FOUR RESEARCH ESSAYS

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A COMPARISON OF QUALITATIVE AND QUANTITATIVE RESEARCH: SIMILARITIES AND DIFFERENCES.

A DISCUSSION OF THE DIFFERENT SAMPLING METHODS AND THEIR PLACE IN NURSING RESEARCH.

A LITERATURE REVIEW ON SEXUALLY TRANSMITTED INFECTIONS.

STATING AN APPROPRIATE PROBLEM FOR RESEARCH.

by

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Declaration of originality

I, Evodia Thato Masiloane, hereby declare that the research essays submitted by me for the fulfillment of requirements for the Masters Societatis (Nursing) Degree at the University of the Free State are my own independent work and have not been previously submitted by me at another university.

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Research is an important component of nursing as parameters of nursing can better be defined and nursing contribution to health care be documented through research (Polit and Hungler, 1999:12-13). As such, there are components of the research process that are important to understand before one can successfully undergo a research study and these are discussed in the following research essays:

- **A comparison of qualitative and quantitative research: similarities and differences.**
- **A discussion of the different sampling methods and their place in nursing research.**
- **A literature review on sexually transmitted infections.**
- **Stating an appropriate problem for research.**

ESSAY 1 : A COMPARISON OF QUALITATIVE AND QUANTITATIVE RESEARCH

1.1 INTRODUCTION

There are two types of research approaches which are widely used by researchers, namely qualitative and quantitative research.

1.1.1 CONCEPTUALIZATION OF QUALITATIVE AND QUANTITATIVE RESEARCH

Qualitative research is a research approach, which is used to understand and describe life experiences and give them meaning as seen from the point of view of research subjects, in a natural setting. It is sometimes referred to as the interpretative, constructivist or post-positivist approach. Qualitative research has a multi-method focus and basically uses data in the form of words, pictures, descriptions or narratives. It is generally used when there is little theoretical knowledge about a phenomenon and therefore a need for exploration, possibly resulting in theoretical development (Creswell, 1998: 15; Burns and Grove, 2001: 808; Sullivan 2001: 20).

Quantitative research, on the other hand, is sometimes known as the traditional, experimental or positivist approach and is a research process used to describe and answer questions about relationships among variables, with the purpose of predicting, explaining and controlling phenomena. Quantitative research uses numbers, counts and measures of things. A quantitative approach is usually used when there has been previous research and therefore a theoretical basis for a new research study, making it possible to develop precise measuring tools to test theoretical predictions (Burns & Grove, 2001:808; Leedy and Ormrod, 2001:101; Sullivan, 2001: 20).

It is very important to understand these differences as it is on the basis of that understanding that an appropriate methodological option will be chosen for a specific purpose and the different results be evaluated. Qualitative research aims at understanding depth of data arising in a natural setting to find logic, whereas

quantitative research aims at measuring variables and testing hypotheses in order to explain the cause (Neuman, 2000:122). The two approaches can also be combined in a blended research design.

In this essay, qualitative and quantitative research processes will be discussed, as will be the ways in which the two research design processes are similar and how they differ from one another. There will also be a short discussion on the methodological distinctions of the blended research design to show how linking these two approaches in one study can improve study outcomes. An example of exactly how a qualitative and a quantitative study should be designed will also be discussed in order to highlight the differences and similarities.

The following will be the objectives of this comparison of qualitative and quantitative research:

- To learn more about these two designs, so as to be able to appropriately choose either one of these approaches for a study, and to properly understand their varying characteristics, advantages, disadvantages and realities.
- To know the criteria used to decide when each is appropriate.
- To understand the multiple realities that result in the significant differences in methodological assumptions between qualitative and quantitative research. According to Leedy and Ormrod (2001:62-63), assumptions are things that researchers take for granted but may cause misunderstandings. Understanding these assumptions that qualitative and quantitative researchers make also prepares one to know what question has to be answered by which of the two paradigms, and to better appreciate conclusions that result from them.

1.1.1.1GENERAL SIMILARITIES AND DIFFERENCES IN CONCEPTUALIZATION

Some terminology in research is used in both qualitative and quantitative research to create similar understanding, for example, study, research project, investigation, researcher and data concepts. There are however, some differences in the contextual aspects of the words used.

The following are some general differences in conceptualization /contextualization of words according to Polit and Hungler (1999:12-14,23-25,42-43), Burns and Grove (2001:27-51 and 596), Punch (2000:16-17 and 267), Leedy and Ormrod (2001:101-102), Mouton (2002:177) and Creswell (1994:4-5 and 154-155).

Table 1.1 General differences between qualitative and quantitative research

	QUALITATIVE TERM	QUANTITATIVE TERM
Terminology	Informant Study participant Researcher Phenomena (Polit and Hungler	Subject Respondent Scientist Concepts 1999:23-24)
Philosophical origin	It is an interpretive methodological approach that is thought to produce more of a 'softer science' than quantitative research. It evolved from the behavioural and social sciences as a method of understanding the unique nature of human beings. The interpretive humanistic philosophical base of qualitative research is concerned within socio historical settings.	It originates from a branch of philosophy called Logical Positivism. This philosophy operates on strict rules of logic, truth, laws, axioms, and predictions. There is, however, some degree of post positivism philosophy on which many nurses of late base their quantitative studies. This new philosophy focuses on trends that can be used to describe, explain and predict phenomena, so it rejects the idea of

	QUALITATIVE TERM	QUANTITATIVE TERM
	(Burns and Grove	complete objectivity found in logical positivism. 2001:27-28)
Scientific Versus Naturalistic	❖ In qualitative research the issue of human complexity is dealt with by explaining directly. An endeavour is made to understand human experiences as they are lived. ❖ Natural studies are usually conducted in naturalistic settings like in the field over some length of time. (Polit and Hungler	❖ In quantitative research, there is a scientific plan of action for experiments and theory in the real world. A scientific study is aimed at understanding concepts in a broad way so that they can be generalized. ❖ Scientific studies need to be conducted in a place with testing facilities and results can be seen within a short time, for example, in a laboratory. 1999:12-14and42
Aim of study	Qualitative research is conducted to generate knowledge concerned with meaning and discovery. Since qualitative research	Quantitative research is conducted to describe and examine relationships and determine causality among variables, so this method is

	QUALITATIVE TERM	QUANTITATIVE TERM
	is concerned with meaning and understanding, the findings from these studies can be used to generate theory. (Punch 2000:	useful in testing the validity of relationships that compose theory. 16-17)
Theory	Since their work is exploratory in nature, qualitative researchers can use their observations to build theory from the ground up. (Leedy and Ormrod The information which is gathered from study participants forms the basis for a theory (Mouton 2002:177).	A quantitative researcher's intent is to establish, confirm or validate relationships that contribute to theory. 2001:102) Based on whether or not the theory is true, the researcher develops some predictions that can be tested and results which can be used to reject, modify or adopt a theory (Polit and Hungler 1999:25).
Beginning	Qualitative researchers start with general research questions instead of specific hypotheses. (Leedy and Ormrod	The researcher usually starts with a specific hypothesis to be tested. 2001:101)

	QUALITATIVE TERM	QUANTITATIVE TERM
General Design	❖ Case oriented ❖ Contextualizing ❖ Synthetic ❖ Process theory (Punch	❖ Variable oriented ❖ Categorizing ❖ Analytical ❖ Variance theory 2000:267)
Approach	❖ Process oriented ❖ Context-bound, mostly natural setting.	❖ Product oriented ❖ Context free, often artificial setting.
Relationship of the researcher and the researched	Researcher interacts with study participants to the point of staying with them or observing them in their own natural setting.	The researcher is detached from subjects or what is being researched.
Process	The process is holistic and 'emergent' with the focus, design and measurement instruments developing and at times even changing along the way. (Leedy and Ormrod The researcher cannot predetermine the progression of events. He/she is continually examining and interpreting data and making decisions on how to proceed based on what is being discovered in the study setting. (Polit and Hungler	It is conducted by use of carefully structured guidelines which are defined before the study begins and remain the same until the study ends. 2001:101) There is a linear progress of events. The researcher knows beforehand the steps to follow in order to maximize the integrity of the study; and as long as these steps are followed, the study will go well. 1999:42)

	QUALITATIVE TERM	QUANTITATIVE TERM
Reality	The only reality for the qualitative researcher is that which is constructed by the individuals involved in the research situation. (Creswell	A quantitative researcher views reality as objective, out there and independent of the researcher. He/she sees it as something that can be measured objectively by using questionnaires or another instrument. 1994:4-5)
Data Collection	They collect an extensive amount of data from a small number of participants, organize the data in some form to make it coherent, and then use verbal descriptions to portray the situation they have studied. (Leedy and Ormrod	They use a standardized procedure to collect some numerical data and use statistical procedures to analyse and draw conclusions from the data. 2001:102)
Data analysis	Data analysis is done concurrently with data collection and interpretation. It is done in terms of individual responses, descriptive summaries or both. (Burns and Grove 2001:29-	Statistical analysis is done mostly by using a computer at the end of data collection though planned before the study. 51;Creswell 1994:155)

The above differences will be reflected on and clarified in further discussions in this essay. The first aspect to be discussed will be that of the research problem and how it is stated.

1.2 PROBLEM STATEMENT

A problem is a situation in which a gap exists between the actual and the desired ideal state of affairs, while a problem statement is an articulated statement of the problem that a researcher would like to answer or help answer. The research problem identifies the nature, context and significance of the problem to be addressed. It is where every study originates, whether qualitative or quantitative (Polit and Hungler, 1999:49). There is no difference between the two approaches regarding how a problem and a problem statement are defined. As such, any problems to be researched need to have professional significance or actual significance for society. They should have the potential to generate or refine knowledge and influence practice (Burns and Grove, 2001:99).

In choosing a problem and subsequently delimiting it to specific questions, one has to bear in mind that :

- A certain methodology has to be used to best answer it or to guide a study. (A Quantitative paradigm being likely in a study where a lot is known about the topic, and a Qualitative approach being likely where little is known).
- There have to be adequate resources, for example, financial and human resources to help answer it.
- This question has to be answered in a manner that does not ethically violate the study subject's rights (Creswell 1994:50).

In planning to resolve the problem, there can also be a hypothesis (which is a stated prediction of the expected outcome of the study). This will help guide development of a research design and a plan for the collection and analysis of data. The purpose of the questions and the hypothesis is to narrow and focus the purpose of the study (Polit and Hungler, 1999:35-49; Creswell, 2003:105).

The following are the differences between qualitative and quantitative problem statements:

Table 1.2 Differences between qualitative and quantitative problem statements according to Polit and Hungler (1999:58-59)

QUALITATIVE PROBLEM STATEMENT	QUANTITATIVE PROBLEM STATEMENT
The nature, context and significance of the problem are fully expressed. The problem to be resolved is usually related to aspects of a concept that is poorly understood and for which a researcher wants to develop good understanding.	The problem that is usually around a well developed concept (with existing literature and known measurement methods) is narrowed to measurable limits from broad topic areas of research interest. This is done by developing specific questions and formulating a hypothesis. Quantitative researchers use problems that have usually been previously researched but whose results need verification, clarification or extension.

1.2.1 SOURCES OF RESEARCH PROBLEMS

Research problems can arise from:-

a) Current Nursing and other practice differences: This can be when nurses seek to base their practice on knowledge generated through research and it can also be when there are issues or difficulties with current practice guidelines and standards (Burns and Grove 2001:87).

b) Research Peer Interactions: When experienced researchers and novice researchers talk about research, and they need information which may be lacking in theory, research ideas emerge.

c) Literature Review: Looking through research journals and other theory helps novice researchers identify which areas of interest have been researched, to what extent and what the recommendations of other researchers are to further some studies. Some studies can even be replicated for reinforcement of the generalizability of findings to reduce the number of erroneous results, thereby providing support for theory development.

d) Research priorities can sometimes be identified by funding agencies and specialty groups, or communities.

e) Reality: Personal experience and observations can sometimes urge one to investigate more (Burns and Grove, 2001: 86-89; Terre Blanche, Durrheim and Painter, 2006: 19-20).

Creswell (1994:50), further stated that, the following should be kept in mind when the problem is presented and composed:

- An opening sentence should be written in a way that stimulates interest from a reader.
- The issue/problem that triggered the research idea and its importance should be clearly stated.
- The problem statement should be focused on the key issue of research interest.
- The problem to be researched should not be too broad, it should be researchable and feasible within the available time, financial and other resource limits.

1.3 PURPOSE STATEMENT

As a research problem also includes formulation of a research purpose, research questions, hypotheses and objectives, these concepts will now be fully discussed. A purpose statement is a summary of the goal of a study. It is very important as it suggests knowledge and gives an indication of how the problem should be better researched or solved (Polit and Hungler 1999:49, Terre Blanche *et al.,* 2006: 40, Tashakkori and Teddlie 2003:173). According to Burns and Grove (2001:100), each

research study has to have a purpose, which shows the general direction of the study. The purpose, aim or intent of a study is to compare outcomes, to examine relationships, to test interventions, effectiveness or to determine effects (Burns and Grove 2001:100).

1.3.1 REASONS FOR PURPOSE STATEMENTS

Apart from giving the direction the study has to take, purpose statements also give intent to the study, state why a researcher wants to do the study and indicate what needs to be accomplished. The purpose statement builds on the research problem and is refined into specific research questions (Creswell, 2003: 97).

1.3.2 DIFFERENCES BETWEEN QUALITATIVE AND QUANTITATIVE PURPOSE STATEMENTS

Qualitative and quantitative purpose statements may address similar content, but their exact form and language differ because of methodological distinctions of each, qualitative research being naturalist and quantitative research being positivist (Terre Blanche, *et al.,*2006:6 and 48). A positivist paradigm refers to the modernized approach that aims to show the rationale and the scientific evidence in research studies, while the naturalistic approach is about reality being what the research subject perceives it to be (Polit and Hungler 1999:10-12). Therefore, the process of practically conducting research under these two paradigms will be different. The difference between the purpose statements in qualitative and quantitative research is reflected in table 1.3 as stated by Creswell (1994:57-63) and Polit and Hungler (1999:59-60).

Table 1.3 Differences between qualitative and quantitative purpose statements

QUALITATIVE PURPOSE STATEMENT	QUANTITATIVE PURPOSE STATEMENT
A good qualitative purpose statement implies or expresses the assumptions of the qualitative paradigm such as the language of qualitative research and	A quantitative purpose statement requires one to clearly understand the variables in a specific study. It therefore begins with identifying the

QUALITATIVE PURPOSE STATEMENT	QUANTITATIVE PURPOSE STATEMENT
the methodology of a design based on experiences of individuals in a naturalistic setting.	proposed variables for a study, drawing a visual model to clearly identify their sequence and specify their measurement.
The purpose statement should indicate the nature of inquiry, the key concept under investigation and the nature of the group or community under study.	The quantitative purpose statement should identify the variables and their possible interrelationships in the study as well as the nature of the population of interest.

Researchers using either qualitative or quantitative approaches should always be careful not to express subjective purpose statements that show their own personal biases and values as this can misdirect the study (Best and Kahn 1993:24). Questions are also important as a way of giving direction to the study.

1.4 RESEARCH QUESTIONS

The following aspect to be discussed is research questions, as research questions are questions that the study seeks to investigate and eventually answer or try to answer. According to Burns and Grove (2001:171), they are written in the present tense as their intent is to direct and organize the study. They direct the study towards:-

- describing variables and determining differences between them;
- using independent variables to predict dependent ones;
- organizing the project, and giving it coherence;
- delimiting the project and showing its boundaries;
- keeping the researcher focused during the study;
- providing a framework for writing up the project;
- pointing to the data that will be needed (Burns and Grove 2001:171, Polit and Hungler 1999:60-61, Punch 2000:34).

Furthermore, a research question has to be good; otherwise the whole research project will be of little value. A good research question is one that:-

- ✓ is not impossible to answer;
- ✓ is important for the broader community to whom results are to be inferred /conclusions made and has theoretical or clinical significance;
- ✓ has resources to use, human, financial and others;
- ✓ is ethically viable (Terre Blanche *et al.,* 2006: 541-544 , Polit and Hungler, 1999: 35).

1.4.1 DIFFERENCES BETWEEN QUALITATIVE AND QUANTITATIVE RESEARCH QUESTIONS

The research questions formulated for qualitative and quantitative studies, however, do show some differences:

Table 1.4 Differences between qualitative and quantitative research questions

QUALITATIVE RESEARCH QUESTIONS	QUANTITATIVE RESEARCH QUESTIONS
They often evolve and change over the course of the study, being fairly broad initially: **the grand tour** question, and then becoming narrower: **sub-questions,** more focused or even redirecting as the study continues (Polit and Hungler, 1999:61).	They identify key variables, i.e. independent and dependent variables, the relationships among them and the population under study (Polit and Hungler, 1999:61).
Qualitative research questions are under continual review and reformulation evolving and changing as the study continues. They begin with words such as ‘what’ or ‘how’. They seek to discover, explain or seek to understand, explore a process or to describe experiences (Punch, 2000:34; Creswell 1994:70-71).	Questions are presented as either a comparison between two or more groups in terms of a dependent variable or as a relationship of two or more independent and dependent variables. They remain fixed throughout the study (Creswell, 1994:72-73).

A research problem can not be stated without referring to variables as being the subject of the study efforts, especially in quantitative research. The following discussion will be done on the research variables because variables are of extreme importance in quantitative research.

1.5. RESEARCH VARIABLES

A variable is something that changes or varies from one person, object or situation to another or that can be observed or measured in two or more categories. Variables are very important as they constitute features or properties of the study object, persons or situations which can promote accurate clarification of the problem (Creswell, 1994:62; Terre Blanche, *et al.,* 2006:42-43).

Most quantitative research projects are concerned with and try to understand why and how things vary and learn how differences in one variable are related to differences in another. An important distinction in quantitative research is the differentiation between dependent and independent variables of a study. The dependent variable is the outcome that the study is interested in understanding, whereas the independent variable is the presumed cause or influence on the dependent variable (Polit and Hungler, 1999:25 and 45). The difference concerning variables in qualitative and quantitative approaches is the following:

Table 1.5 Differences between qualitative and quantitative research variables

QUALITATIVE VARIABLES	QUANTITATIVE VARIABLES
Elements of a study are identified as concepts (not variables) and they are not defined before gathering of data. This is mainly because qualitative researchers want concepts to be defined by the respondents under study.	Variables under investigation are clarified at the onset of the study.
(Burns and Grove, 2001:182-183).	

Clarifying research variables is important so as to enable the researcher to speculate on the expected relationship between them, (which will be subject to verification in the subsequent study) in the form of a research hypothesis. The research hypothesis will now be explained in full.

1.6 RESEARCH HYPOTHESES

A hypothesis is a prediction or explanation of the expected relationship between variables in a study. The purpose of the study is restated in a manner that in a way predicts the outcome of the study before embarking on it. The predicted answer to a research question is based on theory, literature review or real life experiences. Hypotheses are typically written into quantitative and not into qualitative studies (Burns and Grove, 2001:172, Polit and Hungler, 1999:61-62).

A hypothesis is necessary in a study because, apart from predicting study outcomes, it :

1) specifies the variables to be manipulated;
2) identifies the population to be examined;
3) indicates the method of research to be engaged, by influencing the study design, sampling technique, data collection, data analysis and also interpretation of findings;
4) directs the conduct of the study (Burns and Grove, 2001:172, Best and Kahn, 1993:41-42).

Hypotheses are usually written in declarative sentence form and they relate either generally or specifically, variables to variables. Hypotheses involve observing a concept and then speculating on possible causes. A hypothesis is seen as one of the most powerful tools that can be used to achieve dependable knowledge (De Vos, 2001:116-117).

Polit and Hungler, (1999:42), also state that a prediction of what possible answer there is to a research question is a test of theory. However, since qualitative researchers are usually interested in aspects of a topic that are poorly understood,

and about which little is known, they do not usually develop hypotheses. In fact, some researchers even believe a researcher should not consult literature at all before collecting data for fear that this might influence the researchers' conceptualization of the phenomena under study.

1.6.1 DIFFERENT TYPES OF HYPOTHESES

According to Burns and Grove (2001:175-176 and 204-205), Terre Blanche *et al.* (2006:113-114), there are different types of hypotheses, namely *Associative Versus Causal Hypothesis*, *Simple Versus Complex Hypothesis* and *Non-directional Versus directional Hypothesis*.

1.6.1.1 Associative Versus Causal Hypothesis

An associative hypothesis is stated when one variable changes as the other also changes. Variables occur together in a relationship. For example, in the case of two related variables, in a causal hypothesis an increase of one variable results in the increase of the other (Burns and Grove 2001: 175-176). This can be related to the pulse rate increasing with increase in physical activity. In this example, an increase in physical activity, which is an independent variable, has a direct effect on the pulse rate, which is the dependent variable. The causal relationship then signifies a definite cause-effect relationship between the independent and dependent variable, whereas in an associative hypothesis there is a relationship between the variables, but not in such a direct cause-effect relationship. For example, there is a relationship between a person's brachial and femoral pulse rates since they are usually similar; however, in spite of this relationship the one does not necessarily cause the other.

1.6.1.2 Simple Versus Complex Hypothesis.

A simple hypothesis means there is a relationship between two variables, associative or causal, whereas in a complex hypotheses the associative or causal relationship is among three or more variables.

1.6.1.3 Non-directional Versus Directional Hypothesis.

According to Terre Blanche *et al.* (2006:113-114), Burns and Grove (2001:204-205), a non- directional hypothesis does not predict the way in which the dependent

variable will be influenced by the independent one. This can be illustrated as in the following example, “The big age difference of partners at the time of marriage has an effect on the stability of their marriage.” It is not clear from this example how exactly the big age difference affects the stability of marriage, so it is non-directional.

A directional hypothesis, on the other hand, states the nature of the influence that the independent variable has on the dependent one. It can be positive or negative. For example, “The big age difference of partners at the time of marriage has adverse affects on the stability of their marriage.” This signifies the negative hypothesis whereas “the big age difference of partners at the time of marriage positively affects the stability of their marriage,” shows positive influence, so it is a positive hypothesis.

The above description explains the types of hypotheses that are tested in research projects. There are, however, studies in which hypotheses may not be appropriate (for example, no hypothesis is stated in the qualitative study, only research questions).

As cited by Punch (2000:41), when appropriate, hypotheses parallel specific research questions. However, the more general a research question, the less necessary is a hypothesis. There are, however, differences between qualitative and quantitative hypotheses.

1.6.2 DIFFERENCE BETWEEN QUALITATIVE AND QUANTITATIVE RESEARCH HYPOTHESES

In a study in which a hypothesis may not be appropriate (for example, a qualitative study), only research questions are stated, and as already mentioned, the more general a research question, the less likely is the formulation of a hypothesis. However, when a hypothesis is stated in a qualitative study, the following differences can be highlighted in these two approaches:

Table 1.6 Differences between qualitative and quantitative research hypotheses

QUALITATIVE HYPOTHESIS	QUANTITATIVE HYPOTHESIS
A qualitative hypothesis is frequently undeclared or merely stated in the form of a general research goal, it emerges from the development of a study and it can often not be rejected (Mouton, 2001:161).	A quantitative hypothesis is stated explicitly, at least in the form of a research question, it ought to be formulated beforehand and it can be rejected (Punch, 2000:44-46).

Having stated the predicted study outcome, a researcher can go on to say what he/she hopes to achieve by proceeding with the study, answering the research questions, and testing the hypothesis.

1.7 RESEARCH OBJECTIVES

Research objectives are declarative statements of what the researcher hopes to achieve by conducting the study; the aim of the study. The objectives of a study are to obtain answers to the research questions or to test the hypothesis as well as to develop recommendations to be implemented, such as for changes in nursing practice, based on research findings. As such, according to Burns and Grove (2001:169); Polit and Hungler (1999:49-50), research objectives focus on one or two variables and indicate whether the variables are to be identified or described; whether they are rational, predictive, or whether there is a difference between them.

Like research hypotheses, research objectives are mostly found in quantitative although not likely in qualitative studies. The research objects represent specific restatements of the purpose of the study (Creswell 1994:70-72). However, Burns and Grove (2001:44-45) state that some descriptive quantitative studies, due to their specific purposes, include neither hypotheses, questions nor objectives. But, according to Bell (1993:18-19), there is a danger in not having study objectives, as objectives guide a study , give an idea of what to look for, and without the objectives

the researcher lacks guidance/ direction and may end up collecting too much data with little idea as to what to do with it.

