. 2005. Is pregnancy termination being used as a family planning method in the Free State? *South African Family Practice*. 47(5), pp. 52-55.

Lefkowitz, E.S., Gillen, M.M., & Shearer, C.L. & Boone, T.L. 2004. Religiosity, sexual behaviors, and sexual attitudes during emerging adulthood. *The Journal of Sexual Research*. 41(2), pp. 150-159.

Lindeque, B.G. 2008. Contraception for first-time users. *South African Family Practice*, 50(2), pp. 13-18.

MacPhail, C., Pettifor, A.E., Pascoe, S. & Rees, H.V. 2007. Contraception use and pregnancy among 15 to 24 year old South African women: a nationally representative cross-sectional survey. *BioMed Central Medicine*, [Online]. 5(31).

Available at: <http://www.biomedcentral.com/1741-7015/5/31> [Accessed 19 March 2009].

Maltby, J., Day, L. & Williams, G. 2007. *Introduction to statistics for nurses*. Harlow: Pearson Education.

Marieb, E.N. 2004. *Human Anatomy and Physiology*. 6<sup>th</sup> edition. San Francisco: Pearson Benjamin Cummings.

Mouton, J. 2008. *How to succeed in your Master's & Doctoral Studies. A South African guide and resource book*. 1<sup>st</sup> edition. Pretoria: Van Schaik Publishers.

Obisesan, K.A., Adeyemo, A.A., Fawole, A.O. & Fakokunde, B.O. 1998. Awareness and use of family planning methods among married women in Ibadan, Nigeria. *East African Medical Journal*. 75, pp. 135-13.

Ogunbanjo, G.A. & Knapp van Bogaert, D. 2004. Contraception: Ethical quandaries and misconceptions. *South African Family Practice*. 46(7), pp. 36-37.

Olszewski, J., Olszewska, H., Abacjew, A., Chmylko, L. & Gaworska-Krzeminska, A. 2007. The use of emergency contraception in young Polish Women. [abstract] *Acta Obstetrica et Gynecologica*. 86, pp. 861-869.

Oni, T.E., Prinsloo, E.A.M., Nortje, J.D. & Joubert, G. 2005. High school students' attitudes, practices and knowledge of contraception in Jozini, KwaZulu-Natal. *South African Family Practice*. 47(6), pp. 54-57.

Orji, E.O. & Onwudiegwu, U. 2002. Prevalence and determinants of contraceptive practice in a defined Nigerian population. *Journal of Obstetrics and Gynaecology*. 22(5), pp. 540-543.

Oyedeji, O.A. & Cassimjee, R. 2006. A gendered study of young adult contraceptive use at a university in KwaZulu-Natal. *Curationis*. 29(3), pp. 7-14.

Puri, S., Bhatia, V., Swami, H., Singh, A., Sehgal, A. & Kaur, A. 2007. Awareness of emergency contraception among female college students in Chandigarh, India. *Indian Journal of Medical Sciences*. 61(6), pp. 338-345.

Roberts, C., Moodley, J., & Esterhuizen, T. 2004. Emergency contraception: knowledge and practices of tertiary students in Durban, South Africa. *Journal of Obstetrics and Gynaecology*. 24(4), pp. 441-445.

RSA (Republic of South Africa). 1975. *Abortion and Sterilization Act, No. 2 of 1975*. Pretoria: Government Printer.

RSA (Republic of South Africa). 1984. *Matrimonial Property Act, No. 88 of 1984*. Pretoria: Government Printer.

RSA (Republic of South Africa). 1996. *Choice on Termination of Pregnancy Act, No. 92 of 1996*. Pretoria: Government Printer.

Sahin, N.H. 2008. Male university students' views, attitudes and behaviors towards family planning and emergency contraception in Turkey. *Journal of Obstetrics and Gynaecology*. 24(3), pp. 392-398.

Sorhaindo, A., Becker, D., Fletcher, H. & Garcia, S.G. 2002. Emergency contraception among university students in Kingston, Jamaica: a survey of knowledge, attitudes, and practices. *Contraception*. 66, pp. 261-268.