Thus, in the research objectives, it is stated exactly what concepts the researcher wants to study in order to reach the goal of the study (Babbie 2004:113), and the concepts that are related to a common theme need to be created and organized meaningfully, in the form of a conceptual framework, which is discussed next.

1.7.1 CONCEPTUAL FRAMEWORK

A conceptual framework is a relationship between concepts being studied (best shown in diagram form), indicating their relationships to one another. A conceptual framework deals with abstractions or concepts that are assembled by virtue of their relevance to a common theme. They provide a perspective regarding interrelated phenomena (Polit and Hungler 1999:107). A conceptual framework may be developed ahead of a study or it may emerge as the study progresses. Qualitative and quantitative researchers have developed different ways in which a conceptual framework has to be stated, as depicted in table 1.7:

Table 1.7 Differences between qualitative and quantitative frameworks

QUALITATIVE FRAMEWORK	QUANTITATIVE FRAMEWORK
Qualitative designs usually have variable frameworks that develop hand in hand with research questions though they are not very common. The reason for this is that qualitative studies often examine multiple factors to understand a phenomenon not previously well studied, and this results in a less comprehensive framework. (Burns and Grove 2001:146;	Quantitative designs usually have a pre-specified framework which is easily developed based on a background of substantive theory. Punch 2000:56-57)

1.8 RESEARCH METHODOLOGY

After stating the research problem and the other aspects that are necessary to direct a study, the actual process of conducting the research to achieve the study objective has to be done. How the study has to be done, who / what will be studied, how these elements will be selected, what and how the information will be gathered and how this information will be analyzed, are now fully discussed.

1.8.1 RESEARCH DESIGN

A research design is defined as the plan according to which data are to be collected and analysed. So it is a guideline within which a choice about exactly in what ways data are going to be gathered, is made. That is, a researcher's overall plan regarding how research questions are going to be answered, how accurate interpretable information is going to be developed (De Vos 2001:81; Polit and Hungler 1999:155; Bickman and Rog 1998:16).

- Since a research design is a carefully drawn up plan according to which a study is conducted, it has to be carried out as a very first step of the research methodology. Without a research design being done well, a worthwhile study cannot be conducted. As said by Leedy (1989:114), initiating a study without being adequately prepared for it is a waste of valuable research effort.

Next to consider, are some important criteria that should be used in selecting a research design, and they are the following:-

- **The research problem**

  The researcher has to select the best approach for the stated research problem. For example, the quantitative approach would be most suitable for a problem that needs identification of factors that influence an outcome, use of some kind of intervention and testing or explaining a theory. On the other hand, the qualitative approach would be best when a researcher does not know what to examine in a phenomenon that needs to be understood, due to a lack of research being done into it (Sullivan 2001:105-106).

- **Personal experiences of the researcher**

  The researcher can only do best what he/she has been trained to do and has experience in doing. A researcher who has experience and training in conducting open ended interviews, observations and dealing with computer text analysis programs, will be more comfortable doing a qualitative study, but a researcher with experience and training in matters of statistics will be inclined to prefer a quantitative approach (Creswell 2003:20).

- **The target group for whom the report will be written**

  Researchers are also sensitive to experiences and preferences of the categories of readers of their reports and advisers. They want their target group to be comfortable and have maximum understanding of their reports (Creswell 2003:21-23).

Having discussed the criteria for selection of a research design, the following are cited by Polit and Hungler (1999:169), as the general characteristics that a good research design should posses:-

- A good design, whether qualitative, quantitative or mixed, must be appropriate to the question being asked. There can be a number of suitable but different designs for a given research problem, but there are those that are completely unsuitable.

- Another characteristic of a good design is lack of influence that can distort the results of a study, otherwise known as bias.

- Another characteristic of specifically a good quantitative design is that it tries to achieve the highest level of precision by using precise measuring tools (Polit and Hungler: 1999-169).

1.8.1.1 Similarities between qualitative and quantitative research designs:

There are different designs for qualitative, as there are for quantitative research, but either way an appropriate design has to be chosen. For one to be able to finally decide on the adequate proper design to use, one has to plan the following:-

- ❖ In any study the researcher must decide what he/she wants to determine, why and the best way to do it.
- ❖ Consider feasibility, bearing in mind time, cost and human resource limitations.
- ❖ Design data collection techniques such as interviews and questionnaires, and also decide how the actual collection and analysis is going to be carried out.
- ❖ Decide on how and when the pilot work is going to be done.
- ❖ Decide on the sample and of whom it has to be representative (Oppenheim, 2000: 7-8; Babbie, 1995:83-107).

A good research design is the logical sequence that connects the data to a study's initial research questions and ultimately its conclusion (Bickman and Rog, 1998:236).

There are also some differences in the way in which qualitative and quantitative researchers design their studies.

1.8.1.2 Differences between qualitative and quantitative research design

There is a difference in the way in which qualitatively and quantitatively oriented researchers look at research designs. Quantitative researchers look at their list of designs and select one to research first, while qualitative researchers always develop their designs as they go along, that is, 'emergent' (De Vos, 2001:77-80).

The following are examples of research designs used in qualitative studies.

1.8.1.3 Qualitative research designs

Qualitative research designs are used to describe, interpret, verify and evaluate phenomena. As already stated, a qualitative research design does not provide a researcher with a fixed plan to follow, but the researcher's choices and actions

during the research process will determine the best design to adopt. According to De Vos, (2001:80-81); Creswell, (2003:14-15); Burns and Grove, (2001:30-33) and Polit and Hungler; (1999:239-255), the qualitative researcher can combine or go from any one to the other of the following strategies:

1. **Ethnographic Research** - In ethnographic research, participants who usually share a common culture are observed doing something in their natural setting over a long period of time. The researcher lives with the participants and does an in-depth study of this cultural group mainly by observing them as they go through their normal daily activities. Thus, this data of the groups' lived realities will be systematically collected, described and analysed to help develop a theory of this group's cultural behaviour.

2. **Phenomenology and Ethnomethodology Research** - In phenomenology and ethnomethodology research, a researcher places him/herself in the real situation of the subjects; interviewing them, seeing how they perform their day-to-day activities and what meaning they give to those activities. Thus the participants' experiences as interpreted by the researcher during the study, constitute the collected data, and the way in which the researcher will interpret these experiences (according to how he/she perceives reality), will determine the study outcomes. At times the researcher may have had personal experience related to the phenomena in question and he/she may bracket them as he/she wants to gain a better understanding of others' experiences.

3. **Biographical Research Method** - In biographical research, portraits, memoirs, life stories and histories, case studies and autobiographies are studied in order to report on an individual's life. Thus it is a study of an individual and his/her experiences as told to the researcher or found in documents and archival material. It can be a biographical study, which is a life story of an individual as written by some one other than the individual being studied; an autobiography, which is a life story written by someone about themselves; a life story, in which case a researcher reports on an individual's life and how it reflects cultural themes of a society, personal themes, institutional themes or social histories.

4. **Historical Research Method** - In historical research, verbal reports, historical documents like letters, diaries and old newspapers, are used to study historical phenomena and to establish facts and relationships concerning past events. In this way, for example, professionals can interpret their discipline and understand themselves, see how their profession contributed to others in the past, examine and understand mistakes of the past. This foundation can help them plan better for the future.

5. **Case study** - In a case study the researcher explores a case (an object of study) which may be a particular individual, family/ies, units, organizations or communities over some time. In-depth information is collected from multiple sources such as observations, interviews, documents and audiovisual materials.

6. **Symbolic Interactionism** - In symbolic interactionism, meaning and interpretations to symbols like specific actions, signs and works are studied in the subjects' living world.

7. **Grounded Theory Research** - In grounded theory research, systematic techniques of sampling, data gathering and analysis are adopted in order to enable the researcher to develop a grounded theory that is based on the data from which it was derived. It is useful in discovering problems that exist in the society and what processes the people use to handle these problems.

As already stated, qualitative and quantitative designs differ, and the difference between them is that quantitative research designs make room for varying degrees of study control and also try to use precise measuring tools to achieve precision, while in qualitative designs precision and accuracy are considered to be what the subjects perceive it to be. The following are examples of research designs used in quantitative studies.

1.8.1.4 Quantitative research designs

a) **Descriptive research:** This is a non-experimental design whose purpose can be to observe, describe and document aspects of a situation as it occurs in real life, thereby generating new knowledge where limited or no research has been done (Burns and Grove, 2001:52).

b) **Correlational research:** This is also a non-experimental research design that examines the extent to which differences in one characteristic or variable are related to differences in other characteristics or variables as they occur naturally. A correlation exists if, when one variable increases, another variable either increases or decreases (Best and Kahn, 1993:120).

c) **Quasi experimental research:** This is more or less an experimental design that is used to examine cause and affect relationships among variables. The quasi experimental design differs from a true experimental design in that it lacks either randomization or a control group (Burns and Grove, 2001:52-55).

d) **Experimental designs:** This is a purely experimental design characterized by accumulating facts using an experimental study conducted in a laboratory setting. Like a quasi- experimental design, its purpose is to examine cause and effect relationships between independent and dependent variables. The difference is that with experimental designs, there is a very high level of control, manipulation and randomization (Polit and Hungler, 1999:175-186).

e) **Ex-post-facto design:** Ex-post-facto or 'after the fact' research refers to those studies which investigate possible cause and effect relationships retrospectively by observing the existing state of affairs and searching back in time for possible causal factors of these occurrences. The independent variable has then already occurred and the researcher starts with observation of the dependent variable. The researcher thus retrospectively examines the effects of a naturally occurring event on a subsequent outcome, with the purpose of establishing a causal link between them (Best and Kahn, 1993:121and128).

An Ex-Post-Facto design, however, has the following limitations:-

- ❖ The independent variables can not be manipulated.
- ❖ Subjects cannot randomly or otherwise be assigned to treatment groups.
- ❖ Causes are usually multiple.

Having discussed the above research designs which are usually used in qualitative and quantitative research respectively, there are also some special studies which require unusual or unique designs to successfully fulfill their purposes. The following are examples of those designs:-

1.8.1.5 Non-traditional designs

- ➢ **Case study**

  A case study involves a detailed descriptive account of an individual's, or a group's life, an event or organization. The goal of the case study is to gain understanding through depth and richness of detail that is observed from the perspective of those being studied and this is achieved over some length of time using this method. Case studies can be based on one or a combination of direct observations, interviews, document analysis, organizational records, photos, videos, quotations from those being studied and artifacts, as long as the data source will assist in describing the case under study. Since the major aim of the study is to describe rather than generalize, sometimes results of a study cannot be generalized even beyond the specific case being studied (Sullivan, 2001:333).

- ➢ **Historical research**

  Historical studies are usually longitudinal since they continue over a long period of time. They involve examination and interpretation of records and other evidence from the past (even recent past), based on knowledge of history about how events, societies and cultures operate and transform over time.

Historical research seeks not just to know what happened in history, but to search for causal regularities in history, and also to explain and develop theories and hypotheses. The data is obtained from historical writings, books and newspapers, primary and secondary sources, email messages, audio and video recordings, official government and organizational records, or even verbal reports from a primary source (Sullivan, 2001:306-310, Best and Kahn, 1993:26).

- **Meta-analysis / research synthesis or research integration**

  Meta analysis design involves systematically and statistically analyzing combined findings of different studies which were on a similar topic; so that there is ultimately some unity in the knowledge created and in estimating their effects (Burns and Grove, 2001:278-279; Best and Kahn, 1993:127).

- **Methodological designs**

  Methodological designs involve a complex and long process of developing validity and reliability of instruments or research tools that are used to measure variables in research (Burns and Grove, 2001:271-280).

- **Evaluation research / Program evaluation**

  Evaluation research is actually more concerned with a research purpose than with a research method. Its aim is to evaluate by way of experiments, surveys, etcetera, the impact of social interventions that result from research. It is a process of determining whether the interventions produced the intended results. In order for researchers to be able to do this evaluation there have to be standards that have been agreed upon and the response variable has to be measurable (Babbie, 1995:338-339).

- **Action research**

  Action research involves both a research specialist and a professional actively applying and evaluating techniques in a practical setting. It is focused on the here and now, the immediate application, not with development of theory nor universal validity. It is also aimed at improving both the professional practice and the practitioners at work. Action research makes it possible for

professionals who do not have the time, resources or technical background to engage in more formal research activity by applying scientific thinking and methods to real life problems (Best and Kahn, 1993:24-25).

- **Needs assessment**

  Needs assessment is an evaluation of the presence of a problem, the nature of the problem, how extensive the problem is, what resources exist for solving the problem or whether some goods or services are needed in a particular community for meeting a problem. A needs assessment or a survey is especially necessary in program planning and implementation, whereby it is necessary first to find out factors such as the target population and their characteristics, existing programs/services in that community, the necessary intervention strategies, necessary skills to deliver the program and the feasibility of carrying out the program (Sullivan, 2001:17 and 362-363).

Another emerging approach to research is that of combining qualitative and quantitative research designs in one study to enhance study outcomes.

1.8.1.6 Blended research design

Blended research design integrates qualitative and quantitative research methodologies in a single study. Thus, blended research designs are the new trend of doing research, in which there is blending of data, thereby capturing the best aspects of both qualitative and quantitative research (Polit and Hungler, 1999:257). Collecting diverse types of data is believed to provide better understanding of a research problem.

The following additional reasons for blending qualitative and quantitative research designs have been identified:

REASONS FOR BLENDED RESEARCH DESIGNS

- Weaknesses in one approach are complemented by strengths in the other enhancing results, for example, in larger quantitative samples; data can be collected using the qualitative methods of collecting in-depth information that will give more meaningful answers to research questions.

- ❖ Different aspects of reality are better understood when they are interpreted from different data sources in one study, like in qualitative words and quantitative numbers.

- ❖ When the two methodologies are used in separate studies with a similar purpose, the collected data are usually not consistent with each other, whereas if, for example, one method is used at a certain stage of the study and another method at another stage of the same study, there will be consistency (Polit and Hungler 1999:257-260, Creswell 2003:19).

In blended research designs the following strategies are used:

- ➢ **Concurrent strategies:**-

  Concurrent triangulation strategy – In concurrent triangulation, a researcher uses both the qualitative and quantitative data collection methods to collect data in one study. This is done in order for weaknesses in one method to be complemented by strengths in the other method and also to confirm, cross-validate and contrast study findings.

  Concurrent nested strategy – In concurrent nested strategy, qualitative and quantitative data collection methods are still used concurrently, but the difference here is that between the two strategies (qualitative and quantitative), the one that is more predominant guides the study, so that the two methods do not receive the same priority.

  Concurrent Transformative Strategy – In a concurrent transformative approach, a researcher selects a certain specific theoretical perspective that will be used to guide the study; then either a concurrent triangulation or a concurrent nested strategy is used to facilitate collection of data based on this perspective (Creswell, 2003: 217-219).

- ➢ **Sequential strategies:**

  Sequential explanatory strategy – Sequential explanatory strategy is used in studies which are predominantly quantitative. Quantitative data is collected

and analyzed first, followed by collection and analysis of qualitative data. The two methods are then integrated during data interpretation, whereby qualitative data results are used to help explain and give more clarity to quantitative data findings.

Sequential exploratory strategy – In contrast to the sequential explanatory strategy, here it is the qualitative data collection and analysis that is given priority over quantitative data collection and analysis. Then the two are also integrated at the interpretation phase; so that the quantitative data results are used to explain qualitative data interpretations of a phenomenon.

Sequential transformative strategy – In sequential transformative research any of the two data collection methods, (qualitative or quantitative) may be used, one before the other, to get different perspectives. Priority may be given to any of the two or they may even be awarded the same priority if there are enough resources (Creswell, 2003:215-217).

- **Transformative strategies:**

In these strategies, a researcher incorporates theoretical perspectives into all phases of the research process, either deductively as in quantitative research, or inductively as in qualitative research processes, whereby both qualitative and quantitative data are used (Creswell, 2003:16-17).

After the study designs have been clarified, the next step to be done is the process of identifying the population and selecting the sample for a study.

1.8.2 POPULATION

A population is very important as it is the group from which a researcher wants information, and to which results of the study are generalized (in quantitative research). An entire population on its own cannot usually be researched because it would not be possible to study all the people/elements relevant to the problem under scrutiny (Bickman and Rog, 1998:13). Hence the need for selecting a smaller group or a sample from the bigger population.

A population is the total of all objects, subjects or members that conform to a set of specifications in which a researcher is interested and to which results of a study can be applied (Polit and Hungler, 1999:37). A population is defined, in both qualitative and quantitative research, as the total target group who would ideally be the subject of the research and about whom one is trying to say something.

1.8.2.1 Sampling

A sample is a model of the population or a fraction of the population that is used to gain information about the entire population. Therefore, the sample is the actual group of people who are included in the study and from whom the data are collected. Therefore, sampling is the process for the selection of a group of representative people, events, behaviours, or other elements on which the study is conducted. The sample should be selected in such a way that it accurately reflects the population under study, especially in quantitative research (Bickman and Rog, 1998:102; Burns and Grove, 2001:365; Punch, 2000:105).

According to Burns and Grove (2001:370-377); Polit and Hungler (1999: 281-289); Neuman (2000: 208-210); Collins (1999: 96-99); Mason and Bramble (1999:115-119), the following two types of sampling designs can be distinguished, namely, probability sampling and non probability sampling

- ***Probability or random sampling***; This is the kind of sampling whereby elements are selected randomly from the population, with each element having the same chance of being chosen for the sample. It is commonly used in quantitative research (Burns and Grove, 2001:370). Examples of probability sampling methods are :

    - *Simple random sampling.*

      In simple random sampling, each element in the population has a chance of being selected for the sample, for example, by assigning each element in the population list a number and then choosing numbers to include in a sample from a table of random numbers (Mason and Bramble, 1999:116).

- *Systematic sampling*

  In systematic sampling only the first element is selected randomly from the sampling frame and then the subsequent elements are selected according to a certain worked out interval, for example, every fifth or tenth, until a predetermined sample size is reached (Collins, 1999:97).

- *Stratified random sampling.*

  In stratified random sampling, a heterogeneous population is divided into its existing strata depending on characteristics like age, gender and language, making the members of each strata homogeneous in terms of these characteristics. Selecting a representative sample from each strata to make up a study sample enhances representation of the different segments of the population (Polit and Hungler, 1999:286-287).

- *Cluster sampling.*

  Cluster sampling is used when a list of all elements of the population is difficult to make but there is only a geographical map of an area available. Individuals in a population are grouped into clusters based on physical proximity rather than common social class; for example, in selecting a cluster sample, schools in one district can be identified and classrooms in these schools can be thought of as clusters containing a population of students, and a number required for a sample of these classrooms (clusters) can be randomly selected to make up a cluster sample. The more the classrooms selected into the sample, the more representative the sample would be and further sampling of less general populations within the selected clusters can even be performed (Mason and Bramble, 1999:118).

- The non-probability sampling method, on the other hand, is the type of sampling whereby there is no likelihood of including all representative elements of the population in the sample, as elements are not randomly selected for inclusion in the sample, but are selected depending on their knowledge about the phenomenon of study interest. Non-probability sampling

is commonly used in qualitative studies (Neuman, 2000:195-196). Its variations are :-

- *Convenience sampling*

  In convenience sampling or accidental sampling, any element which is willing to take part and happens to be in the proximity of the researcher at the time of sampling can be selected for a sample until a required sample size is reached (Polit and Hungler, 1999:281).

- *Quota sampling*

  Quota sampling is another non-probability sampling method in which subjects are identified because they are there at the time, as in convenience sampling. The purpose of quota sampling is to select samples in the same proportions in which they are found at the time in the population, but not randomly. If there are a certain number of different ethnic groups in the population in selecting a quota sample, numbers of the different ethnic groups that are proportional to the total number in the population will be selected (Burns and Grove, 2001:375-376).

- *Snowball sampling*

  Snowball sampling is another non-probability sampling method which is usually used when a researcher wants to investigate a population which, for example, is unknown or is unwilling to be known and is therefore difficult to locate. In snowball sampling, people with characteristics of research interest are sampled by way of the first one who is approached being asked to introduce the researcher to another person/people with similar characteristics. This goes on until a sample of a required size has been acquired (Babbie, 2004:184).

- *Purposive sampling*

  In purposive sampling, elements are selected into a sample for a specific purpose, and this purpose / reason for selecting them is specified. The researchers make their own judgment, depending on their knowledge of the characteristics of study interest in the population (Polit and Hungler, 1999:284).

- *Deviant case sampling*

  In deviant case sampling a researcher has to have in his/her sample subjects whose characteristics of research interest deviate from those usually studied (Neuman, 2000:200). For example, people who, due to their positive HIV status, are getting benefits which have improved their lives, can be sampled instead of the usually studied destitute orphans.

- *Theoretical sampling*

  In theoretical sampling only those subjects who have the potential to make a valuable contribution towards development of a theory which is subject of research interest, are selected (Neuman, 2000:200).

Having discussed these sampling methods, the following are the differences in sampling which is done in qualitative and in quantitative research designs.

Table 1.8.2.1 Differences between qualitative and quantitative sampling.

QUALITATIVE SAMPLING	QUANTITATIVE SAMPLING
The sample is informative, non random and small. Characteristically, qualitative researchers do not seek to generalize.	The sample is representative and large. Generalization through sampling is usually important.
(Leedy and Ormrod, 2001:102; Polit and Hungler, 1999:295-300).	

After establishing what the population of study interest is, and how a sample is going to be selected from it, a pilot study can be carried out.

1.8.3 PILOT STUDY

A pilot study is a small version of the actual study, in which unforeseen problems can be detected, information for improving the study can be obtained and the plan for study feasibility and adequacy of data collection can be assessed. A pilot study has to be done in both qualitative and quantitative studies for the following reasons:

- To assess the feasibility of a study and also to obtain information for necessary improvements or alteration.
- To determine whether the research design is appropriate
- To determine whether the sample is representative of the population
- To determine whether the data collection instruments are effective, reliable and valid, that is, the adequacy of the data collection plan (Polit and Hungler, 1999:38 and 320-321; Burns and Grove, 2001:50).
- In addition to testing an existing design, however, a pilot study can also be conducted to develop and improve some steps in the research process, especially in quantitative research. For example, in the development or refinement of a research instrument, or the development of a protocol for its implementation.

Having looked at the pilot study, the next important step to consider is the instruments that are used to collect the necessary data from the sample, in either a qualitative or a quantitative study. Qualitative researchers want to know that measures that are used in their studies (discussed in 1.8.4.1), can yield quality results that portray truthful perspectives of study participants. In quantitative research however, instruments (discussed in 1.8.4.2), can either be newly invented for a study (though this is not an easy task), or otherwise instruments that have been proven to be valid and reliable in previous studies can be used. According to Polit and Hungler (1999:408-409), however, very few instruments are totally immune from error.

1.8.4 RESEARCH INSTRUMENTS

The instruments used in research and the specific way in which data are collected, are determined by the research design. Once the researcher has decided what he/she wants to know and why; has chosen the research design and specified the

research subjects, he/she has to decide how best the required information can be collected. There are data collection instruments that are usually engaged in qualitative research and those usually used in quantitative research, but not necessarily exclusively so.

The following are instruments usually engaged by qualitative researchers to collect data:

1.8.4.1 Qualitative data collection instruments

Observations:

The researcher can perform this role, either as a participant in the said activity with his/her role as a researcher not disclosed, or as just an observer without participating in a natural setting. The researcher can also play the role of a participant more than that of an observer with his/her role as a researcher known, or be more of an observer than a participant (Terre Blanche *et a*l., 2006:307-316, Burns and Grove, 2001:418-420).

When a researcher is a participant observer, the following are the advantages:

- The researcher gets to know and be known to participants on an informal personal level, making it easy for participants to behave normally in her/his presence.
- The researcher has time to observe ongoing behaviour as it occurs and is therefore able to take note of every detail of the participant's non-verbal behaviour. On the other hand, the researcher may be so used to the situation in that setting that he/she develops own impressions and fails to look at the situation objectively, resulting in bias (especially if the involvement was prolonged) (Mc Millan and Schumacher, 2001:41). So the researcher has to be aware of these dangers and try to avoid them.

Interviews: Interviews entail a verbal interaction between the researcher and the subjects whereby information is given to the researcher. Qualitative researchers do not usually plan in advance as to what is to be discussed and how the interviews are to be conducted. The researcher can perform face-to-face individual interviews, telephone interviews or group interviews (Burns and Grove, 2001:420-434).

Documents: The researcher can also access public documents like minutes of meetings, newspapers, journals, diaries or letters and review them to compile data (Terre Blanche *et al.,* 2006: 316).

Audio visual materials: The researcher can gather data by way of photographs, videotapes, computer or film (Creswell, 2003:186-187).

1.8.4.1.1 Trustworthiness / neutrality of qualitative data collection instruments

Qualitative data collection instruments should be trustworthy. Trustworthiness is a term used by Lincoln and Guba (1985:290) to refer to how convincing the research findings are and why the research findings should be given attention. There are four aspects of trustworthiness involved, namely:

- **Truth-value (credibility)**

  Truth-value is about the steps taken by the qualitative researcher to improve and evaluate data credibility. It refers to confidence in the truth of the data (Lincoln and Guba, 1985: 290). The following are the strategies that a qualitative researcher can engage to ensure that qualitative data are credible.

  - Prolonged engagement with participants in their natural setting until saturation of data, to ensure sufficient time to build a relationship of trust.
  - Persistent observation and searching for important cues to provide depth to the findings.
  - Going through written data time and again to understand their contents fully.
  - Analysing negative cases through analytic induction.
  - Member checks by way of the researcher communicating and validating the data and their interpretations with the participants.

- **Applicability (transferability)**

  Polit and Hungler (1999:430-431), describe applicability as the degree to which the findings of a study can be applied to other contexts and settings or

to other groups. This suitability of the data is a criterion for evaluating the quality of qualitative data.

- **Consistency (dependability)**

  Consistency in qualitative data refers to data stability over time and in different conditions. There can be no trustworthiness in the absence of dependability (Polit and Hungler, 1999:430).

- **Neutrality (confirmability)**

  Lincoln and Guba (1985:300) refer to neutrality as confirmability that depends on the auditability of data. This means that the systematic collection and documentation of data allows a qualitative researcher to draw conclusions about such data in relation to trustworthiness.

So collecting qualitative data that is credible, transferable and confirmable ensures that such data will be trustworthy and therefore worth taking note of.

1.8.4.2 Quantitative data collection techniques

Quantitative data, on the other hand, is collected by using the following instruments:-

Biophysiologic measures: Use of technical equipment, for example for measuring physiologic functions in a hospital setting, can be involved to collect quantitative data (Polit and Hungler 1999:314).

Observations: According to Babbie (2004:220), observations are a very versatile method of collecting data as in experimental designs; experiments in a laboratory can also be observed to establish causal relationships. Observations as qualitative data collection instruments are used in an unstructured manner in the natural setting with the researcher observing from within or being very close to the group. Whereas, to collect quantitative data, observations are made when using technical equipment in an organized setting, for example, in the laboratory, with the researcher observing from the outside.

Self reports: Due to its directness, the self report technique of collecting quantitative data helps a researcher to gain access to information that would be difficult to get by other data collection techniques. Like observations, self reports are, however, not a very valid data collection method since subjects can just report distorted data on issues that are neither true nor accurate.

Data are collected by way of verbal or written communication whereby people are questioned directly. Information about past occurrences and those planned (which are not occurring at the time of the study), and things that subjects are just thinking, can be accessed by the researcher (Polit and Hungler, 1999:312-314).

Questionnaires: Questionnaires are self-administered interviews whereby a respondent reads a question on a form and gives an answer in writing. Questionnaires should ideally be constructed in such a way that they are unambiguous and easy for all respondents to understand. Questions can be close ended, whereby they require a yes or no answer, or for the respondent to select from a list of provided answers. Questions can also be open ended in that a respondent needs to elaborate (Polit and Hungler, 1999:201).

Before they can be used to collect data, and for them to have minimal chances of error and also enhance data quality, data collection instruments have to be valid and reliable (Babbie 2004:145-146). Thus they should possess one or more of the following attributes of validity and reliability.

1.8.4.2.1 Validity and reliability in data collection

Validity: Validity refers to the accuracy of a measuring device, whether or not it accurately measures the variable that it is intended to measure, so that the results it yields reflect the true meaning of the variable being measured. It is sometimes not easy to demonstrate validity or to determine that a particular measure adequately reflects true meaning of a concept (Babbie 1995:126), however, the following are some of the ways used to assess validity:

Face validity: Face validity is a demonstration of validity whereby assessment is made by way of just using logic and common sense to assess whether or not a measure truly reflects the results of a particular variable. For example, a nurse researcher may decide to measure the incidence of a measles outbreak by the number of children with measles seen in the clinic. This would not be a perfect measure as other children with measles may not have come to the clinic; however, it is logical and it makes sense that the out-patient records would reflect children seen with measles. This is, however, a weak demonstration of validity.

Content validity: According to Burns and Grove (2001:400-403), content validity refers to the degree to which a measuring device covers all meanings of a variable being measured. If, for example, a researcher was to measure a person's general level of *performance* at school, the measure would not have to be limited to class performance alone but could include academic and non–academic extramural performance levels. This would cover the varying meanings and content of the word ''performance''.

Criterion validity: As cited by Best and Kahn (1993:219), in criterion validity, validity is established by showing a correlation between a measuring device used in a study and another existing criterion, like a measuring device that has already been proven to yield accurate results in a past study. Such existing measures can be located during a literature review.

Construct validity: Construct validity refers to finding a relationship between a measuring device and a broader theoretical framework so as to determine whether the measuring device confirms some hypothesis from verified theory. In order for construct validity to be truly determined, the device should be compared to theory in several and not in only one study. In this way construct validity differs from criterion validity (Sullivan, 2001:131-135; Babbie, 1995: 127-128).

In addition to validity, research measures are also evaluated for their reliability.

Reliability: Reliability refers to a measuring instrument's ability to yield consistent results each time it is used on similar objects. This, however, does not mean that

the results will always be accurate, as reliability does not ensure accuracy (Babbie, 1995:124). Nevertheless, a truly reliable measure or instrument is one that minimizes error. Validity and reliability are very important in a quantitative study and a quantitative study cannot be considered valid unless it is reliable. Reliability is much easier to demonstrate than validity, and the techniques used for estimating the reliability of an instrument are based on its 'stability and equivalence'(Burns and Grove, 2001:396).

Stability: Stability of an instrument is the extent to which its repeated use on similar objects with stable attributes produces similar results. A test-retest approach can be used, whereby a similar test or measure can be administered to elements on two different occasions and the results compared (Babbie, 2004:142). As cited by Burns and Grove (2001:396-397), the test-retest approach can, however, be influenced by alterations in the behavior of elements themselves, especially if the test-retest interval is long. Inconsistencies can also be observed in 'multi-testing effects' which refer to problems experienced when people do not react similarly to a measure on different occasions. They might respond as they recall doing the first time or deliberately change responses.

Equivalence: Equivalence is the idea that all items that make up a measuring instrument should be consistent with one another. For example, when similar measuring instruments are used by different researchers to measure similar phenomena at the same time, their results should be consistent with one another (Sullivan, 2001:135-138, Polit and Hungler, 1999:411-416).

When validity and reliability of the instruments used in data collection have been established, preparation for the actual data collection is the next important step.

1.8.5 DATA COLLECTING PROTOCOL TO BE FOLLOWED

Data are defined as pieces of information obtained in the course of a study. So data collection is the interrelated activities aimed at collecting this information (Polit and Hungler, 1999:698).

1.8.5.1 Permission to enter the field

Before data may be collected, approval has to be obtained to conduct the study, for example, from the ethical committee of the faculty at the university. Permission also has to be sought from study participants themselves or their guardians, if under age. Subjects have to be convinced of the integrity of the researcher and the value of the study before they decide whether or not to participate. Once a researcher has fulfilled these entry requirements, the actual data collection can be done.

1.8.5.2 The data collecting process

Data collecting is a very important step of the research process as it is on correct data collecting and analysis that the gist of addressing the research problem is based. So, data collecting has to be planned well. One has to decide in advance about what data has to be collected, how to collect it, from whom/what (elements), and about everything else (equipment), that will be needed for data collecting, especially in quantitative research.

However, regardless of a data collecting technique, the following ethical basics of data collection have to be observed.

- Subjects have to be informed of their right to voluntary participation and to withdraw at any time without any penalties, and they should sign a consent form giving their informed consent to participate.
- Subjects have to be given all information regarding, for example, how much time they will be expected to put into the research, the purpose and benefits/impact of the research and generally what to expect from the research process. As cited by Burns and Grove (2001:453), these are very important aspects.

If not too late, subjects who withdraw from the study can be replaced by following the set inclusion criteria. For those who refuse to participate, reasons for their refusal have to be recorded if known (Creswell, 2003:64-65).

At the data collecting site, anonymity of subjects has to be ensured so that they are comfortable and not ill at ease. The language used should be that which is understood by all. Then, regarding the actual data collecting, data should be

collected from each subject and recorded systematically to facilitate analysis later on, especially in quantitative research (Creswell, 2003:185).

However, qualitative data collecting cannot be preplanned and it involves relationships between the researcher and the participants whereby, in working towards answering the research question, a researcher interacts with participants in their natural settings. Communication techniques such as reflecting, probing, paraphrasing and clarifying can be used to facilitate information sharing (Kaplan and Sadock 1998:3-11).

1.8.5.3 Exiting the field

At the end of the data collecting process, participants have to be thanked for their participation as do the guardians of under-age participants and other persons from whom permission to collect the data was initially sought.

1.8.6 DATA ANALYSIS

Data analysis is the process of deriving meaning from observations that were made during the research process, and it refers to systematically organizing and synthesizing of the collected data so that it can be interpreted and communicated. According to Burns and Grove (2001:794), data analysis entails categorizing, ordering, manipulating and describing data in meaningful terms. Data analysis is done differently in quantitative and qualitative research. In qualitative research, data can be reduced and interpreted as it is being collected, whereas in quantitative research, data can only be analyzed after completion of the data collecting process (Creswell 2003:190-195). Analysis of qualitative and quantitative data is performed in the following manner:

1.8.6.1 Qualitative data analysis

Categories of information are segmented depending on whether it was collected through interviews, observations, documents or visual material. The meaningful segments are then identified and categorized and corresponding themes are put together. These categories are given codes and they can either be entered into the

computer for organization, or be manually organized and then interpreted and described (Polit and Hungler, 1999:573-589).

If, however, the researcher is going through transcriptions of unstructured interviews, the following steps should first be considered :

- The researcher should carefully read all transcriptions to fully understand their meaning, and as he/she does so, write down ideas that come to mind, in the margin.
- As the researcher reads, he/she can group together topics that have similar meaning, abbreviate them as categories and write the codes next to these categories.
- After giving the similar groups of categories codes, the researcher can then separate the data accordingly, so that data belonging to respective categories are in one place in preparation for analysis (Tesch 1990, in Creswell,1994:154-155):

1.8.6.2 Quantitative data analysis

Quantitative data, on the other hand, is analysed in the following manner: Statistical processes are used to analyse quantitative data so that the data becomes meaningful. These statistical techniques are usually classified as being either descriptive or inferential. Though both techniques can be used to analyse data in one study, where necessary one that is more appropriate for the goals of the data analysis must be chosen (Sullivan, 2001:424-440).

Descriptive statistics: Descriptive statistics are procedures that assist in organizing, summarizing and interpreting data that are from a sample or a population. These statistical procedures provide indicators of what is common or typical about a variable, how much diversity there is in a variable and how values in one variable are associated with values in the other variables.

Inferential statistics: Inferential statistics, on the other hand, are procedures that allow researchers to make generalizations from sample data to populations from

which the samples were drawn. Based on the probability theory, inferential procedures show the probability of researchers being wrong if they infer the results found in a sample to the population from which the sample was drawn (Polit and Hungler, 1999:439-440 and 469-470; Babbie, 1995:415-440).

Statistical analysis is conducted by computers to reduce and organize data, determine specific relationships and identify differences among groups. Research control, reliable measuring instruments and statistical analyses are used to render research findings as an accurate reflection of reality so that the study findings can be generalized. Then data can be analysed and the results described on, for example, the descriptive nominal level (Sullivan, 2001:22-23 and 441).

Having collected and analysed data, it is now important to look at how a whole study can be said to have been valid and reliable.

1.9 VALIDITY AND RELIABILITY OF THE STUDY

A study can be said to have been valid and reliable if valid and reliable measures were used to collect data that resulted in achieving what was initially set out as objectives for conducting the study (Sullivan, 2001:231-232; Lincoln and Guba, 1985:290).

According to Burns and Grove (2001:239-241 and 407), triangulation is defined as the concurrent use of two or more methods, theories, data sources, investigators or analysis methods in one study, and triangulation is one criterion of trustworthiness that can be used to validate a study. It can be triangulation of:

- settings in which a study is conducted,
- times during which a study is conducted,
- subjects used to provide data,
- instruments that are used in data collection.

Thus, triangulation can be used to enhance study validity. In order to assess whether or not a study has been valid, at the completion of the study, the analysed study findings have to be taken back to the study participants, for them to verify the

findings and say whether or not the findings are a true reflection of what they said or did during data collection.

1.10 LITERATURE REVIEW

Another important step in the research process is that of reviewing literature, especially in quantitative research. A review of literature is a search of all written sources which relate to the topic of interest. These will include a review of Primary Sources, which are works written by the persons who originated or generated the published ideas, and also a review of Secondary Sources which are summaries or interpretations of somebody else's original work (Burns and Grove, 2001:107). A literature review is very important because it can help a researcher to actually identify a problem area or aspects of a problem that need to be looked into.

Researchers should be aware that, although searching for related literature is essential in research, it might have unfavourable results such as:

- One may fail to discover new possibilities due to the influence of the results of previous researchers.
- One may tend to emphasize mainly what has been brought to one's attention by literature and not explore new approaches. This is why some qualitative researchers did not encourage it in the beginning (Bless and Achola, 1990:22-23).

A literature review, however, has the following advantages:

- Reviewing literature can help both qualitative and quantitative researchers with ideas to identify and focus on a research topic and to bring the problem into better perspective, so that aspects about which more research is needed are identified.
- Researchers can also compare their findings with those of collateral researchers.
- A literature review can show how other researchers dealt with problems that may be similar to a present researchers problems.
- Linking a study with other research also helps extend the knowledge base, while novice researchers can learn how a study is done (research process) through a literature review.

- ❖ It can reveal sources of data that a researcher may not have known about , providing new ideas and a platform from which a researcher can evaluate their knowledge base (Leedy and Ormrod, 2001:88-89).

PLANNING TO USE LITERATURE IN A STUDY

- ✓ Literature should not be used extensively in the beginning of a qualitative study unless required so by the type of a qualitative design. This is because in a qualitative study literature is usually used inductively (the specific discoveries of the study are combined in to the larger body / statements of literature afterwards).
- ✓ Literature should be used deductively in a quantitative study (the existing general theory giving direction and forming the basis for the plan of this study). So it should be put towards the beginning in a section entitled 'review of literature '.
- ✓ Literature can be used in a quantitative study to introduce the study or to describe related literature in a separate section or even to compare present findings from previous studies.
- ✓ In a blended research design study, literature should be used in a manner that is in line with the prevalent strategy in the study (Creswell, 2003:32-33).

A researcher should organize a literature review around a specific theme and look at it from his/her own perspective or the perspective that will be relevant and help answer his/her question/curiosity. While quantitative researchers use literature a lot initially as a basis for the study, qualitative researchers use literature in varying degrees that is consistent with the type of qualitative design, and that which does not direct the questions asked by the researcher but only helps the researcher learn more from the participants. More literature is used early in studies that use theoretically-oriented methodologies like ethnographies, than in grounded theories, case studies and phenomenological studies. In especially grounded theory, literature can just be used at the end of a study to compare and contrast findings (Creswell, 2003: 30-32).

As already stated, the use of literature in a qualitative study can vary depending on the design. According to Creswell (2003:31), in qualitative studies literature should be used in the following manner:

Table1.10.1 Criteria and method type for using literature in qualitative studies

USE OF LITERATURE	CRITERIA	EXAMPLES OF SUITABLE DESIGNS
Literature can be used in the introduction to the study, where it is stated who has written about the problem and its importance in the past.	When there has to be some theoretical background.	This approach can be done in all qualitative designs.
	Literature can also be written towards the beginning of the study in a separate section, (such as is usual in quantitative research designs) so as to use it deductively in the study.	This approach is done in designs like ethnographies and critical theory studies which need extensive exploration of literature beforehand and use a lot of theoretical background.
Lastly, the literature can be included in the final section of the study so that it can be compared and contrasted with current study findings.	The approach is suitable when the literature is not needed for guidance of the study but just for comparison of patterns or categories of the present study findings with the larger general prior literature findings.	Though this approach can be used in all qualitative designs, it is most popular in grounded theory designs.

The following differences are, however, found in further comparing the use of literature in qualitative and quantitative research approaches:

Table 1.10.2: Differences between qualitative and quantitative literature review

QUALITATIVE LITERATURE REVIEW	QUANTITATIVE LITERATURE REVIEW
❖ Literature is used sparingly in the beginning of the plan to frame the problem, unless the specific design type requires a substantial literature. ❖ The target group/population for the project is considered when deciding whether or not to include literature and it is either placed in the beginning to frame the problem, placed in a different section or at the end of the study to compare it with study findings.	❖ A substantial amount of literature is needed to introduce a problem and to provide direction for the research questions or the hypothesis. So there has to be a separate detailed section of Related Literature or Review of Literature. ❖ It can be used to introduce the study, to describe related literature or to compare it with study findings. So it can actually help quantitative researchers to conduct research studies within the context of previous knowledge.
❖ It should be used inductively so that it does not direct the questions being asked by the researcher. This is due to the fact that qualitative studies are exploratory; not much is known about the study topic, and the researcher wants to listen to informants so as to build a picture based on their ideas.	
(Creswell, 1994:21-24)	

Literature in blended research approach studies is used in the following manner:

Literature Review in a blended research approach

In a blended research approach, a researcher can use both qualitative and quantitative methods of reviewing literature in similar or different phases of one study to enhance the quality of findings. In a blended research approach study, literature use depends on the type of design being predominantly used.

If a study is predominantly using a quantitative design in that phase, more literature will be used to form a basis for study questions or hypotheses. On the contrary, if in a phase of a study in which a qualitative design is predominant, less literature will be used. However, if a researcher is using both qualitative and quantitative methodologies concurrently, the literature use may take either of the two forms (Creswell, 2003:32).

Thus, as shown in the above discussion, a literature review is an important component of research. In literature searches, researchers also find theories which they can relate to their current studies and in which they can find ideas for future studies.

The following discussion will show how theory is related to research.

1.10.1 USE OF THEORY IN RESEARCH

Theory is defined by Neuman, (2000:40), as a system of interconnected ideas that organize knowledge about the social world, build scientific knowledge, and lay the foundation for subsequent social thinking. Another definition of a theory can be that it is a systematic explanation for the observations that relate to a particular aspect of life. In theory, these observations are explained convincingly and in a manner that makes sense, so as to assure readers how results were reached, that results were not only due to chance. Theory can also be used to suggest other possible reasons for what was observed, as well as to point future research efforts in the direction of possible new or further discoveries (Babbie, 2004:56-57).

According to Creswell (2003:119-139), theory is used differently in qualitative and in quantitative research. In quantitative research, the research questions and the hypotheses are usually based on previous theories that a researcher wants to test. When researchers test such hypotheses over and over again in different settings and with different populations, a new theory emerges, and it is given a name. This way, theory develops as an explanation to advance knowledge in certain fields.

The difference in theory use between qualitative and quantitative researchers was further explained by De Vos (2001:80-81), where the author cited that qualitative researchers vary the use of theory. They may, during the course of their study, generate a theory and place it at the end of a study, for example in ‘‘grounded theory’’ research. In addition, in qualitative research, theory can be placed at the beginning of a study to shape the study process, for example in ethnographies or in advocacy research. There are also qualitative studies that are phenomenological in nature, where theory may not be used at all, and researchers just build descriptions of the phenomenon of interest from the participant’s experiences.

Based on the work of Neuman (2000:41-61), it can be concluded that:

- Theory forms a base of knowledge to which a newly developed study will contribute/be connected.
- Theory frames the way in which a researcher looks at and thinks about a topic of research.
- In quantitative research in particular, and depending on a theory being tested, theory gives an idea of variables to research, a hypothesis to formulate, what important questions to ask and also how data can be collected and analyzed.
- Theory makes significant progress / grows by interacting with new research findings.

1.11 ETHICAL CONSIDERATIONS

Ethical considerations are a very important component of research. They deal with issues of morality and also matters of right and wrong. Right and wrong, as cited by Babbie (1995:448), pertains to the conduct of a given profession or a group. The researcher has an obligation to respect the rights, needs, values and desires of

informants. Conducting nursing research does not only require expertise but also honesty and integrity (Burns and Grove, 2001:194). In addition, nursing researchers need to protect human rights of research subjects as stated in the code of ethical standards set by the Democratic Nurses Association of South Africa (1998:1-7).

Research ethics is a very important aspect of any kind of research. Permission has to be sought from human subjects involved in the study. The research questions and the purpose of the study have to be reviewed by an authorized body and discussed with subjects who agree to participate in the study.

The time involved and everything that a study entails, and also the fact that subjects have a right to withdraw from the study at any time without fear of penalties, also has to be highlighted. Subjects (or their representatives) who agree to participate in the study have to give informed consent, and sign a consent form. This is done in order to protect their basic human rights. The researcher and a screening committee that deals with ethical issues should make decisions and see to it that research risks are minimized (Burns and Grove, 2001:196-213, Babbie, 2004:71).

Confidentiality and anonymity also have to be ensured and only the researcher, his/her study leader (in cases of students) and an independent coder should have access to raw data. The principles of beneficence, respect for human dignity and justice, should be used as a basis for standards of ethical conduct in research (Polit and Hungler, 1999:134-140).

1.12 RESEARCH REPORT AND RECOMMENDATIONS

Any kind of study, whether qualitative or quantitative, ultimately has to have a report. This report has to have a title and it also has to clearly stipulate what the problem was that led to the study, as well as its significance or implications. The methodology should be clear, in terms of what design was used, and what the sample size was. Data should be presented fully and adequately, including how they were collected and all their interpretations (not raw) so as to make clear to the reader how the problem was resolved. It should also be clear what the study findings and conclusions were. If a hypothesis was formulated, it must be indicated whether or not

the study findings have supported it. Lastly, the study implications and recommendations for future studies must be given (Leedy and Ormrod 2001:315-326; Burns and Grove 2001:647-650). Thus at the end of either a qualitative or quantitative study, recommendations have to be made according to the needs identified in the process of the study and those implied by study findings.

1.13 EXAMPLE OF THE APPLICATION OF QUALITATIVE RESEARCH

TOPIC :- Feelings of pregnant adolescents in Mpharane

PROBLEM STATEMENT

Teenage pregnancy is a problem in most communities as more teenagers, due to physiological body changes at this stage of their life, engage in risky sexual behaviour that predisposes them to pregnancy (Flisher, Reddy, Muller and Lombard 2003:537-538).

According to Motlomelo and Sebatane (2005:7), some teens in Lesotho are still coerced and others are cheated into sexual relations, by way of being promised material benefits like money in exchange for sex. For different reasons, most of them start engaging in sex at 12-14 years of age. As cited by Tsai and Wong (2003:351); Wingwood, Diclemente, Harrington, Davis, Hook and Kim (2001:1116); Nicola, Eithier, Kershaw, Lewis and Ickovies (2003:1), close to 1 million teenagers become pregnant each year worldwide with increasing incidences of school dropouts, abortions, sexually transmitted infections and HIV/AIDS. Some also experience financial problems.

Unfortunately, in many societies teenage pregnancy carries a stigma, resulting in young mothers being rejected by their own families as well as their babies' fathers. In most communities, teenagers who become pregnant are viewed as either being vulnerable, neglected and having been taken advantage of, or as being destructive, devious and manipulative. These views, according to Whitehead (2001:437), can cause emotional and psychological trauma which can further influence a teenager's

social networks, resulting in shame, worthlessness, anger and social exclusion. These factors in vulnerable teenagers can result in serious mental health problems.