Stevens, M. 2009. Making sexual and reproductive health part of HIV and Aids care. *Nursing Update*. 33(1), pp. 28-31.

Steyn, P.S., Groenhof, M. & Schaalma, H.P. 2009. Non-condom use behaviour of adolescents in South Africa – an integrative model of contextual factors and individual determinants. *Obstetrics & Gynaecology Forum*. 19(1), pp. 77-82.

Steyn, P.S. & Mason, D. 2009. Emergency contraception – a review. *Obstetrics & Gynaecology Forum*. 19(4), pp. 127-133.

Steyn, P.S. & Kluge, J. 2010. Contraceptives – a guide to product selection. (Unpublished research material cited in terms of the approval of Dr. Steyn – 2010). Department of Obstetrics and Gynaecology, Stellenbosch University, South Africa.

Sunmola, A.M. 2005. Evaluating the sexual behavior, barriers to condom use and its actual use by university students in Nigeria. *AIDS Care*. 17(4), pp. 457-465.

Theron, F. & Grobler, F. 2000. *Kontrasepsie. Teorie en praktyk*. Derde uitgawe. Pretoria: Van Schaik Uitgewers.

Vahratian, A., Patel, D.A., Wolff, K. & Xu, X. 2008. College students' perception of emergency contraception provision. *Journal of Women's Health*. 17(1). pp. 103-108.

Williamson, L.M., Parkes, A., Wight, D., Petticrew, M. & Hart, G.J. 2009a. Limits to modern contraceptive use among women in developing countries: a systematic review of qualitative research. *Reproductive Health*, [Online]. Feb. 6(3). Available at: <http://www.reproductive-health-journal.com/content/6/1/3> [Accessed 18 March 2009].

Williamson, M., Buston, K. & Sweeting, H. 2009b. Young women's perceptions of pregnancy risk and use of emergency contraception: findings from a qualitative study. *Contraception*. 79, pp. 310-315.

**ADDENDUM A**

**Information leaflet and consent for participation of undergraduate students**

**INFORMATION LEAFLET AND CONSENT FORM FOR PARTICIPANTS****TITLE OF THE RESEARCH PROJECT:**

An exploration of the knowledge of students in higher education regarding contraception and emergency contraception.

**REFERENCE NUMBER:**

14298198

**PRINCIPAL RESEARCHER:**

C. Kitshoff

**ADDRESS:**

Bokmakeriesingel 35  
Sonstraat  
Durbanville  
7550

**CONTACT NUMBER:**

082 774 9212

You are invited to take part in a research project. Please take some time to read the information explaining the details of this project. Ask the researcher if you have questions about any part of this project. It is very important that you clearly understand what this study entails and how you could be involved. Your participation is **entirely voluntary** and you are free to decline to participate. If your answer is no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you have initially agreed to participate.

This study has been approved by the university's Health Research Ethics Committee and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, the South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

**What is this research study about?**

The aim of this study is to explore and determine the extent of undergraduate students' knowledge regarding contraception and emergency contraception in order to prevent unwanted pregnancies. Recommendations will be based upon the results of this study on increasing the knowledge about contraception and emergency contraception among students in general.

The study will be conducted at the various campuses of the particular university and the researcher aims to recruit a total number of 200 respondents. The researcher will collect the data personally after the self-administered questionnaires have been completed by all the respondents. The questionnaires will be distributed among students studying at the various faculties to ensure that all students are

represented. The proposed study will be explained to the respondents, and those who are willing to participate will each complete a questionnaire after giving their informed consent.

**Why have you been invited to participate?**

You are part of the study population that includes all the undergraduate students studying full-time at the this particular university. You have been invited to participate because of the underlined qualities.

**What will your responsibilities be?**

Your only responsibility is to complete the questionnaire. This will take approximately 10 minutes. There are no other further responsibilities after you have completed the questionnaire.

**Will you benefit from taking part in this research?**

There are no personal benefits in participating in this research. The results obtained from this research will be used to make recommendations on increasing students' knowledge about contraception and emergency contraception in general at the particular study site.

**Are there any risks involved in participating in this research?**

There are no risks involved in participating in this study.