According to available data resources, there is no base-line data that describes the feelings of pregnant teenagers in Mpharane. However, problems like pregnant teenagers permanently dropping out of school, increasing incidences of HIV/AIDS, cephalo-pelvic disproportion and pre-eclampsic toxaemia are on the increase among the young primi-gravidae, as experienced at the local clinic.

Based on the above observations, research into feelings of pregnant adolescents is indicated.

"FEELINGS OF PREGNANT ADOLESCENTS IN MPHARANE"

PURPOSE STATEMENT

The purpose of this study would be to explore and describe the feelings of pregnant adolescents in order to gain better understanding of their situation.

OBJECTIVES

The objectives for doing this study would be:-

- To asses the adolescents' feelings about being pregnant.
- Based on findings of the above, to develop an appropriate education and counseling program for pregnant adolescent girls.

DEFINITION OF CONCEPTS

The following concepts would be of importance in this study:

Adolescence: Adolescence is the period between the ages of 11 and 19. Late adolescence may last up to 22 years (Murray and Zentner 2001:524). The onset of puberty, however, is a gradual process and it varies among individuals, so it is not practical to set an exact age in defining the adolescent period (Richters, 2000:77). For the purpose of this study, an adolescent would be regarded as a girl between thirteen and nineteen years of age.

Pregnancy: In this study, pregnancy would be regarded as a state of having a developing foetus within the body with a gestational age of twenty-eight weeks and above. This gestational age is selected because unmarried pregnant adolescents in Mpharane tend to hide their pregnancy and do not attend antenatal clinics early in their pregnancy. Another reason is that before twenty-eight weeks they can still have an illegal abortion and the pregnancy can go unnoticed. (In Lesotho an abortion is not legalized except in the case of a medical indication.)

Feelings: A person's emotions, perceptions or belief about something, that is felt through the mind or the senses (Cowie, 1993:446).

RESEARCH QUESTIONS

The grand tour question would be:- 'How do you feel about being pregnant ?'
And the sub-question:- ' How do you think you can best adapt to your situation?'

Interrogative and worded in the present tense, these questions would be asked in Sesotho to ease understanding, as subjects would be Basotho, in order to discover lived experiences. These questions would be pre-tested on a smaller sample, by the questions being asked to a limited number of subjects with similar characteristics as subjects of the main study, but who would not take part in the main study. This pre-testing would be to ensure that the questions are clear, precise and free of bias and ambiguities.

RESEARCH DESIGN

A qualitative design of a descriptive exploratory and contextual nature would be used. Reasons for this design would be:

- The feelings and experiences of pregnant adolescents in Mpharane have never been researched or described before. The design would be exploratory because the subject to be looked into in this study would be new and previously unstudied, so the researcher would be breaking new ground.
- It would be descriptive, because at the end of the data collection and analysis the researcher would be able to describe in words how these adolescents feel about their situation.

- The contextual nature of the design would help the researcher to see the problem from the adolescent's unique perspective or worldview.

POPULATION AND SAMPLING

The population of the study would include all pregnant adolescents being cared for at the Mpharane Health Centre. The sample would be purposively drawn from the clinic records, which would be the sampling frame, and the sample size would be determined when the point of data saturation is accomplished. The reason for purposive sampling would be for the researcher to ensure that the subjects selected for the study were knowledgeable about the subject of study interest because they are pregnant themselves.

In order for them to be included in the study the adolescents would have to:

- ❖ be able to understand Sesotho and live in Mpharane;
- ❖ be 'adolescents' (13-19 years old) according to the definition of the concept as has been given for the purpose of this study;
- ❖ be pregnant and attending the antenatal clinic at Mpharane Health Centre during this pregnancy;
- ❖ be willing to take part in this study;
- ❖ not be involved in any other study at the time.

RESEARCH INSTRUMENTS

Individual and focus group interviews would be used to collect data in this study.

PILOT STUDY

The pilot study would be conducted in Quthing which is a different district to the South-East of Mohale`s hoek. Five participants with characteristics similar to participants of the main study would be interviewed.

The reasons for a pilot study would be:-

- ❖ to detect problems, for example, related to study feasibility, that must be solved before undertaking the major study;
- ❖ to assess whether the research questions were clear and unambiguous and would elicit the type of information needed to meet the research purpose.

DATA COLLECTION

Before collecting data, permission to conduct the study would be obtained from the ethical committee of the Faculty of Health Sciences at the University of Free State, the Ministry of Health in Lesotho as well as from the local chiefs of the villages from which the sample would come. The written consent of the parents of study participants under the age of 18 (which is the legal age of consent) as well as from all participants themselves would be obtained.

The data would be collected by way of tape-recorded individual and focus group interviews and it would also be collected by way of written notes with the assistance of trained field workers. Individual interviews would only be conducted with those adolescents not willing to discuss their experiences in a group. Written notes would be taken by the researcher during and after the interviews to describe the dynamics of the interview process so that the researcher would later be able to recall all aspects of the interviews, even the observations that cannot be tape-recorded. The tape-recorded data would be transcribed by the researcher as soon as possible.

Focus group discussions would be used to allow participants to share their thoughts with one another, thereby revealing new ideas and setting ground for different views in answering the research questions (Krueger and Casey, 2000:4-9). So the discussions would at some stages (though not often) be unstructured with the preset questions being used here and there to guide the discussions. Through the use of focus groups, more information would be gathered on the pregnant adolescents' experiences and feelings (Polit and Hungler, 1999:332). Focus group interviews also provide information that is emic (data that arise in a natural or indigenous form) rather than etic, representing the researchers imposed view on the situation (Bickman and Rog, 1998:509), thus allowing participants to respond in their own words. The duration of each interview would be 1- 1½ hours and the number of sessions would be determined by the point of data saturation. Data saturation being the point at which there is redundancy of information obtained; when there is nothing new being revealed (Polit and Hungler, 1999:299).

The discussions would be held in a pleasant atmosphere in which respondents would be comfortable and unlikely to be upset. The purpose of the discussion and the importance of the study would be explained, and rapport would be established by the researcher engaging in small talk for a short time, just to make the subjects feel comfortable. Before commencement of the discussion, the following measures would be highlighted, that:

- ❖ although participants had volunteered to participate and had given written consent, they could withdraw whenever they wished without any fear;
- ❖ there would be no right or wrong answers to the questions and everyone's input would be equally important;
- ❖ anything they said would be treated confidentially though some persons, like the study leader would have access to the recorded information ;
- ❖ they could access the raw data to verify information;
- ❖ participants names or identifying data would not be used in the records to ensure confidentiality, but that numbers would be used as references instead;
- ❖ they would also be assured that unless absolutely necessary, the discussions would not last longer than 1-1½ hours per session.

At the end of the interviews, participants as well as local chiefs and parents would be thanked for giving their approval for the study to be conducted.

ENSURING THE TRUSTWORTHINESS OF INTERVIEWS AND FOCUS GROUP DISCUSSIONS

Trustworthiness would be assured as follows:

- ❖ The questions to be asked would be planned and piloted to make sure that they are free of bias, easy to understand and to the point and that they are able to elicit the desired information from participants.
- ❖ Special attention would be given to the group discussion process itself, interpersonal dynamics within the group, the content of the discussion and the recording of focus group discussion proceedings (Terre Blanche *et a*l., 2006:304-307).
- ❖ The researcher would maintain a good record of the interview development, so as to be able to have an "audit trail" of the data afterwards, which would contribute to the trustworthiness of the research outcome.

- ❖ As cited by Polit and Hungler (1999:426), the truth-value of the data would be ensured by making use of “member checks” whereby the researcher would ask study participants whether the interviewer had accurately described their perceptions and whether the data interpretations after analysis are applicable to their situation.
- ❖ Individual and focus group interviews and taking written notes would also enhance the trustworthiness of the results.

LITERATURE STUDY

A literature study would also have to be done on the topic of feelings of pregnant adolescents, to determine what existing knowledge there is about this topic elsewhere in the world. According to data sources, there has never been a study of this nature in Mpharane.

DATA ANALYSIS

Data analysis entails categorizing, ordering, manipulating and summarizing the collected data and describing it in meaningful terms. It involves three activities, namely data reduction, categorization and interpretation. Achieving the goals of these activities would require the engagement of a professional researcher, who is experienced and actively involved in qualitative methodology, to be head coder. This would be so that the researcher and the head-coder could each analyse the data independently using the following guidelines:

- ❖ Both the researcher and the head-coder would work through all the collected data carefully, making sure that it is complete, all interviews have been transcribed and field notes have been arranged according to the sources of information.
- ❖ They would then read and re-read all the information in order to comprehend the underlying meaning of all responses.
- ❖ The data would next be categorized by placing inferences to the words, statements and phrases used in the data content, putting or clustering similar ones together and giving them a name.
- ❖ These clustered categories would then be abbreviated as codes, (which can be abbreviations of the category name), and these codes would be written in the margin next to the categories.

- ❖ Lastly, both the researcher and the head-coder would interpret or give meaning to the data according to their independent understanding and describe findings. These findings would then be compared, discussed and agreed upon by both the researcher and the head-coder. The responses would then be interpreted according to their joint understanding. The interpreted responses would then be taken back to participants for them to verify that these interpretations/descriptions are a true reflection of their experiences.

Possible recommendations resulting from this study could be the following:

RECOMMENDATIONS

- Adolescents should have access to medically correct and comprehensive reproductive health information. Knowledge about teenage pregnancy, how it comes about, how it can be prevented and the seriousness of its repercussions need to be targeted by all stake-holders, like parents, health workers and schools, as an education strategy to reduce teenage pregnancy.

- Health education programmes for teenagers need to be particularly developed to promote abstinence from premarital sex until an age when they can make responsible sexual decisions. Social support for abstinence should also be reinforced. In addition, misconceptions about sexual and reproductive risks should be highlighted and eradicated, child-parent communication should be emphasized and encouraged, gender equality in sexual and reproductive attitudes and behaviours should be advocated.

- Teenagers have to be involved in any programmes aimed at addressing teenage pregnancy so that their ideas can be incorporated in such programmes, resulting in the teenagers having a feeling of ‘‘ownership’’ towards such programmes.

1.14. EXAMPLE OF THE APPLICATION OF QUANTITATIVE RESEARCH

TOPIC: The relationship between peer pressure and adolescent sexual behaviour

PROBLEM STATEMENT

Pressure from adolescents' peers has a great impact on the way in which they behave sexually. This pressure, as well as lack of information about reproduction, usually results in adolescents making decisions in ignorance and initiating high risk behaviours like sexual activities early in their adolescent years (Tabi, 2002 :277-278). According to this study, which was conducted in the United States of America, 61% of adolescents in a sample succumbed to pressure from their older male partners to engage in unprotected sex against their will. These sentiments are shared by Peltzer (2001:53-57), in a study conducted in South Africa at the University of the North, to determine knowledge and practice of condom use among first-year students. For different peer-induced reasons, for example, a partner refusing to use a condom and getting angry and violent when the other partner insists on condom use, or wanting to experience what friends had been talking about; some students in the study did not use condoms during sex. This kind of behavior is not acceptable as, according to Nworah, Obiechina, Diwe and Ikpeze (2002:302); Oronsaye and Anukam (2002:30-32), during adolescence the youth should become mature and responsible in making decisions. For this reason, an adolescent who is not comfortable with unprotected sex should be able to say ***No*** to his/her partner.

On the other hand, adolescents sometimes plan to initiate sexual intercourse just because their peers play a role in having intercourse look like normal adolescent behavior. According to research that was carried out by Mohammadi, Mohammad, Farahani, Alikhani, Zare, Tenrani, Ranezankhari and Alaeddini (2006:37-38), 55% of sampled adolescents in Tehran, Iran, to determine adolescents' reproductive knowledge, attitudes and behaviour, for an Iranian adolescent, having sex should not be a normal adolescent premarital activity. In another study aimed at determining the components of peer norms that influence sexual initiation for young adolescents

in the United States, it was discovered that peers have an impact on an adolescent's early sexual initiation. It was also discovered that the reason for this was that the peers were usually the first and the preferred sexual behaviour teachers (Kinsman and Romer 1998:3). This early sexual initiation, when unprotected, can result in problems like unintended pregnancy, HIV and sexually transmitted infections at a very young age and these can be detrimental to an adolescent's life.

On the other hand, peer pressure can be positive as some adolescents can be influenced by their peers to abstain from premarital sex or to use protection during sex. As cited by Santelli, Morrow, Anderson and Lindenberg (2003:4), contraceptive use among sexually active United States of America high school students has increased as a result of influence from their peers. Adolescent pregnancy among friends is very common in Mpharane and this is what would prompt the researcher to conduct this study.

PURPOSE 0F THE STUDY

The purpose of this study is to understand the association between independent variable 'peer pressure' and adolescent sexual behavior which is the dependent variable, as well as to determine if there is a relationship and the degree or strength of that relationship.

RESEARCH OBJECTIVES, QUESTIONS AND HYPOTHESIS

The objectives of this study could be:

- To identify the relationship between peer pressure and adolescent sexual behaviour.
- To add to an existing body of knowledge regarding the relationship between peer pressure and adolescent sexual behavior.
- Based on findings, (possible support of hypothesis) to motivate the training of good peer educators with correct information in Mpharane.

The hypothesis for this study could be as follows:

- Peer pressure influences adolescent sexual behavior.

The questions could be:

- Do adolescents who socialize together imitate each other's sexual behaviour?

- ❖ Are there relationships between peer pressure and adolescent sexual behaviour?

CONCEPTUAL FRAMEWORK

The conceptual framework for the study would be as follows and would be developed using the variables to be examined, namely, sexual behaviour and peer pressure.

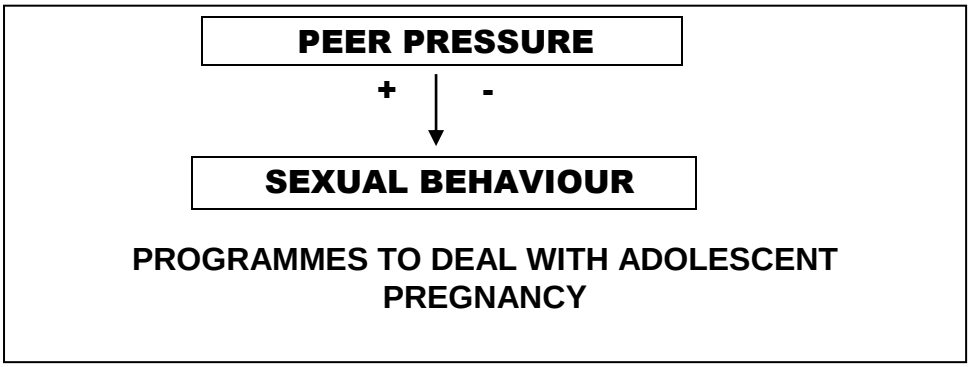

FIGURE 1.14 Conceptual framework

Peer pressure can have either a positive or a negative impact on an adolescent's choice of sexual behaviour. An adolescent can choose to engage in sexual activity due to pressure from peers, or in order to feel accepted as part of a certain social group of peers. Peer pressure with positive influence will result in an adolescent not engaging in sex at all, while peer pressure of a negative nature will result in an adolescent engaging in sexual activity. At times this is done without even thinking about contraception or the possible consequences of the actions. It is very important to consider peer pressure while determining the factors that influence adolescent sexual behaviour and also in developing the interventions aimed at delaying the onset of adolescent sexual initiation.

RESEARCH VARIABLES

The following would be variables in this study:

Independent variable – peer pressure

Dependent variable – sexual behavior

RESEARCH DESIGN

A quantitative descriptive correlational design would be used in this study, the reason for that being that:

A descriptive correlational study would attempt to discover the relationship that exists between peer pressure and adolescent sexual behavior and whether one influences the other. The goal of this study would thus be to describe this relationship. Polit and Hungler (1999:195-196), view this design as one that classifies specific dimensions or characteristics of individuals and /or groups, situations or events by describing and summarizing commonalities found in observations, and/or the frequency with which certain phenomena occur.

POPULATION

The population in this study would all be pregnant adolescents attending the antenatal clinic at Mpharane health centre. In order for them to be included in the sample, they would have to:-

- be willing to take part;
- be unmarried adolescents;
- be pregnant and at any gestational age;
- be able to read and write Sesotho.

SAMPLING

Systematic sampling method would be used as the researcher works with adolescents at the adolescents' corner where those who are pregnant are seen daily. With the help of available records, and with all pregnant adolescents in the records constituting the sampling frame, the adolescents' names on the list would be numbered consecutively starting from 01 to the last adolescent. Then starting with an adolescent's randomly selected serial number on the population list, the adolescents would be selected for sampling at equal intervals until a required sample size is reached. If from a population of 140 we wanted a sample of 103, the sampling interval would be worked out in the following manner:-

$$\text{Sampling interval} = \frac{\text{population size}}{\text{Sample size}}$$

$$= \frac{140}{103} = 1.35 = 2$$

In this example, starting at a randomly selected number, every second adolescent would be selected for sampling until a sample size of 103 is reached. (On getting to the end of the list, that is 140, the researcher would go back to the beginning to complete the sample size).

The bigger sample size would enhance representativeness and help the researcher to generalize the findings and avoid bias. For example, in a population of 140, a sample of 103, -+70% would be chosen. This is according to the guidelines for sampling as suggested by Stroker (1985), in De Vos (2001:192-193). According to these guidelines, the larger the population, the smaller the percentage of that population the sample needs to be, and the smaller the population the bigger the percentage of the sample will be.

INSTRUMENTS

A questionnaire would be used to collect data in this study.

PILOT STUDY

A pilot study would be conducted to:

- ensure that the study is feasible;
- pretest the data collection tool, which in this case would be a questionnaire–to make sure that subjects understand the questions and directions well;
- test the procedures for inclusion of subjects in the study.

The first questionnaire would be administered to a group of twenty adolescents at a different clinic, who fit the selection criteria, and their comments would be incorporated in necessary revisions of the final questionnaire.

DATA COLLECTION

Before collecting data, permission to conduct the study would be obtained from the ethical committee of the Faculty of Health Sciences at the University of Free State,

the Ministry of Health in Lesotho as well as from the local chiefs of the villages from which the sample would come. Written consent from study participants would also be obtained. Data in this study would be collected by use of a predetermined questionnaire with exactly similar questions being asked of each subject. In a questionnaire the questions can either be closed or open-ended. Closed-ended questions are the ones in which respondents are offered a choice of alternative replies to tick or underline. Open-ended questions are those that are not followed by any kind of choice and answers have to be written in full (Oppenheim, 2000:101-112).

A sample of a questionnaire is attached. It is written in simple language, with most of the questions being closed-ended to provide greater uniformity of responses, ease administration and analysis and also for the adolescents to be willing to answer without sacrificing much of their time (Babbie, 1995:142).

The questionnaire would be hand-delivered and collected at agreed times by the researcher to ensure a good response rate. Subjects would also be given some time to read it and make sure that there is nothing they want clarified before being left to complete the responses at their own time.

At the end of data collection, subjects as well as local chiefs and parents would be thanked for giving their approval for the study to be conducted.

QUESTIONNAIRE

INSTRUCTIONS

- Please respond to all questions
- Your responses will be treated in confidence and your identity is not necessary.
- Please respond to the questions as honestly as you can.
- Tick the answer that best expresses your opinion.

SECTION A: **BIOGRAPHIC DATA**

1. Name the village in which you stay.

---------- for office use only

2. What is your age?

< 13	13-15	15-19

1-3

3. What is your religion?

- ❖ Anglican Church
- ❖ Lesotho Evangelical Church
- ❖ Roman Catholic Church
- ❖ Methodist
- ❖ Other (specify)…….

4-8

4. What is the highest level of education you have?

- ❖ Primary
- ❖ Secondary
- ❖ College
- ❖ University
- ❖ None

9-13

SECTION B **SEXUAL BEHAVIOUR**

In this section, the researcher would like to find out more about your sexual behaviour.

1. Where did you first learn about sex?

- ❖ School
- ❖ Friends
- ❖ Parents
- ❖ Other (specify)……

14-17

2. At what age did you start engaging in sex?

- ❖ 11 – 13 years
- ❖ 13 – 15 years
- ❖ 15 – 17 years
- ❖ 17 – 19 years

15-18

3. How many sex partners do you have?

- ❖ One
- ❖ More than one

19-20

4. Do you practise safe sex?

- ❖ Sometimes
- ❖ Always

21-22

5. What sexual health concerns do you as an adolescent have?

23

6. Do you think there are any health risks to being pregnant at your age?

- ❖ Yes
- ❖ No

24-25

SECTION C **PEER PRESSURE INFLUENCE**

In this section the researcher would like to find out the extent to which peer pressure influences your sexual behaviour.

1. How much of your basic sexual information was derived from friends?

- ❖ None
- ❖ Not much
- ❖ A lot

26-28

2. Was your initial sexual encounter yours or your friend's decision?

- ❖ Mine
- ❖ Male partners'
- ❖ Another friend

29-31

3. Does it make you feel like an outcast when not doing the things (regarding sex) that your friends do?

- ❖ Very often
- ❖ Never
- ❖ Rarely

32-34

4. Do you regard having sex as a sign of friendship?

- ❖ Yes
- ❖ No

35-36

5. How many of your friends are sexually active?

- ❖ All of them
- ❖ Most of them
- ❖ Very few of them
- ❖ None of them

37-40

6. Is there anything else you would like to share regarding peer pressure and sexual behaviour of adolescents?.....

41

Thank you for taking part in this study.

RELIABILITY AND VALIDITY OF THE QUESTIONNAIRE

The questionnaire would be evaluated by domain experts at the University of the Free State and in Lesotho to determine the logic, correct words and sequential flow of the questions. The questionnaire would be subjected to a pilot study to determine whether or not study subjects understand it and whether the questions are able to elicit information that will satisfy the purpose of the study. The questionnaire, which would be constructed in English, would be translated into Sesotho to ease understanding of the questions by the subjects and then it would be retranslated into English.

DATA ANALYSIS

- The researcher would present information about the number of the sample who did and those who did not return the questionnaire, in the form of percentages,(in order to determine response bias).
- Categories of similar responses would be clustered together as in quantitative data analysis.
- Answers to open-ended questions would be studied by the researcher, categorized and coded for interpretations of the responses.
- The clustered responses would then be taken back to participants for them to confirm that they reflect what they meant.
- Lastly, the final data presentation would be made in the form of responses, their frequencies and percentages.

LITERATURE REVIEW

This is one step that is said to be not all that important in qualitative research, but very important in quantitative research. The literature review in this study would entail looking at what research has already been carried out with regard to peer pressure and adolescent behaviour impacting on teenage pregnancy. To the researcher's knowledge, there has never been a study in Mpharane to determine the relationship between peer pressure and adolescent sexual behaviour with regard to teenage pregnancy.

In some parts of the world, however, peer pressure has been found to influence adolescents to practice unprotected sex that results in a high rate of teenage pregnancy. In Taiwan, the problem of teenagers being influenced by their peers to engage in unprotected sex and thereby getting pregnant, was found to be so extensive that, as a preventive strategy, the government decided that health-care providers, schools, parents and churches should all work together to educate teenagers on issues of safer sex practices, contraceptive methods, communication skills and self-efficacy. This was done so that the teenagers could learn to be resilient and not easily succumb to peer pressure (Tsai and Wong, 2003:351-352).

RECOMMENDATIONS

Based on the study findings, possible recommendations could be:

- A coordinated set of guidelines should be developed to assist in teaching children about reproductive issues, including physical and psychological issues related to the transition from childhood to adulthood. This could be channeled through schools, health care facilities, non-formal education institutions and also non-governmental women's groups (since, in Lesotho, mothers on the whole are trusted to handle all topics related to sexuality).
- Information on the disadvantages of early sexual intercourse, as well as the advantages and disadvantages of different contraceptives should be given in all schools since most adolescents have sex with other adolescents.
- Adolescents should be taught from an early age to be firm in what they believe to be right and not to be easily dissuaded by their peers.
- Adolescents should receive reinforcement for positive sexual behaviour like premarital abstinence from sex.

1.15 SUMMARY AND CONCLUSION

This essay discussed characteristics of qualitative and quantitative research, especially highlighting similarities and differences. From their varying methodologies, it is clear that there are some studies which can be best suited by designs from one and not the other of the two approaches, though not exclusively so. This is shown in the practical application section of the paper, whereby it was shown how, in a real study, these two methodologies could be used.

Qualitative researchers seek better understanding of situations and they build theory from the ground up, whereas quantitative research, on the other hand, seek to explain and predict so as to make generalizations to other persons and places (Leedy and Ormrod, 2001:102). These are just some of the characteristics that make these two approaches very interesting to learn.

There was also a short discussion of the new method of doing research whereby these two methodologies can be combined in a blended research approach to complement each other and yield even better results. Though it requires the input of a lot more work and resources (Polit and Hungler, 1999:259-260), a blended research approach also enhances study validity as the findings of one approach can be used to validate the findings of the other. As cited in Burns and Grove (2001:26-27), qualitative and quantitative methodologies are both systematic and formal in their respective approaches of doing research. Quantitative research is used to answer questions about relationships among measured variables with the purpose of explaining, predicting and controlling concepts, whereas qualitative research is typically used to answer questions about the complex nature of phenomena with the purpose of describing and understanding the phenomena from the participants' points of view (Leedy and Ormrod, 2001:101). Though it is good for a researcher to have a good knowledge of either qualitative or quantitative research approaches, it is even better to have knowledge of both. According to Babbie (2004:28), in order to understand a topic completely, researchers often need to have knowledge of both approaches.

ESSAY 2: A DISCUSSION OF DIFFERENT SAMPLING METHODS AND THEIR PLACE IN NURSING RESEARCH

2.1 INTRODUCTION

As it is impossible to study a population in totality, it is necessary to take a sample of the population to study so as to make the study feasible. Sampling is the process of carefully and accurately pre-selecting a representative smaller group of elements from a bigger group (the population), on the basis of similar characteristics or properties so that only the smaller group can be observed scientifically (Babbie, 2004:182).

In quantitative research, the number of subjects who constitute a required sample size, are selected prior to conducting a study. In qualitative research, however, only those data sources which have the potential for being information rich regarding the study questions, are selected, even as the study continues and new questions emerge (Polit and Hungler, 1999:296-297). Qualitative and quantitative researchers have different approaches to sampling. Quantitative researchers select samples that will allow generalizing their results to the broader population group, while qualitative researchers are not so much concerned with generalizing results but just with a thorough understanding of the phenomenon of interest (Polit and Beck, 2004:289; Polit and Hungler, 1999:277).

It is important for researchers to understand the importance of sampling which is to study a randomly selected smaller group of elements or units that can be effective in portraying, as closely as possible, characteristics of the bigger unstudied population, especially in quantitative research. Babbie (2004:180), cites that, in order to be able to generalize findings from studying a smaller sample to the bigger population, such a sample has to be as representative as possible of that population.

In this essay a discussion of sampling and the different sampling methods will be done. Examples will also be given of how each of these sampling methods can be used in nursing research.

2.2. FUNDAMENTAL CONCEPTS IN SAMPLING

Because they want to generalize their findings, quantitative researchers are usually much more concerned with planning for sampling than qualitative researchers. The following are the terms usually used in sampling according to Burns and Grove, (2001:365-370); Sullivan (2001:94-97), namely: element/unit, population, eligibility criteria, samples and sampling.

2.2.1 ELEMENT / UNIT

An element is any basic unit of the population, about which information in a study is collected. For example, it can be persons, events, organizations, records, houses or any other units of research concern. When elements are persons they are referred to as 'subjects' (Burns & Grove 2001:365-366). These individual elements or units collectively make up a population.

2.2.2. POPULATION

A population is a total basic group of subjects or elements who have particular common characteristics in which there is research interest and to which results obtained from studying the sample have to be generalized (De Vos 2001:190). According to Burns and Grove (2001:336), from the population there can be a 'target population' and an 'accessible population'.

The distinction between these two populations is the following:

Target population – A target population is all units of a population about which generalization of findings will be made. The target population is usually a very big number usually spread over a big geographic area, which cannot feasibly be accessed to select a sample from. Therefore a portion of the target population that is actually accessible has to be identified (Babbie 2004:190).

Accessible population – According to Polit and Hungler (1999:278), an accessible population is the aggregation of elements that fit the required criteria for inclusion in a study and most importantly, are also available to choose the specific sample from. When random selection has been used to select a representative sample from the

accessible population, then research findings can be justifiably generalized regarding the accessible population and the target population.

The following are other important attributes of the population that also have to be kept in mind:

2.2.2.1 Population in relation to the problem

A research problem is identified from an area of research interest; where new or additional information is needed, and/or where there are important questions to be answered. In order to answer these questions or acquire this necessary information, there has to be a population from which a sample to collect data from will be drawn. The relationship between a population and a problem is that the problem to be researched has to be relevant to the population from which a sample is selected and to which results are going to be generalized. It has to be a matter of concern to them.

The study population has to benefit from the study, either directly or indirectly. As cited by Collins (1999:44), one of the criteria for a research problem is that it must be relevant to the subjects, and the questions to be answered must be clearly understood by all involved.

2.2.2.2 Population in relation to purpose

The purpose of research is the ultimate goal that a study aims to achieve. In order for a researcher to go through the process of doing research and ultimately reaching a set goal of the study, Polit and Hungler (1999:59-60) state that, there has to be a population of interest. Thus, the population is a basic structure for the researcher to achieve a research purpose.

2.2.2.3 Population in relation to design

In order to discover an answer to a research problem, the researcher needs to make a plan, in steps, as to how exactly he/she is going to reach that answer. This plan is the research design. Research data is collected from the subset of the population, which is the sample.

According to Burns and Grove (2001:379), the population size, (and therefore the sample size) in a qualitative design is usually not important as data is only collected until a researcher reaches saturation, and results are not necessarily to be generalized to a population. But in a quantitative study, the size of the population is important as it determines the size of a sample that will be representative.

Thus, having identified the population, it must be spelled out in writing exactly how eligibility for sample is going to be established.

The following is a discussion of criteria for inclusion in a study.

2.2.3 ELIGIBILITY OR INCLUSION CRITERIA

The use of eligibility criteria is an exact manner that a researcher uses to determine who/what of the population, may or may not be included in a sample; what specific characteristics other than those of general interest are needed or not needed for inclusion in the study sample. These criteria are developed based on the research problem, the purpose, the conceptual and operational definitions, research variables and the design. Sampling criteria may be designed to make a population as homogeneous as possible or to control for extraneous variables, and it may include characteristics such as ability to read and write, age limits and non-involvement in another study at the time (Polit and Hungler, 1999:278- 279). When the eligibility criteria have been established, the sample can then be selected.

2.2.4 SAMPLES AND SAMPLING

Sampling is the process of selecting some units or elements of the population to represent the whole population in a study. It is these selected units which will make up a *sample*. In a quantitative study, this sample has to be as representative of the population from which it was drawn as possible, by having as many similar aggregate characteristics of the population as can be possible. In drawing a random sample from a population, a *sampling* frame can be used. A sampling frame is a list of all elements composing the study population from which a probability sample is to be drawn (Collins, 1999:97; De Vos, 2001:191). The above explanation, where sampling is planned and prepared for, is that of quantitative sampling. In qualitative

studies, however, sampling is not planned before a study and a sample does not have to be representative of a population. So it is not selected randomly. Sampling occurs as a study continues, and subjects who are selected for the sample are selected purposefully on the basis of having a potential to contribute valuable information to the study (Polit and Hungler, 1999:296). The whole process of sampling is done for a specific purpose.

2.2.4.1 The Purpose of Sampling

The purpose of a properly drawn sample is to make it possible for researchers to have information that affects and gives insight to large groups of elements without having to study those big groups (which would not be feasible anyway).

- ❖ Sampling is also done so as to enable researchers to study a workable group of subjects or elements.
- ❖ A carefully drawn smaller sample always gives much better information than a whole group or population, especially when the population is extremely large. But it is of utmost importance for a sample to be representative of the population from which it was drawn (Sullivan, 2001:186-187).

2.2.4.2 Sampling Rationale

There are good reasons why researchers usually collect data from a sample and not from the whole population. One reason for sampling is that it is not always possible to study all elements relevant to the problem under scrutiny, especially if the population is very large and spread over a large geographic area (Bickman and Rog, 1998:13). Such data would also be vast, making processing, analysis and interpretation difficult or even impossible. So a manageable, smaller group of elements has to be studied instead.

Additionally:

Gathering data on a sample is less time consuming and practically sound.

- Since the cost of research is proportional to the number of hours spent on data collection, it is less costly to collect data from a sample than from a whole population.
- Sampling may be the only practicable method of collecting data, for example, in situations in which the property under investigation necessitates the

destruction of the object, (such as in testing the resistance of an object to wear and tear) (Terre Blanche *et al.,* 2006 : 49; Bless and Higson-Smith, 1995 : 86-87).

De Vos (2001:191), therefore states that sampling actually enhances study feasibility, resulting in generally better quality of research. It is, however, very important, especially in quantitative research, for a sample to be 'representative' of the population.

2.2.4.3 Sample Representativeness.

Representativeness is very important when the researcher wants to generalize from the sample to the entire population. A representative sample is one that has as many similar characteristics of the population as possible, especially in relation to the variables being studied and other factors that may influence the study variables, like population age distributions, attitudes and practices.

Representativeness in a heterogeneous sample can also be enhanced by use of strata. Strata are segments of a population which are characterized by distinguishing attributes such as gender, age and socio-economic class. Dividing a population into such strata, and then selecting a representative sample from each, ensures representativeness of such a population (Sullivan, 2001:196 -199).

The technique that can ensure optimal chances of a representative sample, is the use of the random or probability sampling technique (De Vos, 2001:193). In selecting a sample using the probability sampling technique, randomization procedures like the *lottery method* or the *table of random numbers* are used to select a sample. In these techniques, each member of the population has a chance of being represented in the sample and these techniques are performed in the following manner:-

The lottery method

According to Leedy (1989:201-205), to select a sample using the lottery method, the population members are assigned numbers; the numbers are written on pieces of paper and the pieces of paper are put in an enclosed container, shaken so that they

are mixed well, and then one piece of paper is picked randomly without the selector looking into the container. This procedure is repeated until a required sample size is reached.

The table of random numbers

In selecting the sample from a pre-arranged table of random numbers, a starting point is determined randomly, and then from the same starting point and along the same column, numbers less than the population size are selected until the required sample size is reached.

Another factor that can have a negative effect on the effectiveness of a sample is a sampling error.

2.2.4.4 Sampling Error

According to Polit and Hungler (1999:289), sampling error refers to the degree to which there can be differences between population values and sample values in probability sampling, (such as when the average age of the population differs from the average age of the selected sample). Sampling error occurs when a sample is not representative and does not provide a precise picture of the population. Burns and Grove (2001:368-369), add that, sampling error can occur as a result of either *'random variation'* or '*systematic variation'.*

- **Random variation**

  Random variation occurs when individual subjects in a sample have different values. The difference is 'random' because the value of each subject is likely to vary in a different direction, some values being higher and others lower than the sample 'mean'. (The mean is the central tendency that is usually referred to as the 'average' and it is calculated by dividing the total value of observations, by the number of those observations) (Polit and Hungler 1999:449-450).

- **Systemic variation**

  Systematic variation occurs when the subjects selected for the sample have different values from those of the population as a whole. There is a common

attribute in the sample that varies from the attribute in the population (Sullivan 2001:142). For example, if a study that aims to find out the benefits of higher education has a sample consisting of university graduates, while the population consists of people of varying educational standards, the sampling mean will be different from the population mean and this can result in a sampling error. Sampling error, however, decreases with homogeneity of the population. Apart from sampling error, another factor that can affect sample representativeness is sampling bias.

2.2.4.5 Sampling Bias

Sometimes the researcher can consciously or unconsciously choose a sample that has characteristics that are over or under-representative of a part or all of the population of research interest. This is referred to as sampling bias and can result in research data being greatly distorted (Burns and Grove, 2001:368-369). Conscious sampling bias, means that the researcher creates sampling bias intentionally. For example, if a female researcher is personally intimidated by people of certain characteristics, like beautiful ladies, she may intentionally avoid including them in the sample even though she is aware that it is necessary to include them. Thus, the sampling procedure should be carefully planned, and samples should be representative so that conclusions drawn from research data are not distorted by sampling bias.

Unconsciously, on the other hand (and mostly because subjects are usually never exactly similar in all aspects), a researcher using the most accurate probability sampling technique can select a sample consisting only of elements of certain characteristics and leave out the others. According to Babbie (2004:187), sampling bias does not always have to be intentional.

Factors that may lead to sampling bias

According to Leedy and Ormrod (2005: 209-210), no element that is necessary to be included in the sample should be left out. A researcher should not make substitutions or omissions in sampling that can distort the data.

- Any influence that may have disturbed the randomness with which the choice of a sample was made may lead to sampling bias, since in such cases elements do not all have an equal chance of being selected for sample.

In instances, in which there may have been sampling bias that distorted the data, it is very important for the researcher to recognize and acknowledge them.

According to Babbie (2004:184-189), such factors may be:

- the researcher using his/her personal preferences in selecting a sample;
- lack of sampling experience/knowledge on the part of the researcher;
- selecting a convenient sample by use of, for example, radio announcements or telephone calls which cannot be accessed by everybody.

Leedy (1989:214-215), adds that, other factors that may distort data are:

- even the most carefully selected sample is composed of individual subjects with different personalities and they may give incorrect information;
- influences by the surroundings, such as, lighting, temperature or noise may affect the subjects' reactions to the situation, leading to them giving distorted data.
- non–response by the selected elements, for example:

A study in which data collection is done by way of mailing questionnaires to study participants and they, (after filling in the questionnaires) in return mailing them back to the researcher, may result in some of the participants not returning the questionnaires. According to Leedy and Ormrod (2005:210), non-response by subjects leads to such subjects' opinions not being expressed/acknowledged, thus leading to bias.

2.2.4.6 Sample Size

Another factor of great importance in sampling is the sample size. Due to factors such as the study design, financial constraints and time limits, usually not all who qualify for inclusion in a sample can be included. There is no fixed number or percentage of elements which determine an adequate sample size. An ideal size of a sample is that which is large enough to serve as an adequate representation of the

population about which a researcher wishes to generalize, and small enough to be selected economically in terms of subject availability, expense in both time and money and also complexity of data analysis (Best and Kahn, 1993:19-20).

More important than size is the care with which the sample is selected. The ideal method is random selection, whereby the laws of probability are used to determine members of the population to be selected. In this way errors of sampling may be estimated. According to Bless and Higson-Smith (1995:67-68), if the sampling frame that includes all elements or units of the population is used while drawing a random sample, the probability of including every element of the population in the sample can be determined. Therefore, it is possible to estimate the extent to which findings from studying only the sample may be different from findings that would have been obtained if the whole population had been studied.

The size of a sample is also influenced by how heterogeneous and homogeneous a population is. A larger sample will be necessary in a markedly heterogeneous population where there is greater possibility of sampling error than in a homogeneous population (De Vos, 2001:192). However, according to Stroker (1985), in De Vos (2001:192), the following guidelines can be used to select a sample size:

‘‘for a population of 20 elements sample 100% of the population;
for a population of 30 elements sample 80% of the population;
for a population of 50 elements sample 64% of the population;
for a population of 100 elements sample 45% of the population;
for a population of 200 elements sample 32% of the population;
for a population of 500 elements sample 20% of the population;
for a population of 1000 elements sample 14% of the population;
for a population of 10,000 elements sample 4.5% of the population;
for a population of 100,000 elements sample 2% of the population;
for a population of 200,000 elements sample 1% of the population’’.

Thus, an indication from these guidelines is that, the smaller the population size, the bigger the percentage of that population that is selected for sample; and the bigger the population size, the smaller the percentage that is selected for sample.

Qualitative studies, on the other hand tend to use smaller samples. Since the aim of qualitative researchers is to examine situations in depth and not necessarily to generalize results, they do not determine the size of a sample. They stop seeking additional participants when data becomes saturated and no new information is emerging (Polit and Hungler, 1999:299).

Having identified the population, selected a sample from it and conducted a study, it is then important to consider the characteristics of the sample to be included in the study report.

2.2.4.7 Sample Characteristics

In order for a researcher to have demographic information on the study subjects, the study subjects are each asked to complete a demographic or information sheet giving information, for example, of their age, gender, educational level and ethnic group. At the end of the study, this information is analysed and the resultant information, known as the 'sample characteristics', is discussed in the study report (Burns and Grove, 2001:185-186).

2.3 TYPES OF SAMPLING

There are two major types of sampling designs, namely, ***Probability sampling*** and ***Non-Probability sampling***. First to be discussed is Probability sampling methods and examples of how they are used in nursing research. This is followed by a discussion of the Non-probability sampling methods together with examples of how they are used in nursing research.

2.3.1 PROBABILITY SAMPLING METHODS & THEIR USE IN NURSING RESEARCH

In probability or random sampling, elements are selected randomly from the population, in which case each element has the same chance of being chosen for

the sample (Polit & Hungler 1999:284-285). Leedy and Ormrod (2005:199), add that, in probability sampling, the researcher can plan in advance so that each segment of the population will be represented in the sample. Thus, a probability sample is more likely to be representative of the population than a non-probability sample, as all the subsets of the population have a chance of being selected to represent their respective subsets in the sample. There is also less chances of bias if subjects are selected randomly, hence study validity is increased (Burns and Grove 2001:370).

The probability sampling methods that will be discussed are simple random sampling, systematic sampling, stratified random sampling and cluster sampling.

2.3.1.1 Simple Random Sampling

Simple random sampling is the simplest, most basic technique for drawing a probability sample in which each member of the population has an equal chance of being chosen for the sample. The simplicity and resultant representativeness in simple random sampling is enhanced by the homogeneity of the population from which it is drawn (Leedy and Ormrod 2005:205).

In simple random sampling, research elements are selected randomly from a sampling frame (Burns and Grove 2001:810). A sampling frame is a complete list of all units of the population from which a sample is drawn. Each element is provided with an equal, independent opportunity of being selected only once for the sample.

There are different ways in which a random sample can be drawn from a sampling frame after establishing a sample size. There can be a symbol for each unit of the population, for example, names or numbers can be written on identical pieces of paper, placed in a container, mixed well and then the lucky names or numbers that constitute the sample are drawn from the container, with the previously selected name or number being replaced before the next one is selected, to ensure equal opportunity for each subject. This procedure can be continued until a required sample size is reached (Bless and Higson-Smith, 1995:68-69).

Another method that can be used for simple random sampling is a table of random numbers. A table of random numbers can be made by using digits from zero to nine that are not placed in any particular order. For example, if a table is being made for a sample size of less than 100, two digit numbers are needed; for a sample size of less than 1000, three digit numbers will be needed to accommodate a sample, whereas for a number of thousands, more digits will have to be used. It is important, when choosing a starting point in the table of random numbers, that such a starting point is determined randomly. One can use any source of numbers, a telephone number, a pin number, or even point to the table with eyes closed to randomly determine the starting point (Leedy and Ormrod, 2005:199-201; Sullivan 2001:194-195). The sample can then be randomly drawn by going down any column with the correct number of digits starting at a randomly selected point (When a column has been selected it has to be the only one used to draw a sample from, the researcher cannot go from one column to the other). As the researcher goes down the column, every number that is smaller than the population size can be selected or marked for sample until a required sample size is reached (De Vos, 2001:193-195).

2.3.1.1.1 An example of how simple random sampling can be applied in nursing research

The table of random numbers can be used in nursing research when studying HIV positive women on anti-retroviral therapy to establish whether they are compliant to condom use. The list of the population would be established by reviewing the anti-retroviral therapy register in the clinic with all adult females in the register constituting the sampling frame. If, for example, a sample of ten is needed and the sampling frame has a list of fifty women, the names of these women would be numbered consecutively from 01 to 50 and a table of two digit numbers drawn. Ten numbers would then be selected randomly from the table of random numbers by starting at a randomly selected number, taking each set of two digits that is between 01 and 50 along the same column, until reaching a desired sample size. The clients whose numbers have been randomly selected could then be used as a sample.

This example is illustrated in the following table:

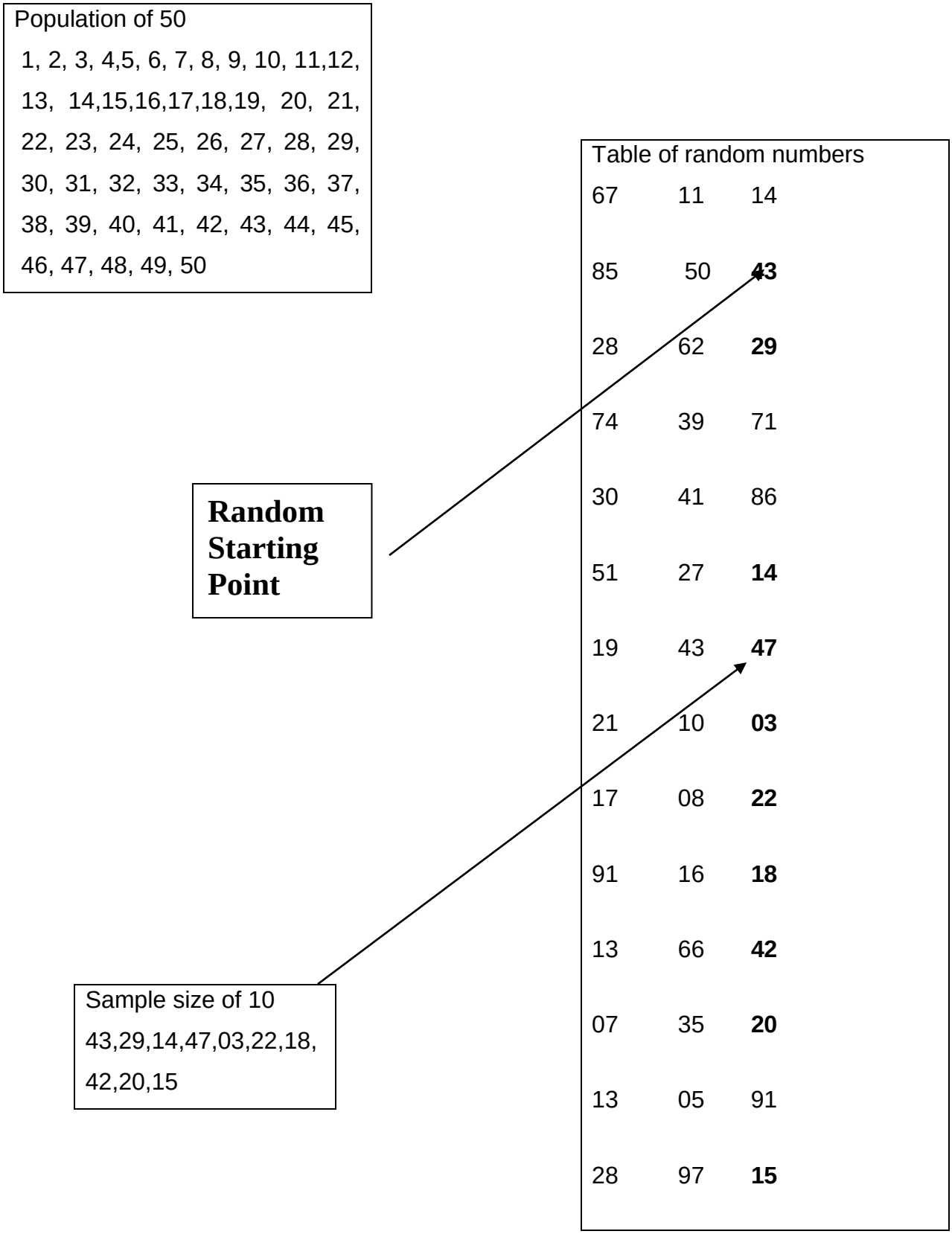

Figure 2.3.1.1 Selecting a sample from a table of random numbers

(Leedy and Ormrod, 2005 :199; Sullivan, 2001 : 195).