**If you do not agree to take part, what alternatives do you have?**

Only those who are willing to participate, will be included in the study. The respondent's right to withdraw from the research will be respected.

**Who will have access to the completed questionnaires?**

No respondent's identity will be made known during the study or in any publication, and the information will be used for research purposes only. Respondents who are willing to complete the questionnaire do not have to enter their names or provide any form of identity on the questionnaire. Only the researcher will have access to the questionnaires.

**Will you be paid to participate in this study and are there any costs involved?**

You will not be paid to participate in the study. There will be no costs involved for participants.

**Is there anything else that you should know or do?**

There are no further obligations involved in this study. If there are any further uncertainties the respondent will be given an opportunity to ask questions about the study. The researcher will be available at all times to answer your queries.

**Declaration by respondent**

By signing below, I ..... agree to take part in a research study titled “An exploration of the knowledge of students in higher education regarding contraception and emergency contraception”.

I declare that:

- I have read or had read to me this information and consent form, and it is written in a language in which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that my participation in this study is **voluntary** and I have not been pressurised to participate.
- I may choose to withdraw from the study at any time, and will not be penalised or subjected to prejudice in any way.

Signed at (*place*) ..... on (*date*) ..... 2010.

.....  
**Signature of respondent**

.....  
**Signature of witness**

**Declaration by researcher**

I (*name*) ..... declare that:

- I explained the information in this document to .....
- I encouraged him/her to ask questions and took sufficient time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research discussed above
- I did not use an interpreter.

Signed at (*place*) ..... on (*date*) ..... 2010.

.....  
**Signature of researcher**

.....  
**Signature of witness**



**ADDENDUM B**

**Questionnaire for undergraduate students**

**QUESTIONNAIRE:**

This questionnaire consists of 7 pages. Please answer all the questions.

**SECTION A: DEMOGRAPHIC INFORMATION:**

<b>Question:</b>	<b>Tick or write in ONE answer:</b>
<b>1. How old are you?</b>	..... years
<b>2. What is your gender?</b>	<input type="checkbox"/> Male <input type="checkbox"/> Female
<b>3. What is your marital status? (tick one)</b>	<input type="checkbox"/> Married <input type="checkbox"/> Single, no current relationship <input type="checkbox"/> In stable relationship <input type="checkbox"/> In casual relationship <input type="checkbox"/> Divorced <input type="checkbox"/> Widow/Widower <input type="checkbox"/> Polygamy (more than one spouse at a time)
<b>4. What is your religion?</b>	<input type="checkbox"/> Christian <input type="checkbox"/> Islam <input type="checkbox"/> Hindu <input type="checkbox"/> Buddhist <input type="checkbox"/> Judaism <input type="checkbox"/> Non-religious <input type="checkbox"/> Other .....
<b>5. Indicate your race:</b>	<input type="checkbox"/> Black <input type="checkbox"/> Coloured <input type="checkbox"/> White <input type="checkbox"/> Asian <input type="checkbox"/> Other .....

<p><b>6. At what faculty do you study?</b></p>	<p><input type="checkbox"/> Faculty of AgriSciences  <input type="checkbox"/> Faculty of Arts and Social Sciences  <input type="checkbox"/> Faculty of Economic and Management Sciences  <input type="checkbox"/> Faculty of Education  <input type="checkbox"/> Faculty of Engineering  <input type="checkbox"/> Faculty of Health Sciences  <input type="checkbox"/> Faculty of Law  <input type="checkbox"/> Faculty of Military Science  <input type="checkbox"/> Faculty of Science  <input type="checkbox"/> Faculty of Theology</p>
<p><b>7. For how many years have you been studying at the university?</b></p>	<p><input type="checkbox"/> 1 year  <input type="checkbox"/> 2 years  <input type="checkbox"/> 3 years  <input type="checkbox"/> 4 years or more</p>
<p><b>8. Where are you staying?</b></p>	<p><input type="checkbox"/> With parent(s)  <input type="checkbox"/> Live together with partner(s)  <input type="checkbox"/> Student accommodation  <input type="checkbox"/> On your own  <input type="checkbox"/> Other .....</p>
<p><b>9. How many children do you have, if any?</b></p>	<p><input type="checkbox"/> None  <input type="checkbox"/> 1  <input type="checkbox"/> 2  <input type="checkbox"/> 3 or more</p>
<p><b>10. Have you or your partner ever been pregnant before?</b></p>	<p><input type="checkbox"/> Yes      <input type="checkbox"/> No</p>