Simple random sampling was used in a study that was conducted in Florida to assess to what extent low maternal age (teenage pregnancy) has an effect on perinatal outcomes, and long-term morbidity such as educational disability in children. The study used a big sampling frame of 339, 171 records obtained from the department of education (of children placed in special education categories) and also records from the vital statistics data set, to use as sample (Queorguieva, Carter, Ariet, Roth, Mahan and Resnick 2001:212-213). Though there are no details of the proposed sample size and how exactly the sample was selected, this study used simple random sampling and a sample could have been chosen randomly in a number of ways:

- Those in the sampling frame could each have been assigned a number and then numbers to include in the sample chosen from a table of random numbers.
- Random digits may have been made by using a computer.
- Cards with names or numbers of subjects in the population may have been chosen randomly to make up a sample after being shuffled (Mason and Bramble 1999: 116).

2.3.1.2 Systematic Sampling

Systematic sampling is another probability sampling method that also uses a sampling frame and it is also usually used in a homogenous population. Starting with a randomly selected element on the population list, elements are selected at equal intervals. To determine the sampling interval, for example, to select a sample of 50 out of a population of 500, the following formula can be used:

$$\text{‘‘Sampling interval} = \frac{\text{Population size}}{\text{Sample size}} = \frac{500}{50} = 10 \text{ ’’}$$

(Sullivan 2001 : 195-196)

From this example every 10th element should be selected for sample. According to Bless and Higson–Smith (1995:91), the starting element should be any number between 01 and the sampling interval (which in this example is 10). So, from the random starting point every 10th element from the sampling frame would be selected for sample until the required sample size is reached.

2.3.1.2.1 An example of how systematic sampling is applied in nursing research

A nurse researcher could use systematic sampling in establishing the prevalence of a chronic non-infectious disease like hypertension among employees of one hospital. The employee list could be used as a sampling frame whereby employees would be numbered consecutively. If, for example, there is a population of 100 on the employee register and a sample of 10 is needed, the sampling interval would be worked out as in the example discussed:

$$\text{Sampling interval} = \frac{\text{Population size}}{\text{Sample size}}$$

$$= \frac{100}{10} = 10$$

If the starting employee selected randomly was four, the ten employees for the sample would consist of the numbers 4,14,24,34,44,54,64,74,84 and 94.

Systematic random sampling was used in a study to evaluate how well nurses were keeping patients' post-operative nursing care records. In this study, the researchers used patient records as a sampling frame from which to draw a sample. A sample of 243 elements from a population of 540 records was selected. From the first element that was randomly selected, every alternate element was selected until the required size of a sample was reached (Roets, Aucamp, de Beer and Niemand, 2002:39-40).

As demonstrated in the literature above, the sampling interval in this study could have been calculated as follows:-

$$\text{Sampling interval} = \frac{\text{Population size}}{\text{Sample size}}$$

$$= \frac{540}{243} = 2.2$$

Hence the selection of every alternate element for sample.

2.3.1.3 Stratified Random Sampling

According to Leedy and Ormrod (2005:205), stratified random sampling is usually used in situations in which the population contains definite strata of different proportions. In stratified random sampling, the population is first divided into its sub-populations or strata, for example, age and sex, with the researcher selecting the required number of subjects from each of the different strata. Then a random sample is drawn from each sub-population using simple random or systematic sampling so that the number of elements that is proportional to, or representative of the elements in each strata, are randomly selected for sample (Polit and Hungler, 1999:286–287; Neuman, 2000:208-209). According to De Vos (2001:197), the initial division of the population into strata and subsequent selection of samples from each stratum enhances representativeness of the resultant sample as even small sub-populations cannot be missed.

The following is an example of how this sampling method is used:

If a nurse educator wants to study the feelings of nursing students about a newly-introduced learning program he/she could stratify the student population by academic levels. First-year students will form one stratum, second-year students will form the next stratum and so on. The strata would probably be of different sizes depending on the size of the classes, and from each of these strata, a representative sample would be randomly selected proportionally to the population. This stratification by class would be sufficient for the purposes of the study, but for other suitable purposes the students could be further stratified within the classes, for example, by gender. By selecting a sample that is proportional in size to the size of the stratum, representation of the students in the sample at each educational level would be enhanced.

2.3.1.4 Cluster Sampling

Cluster or multi-stage sampling is another probability sampling procedure involving stages, whereby the final sampling units to be included in a sample are obtained by first sampling among the larger units in which the smaller units are contained. Thus the researcher works down from the larger sampling units to the small ones within the larger units. In cluster sampling it is usually not easy to compile a list of elements which comprises the target population, especially if the population of interest is spread over a large geographic area (Burns and Grove, 2001:372; Leedy and Ormrod, 2005:205).

According to Neuman (2000:209) and Leedy and Ormrod (2005:205), in cluster sampling, clusters that are as similar to one another as possible, should be sampled initially. Within these clusters there are elements with different characteristics that constitute a population from which a sample is eventually selected. This procedure is shown in the following example of how cluster sampling is used in nursing research.

A nurse-researcher, who wants to study the impact of teenage pregnancy on school performance, can do the study over a large geographical area, for example, a district, by doing the following:

Since it would be difficult to make a population list and use the normal randomization procedures to draw a sample, the schools that are proximal to each other geographically in the district can be grouped together. Within these schools there would be classes of students of similar grades and these classes can be considered to be clusters.

Therefore there would be many clusters in the proximal schools in that area of the district. A subset of these identified classes (clusters) in the district can be randomly selected using any of the random sampling techniques, and according to the selection criteria, pregnant students in the classes can become the sample in the study.

Although cluster sampling is an efficient procedure, Collins (1999:98) indicates that, it is subject to more sampling errors because at each stage of listing (from the above example schools to classes and from classes to students), sampling error can occur, resulting in greater loss of representativeness.

2.3.2 NON-PROBABILITY SAMPLING METHODS AND HOW THEY CAN BE USED IN NURSING RESEARCH

In non-probability or non-random sampling, there is no likelihood of including all representative elements of the population in the sample, and the principle of randomness does not determine inclusion of elements (Burns and Grove, 2001:374 - 375; Polit and Hungler, 1999:296-297).

According to Leedy and Ormrod (2005:206), in non-probability sampling some members of the population actually have no chance of being sampled. The results in such a study can therefore not be generalized. The goal of non-probability sampling is to gradually select elements that have first-hand experience and are therefore rich in knowledge about the phenomenon in question so as to create deep understanding of the phenomenon.

The non-probability sampling methods, that are discussed are convenience sampling, quota sampling, snowball sampling, purposive sampling, deviant sampling, theoretical sampling and sequential sampling. Examples of how these sampling methods can be used by nurse researchers will also be given.

2.3.2.1 Convenience Sampling

In convenience sampling, the most convenient and available people at the time are used as sample, regardless of population strata. For example, when persons volunteer as eligible in response to a newspaper advert, every second patient coming into the consulting room or every tenth person will be interviewed when being met on a street corner. These selected subjects are then included in the study sample until the required study sample size is reached.

Though not the preferred sampling method, convenience sampling is still used in qualitative research (Neuman, 2000:196).

According to Burns and Grove (2001:374) and Neuman, (2000:196), convenience sampling has the following advantages:

- ❖ it is a cheap and timely way of drawing a sample;
- ❖ the sample is easily accessible;
- ❖ convenience samples can be most useful for exploratory studies, where nothing is known about the phenomenon of interest.

Convenience sampling is appropriate for some research problems that are not very demanding as it does not need the researcher to go through carefully considered sampling procedures. The following is an example of the use of convenience sampling.

When a nurse-researcher wants to study the opinions of postnatal mothers in maternity wards regarding the nursing care rendered to them in the labour ward, all postnatal mothers who are willing to take part, would be included in the sample because they are conveniently in the postnatal wards when the study is done. Though the data collected from this convenience sample could be useful for purposes of the specific study, Leedy and Ormrod (2005:206), indicate that they may not be trustworthy since the sampling procedure is not carried out with much care. In the study, for instance, some of these women volunteering for sample may have been admitted with 'head on perineum' and hence did not receive much care in the labour ward. Others may have been sedated or may have been eclamptic, resulting in a state in which they (the mothers) would not have been very observant of what happened in the labour ward.

In a further example of convenience sampling that was done in a study, the researcher wanted to determine home-based care needs of AIDS patients in Lesotho, using a non-probability convenience sampling method. The subjects, (who were AIDS patients and their caregivers), were just included in the study on the basis of being helped at one of the hospital's out-patient departments during the time of the study, and being willing to participate. The researcher merely asked them, and those patients and caregivers who were interested were included in the sample until a required sample size was reached (Motaung, 2001:27-28).

The limitations of convenience sampling according to Leedy and Ormrod (2005:206), as mentioned in the above example could apply in this study, as in using a convenient sample, the researcher could have missed getting the opinions of other AIDS patients and their caregivers (who are perhaps seen at other hospitals or in the rural clinics), who may have been included in the sample if a more well considered sampling method had been used.

2.3.2.2 Quota Sampling

According to Burns and Grove (2001:375) and Neuman (2000:197-198), in quota sampling, different categories/strata/types of the population are identified, for example, male and female, children and adults, rich and poor. The respondents are then included in the sample in the same proportions and according to the same characteristics that they show in the population.

Although the sampling procedure is basically the same in quota sampling as in convenience sampling, quota sampling is an improvement on convenience sampling as all groups or categories in the population are included in the sample (Babbie 1995:225).

Thus quota sampling is more representative of the diverse characteristics of the population under study. However, on the other hand, quota sampling has a disadvantage in so far as the population can only be defined in terms of those characteristics known to the researcher. Furthermore, since there is no defined population, it is difficult to determine the percentage of a stratum that should be included in the sample (De Vos, 2001:199). As such, a researcher selecting a sample can be subjective and not include into the sample all elements that are necessary to be included.

The following example illustrates the use of quota sampling in nursing research:

If nurse-researchers want to determine the feelings of patients suffering from extreme drug-resistant tuberculosis regarding their long stay in hospitals, quota sampling is used as follows:

The population in the study would consist of all hospitalized patients suffering from extremely drug-resistant tuberculosis in all hospital units, and include both male and female patients of different age groups. As the quota sampling is based on the principle of convenience, the researcher will only select those patients found in the exercise area because he/she happens to be in the exercise area, not in the ward where other patients are lying down nor in the television room.

Thus it may only be the up-and-about patients who would be sampled, resulting in sampling bias. However, this sample would have to include all the conveniently identified/found population in the exercise area, proportionately. The following quota sample strategy needs to be used to include the population proportionally in the sample of patients in the exercise area. Supposing that the population proportions were as follows:

Adult females - 20
Adult males - 12
Child females - 4
Child males - 4

The quota sample needs to be selected non-randomly and in a manner that reflects these proportions as they are in the population.

Table 2.3.2.2 Proportions of a quota sample to a population.

For example:

STRATA	NUMBER IN CONVENIENT POPULATION	QUOTA SAMPLE
Adult Females	20	5
Adult Males	12	3
Child Males	4	1
Child Females	4	1
TOTAL	**40**	**10**

According to the example, out of a population of 40 patients, a sample of 10 is selected which reflects proportions in the population. However the manner in which

the sample is selected using the convenience sampling method means that only patients in the exercise area at that time of sampling will be included in the sample.

2.3.2.3 Snowball Sampling

Snowball, chain, referral, reputational or network sampling is a specific sampling design in which an interconnected network of persons with similar characteristics of interest to the researcher are sampled, by way of one subject, or the first few subjects, introducing or referring the next one to the researcher. This goes on until a desired sample size has been acquired (Burns and Grove, 2001:376–377; Polit and Beck 2004:292). This method of sampling is especially useful when, for example, the required sample is of a population that is not willing to be known to others and therefore difficult to locate, for example, homosexuals or persons with specific characteristics who are just difficult for outsiders to identify but are known directly or indirectly to one another.

Snowball sampling, according to Polit and Beck (2004:292), is a form of convenience sampling. The researcher does not know the subjects and subsequent sample members are just referred by the first, the representativeness of the sample is questionable. Also since only the subjects know each other, there is a possibility of bias as subjects may bring only their friends.

Snowball sampling is being used in nursing when, for example, a nurse-researcher, is studying adolescent sex workers. Since it would not be easy to locate adolescent sex workers, the first one/few that would be encountered would be interviewed and asked to name four of their closest friends working together with them, who fit the selection criteria and would be willing to talk. The indicated sex workers will then be approached and asked to do as their predecessors have done and this would continue until no new information is being revealed. In this way, according to Neuman (2000:199), the sample would begin small, but become larger as it spreads to link with the initial sample/s.

2.3.2.4 Purposive Sampling

Purposive or judgemental sampling is based on the discretion of the researcher (considered as an expert in the knowledge of the study and its purpose) in selecting

the widest range of specific elements that need to be included in the sample. Burns and Grove (2001:376); Neuman (2000:198-199) and Polit and Hungler (1999:284), indicate that the researcher might decide to select subjects who are deemed to be very knowledgeable about the phenomena under study. The researcher would then use the ideas of the knowledgeable subjects to highlight different perspectives of the phenomenon, whereby the theoretical understanding of the phenomenon is enhanced. The limitation of purposive sampling is that it is only based on the researcher's personal judgement regarding sample characteristics and there is no other method of assessing whether or not the selected sample is typical of what is required (Burns and Grove, 2001:376).

Purposive sampling can be used in nursing, for example, when nurse-researchers want to assess the needs of discharged patients suffering from diabetes mellitus regarding self-care at home. As only nurse-researchers will be able to select the widest range of specific elements of patients suffering from diabetes mellitus who will be included in the sample, the purposive sampling method is therefore a good method to use. The knowledge of nurse-researchers about the potential study population (which is discharged patients suffering from diabetes mellitus) will thus help them to hand-pick a sample that is rich in information regarding the needs of patients suffering from diabetes mellitus for self-caring.

As such, the sample could consist of patients suffering from type 2 diabetes mellitus, but diverse in terms of age, gender, urban and rural dwelling. The subjects could be interviewed individually or in focus group sessions in which their needs could be determined. As the study continues, their family members could also be invited to participate in the study. By involving family members, the diet, exercise and lifestyle needs of those patients whose home care depends entirely or partially on family support, could be highlighted in the study.

Another example of purposive sampling is the study done by Brysiewicz, Cassimjee and Mclnerney (2002:14), to explore nursing students' experiences of group work within a problem-based curriculum. A purposive sample of third-and-fourth year students was selected because they were regarded to be knowledgeable about group work as they had been involved in group work during their previous study

years. The researchers as such, who were also lecturers, knew not only the purpose of the study, but also the students. They were thus in a position to use their judgement to select a sample of students who could give the appropriate information to facilitate understanding of the experiences of students working in groups.

2.3.2.5 Deviant Sampling

Deviant case or extreme case sampling is done when a researcher seeks subjects with characteristics that differ from those of the usual subjects (Neuman, 2000: 200).

Although the sampling procedure in deviant sampling is similar to that of purposive sampling, it is the unusual, subjects who are located and included in the sample in deviant case sampling, whereas in purposive sampling emphasis is on those subjects that fit into a regular pattern (Babbie, 1995:287). So in deviant sampling, the researcher wants to gain more understanding of how persons who have characteristics that deviate from the normal characteristics of the population feel about their situations.

An example of how deviant sampling is used in nursing research is as follows:
If, for instance, most previous research studies suggest that defaulters and dropouts of tuberculosis treatment are patients who are alcoholic and come from poor families, the nurse-researcher wanting a deviant sample would look for those defaulters or dropouts who come from average or high income families and do not drink alcohol. In this way the nurse-researcher would gain insight into possible causes of dropping out or defaulting treatment in this group.

2.3.2.6 Theoretical Sampling

Theoretical sampling is a sampling design used in qualitative research whereby the subjects are selected purposively on the basis of the fact that they have the potential to give essential input that will contribute in developing a necessary theory (Polit and Hungler, 1999:297-298). In theoretical sampling, the sampling procedure is determined by the grounded theory that the researcher is interested in developing.

As a researcher gets more interested in discovering other avenues regarding a phenomenon, more cases get to be purposefully selected into a sample. Regardless

of how the sample was initially selected and depending on theory development needs that emerge during the study, different sampling procedures may be used to collect the data necessary for refinement of the grounded theory that is being developed (Babbie, 2004:292). The principle here is to select samples that will help theory development (Neuman, 2000:200). One purpose of doing research in nursing is to develop theory so as to ground nursing practice. Grounded theory that is developed in theoretical sampling means that the theory developed from the research is based on the data from which it was derived (Burns and Grove 2001: 67).

Theoretical sampling can be put to use in nursing research when a nurse-researcher uses theoretical sampling to establish the nature of client nurse- relationships in-long term nursing institutions, like old age homes, over a period of time. Interviews, record reviews and participant observations of both nurses and the elderly can be used to collect the data that will be used to develop a theory on the nurse-client relationship.

Another example is the study of Mulaudzi and Makhubela-Nkondo (2006:46-53), who aimed at building grounded theory on indigenous healers' beliefs and practices regarding sexually transmitted infections. Initially a purposive sample of subjects was selected so as to lead the researchers to the traditional healers. The initial subjects were hospital cleaners who were known to have assisted women who sneaked out of the hospital to be assisted by traditional healers.

As data collection continued, a theoretical sampling method was then engaged to select indigenous healers who had been identified by the cleaners to be experts in treating sexually-transmitted infections in their communities and who therefore had the potential to contribute to the development of the emerging theory. At this stage, snowball sampling was used as the traditional healers made referrals of other potential study participants.

2.3.2.7 Sequential Sampling

Sequential sampling is the method of sampling whereby, the sample is made up of subjects that are deemed by the researcher to be knowledgeable about the phenomenon of research interest (as in purposive sampling). The difference is that,

instead of getting hold of as many as possible of those very relevant elements/respondents as would be done in purposive sampling, in sequential sampling the researcher only gradually gathers subjects until no more new information is forthcoming (Neuman, 2000:200). The sample size in sequential sampling is therefore strictly determined by the point of data saturation.

An example of the use of sequential sampling in nursing research occurs when nurse-researchers want to determine the experiences of young orphans living alone in child-headed households. Using sequential sampling, they would go to the homes of these orphans and interview them until there is no more diversity and the point of saturation is reached. It would not be necessary, for instance, to hold in-depth interviews with an additional ten orphans of the same social background when information from the first five was very similar/revealing nothing new.

2.4. BLENDED SAMPLING DESIGNS

Based on specific study objectives, researchers can also use blended methods in sampling. In blended method sampling, the qualitative and quantitative sampling procedures are both engaged in one study to ensure better results. For example, qualitative non-structured interviews can be conducted to get in-depth information from a bigger randomly selected sample of a predetermined size (for example, records) as is usually done in quantitative studies. Polit and Hungler (1999:264), state that nurse-researchers can combine qualitative and quantitative sampling methods, combine the collected data and thereby get more insight into the phenomenon being studied.

2.5 SUMMARY AND CONCLUSION

This essay discussed different types of sampling designs and their use in nursing research. Probability sampling methods which are usual in quantitative research aim to generalize findings to the broader population while non-probability sampling methods, usual in qualitative research, do not necessarily generalize. It has been shown how sampling using these two major types of sampling methods can be carried out, and it is clear that for each study, specific study requirements and prevailing circumstances will determine which sampling method to use. However, it

is evident from the examples of how the different sampling methods can be used in nursing research that all of them can be used by nurse-researchers. Sampling, which entails selecting cases for inclusion in a study from a bigger group, solves the problem of having to study every element of the proposed study. A study of the whole population would not only be time consuming and expensive but it would also be impossible in certain situations. So it is very important for nurse-researchers to draw their samples according to precise procedures in order for their research results to be trustworthy.

ESSAY 3: A LITERATURE REVIEW ON SEXUALLY TRANSMITTED INFECTIONS

3.1 INTRODUCTION

Sexually transmitted infections (STIs) are a group of infections that a person/persons contract(s), by having sexual intercourse (vaginal, anal or oral), with someone who is already infected with the infection(s). The reproductive organs of both the male and the female are infected and the pathogen is transmitted from male to female, female to male and between persons of the same sex. As such, sexually transmitted infections are common in both developed and developing countries. Sexually transmitted infections are among the five most important reasons for young adults seeking health care, and they cause high morbidity with disease complications and sequelae such as pelvic inflammatory disease, infertility and cervical cancer (World Health Organisation, 2003).

Premarital sexual activity is a reality and sexually transmitted infections are increasing at an alarming rate among adolescents. Although they are preventable, sexually transmitted infections have been reported as a major health problem for most clients visiting health clinics in South Africa (Diale & Roos, 2000:136). Eleven million clients of sexually transmitted infections are treated in this country annually (Reddy, Meyer Weitz, Van den Borne and Kok 1999:1).

In this literature study, examples of prevalent sexually transmitted infections, their predisposing factors, possible barriers to effective sexually transmitted infection care, complications, treatment and prevention strategies will be highlighted.

3.2 REASONS FOR CONDUCTING A LITERATURE STUDY

A literature review is a search of all written sources that have information related to the topic of research interest. Primary sources in a literature study are those sources written by persons who originated the published ideas while secondary sources consist of summaries and interpretations of another person's original ideas. These primary and secondary sources can be books, journals and the internet.

According to Burns and Grove (2001:107), it is always best when reviewing literature to look for primary rather than secondary sources.

A literature review is conducted for the following reasons:

- A literature review is done because researchers want to examine and understand what is already known about a problem which they want to tackle, so that this knowledge can form a basis on which their new findings will be grounded (Babbie, 1995:106).

- Reviewing literature can also give researchers ideas about which topics need to be revisited or improved and also about what new and unresolved topics there may be (Polit and Hungler, 1999: 35 – 36).

- Through literature studies, novice researchers can learn to regulate the scope of their research and can also learn new strategies for conducting a study (Creswell, 2003: 27).

- Literature reviewing at the end of a study can be used to compare findings of a present study with those of previous studies on the same topic or even just to compare results of the previous studies and how they came about (Creswell, 2003:32).

- Considering previously written work about a topic that a researcher is interested in, helps such a researcher with ideas to come up with appropriate questions, problems and hypotheses for the proposed study (Polit & Hungler, 1999:79-80).

- Reviewing literature also helps researchers to study advantages and disadvantages of the different research methods that were used in studying the topic previously (Bless and Higson-Smith, 1995:22-23).

This particular literature review is conducted with the purpose of discovering the existing body of knowledge on the issue of sexually transmitted infections.

3.3 PREVALENT SEXUALLY TRANSMITTED INFECTIONS

Sexually transmitted infections are classified as viral infections and bacterial infections. Viral sexually transmitted infections include infections such as HIV/AIDS, Condylomata acuminata and Herpes simplex. Bacterial sexually transmitted infections are sub-classified as infections that cause genital ulcers, like Syphilis and Chancroid and infections that cause an abnormal discharge from the vagina (women), and urethral discharge (men), like Gonorrhoea, Lymphogranuloma Venereum and Trichomoniasis.

3.3.1 VIRAL SEXUALLY TRANSMITTED INFECTIONS

Many viruses that infect humans have only recently been recognized, and some of the viruses infect hosts without producing symptoms. Some viruses are even latent, permitting recurrent infections despite immune responses (Beers and Berkow 1999:1276). Thus, the clinical effects of viruses are not fully understood and this makes viral infections very difficult to treat.

3.3.1.1 Human immunodeficiency viral infection and aquired immune deficiency syndrome

Human immunodeficiency virus infection is an infection caused by one of the two related retroviruses, HIV 1 and HIV 2, resulting in different clinical manifestations, varying in severity (Beers and Berkow, 1999:1312). The Human immunodeficiency virus infects especially the CD_4 helper cells. It replicates in the T-lymphocytes of the host, thus the host's immune system is gradually weakened to a point where it can no longer protect the body against infections. After a number of years, (usually 3-7 years) enough of the immune cells are destroyed to make it difficult for the body to defend itself against many opportunistic infections (Evian, 2000:7-8). On entering the body, the HIV-virus attaches itself to the CD_4 receptors on the T helper cells, (the T helper cells are important in regulating and controlling the body's immune response) and eventually destroys these cells.

Human immunodeficiency viral infection affects both heterosexual men and women who behave in a sexually irresponsible manner, and homosexual individuals who indulge in unprotected sex. According to a study which was conducted in Latin

America by Bautista, Sanchez, Montano, Laguna-Torres, Lama, Sanchez, Kusunola, Manrique, Acosta, Montoya, Tambare, Avila, Vinoles, Aquayo, Olson and Carr (2004:498-504), both heterosexual and homosexual individuals show a high prevalence of human immunodeficiency viral infection and other sexually transmitted infections. In a study done by Nworah, Obiechina, Diwe, and Ikpeze (2002:304), researchers found that the human immunodeficiency viral infection is also highly prevalent amongst adolescents, as half of the HIV-infected persons in Nigeria are adolescents.