**SECTION B: KNOWLEDGE OF CONTRACEPTION:****Question:****Tick or write in ONE answer:**

<b>11. What is the effect of the oral contraceptive pill?</b>	<input type="checkbox"/> It prevents ovulation <input type="checkbox"/> It prevents implantation of the fertilised ovum <input type="checkbox"/> It prevents sexually transmitted diseases <input type="checkbox"/> All of the above <input type="checkbox"/> I don't know
<b>12. How many times can you use a single condom?</b>	<input type="checkbox"/> Only once <input type="checkbox"/> Twice, if you wash it properly after use <input type="checkbox"/> Multiple use
<b>13. An ovum is viable for about 24 hours after ovulation. For how long are sperm cells viable?</b>	<input type="checkbox"/> Less than 24 hours <input type="checkbox"/> 2 days <input type="checkbox"/> 5 to 7 days <input type="checkbox"/> 5 to 7 weeks
<b>14. Can you get pregnant if you/your partner are not using a condom, but use the withdrawal method?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>15. Can you get pregnant if having sex during the menstruation period?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>16. Effective alternatives to a condom is household wrap or a balloon.</b>	<input type="checkbox"/> True <input type="checkbox"/> False
<b>17. You need to have an orgasm while having sex to become pregnant.</b>	<input type="checkbox"/> True <input type="checkbox"/> False
<b>18. How long does it take for 'the pill' to become effective?</b>	<input type="checkbox"/> It's effective right away <input type="checkbox"/> After about 2 weeks <input type="checkbox"/> Only after one month
<b>19. For how many days per month are women most prone to falling pregnant?</b>	<input type="checkbox"/> 1 – 2 days per month <input type="checkbox"/> 4 – 6 days per month <input type="checkbox"/> All the days of the month
<b>20. Can certain antibiotics decrease the effectiveness of hormonal contraceptives?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>21. Smoking, while using hormonal contraceptives, can lead to:</b>	<input type="checkbox"/> Smoking makes the pill less effective <input type="checkbox"/> It increases the risk of a heart attack and stroke <input type="checkbox"/> It leads to higher chances of getting lung cancer

**SECTION C: KNOWLEDGE OF EMERGENCY CONTRACEPTION:****Question:****Tick or write in ONE answer:**

<p><b>22. What is emergency contraception? (tick one)</b></p>	<p><input type="checkbox"/> It is given only in an emergency situation to prevent pregnancy when a person has been raped</p> <p><input type="checkbox"/> Emergency contraception is a high dosage of the 'ordinary' contraceptive pill and causes a termination of pregnancy</p> <p><input type="checkbox"/> Any device or drug that is used to prevent pregnancy after engaging in unprotected sex</p> <p><input type="checkbox"/> It is the 'morning after pill' which must be taken the morning after having unprotected sex to prevent pregnancy</p>
<p><b>23. Emergency contraception must be taken the morning after engaging in unprotected sex to be effective.</b></p>	<p><input type="checkbox"/> True      <input type="checkbox"/> False</p>
<p><b>24. Emergency contraception also protects you from sexually transmitted diseases.</b></p>	<p><input type="checkbox"/> True      <input type="checkbox"/> False</p>
<p><b>25. Emergency contraception causes a termination of a pregnancy.</b></p>	<p><input type="checkbox"/> True      <input type="checkbox"/> False</p>
<p><b>26. For how many hours can <u>all types</u> of emergency contraception (including the intrauterine device) be taken after sex and still be effective?</b></p>	<p><input type="checkbox"/> 24 hours</p> <p><input type="checkbox"/> 48 hours</p> <p><input type="checkbox"/> 72 hours</p> <p><input type="checkbox"/> 120 hours</p>
<p><b>27. How long after engaging in unprotected sex is the <u>emergency pill</u> effective?</b></p>	<p><input type="checkbox"/> 6 hours</p> <p><input type="checkbox"/> 24 hours</p> <p><input type="checkbox"/> 72 hours</p> <p><input type="checkbox"/> 5 days</p>
<p><b>28. Emergency contraception is only effective once. After engaging in unprotected sex again, you have to make use of a termination of pregnancy.</b></p>	<p><input type="checkbox"/> True      <input type="checkbox"/> False</p>
<p><b>29. You can take emergency contraception when you are pregnant, and it will end the pregnancy.</b></p>	<p><input type="checkbox"/> True      <input type="checkbox"/> False</p>
<p><b>30. Emergency contraception can be used as a regular form of contraception after engaging in unprotected sex instead of using other contraceptives.</b></p>	<p><input type="checkbox"/> True      <input type="checkbox"/> False</p>
<p><b>31. Can the emergency contraceptive pill fail?</b></p>	<p><input type="checkbox"/> Yes      <input type="checkbox"/> No</p>

**SECTION D: PERSONAL INFORMATION:****Question:****Tick or write down the answer:**

32. Are you sexually active at the moment?	<input type="checkbox"/> Yes <input type="checkbox"/> No
33. Are you using contraception?	<input type="checkbox"/> Yes <input type="checkbox"/> No
34. If your answer is 'YES' in question 33, what contraception are you using?	<input type="checkbox"/> Condom (male or female) <input type="checkbox"/> Injection <input type="checkbox"/> Hormonal pills <input type="checkbox"/> Withdrawal <input type="checkbox"/> Intrauterine devices <input type="checkbox"/> Diaphragm <input type="checkbox"/> Subdermal implants <input type="checkbox"/> Other
35. If you chose 'OTHER' in question 34, please specify:	.....
36. If you <u>DO NOT USE</u> contraception, what are the reason(s)?	
37. At what age did you first have sexual intercourse?	..... years
38. How frequently do you have sexual intercourse?	<input type="checkbox"/> Once a week <input type="checkbox"/> More than once a week <input type="checkbox"/> Once a month <input type="checkbox"/> Never had sex before
39. Have you or your partner ever made use of emergency contraception?	<input type="checkbox"/> Yes <input type="checkbox"/> No
40. What is your reason for using emergency contraception?	
41. How many times have you made use of emergency contraception?	<input type="checkbox"/> Never <input type="checkbox"/> Once <input type="checkbox"/> Twice <input type="checkbox"/> More than twice

42. Will you consider using emergency contraception after engaging in unprotected sex?	<input type="checkbox"/> Yes <input type="checkbox"/> No
43. Have you ever had more than one sexual partner over the same time period?	<input type="checkbox"/> Yes <input type="checkbox"/> No
44. Are you forced by anybody to use contraception?	<input type="checkbox"/> Yes <input type="checkbox"/> No
45. Do you discuss contraception or emergency contraception with your partner?	<input type="checkbox"/> Yes <input type="checkbox"/> No
46. Have you ever terminated a pregnancy?	<input type="checkbox"/> Yes <input type="checkbox"/> No
47. Have you ever considered the termination of a pregnancy?	<input type="checkbox"/> Yes <input type="checkbox"/> No
48. Do you feel that you have sufficient knowledge to protect yourself against an unwanted pregnancy?	<input type="checkbox"/> Yes <input type="checkbox"/> No
49. Up to how many weeks of pregnancy may a pregnancy be terminated legally <u>upon request</u> ?	<input type="checkbox"/> During the first 20 weeks of pregnancy <input type="checkbox"/> Until 40 weeks of pregnancy <input type="checkbox"/> During the first 12 weeks of pregnancy
50. If you are using contraception, do you know how to use it correctly?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't use contraception
51. If you are using contraception, do you know the contra-indications?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't use contraception
52. If you are using contraception, do you know its side effects?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't use contraception
53. If you are using contraception, do you know how it works?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't use contraception
54. Are you satisfied with your choice of contraception?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't use contraception
55. If you answered 'NO' in question 54, give a reason(s):	
56. What interventions do you think should be put in place to increase students' knowledge of contraception and emergency contraception?	