Although HIV can also be transmitted by inoculation with HIV infected blood as well as transmission from an HIV infected mother to her unborn child, sexual intercourse between heterosexuals and homosexuals constitutes the most frequent mode of transmission (World Health Organisation HIV Department, 2004: 16-25). As such, the transmission of HIV is facilitated by the presence of sexually transmitted infections that are characterised by genital ulcers. According to a study conducted in India by Sardana and Sengal (20005:391), genital ulcers recruit inflammatory cells and disrupt the genital mucosal barrier, both of which enhance the transmission of HIV. Genital ulcers in an infected person also increase the HIV viral load in sexual fluids (Stamm, Kabir and Mc Gregor 2004:23).

3.3.1.1.1 Manifestation of human immunodeficiency viral infection and aquired immune deficiency syndrome

Human Immuno - deficiency Viral Infection manifests itself in stages that signify disease progression, until the stage of Aquired Immune Deficiency Syndrome. According to the World Health Organisation, these stages are classified as follows:

Table 3.3.1.1 Disease progression of AIDS

STAGE 1	STAGE 2	STAGE 3	STAGE 4
No symptoms or only: ○ Persistent generalized lymphadenopathy. Multiple small painless lymph nodes	○ Weight loss 5 – 10%. ○ Sores or cracks around lips (angular cheilitis). Small lesions at the	○ Weight loss > 10%. ○ Oral thrush or hairy leukoplakia. ○ More than 1 month: - Diarrhoea or - Unexplained fever.	○ HIV wasting syndrome. ○ Oesophageal thrush. ○ More than 1 month: - Herpes simplex ulcerations.

STAGE 1	STAGE 2	STAGE 3	STAGE 4
	corners of the mouth o Seborrhoea o Herpes zoster. o Recurrent upper respiratory infections such as sinusitis or otitis. o Recurrent mouth ulcers.	o Severe bacterial infections (pneumonia, muscle infection, etc). o Pulmonary TB, (if infected and latent). o TB lymphadeno pathy (if infected). o Acute necrotizing ulcerative gingivitis / periodontitis.	o Lymphoma. o Kaposi sarcoma. o Invasive cervical cancer. o CMV retinitis (if infected). o Pneumocystis pneumonia. o Extrapulmonary TB(if TB infected). o Toxoplasma brain abcess (if infected). o Cryptococcal meningitis. o Visceral leishmaniasis. o HIV encephalopathy.

(World Health Organisation HIV Department 2004:14)

3.3.1.1.2 Complications of HIV/AIDS

As seen from the stages in table 3.3.1.1 that shows AIDS defining illnesses, AIDS goes from mild to severe over a period of time, because of immune suppression and disease progression from a stage of no symptoms. It initially starts as mild skin manifestations, then moderate infection(s) and ultimately severe infection(s) and cancer(s).

3.3.1.1.3 Treatment of HIV/AIDS

Treatment of any sexually transmitted infection begins with health education on safer sex practices, promotion of condom use and reinforcing the need for partner notification and treatment.

AIDS is still not curable, but to suppress viral replication and improve immunity, HIV infection is treated with anti-retroviral drugs. The regimen and initiation stage of anti-retroviral treatment varies from country to country depending on economic factors and country-specific protocols that have been decided upon. In Lesotho, for instance, one of the World Health Organisation recommended first line regimens selected for use nationally, consists of Stavudine, Lamivudine and Nevirapine or a combination of Stavudine, Lamivudine and Effevirenz (depending on specific patient factors like allergic conditions, pregnancy status or co-infections) (Ministry of Health and Social Welfare, 2006 :132).

Clients in Lesotho used to be started on anti-retroviral treatment when their CD_4 cell count was 200 cells per cubic millimetre or below, or when they were in World Health Organisation clinical stages 3 and 4. Since November 2007 clients are being given anti-retroviral treatment when they have a CD_4 cell count of 350 cells per cubic millimetre and below, as well as when they are in World Health Organisation clinical stages 3 or 4.

3.3.1.2 Condylomata acuminata / genital warts

Condylomata acuminata or genital warts are growths in the genital area which are caused by the *human papilloma virus* that is transmitted sexually. The human papilloma virus infection is estimated to be the most common sexually transmitted infection in the United States as 6,2 million men, (22 – 26 years old) and women (19 – 22 years old) are newly infected every year (Brown and Greene, 2003:4). Genital warts are classified into low risk types, for example, serotypes 6 – 11 which cause mild signs, like the ano-genital warts above the skin. The high risk serotypes are, for example, 16, 18, 31, 33 and 35, and they are associated with the more serious but rare signs like dysplasia and the cervical, anal and penile cancers. Clients can, however, be infected with multiple *human papilloma virus* types at the same time (Botswana Ministry of Health, 2005:56). **Serotypes** are groups of closely related micro-organisms which are distinguished by a characteristic set of antigens (Answers.com:1).

Some of the risk factors for contracting the human papilloma viral infection are, the initiation of heterosexual intercourse at too young an age, a great number of different

sexual partners, a high frequency of sexual intercourse with different partners, the presence of warts on the sexual partner, and men who have unprotected sex with other men. Thus the virus can be spread by means of vaginal, anal or oral sex or by skin-to-skin contact with warts. (Sexually Transmitted Infections 2006:6).

The transmission of the *human papilloma virus* infection is facilitated by the presence of ano–genital warts. This means that it is important to treat these warts early because, if left untreated, the infected partner can easily spread the disease during genital sex (Highleyman 2003: 2; Weaver, Feng, Holmes, Kiviat, Lee, Meyer, Stern, and Koutsky 2004:678).

3.3.1.2.1 Manifestation of condylomata acuminata

Though most of the low risk sero-types of the *human papilloma virus* are asymptomatic and undetectable over time, they are associated with ano-genital warts and mild dysplasia which may look like tiny cauliflower-like bumps in the genital or anal area, on the cervix or in the throat if oral sex is/was practised. The cauliflower-like clusters grow quickly in moist areas and become offensive. These perineal and rectal warts are particularly common in homosexual men and in women who participate in anal sex. The most common locations of the primary infection in women include the labia, vaginal introitus, perineum, intravaginally but rarely on the cervix. In men the warts grow on the penile shaft, glans penis, prepuce, coronal sulcus and the scrotum. The reason for this is that most of these areas have increased friction (resulting in epithelial damage) during sexual intercourse (Brown, Yen – Moore and Tyring 2000: 661 – 667).

3.3.1.2.2 Complications of Condylomata Acuminata in men, women and newborn babies

- **Cervical, Vaginal Anal and Penile cancer**

  The high risk sero-types of *human papilloma virus* infection are associated with high grade dysplasia and anogenital cancers such as cervical, vaginal, penile and anal cancer (Dunne, Nielson, Stone, Markowitz and Giuliano 2006: 1044 – 1056). Cervical, vaginal, anal and penile cancer especially manifest in people who start engaging in sexual intercourse early in their adolescent lives,

and in men who have sex with other men (Brown and Greene 2003:5; Dunne, *et al.,* 2006: 1044). According to the World Health Organisation (2003:6), these cancers can account for 3–5 percent of adult female deaths.

Furthermore, vaginal warts in infected pregnant mothers who deliver vaginally can sometimes be along the birth canal, causing obstruction of labour and a lot of bleeding during delivery when they peel off (World Health Organisation, 2004:51; Msellati, Hingst, Kaba, Viho, Elana and Dabis 2001:641-643). In being directly exposed to the mother's blood this way, the newborn baby can be exposed to blood borne infections from the mother.

3.3.1.2.3 Treatment of Condylomata Acuminata

Condylomata-Acuminata is a viral sexually transmitted disease and, as such, it cannot be cured. So treatment is not aimed at eradicating the Human papilloma Viral infection, but just at alleviating signs and symptoms (warts) (Brown *et al.,* 2000: 664). Symptoms however tend to recur, requiring re-treatment.

Depending on factors such as the number of warts, size, anatomic site, potential for side effects, patient preferences and provider experience, the following therapies can be used to treat genital warts, namely, the application of podophyllin resin, imiquimod, cryotherapy, trichloroacetic acid or bichloroacetic acid to the warts by a health care provider. Otherwise the warts can be surgically excised (W.H.O 2003:51-54; Beers and Berkow 1999:1339).

3.3.1.3 Herpes Simplex Virus Infection

Herpes simplex type 2 infection is a chronic sexually transmitted infection that is caused by *herpes simplex type 2*, a neurological virus. It can be transmitted through vaginal, oral and anal sex (Workowski, Levine and Wasserheit 2002: 258).

Two common types of herpes occur, namely, herpes simplex type I (HSV–1), which is transmitted through oral sex (mouth to genitalia) and usually causes cold sores around the mouth, and herpes simplex type II (HSV–2) which is transmitted sexually (genital-to-genital contact) and usually causes sores in the genital or anal area; but both types of herpes can be spread from one area to another, for example, through

oral sex. Herpes can spread through skin-to-skin contact with an infected person even before visible sores appear on him or her. HSV – 2 infection is more common in women than in men, due to the fact that the efficiency of sexual transmission is greater from men to women than from women to men (Sexually transmitted diseases 2006:3).

3.3.1.3.1 Manifestation of Herpes Simplex Virus Infection

Up to two thirds of affected individuals are unaware that they are infected as they are asymptomatic, (this is why diagnosis in exposed persons, for example, sexual contacts of clients who present with signs of herpes simplex, should be confirmed by diagnostic blood tests.)

One third of the infected clients experience a dull pain or itching and small, pimple – like lesions, painful papules or ulcers in the genitals. There are usually subsequent outbreaks lasting 5 – 10 days and occurring 4 – 5 times a year. The infected individual remains infectious even after the ulcers have healed, and recurrent attacks are common (Stamm *et al.,* 2004: 22 – 23; Sizemore, Lakeman, Whitley, Hughes and Hook 2006: 909 - 911).

3.3.1.3.2 Complications of Herpes Simplex Viral Infection

Pregnant women who develop primary genital herpes shortly before delivery can transmit the virus to their babies during vaginal delivery. In immuno-compromised patients, herpes ulcerations may become extensive and resistant to antiviral therapy (W.H.O., 2003:49).

3.3.1.3.3 Treatment of Herpes Simplex Viral Infection

There is no cure for herpes, but treatment with antiviral drugs like acyclovir, valacyclovir or famciclovir can make the signs and symptoms of primary herpes lesions less frequent and less severe (Workowski *et al.,* 2002:257). Secondarily infected herpes lesions should be additionally treated with antibiotics like Erythromycin 500mg, six hourly or Co-trimoxazole 800mg, 12 hourly (Ministry of Health and Social Welfare, 2006:65).

It is also important for partners to use barrier protection like condoms. Condom use was proven in a study in the United States to place users at lower risk of acquiring herpes simplex virus infection (Wald, Langenberg, Krantz, Douglas, Handsfield, Dicarlo, Adimora, Izu, Marrow and Corey 2005: 707).

3.3.2 BACTERIAL SEXUALLY TRANSMITTED INFECTIONS THAT CAUSE GENITAL DISCHARGE

A genital discharge results when there is an inflammatory disorder of the genital mucosa, and in the following sexually transmitted infections, the genital discharge occurs because there is a bacterial infection.

3.3.2.1 GONORRHOEA

Gonorrhoea is a bacterial sexually transmitted infection of the urethra, cervix, rectum, pharynx or eyes that is caused by *Neisseria Gonorrhoea*. In contrast to men, gonorrhoea is mostly asymptomatic in women, hence it is important for women who are at high risk of contracting sexually transmitted infections to be screened for gonococcal infection on a regular basis. Gonorrhoea is one of the major causes of cervicitis and pelvic inflammatory disease in women, and urethritis, prostatitis and proctitis in men. In pregnant women, the infection can cause premature delivery or premature rupture of membranes, and foetal distress. In newborns it can cause ophthalmic neonatorum, which can result in perforation of the cornea and eventual blindness (Workowski *et al.,* 2002: 259 – 260).

3.3.2.1.1 Manifestation of Gonorrhoea

Females are mostly asymptomatic, however, when symptoms are manifested, a yellowish/greenish cervical discharge, urine frequency, reddened and friable cervix and dysuria are experienced. Males experience a purulent urethral discharge, and the lips of the meatus may be red and swollen (Nasraty, 2003: 197 – 198). Clients infected while indulging in anal intercourse may present with mucopus on stools and anal pain, while gonorrhoea infections that are contracted through oro-genital sexual contact can result in sore throat with erythema, exudate and edema of the pharynx and tonsils (Beers and Berkow, 1999:1324).

3.3.2.1.2 COMPLICATIONS OF GONORRHOEA

COMPLICATIONS OF GONORRHOEA IN WOMEN

If not treated successfully gonorrhoea can have the following complications:

- **Cervicitis:**

  In women suffering from gonorrhoea that has not been treated, the cervix becomes inflammed, presenting as a mucopurulent exudate and cervical ectopy.

- **Pelvic inflammatory disease**

  Pelvic inflammatory disease is an infection of the female upper genital tract, namely the uterus, fallopian tubes, ovaries or pelvic cavity, which can occur as a result of an ascending gonoccocal infection. Pelvic inflammatory disease is manifested as dysmenorrhoea, nausea and vomiting, severe lower abdominal pain, and a profuse foul smelling vaginal discharge. The association of these symptoms with tenderness on moving the cervix sideways, is highly suggestive of pelvic inflammatory disease (Miller, Ruiz and Graves, 2003: 1921 – 1922).

  Pelvic inflammatory disease is caused by untreated gonorrhoea, as well as chlamydia and some anaerobic bacterial infections like gardnerella vaginalis. Pelvic inflammatory disease is manifested by endometritis (which is inflammation of the inner cervical lining), salpingitis (which is inflammation of the fallopian tubes), tubo – ovarian abcesses and pelvic peritonitis. Pelvic inflammatory disease can also lead to generalized peritonitis which is potentially fatal. Salpingitis can also result in partial tubal obstruction which may lead to an ectopic pregnancy. If rupturing occurs, an ectopic pregnancy can result in intra–abdominal haemorrhage and death (World Health Organisation HIV Department 2004: 71; Mc Evoy and Coupey, 2002: 463; Golden, 2003: 5).

- **Ectopic pregnancy (as a result of pelvic inflammatory disease that was caused by a gonococcal infection)**

  Ectopic pregnancy remains one of the primary causes of maternal mortality throughout the world and is linked in the majority of cases to tubal damage due to pelvic inflammatory disease. The risk of ectopic pregnancy is increased seven to tenfold after pelvic inflammatory disease. Treatment of ectopic pregnancy also frequently results in permanent infertility (W.H.O. HIV Department, 2004: 72).

COMPLICATIONS OF GONORRHOEA IN NEONATES

- **Blindness in newborn infants**

  An infant born to a mother who suffers from untreated gonoccocal infection during pregnancy, can contract an eye infection when he/she is born, namely, ophthalmic neonatorum. Ophthalmic neonatorum manifests itself as a thick pus discharge from the eyes that destroys the cornea and results in corneal perforation, intra–ocular infection and eventual blindness (Brown and Greene, 2003: 4; Highleyman 2003:2).

COMPLICATIONS OF GONORRHOEA IN MEN

- **An urethral stricture, prostate cancer and infertility**

  A urethral stricture in men can result from scarring caused by urethritis as a result of a sexually transmitted infection like gonorrhoea. Chronic prostatitis, which is inflammation of the prostate gland, can also result from untreated gonorrhoea. Bacterial sexually transmitted infections may also enhance development of prostate cancer in black men as shown in many studies. In an American study, for example, it was proven that black men with recurrent gonorrhoea and chlamydia and with 25 or more sexual partners were 2.80 times more likely to contract prostate cancer than those black men who had only 5 or fewer sexual partners. Prostate cancer can lead to infertility (Sarma, Mc Laughlin, Willner, Dunn, Cooney, Schottenfield, Moutie and Wei 2006: 1108 – 1113).

- **Epididymitis**

  Untreated gonorrhoea in men also results in inflammation of the epididymis presenting as swelling of the scrotum, unilateral testicular pain, hydrocele and a palpable swelling of the epididymis (Kodner, 2003:179-182).

- **Urethritis**

  Inflammation of the urethra in men is another complication that presents as urethral discharge, disuria, haematuria and haematospermia (Golden, 2003:4).

COMPLICATIONS OF GONORRHOEA IN MEN AND WOMEN

- **Proctitis**

  Proctitis, which is inflammation of the rectal mucosa, can also result from infections with neisseria gonorrhoea in persons who practise anal intercourse.

- **Gonococcal Arthritis**

  Gonococcal arthritis is another complication of gonorrhoea, whereby infected individuals experience an acute onset of fever, severe joint pain, swelling and limitation of movement (Beers and Berkow, 1999;1325).

3.3.2.1.3 Treatment of Gonnorrhoea

Since gonococcal and chlamydial infections mostly co-exist, treatment is usually aimed at both of these infections. Successful treatment can be achieved with immediate single, or combination doses of the following medicines:

Ceftriaxone 250 milligrams intramuscularly (immediate single dose), Spectinomycin 2 grams intramuscularly (immediate single dose), Ciprofloxacin 500 milligrams orally (immediate single dose), Ofloxacin 400 milligrams orally (immediate single dose), Doxycycline 100 milligrams twice daily, Azythromycin 1gram (immediate single dose), or Erythromycin 500 milligrams 6hourly (Ministry of Health and Social Welfare 2006:66).

3.3.2.2 Lymphogranuloma venereum (LGV)

Lymphogranuloma venereum is a bacterial sexually transmitted infection, caused by *Chlamydia trachomatis* serotypes L1, L2 and L3. (These serotypes have the same definition as given under condylomata acuminata in 3.3.1.2). Chlamydia organisms are transmitted through vaginal, anal or oral sex, and pregnant mothers can pass it to their babies during delivery (Workowski *et al.,* 2002: 258 – 259).

3.3.2.2.1 Manifestation of Lymphogranuloma Venereum

Though more or less 80% of infected individuals are asymptomatic, infected persons present with symptoms like a muco-purulent vaginal or penile discharge, lower abdominal pain and dysuria in women, inflammation of the rectum and swelling or pain in the testicles in men (Stamm *et al.,* 2004: 18).

Chlamydia trachomatis infection is also linked to premature births. An infection which occurs during parturition can result in peri-natal infections such as neonatal conjunctivitis, sub-acute pneumonia, and a recto-genital infection (Workowski *et al.,* 2002: 259; Eppigee Woman's Health 2006:9).

3.3.2.2.2 Complications of Lymhphogranuloma Venereum

The complications of Lymphogranuloma Venereum are similar to the complications of gonorrhoea as discussed previously. However, according to Workowsky *et al* (2002:259), untreated infections with chlamydia trachomatis, are also linked to premature births. If the infection occurs during parturition, peri-natal infections such as the neonate having conjunctivitis, and sub-acute pneumonia result.

3.3.2.2.3 Treatment of Lymphogranuloma Venereum

Treatment is also simultaneously aimed at both lymphogranuloma venereum and gonorrhoea as the two bacterial infections can co-exist in infected individuals. Treatment that is specifically aimed at Lymphogranuloma, is Doxycycline, Azythromycin and Erythromycin. In practice, infected individuals are usually treated for both infections at the same time, by use of the syndromic approach (World Health Organisation, 2003:6)

3.3.2.3 Trichomoniasis

Trichomoniasis is another bacterial sexually transmitted infection that causes genital discharge. Trichomoniasis is caused by the protozoan, *trichomonas vaginalis.* Trichomoniasis is transmitted by vaginal, oral or anal sex, as well as by fingers during mutual masturbation and by mutual use of sex toys if one of the partners is infected. Trichomonas vaginalis can also be transferred to the neonate during birth if the mother is infected (Stamm *et al.,* 2003:17).

3.3.2.3.1 Manifestation of Trichomoniasis

In men, it is often asymptomatic or it may cause a mild urethritis that lasts a short time. In women, it usually starts with menses as a frothy, itchy creamy or greenish vaginal discharge that is foul smelling. Some women may have post-coital blood spotting (Stamm *et al.,* 2004: 17; S.B. Primary Clinical Care Manual 1996: 171; Highleyman, 2003).

3.3.2.3.2 Complications of Trichomoniasis

The following complications can result if trichomoniasis is not treated successfully:

URETHRITIS

Infections with trichomonas vaginalis can also result in inflammation of the urethra (non gonococcal urethritis), that presents in the same manner as the gonococcal urethritis in both men and women.

EPIDIDYMITIS

In men, inflammation of the epididymis, which presents as a painful, tender swelling with scrotal erythema and edema can result from trichomonal infections that are not successfully treated.

PROSTATITIS

The prostate gland in men can also be inflamed, causing urine urgency, frequency, obstructed voiding, haematuria, arthralgia and myalgia as a result of infections with trichomonas vaginalis (Beers and Berkow 1999:1832 and 1835).

3.3.2.3.3 Treatment of Trichomoniasis

Single and combination doses of the following drugs can be used to treat trichomonal infections, namely Metronidazole 2grams (as an immediate single dose),Tiridazole 500milligrams twice daily, Amoxycillin 500milligrams 8hourly, and Clindamycin 300milligrams twice daily (Ministry of Health and Social Welfare, 2006:66).

3.3.3 BACTERIAL SEXUALLY TRANSMITTED INFECTIONS THAT CAUSE GENITAL ULCERS.

Unlike those discussed above, some bacterial sexually transmitted infections do not cause genital discharge, but instead, cause genital ulcers. Ulcers occur as a result of a focal loss of the epidermis and at times even the/part of the dermis following an infection. Such sexually transmitted infections, which occur due to a bacterial infection, will now be discussed.

3.3.3.1 Syphilis

Syphilis is a sexually transmitted infection caused by a spirochaete, *treponema pallidum.* It can be spread by vaginal, anal or oral sex, and pregnant women can transmit it to their unborn babies, because the spirochaete crosses the placental barrier. Though usually sexually transmitted, syphilis is also transmitted from the skin or mucosal lesions of an infected person. During the pathogenesis of the infection, the pathogen infiltrates all organs of the body. An infected individual can be re-infected after being treated and healed, when again being infected with treponema pallidum, for example, when having unprotected sex with an infected person (Highleyman, 2003:1; S.B. Primary clinical care manual, 1996: 169).

3.3.3.1.1 Manifestation of Syphilis

- **Primary Syphilis**

  Syphilis primarily manifests itself as an indurated non- tender lesion (chancre) that is highly infectious, and can be found in the genitals, on the cervix, on the lips, in the mouth (oral sex) and at the anus (anal sex). Due to its painlessness a chancre may not be noticed by the infected individual. The chancre heals spontaneously in 3 – 6 weeks time and the lesion can be an

indication that the person may have been infected with syphilis. (Healing may take longer in immuno-compromised persons).

- **Secondary Syphilis**

  If untreated, secondary syphilis occurs 6 – 8 weeks after the first primary chancre has developed. At this stage, the spirochaete has entered the blood stream and systemic manifestations appear. There are multiple skin lesions, for example, scalp involvement (patchy alopecia), a macular rash on the palms and soles, grayish white mucous membrane patches in the mouth, on the palate or larynx, genital ulcers, bilateral lymphadenopathy and / or condylomata lata around the anus / vulva and also flu-like symptoms.

- **Latent Syphilis**

  If secondary syphilis is undiagnosed and untreated, the next stage of latent syphilis develops. At this stage, infected individuals show no symptoms. The latent stage is sometimes referred to as the hidden stage of the disease. This latent stage usually lasts 1 year but can extend to 4 – 5 years.

- **Tertiary Syphilis**

  If still untreated, the tertiary stage then follows in which there may be a variety of neurologic, cardiac, vascular and/or opthalmic symptoms. The infected individual may present, for example, with chronic headache, cranial nerve paralysis, delirium, seizures, hemiparesis, memory loss, aortic aneurism and chronic inflammations (Golden, 2003: 9 – 12; Clark, 1999: 1054; S.B. Primary clinical care manual, 1996: 166; Brown and Greene, 2003:4).