**SECTION E: CONTRACEPTION AND EMERGENCY CONTRACEPTION****ACCESSIBILITY:****Question:****Tick or write in ONE answer:**

<b>57. How available is contraception? (Choose one)</b>	<input type="checkbox"/> Very easily available <input type="checkbox"/> Easily available <input type="checkbox"/> Difficult to obtain <input type="checkbox"/> Very difficult to obtain
<b>58. Students have adequate information available regarding contraception and emergency contraception to make informed choices regarding their reproductive health (Choose one)</b>	<input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree
<b>59. Do you think students should have better access to contraception and emergency contraception?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>60. Where do you obtain your contraception or emergency contraception?</b>	<input type="checkbox"/> At local clinics or hospitals <input type="checkbox"/> Private doctor <input type="checkbox"/> Friends <input type="checkbox"/> Parents <input type="checkbox"/> From boxes at public places <input type="checkbox"/> Over the counter at a pharmacy <input type="checkbox"/> Don't use contraception <input type="checkbox"/> Other .....
<b>61. Do you find that the service where you obtain contraception is user friendly?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>62. How do you feel when you make use of the mentioned service?</b>	<input type="checkbox"/> Ashamed <input type="checkbox"/> Guilty <input type="checkbox"/> Anxious <input type="checkbox"/> Judged <input type="checkbox"/> Uncomfortable <input type="checkbox"/> Comfortable <input type="checkbox"/> Relieved <input type="checkbox"/> Pleased <input type="checkbox"/> Happy <input type="checkbox"/> Don't use contraception

**This is the end of the questionnaire. Thank you for your time!**



**ADDENDUM C**

**Letter of approval from the Health Research Ethical Committee**

Conrad - Hleph 13/03



11/03/2010 10:29

HEALTH RESEARCH ETHICS COMMITTEE  
STELLENBOSCH UNIVERSITY

15 March 2010

**MAILED**

Ms C Kitshoff  
Division of Nursing  
2nd Floor, Teaching Block  
Faculty of Health Sciences  
Tygerberg Campus  
7506

Dear Ms Kitshoff

"Knowledge of students in higher education regarding contraception"

ETHICS REFERENCE NO: N10/02/026

RE: APPROVAL

It is a pleasure to inform you that a review panel of the Health Research Ethics Committee has approved the above-mentioned project on 15 March 2010, including the ethical aspects involved, for a period of one year from this date.

This project is therefore now registered and you can proceed with the work. Please quote the above-mentioned project number in ALL future correspondence. You may start with the project. Notwithstanding this approval, the Committee can request that work on this project be halted temporarily in anticipation of more information that they might deem necessary.

Please note a template of the progress report is obtainable on [www.sun.ac.za/rds](http://www.sun.ac.za/rds) and should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly and subjected to an external audit.

Translations of the consent document in the languages applicable to the study participants should be submitted

Federal Wide Assurance Number: 00001372  
Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

Please note that for research at primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health ([healthres@pgwv.gov.za](mailto:healthres@pgwv.gov.za) Tel: +27 21 483 9907) and Dr Hélène Visser at City Health ([Helene.Visser@capetown.gov.za](mailto:Helene.Visser@capetown.gov.za) Tel: +27 21 400 3981). Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.

15 March 2010 10:29

Page 1 of 2



**ADDENDUM D**

**Letter of consent from the Director of Institutional Research at the university**



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jou kennisvennoot • your knowledge partner

19 April 2010

Dr Ethelwynn Stellenberg  
Department of Nursing  
Stellenbosch University  
P O Box 19063  
TYGERBERG  
7505

Dear Dr Stellenberg

**RESEARCH PROJECT 14298198 : CARINE KITSHOFF**

*"Knowledge of students in higher education regarding contraception"*

With reference to the above research application and the findings and recommendations of the Health Research Ethics Committee (ethical clearance ref. N10/02/026), I give institutional permission that the researcher can continue with the study.

Kind regards

DR GERT STEYN  
DIRECTOR: INSTITUTIONAL RESEARCH

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