3.3.3.1.2 Complications of Syphilis

- **Congenital Syphilis**

  Congenital syphilis follows when *treponema pallidum* crosses the plancental barrier and infects the foetus, depending on the pregnant mother's stage of infection (untreated primary or secondary syphilis is usually transmitted whereas latent or tertiary syphilis can usually not be transmitted to the foetus) (Beers and Berkow, 1999:219). Therefore, the more recent a mother's

infection, the more likely it is that the *treponema pallidum* will cross the placenta and infect the foetus.

As a result of transmitting syphilis to her unborn baby, the pregnant woman may:

- ♦ have a miscarriage;
- ♦ give birth to a macerated still born baby;
- ♦ give birth to a baby who develops bulbous skin eruptions on the palms and soles, or serous nasal discharge within months;
- ♦ give birth to a baby who may fail to thrive;
- ♦ give birth to a baby with generalised lymphadenopathy and hepatosplenomegally;
- ♦ give birth to a baby who may develop meningitis, choroiditis, hydrocephalus, convulsions or mental retardation (Stamm *et al.,* 2004: 24 –25; Beers and Berkow, 1999:219).

- ▪ **Complications of Syphilis in Adults**

  Syphilis has serious complications for the infected adults. The normal sequelae of adult syphilis results in, for example, cardiovascular problems and neuro-syphillis, which can lead to devastating complications.

3.3.3.1.3 Treatment of Syphilis

Syphilis, at all stages responds very well to penicillin.

- ▪ Benzathine penicillin G 2.4 mega units intramuscularly OR
- ▪ Procaine penicillin G. 600,000 units intramuscularly
- ▪ For patients who are allergic to penicillin, Tetracycline 500 milligrams, Doxycycline 100 milligrams, or Erythromycin 500 milligram may be given (Ministry of Health and Social Welfare, 2006:65).

According to Beers and Berkow (1999 :1332-1333), post treatment tests at 1,3,6,and12 months,(or until no reaction is found) are necessary to confirm cure and rule out the need for re-treatment.

3.3.3.2 Chancroid

Another bacterial sexually transmitted infection that cause genital ulcers, is chancroid. Chancroid is caused by *haemophillus ducrey*. Chancroid can be transmitted by vaginal or anal sex, or skin-to-skin contact with ulcers. As haemophillus ducrey evokes a cell mediated response, the ulcers enhance the transmission of HIV. The HIV infected cells are attracted to the ulcer surface, making transmission from an HIV-infected person as well as to an HIV-uninfected person with ulcers, easier (Sardana and Sengal, 2005: 391 – 392).

3.3.3.2.1 Manifestation of Chancroid

Chancroid is manifested as macula–papula ulcers which occur anywhere on the genitalia, on the anus or the cervix. The ulcers usually have a distinctive red margin, with raised irregular edges. The ulcers are soft and extend deeply with the base covered by a purulent exudate. There may be one or multiple ulcers. Vaginal discharge, dysuria or suppuration of the inguinal lymph nodes can accompany the chancroid ulcers (Mc Evoy and Coupey, 2002: 462 – 464).

3.3.3.2.2 Complications of Chancroid

According to Beers and Berkow (1999:1335), the following can be complications of infections with *haemophillus ducrey*:

- **Phimosis**

  Phimosis is an inflammatory condition which causes constriction of the foreskin, making the foreskin difficult to retract because is too tight to be pulled over the glans penis.

- **Urethral Stricture**

  A urethral constriction, or even a urethral fistula, can also result from scarring resulting from a *haemophillus ducrey* infection. A urethral stricture leads to increasing frequency, dysuria and it may also cause retention with the infected individual being unable to pass urine. With a urethral fistula, there can additionally be a post void bloody uretheral discharge (Beers and Berkow, 1999:2229).

3.3.3.2.3 Treatment of Chancroid

The following treatment, in single or combination doses is recommended to effectively treat chancroid. Erythromycin 500 milligrams 8hourly, Ceftiaxone 250 milligrams intramuscularly as an immediate single dose, Azithromycin 1gram as an immediate single dose orally, or Ciprofloxacin 500 milligrams twice daily. In cases in which there are buboes (suppurating inguinal lymph nodes), they should be aspirated and not incised (Ministry of Health and Social Welfare, 2006:65).

3.4 FACTORS THAT INFLUENCE SEXUAL BEHAVIOUR

The prevalence of sexually transmitted infections can be greatly reduced if persons behave in a sexually responsible manner. The following are factors that influence the way in which persons behave sexually.

3.4.1 THE MEDIA

The media, in the form of X – rated movies, has made a great impact on people's (especially adolescent's and young adult's) sexual attitudes and behaviours. According to Answers. com (2008:1), **X - rated** is a movie classification devised in America to designate films containing explicitly sexual or excessively violent scenes, which are not suitable for viewing by children under 13 years. In a study conducted by Wingwood, Diclemente, Harrington, Davies, Hook and Kim (2001: 116 – 119), it was proven that compared to persons who were not exposed to x-rated movies, those individuals who were exposed were more acceptant of casual sex, more likely to over-estimate the prevalence of sexual activity, thinking that they might as well do it too. Most importantly, the individuals did not regard sex and contraception as having to go together as they hardly ever saw protected sex in these movies. It was also found that these individuals more likely experimented with unprotected sex, which could result in contracting sexually transmitted infections. Therefore, it can be stated that a person's behaviour towards sex is influenced by watching x-rated movies.

3.4.2 PEER PRESSURE , ESPECIALLY IN YOUNG PEOPLE

Some adolescents are particularly prone to risky behaviour due to peer pressure. They strive for peer approval and also want to respond to their physical sexual needs

without thinking about the consequences of their actions. According to the American College of Obstetricians and Gynaecologists [A.C.O.G] committee opinion (2004: 892); Senn, Corney, Vanable, Coury-Doniger and Urban (2006:725-727), these factors can lead to risky sexual behaviour that contributes to the high prevalence of sexually transmitted infections.

3.4.3 LACK OF FACTUAL INFORMATION ON SEXUAL ISSUES

Young sexually active individuals lack overall factual knowledge regarding proper sexual behaviour and there is too little guidance about overall sexually responsible behaviour, like safer sex practices, from parents, teachers and even health care workers. This results in the high prevalence of sexually transmitted infections in adolescents and young adults (Whiteside, Katz, Bordman, and Peipert 2001: 37; Phillips, Dudgeon, Becker and Popp 2004: 357).

Many sexually active persons have a superstitious belief that witchcraft can cause sexually transmitted infections and that sexually transmitted infections can be healed by prayer or herbs/traditional medicines (Nworah *et al.,* 2002: 304). Proper health information has to be given to these sexually active persons, in order to set these misconceptions right, as some individuals believe that urination immediately after sex can prevent sexually transmitted infections, that these infections only affect dirty promiscuous persons; while others are uninformed persons who believe that if one is not sleeping around, one is not in danger of contracting sexually transmitted infections even if one has unprotected sex. Although these beliefs do not cause sexually transmitted infections per se , they reveal a profound ignorance regarding the causes of sexually transmitted infections (Diale and Roos, 2000: 137).

Thus, all individuals should be given the right information that will help to dispel specific myths and false beliefs about sexually transmitted infections which circulate in communities, obscuring persons' understanding of sexual issues.

3.4.4 SOCIAL ISOLATION OF HERDBOYS STAYING IN REMOTE AREAS

Herd-boys in remote areas of Lesotho do not attend school and thus cannot access health care services, counselling and information on sexual issues. As a result they are at particularly high risk. Their inability to read makes their plight even worse.

Since they stay alone in the mountains herding animals for long periods of time, they usually do not have access to any sexual information. They are therefore at high risk as they are too isolated and cut off from reproductive health care information centres to know how to protect themselves from sexually transmitted infections (Mapetla and Nkhasi, 2003: 40).

3.4.5 CULTURAL RITES OF PASSAGE

Culturally, the traditional male and female circumcision in black cultures pressurizes the young adult to experiment with sexual intercourse. This post- initiation sexual experimentation places people at risk of HIV and other sexually transmitted infection transmission (Kimane and Mapetla ,2003: 10 – 12). Young initiates feel they have to submit to these cultural practices as it is a cultural norm that somehow completes their transition into adulthood. In a study that was conducted in Uganda, it was shown that the circumcision wounds take about a month to heal, and that if they are not completely healed when sex is started, small tears caused by friction during sexual intercourse can cause transmission of HIV if one partner is infected. (Kaisernetwork 2007:8).

3.4.6 COMMERCIAL SEX WORK

Commercial sex work is mostly performed by young women who drop out of school (Peltzer, Seoka and Raphala, 2004: 4 –10). In sex work, it is not easy for these young women to limit the number of their sex partners, nor to negotiate condom use, resulting in high rates of sexually transmitted infections among commercial sex workers.

Having multiple partners puts an individual at increased risk of contracting sexually transmitted infections, and it does put sex workers at increased risk as, according to Genuis and Genuis (2005:300), sexual encounters include a person's present partners; as well as past partners. On the other hand, having sex workers educated, registered and screened for sexually transmitted infections on a compulsory basis, could reduce the prevalence of sexually transmitted infections in this community.

3.4.7 MISINFORMATION THAT LEADS TO SEXUAL ABUSE OF YOUNG FEMALE CHILDREN

The misconception that HIV can be cured in older men if they have sexual intercourse with a baby girl, has put young female children at risk of being sexually molested by older men and thus being infected with HIV and other sexually transmitted infections (Kimane and Mapetla 2003: 16 – 22).

3.5 BARRIERS TO THE EFFECTIVE MANAGEMENT OF SEXUALLY –TRANSMITTED INFECTIONS

Barriers to the development or sustainability of effective sexually transmitted infection management programs occur on any level, from the national level down to the primary clinical care level in the district. It is very important to recognise these barriers in order for higher levels to develop efficient strategies to overcome these barriers in the management of sexually transmitted infections and for lower levels to implement the strategy(ies) well. Colvin (2003:2), states that a comprehensive national strategy is a necessity to address the problem of sexually transmitted infections. The following are some of the issues which, if not properly addressed, can result in failure of sexually transmitted infection programmes at national, regional and district levels.

- **Lack of supplies**

  There is sometimes an insufficiency of drugs for the treatment of sexually transmitted infections as well as an undersupply of specific diagnostic tests, like the syphilis R.P.R. testing kits. This lack of supplies, results in the delayed/insufficient treatment of some sexually transmitted infections. A study done by Oliff (2002:4), in Tanzania, highlighted that lack of supplies do lead to insufficient treatment of sexually transmitted infections, resulting in increased transmission rates.

- **Financial and service accessibility constraints**

  Many individuals who have contracted a sexually transmitted infection may be unable to seek help at appropriate health care facilities. In Lesotho, for instance, patients still pay a minimum consultation fee of R5.00 at health

centre level and R10.00 at hospital level. Some of the infected individuals cannot afford these amounts, resulting in a delay in the treatment of sexually transmitted infections. Other infected individuals live very far from health care facilities, experience transport difficulties, with the result that they do not go for treatment of the sexually transmitted infection that they have contracted. According to the American College of Obstetricians and Gynaecologists (A.C.O.G) committee opinion (2004: 892 – 893), these factors are barriers to the seeking of health care for the treatment of sexually transmitted infections.

- **Lack of well trained practitioners to render the necessary services**

  Some health-care facilities do not have specific staff members specially trained for reproductive health care; practitioners who can make services acceptable and user friendly to clients, especially young adults (for example, sexual health services for adolescents, which are private and away from adult services). If not trained, the practitioner can be uncomfortable discussing sexual issues with clients (American College Of Obstetricians and Gynaecologists (A.C.O.G) committee opinion 2004: 893). In Hlabisa, Kwazulu-Natal, private practitioners were too busy to attend training workshops or meetings and were as a result unable to implement changes regarding proper sexual health care, and this resulted in poor reproductive health service delivery from them (Wilkinson, Abdool, Karim, Lurie and Harrison 2002: 518).

- **Insufficient partner notification**

  Contact notification is very important in controlling sexually transmitted infection re-infections among sex partners. In Lesotho, when a client is seen and treated for a sexually transmitted infection, he/she is given a contact slip to give to his/her sex partner/s so that they also can get treatment. According to Mayaud, Mabey, Hart and Kok (2002: 1–4), more sexually transmitted infection contacts of female clients than those of male clients go for treatment at clinics for sexually transmitted infections. According to Colvin (2003:1), if all clients' sexual partners were treated, irrespective of whether they were symptomatic or not, re-infection of the initial person would be prevented,

complications would be allayed, and ongoing transmission would also be stopped.

- **Poor control over drug distribution**

  If there is inadequate control over drug dispensing, infected individuals can buy antibiotics without prescriptions. If not properly prescribed, the treatment can be inadequate or ineffective, resulting in the pathogen developing drug resistance. For the medication to be effective, a full course of appropriate antibiotics has to be taken by the infected individual. In many countries like South Africa, pharmacists may not treat sexually transmitted infections, and antibiotics are not available over the counter (Wilkinson *et al.,* 2002: 517).

- **Stigma regarding sexually transmitted infections**

  Persons who suffer from sexually transmitted infections are generally stigmatized by their communities. Affected individuals may therefore delay seeking help for possible sexually transmitted infections, because they are ashamed of being seen at places that offer services for the treatment of sexually transmitted infections. According to the National Aids Control Programme of India (2003: 4), the taboos surrounding sexually transmitted infections in India lead to a situation in which persons seeking sexual health care are stigmatized, especially in special clinics for sexually transmitted infections.

3.6 STRATEGIES FOR IMPLEMENTING COMPREHENSIVE PROGRAMMES TO CONTROL SEXUALLY TRANSMITTED INFECTIONS

It is of paramount importance to have standardised programmes and guidelines in place, for health care workers to be able to give good, holistic sexual health care. Thus, in order to reduce their incidence, sexually transmitted infections have to be managed well. The following strategies can be used in the control and management of sexually transmitted infections:

- **The collection of subjective data from all clients at different clinics must be comprehensive**

  In all service delivery institutions, a comprehensive assessment of all clients has to be made by practitioners. In family planning clinics, especially, information must be gathered when a screening history is taken from individuals and questions regarding sexual activity, previous sexually transmitted infections and current symptoms suggestive of a possible sexually transmitted infection, must be included. This information must then be used to identify individuals with one or more factors placing them at increased risk of contracting sexually transmitted infections. Recognised high risk characteristics include multiple partners, casual partners, and partners with a known history of sexually transmitted infections. Certain characteristics considered to be high risk may be locally specific, for example, prostitutes, truck drivers and the military (Boxes 2006 :5).

- **Good objective data collection at reproductive health care facilities**

  Providing guidance, screening and giving preventive health care information is essential in reproductive health care. Due to the fact that some sexually transmitted infections are usually asymptomatic, thorough client examination, as well as sending the necessary specimens to the laboratory, are very important components of prevention as it is through this means that the asymptomatic infections can be diagnosed and treated timeously (National Aids Control Programme India 2003:3)

  All clients who have symptoms or who have one or more high risk characteristics, even if asymptomatic, should be screened for the presence of sexually transmitted infections by way of history taking, physical examination, and/or by sending urine, blood or smears to the laboratory. In females, because of special considerations when using an intra-uterine contraceptive device, such clients should always be screened for sexually transmitted infections (American College of Obstetricians and Gynaecologists committee opinion 2004: 893 – 894).

Clients with genital ulcers should be tested diagnostically by way of blood tests for syphilis and genital herpes. In instances where there is chancroid, a blood test for haemophillus ducrey should be done or even a biopsy to determine the causative organism, especially when initial treatment has not been successful. Blood testing for HIV should also be done in all patients with genital ulcers (Workowski *et al.,* 2002: 255 – 257). Furthermore, all clients diagnosed with gonorrhoea and/or chlamydia infection 10 – 18 weeks after they were initially treated, should be tested for HIV infection. Clients suffering from human papilloma virus infection are at an increased risk of genital and anal neoplasia and should have regular cytologic screening (Behets, Muller and Cohen, 2001: 1073 – 1074; Anderson, 2006: 3 – 7).

Clients who at history taking report a history of having new sexual partners or multiple sexual partners whose sexually transmitted infection statuses are unknown, should have a chlamydial screening (due to the high prevalence rate of chlamydia).

Furthermore, in collecting objective data at reproductive health care facilities:

- ♦ all pregnant women should be routinely tested for chlamydia trachomatis, neisseria gonorrhoea, hepatitis, syphilis and HIV(except in cases where a woman specifically objects);
- ♦ women with a history of preterm delivery should be tested for bacterial vaginosis;
- ♦ men who have sex with other men, and come for reproductive health care, should be tested for HIV and syphilis and a rectal culture should be taken for gonorrhoea and chlamydia infection (Golden, 2003: 2 –3).

- **Health education to all regarding symptom recognition of sexually transmitted infections**

  At every opportunity, (for example, at high schools, public gatherings, societies, health care outlets), individuals should be taught to identify symptoms which may suggest the presence of sexually transmitted infections, their significance and prevention. Use of wall posters and distributing

brochures can also help. Community members should also be encouraged to seek care immediately when signs are recognised. Women should be taught the difference between a normal and an abnormal vaginal discharge (Miller, Ruiz and Graves, 2003:1916).

Cultural constructions of different symptoms should be acknowledged, explored and kept in mind when dealing with different cultures. Different cultures perceive sexually transmitted infections, their treatment, symptoms and complications in their own respective ways that differ from one culture to the other. It is very important for health-care providers working in different communities to be familiar with these indigenous cultural practices and constructions, so that their interpretations and health education interventions are sensitive to the unique cultural view. A study conducted in Venda, South Africa, to explore indigenous healers' beliefs and practices regarding sexually transmitted infections among their communities, proved that the way in which some complications, treatment modalities, as well as sexually transmitted infection signs and symptoms are described, can be unique to a said community, so knowledge of the indigenous perceptions regarding sexually transmitted infections, (by the health-care worker), can facilitate proper information giving (Mulaudzi and Makhubela–Nkondo, 2006: 46 – 53).

- **Use of syndromic treatment protocols**

  The syndromic treatment protocols, developed by the World Health Organisation, can be used in different regions and they can be modified, based upon sexually transmitted infection prevalence and drug resistance data for the region. These protocols can easily be adapted for use by providers at all levels. The syndromic treatment protocols take into consideration the likelihood of co–infection with different organisms, such as gonorrhoea and chlamydia and also gonorrhoea and syphilis (Brown and Greene, 2003:2). Treatment protocols can also be developed regionally and be periodically reviewed by regional health departments.

- **Training of providers**

  Reproductive health-care providers should receive both pre-service and periodic in-service training about sexually transmitted infections and their management. It would also help for governments to involve private practitioners, pharmacists, traditional practitioners and traditional birth attendants in training programmes, because sexually transmitted infection clients seek health-care from whichever health care provider they prefer (Moyo,1999:14-17).

- **Counselling for infected clients suffering from sexually transmitted infections**

  Counselling should be an integral component of a sexually transmitted infection control programme. Clients who are diagnosed with sexually transmitted infections require in-depth information. Thus, good counselling should have high priority in sexually transmitted infection services (Boxes 2006 :2).

Counselling should include the following messages:

- what infection clients have, how it was transmitted and its possible sequelae;
- how to cure the infection – instructions for taking medication, possible side effects and how to prevent any other sexually transmitted infections;
- need for partner treatment;
- how to prevent transmission;
- need for follow up;
- how to stay cured;
- general issues relating to sexually transmitted infections, such as the importance of safer sex practices.

Counselling should, however, be client centred and specific, since different clients have different counselling needs (Golden, 2003: 24). Issues that are important to include in counselling one client, may not be necessary to highlight with the next client.

- **Availability of drugs for the treatment of sexually transmitted infections**

Commitment by the government, ensuring subsidized drug programs, in which treatment can be given free of charge or at a minimal cost at private clinics, will increase the likelihood of every client having access to proper sexually transmitted infection treatment. Additionally, primary health-care clinics, which is where clients first seek care, must have a reliable supply of recommended drugs to treat sexually transmitted infections that prevail in the area (Rahman, Khan, Razza and Shams, 2002:7)

- **Availability of condoms for the prevention of sexually transmitted infections**

Condoms should be made available for clients in family planning clinics, with instructions for their correct use. Condom use is indicated for the promotion of safer, more responsible sexual behaviour (National Aids Control programme India 2003:4).

- **Follow-up of individuals after completion of treatment**

Each client diagnosed with a sexually transmitted infection should be encouraged to return for follow–up investigations to make sure that the infection has resolved. During this session, reinforcement of prevention messages like responsible sexual behaviour, must be ensured. Clients should be asked to return sooner if symptoms worsen, if symptoms do not clear or if medication side-effects occur (Miller, Ruiz and Graves, 2003: 1916).

Furthermore, effective treatment of sexually transmitted infections is very important, and since some sexually transmitted infections like herpes and HIV infection cannot be cured, these clients need follow up in order to monitor them, and keep the symptoms suppressed by continued assessment of adherence to treatment (Anderson 2006:5).

- **Identification of asymptomatic clients**

A study in a rural district of Tanzania (Mwanza) assessed the impact of improved sexually transmitted infection control on HIV in 2003. This study established that treatment of symptomatic sexually transmitted infection clients reduced HIV incidence by as much as 40% (DFID Knowledge programme on HIV/AIDS and Sexually Transmitted Infections (2004:2).

More could have actually been achieved in the Mwanza district if asymptomatic clients had also been identified and treated. According to Miller, Ruiz and Graves (2003: 1917), identification of symptomatic as well as asymptomatic sexually transmitted infection-infected persons who are unlikely to seek diagnosis and treatment is of great importance in controlling sexually transmitted infections. Colvin (2003:7), cites that this can be achieved, if clinicians always bear sexually transmitted infections in mind while examining all patients, even those without symptoms.

- **Legalising commercial sex work as an industry**

If commercial sex work could be legalised, with compulsory registration of sex workers, then it would be possible to know who the workers in the sex work trade are, as they would be registered. All sex workers should also be screened periodically, (for example, every three months,) for sexually transmitted infections and sexually transmitted infection services should be made accessible to them. In this way, sexually transmitted infection prevalence in this community would be controlled, thus controlling the overall prevalence.

3.7 TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS

The treatment of sexually transmitted infections is the same for all infected individuals. As discussed under treatment of specific sexually transmitted infections, those caused by bacteria can frequently be treated with antibiotics, while viral sexually transmitted infections, though incurable, can be suppressed by antiretroviral drugs (HIV), and antiviral drugs (Herpes simplex) (Brown and Greene, 2003: 3).

Before the year 2000, a specific diagnosis had to be made clinically and by use of laboratory tests in order to treat a specific disease, but this approach has proven to be problematic as:

- The clinical signs are often confusing, making it difficult to tell the difference between infections.
- The turn-around time of laboratory tests is substantial and patients do not often come back for results.
- The tests are costly.
- Sexually transmitted infections often result from mixed infections, like genital ulcers which are due to mixed infections such as chancroid and syphilis together (Evian, 1996: 254).

Today, a sexually transmitted infection can be treated according to how it manifests and not based on a specific laboratory test result. The syndromic approach to the management of sexually transmitted infections will now be discussed in detail.

3.7.1 THE SYNDROMIC APPROACH TO THE MANAGEMENT OF SEXUALLY TRANSMITTED INFECTIONS

The syndromic approach to sexually transmitted infection treatment, is the diagnosis and simultaneous treatment of selected sexually transmitted infections, based on the identification of a syndrome (group of signs and symptoms) by the use of a clinical flow chart. In using the syndromic approach, the prescribed treatment is targeted at the majority of organisms causing the syndrome of signs and symptoms.

The World Health Organisation recommends that patients who present at primary health care clinics with symptoms that suggest sexually transmitted infections, especially in settings where resources are scarce, be treated syndromically using algorithms or clinical flow charts (Behets, Muller and Cohen 2001: 1070-1075; Advantages and limitations of the syndromic management 2006: 7). The syndromic approach to the treatment of sexually transmitted infections is being widely used as a major national HIV and sexually transmitted infection prevention and control strategy in many countries, including Lesotho.

- **The components of syndromic management of sexually transmitted infections include:**
  - correct diagnosis;
  - effective syndromic treatment and compliance by sexually transmitted infection clients;
  - education on risk reduction;
  - promotion, provision and instruction on condom use;
  - partner notification and treatment;
  - clinical follow up where appropriate;
  - accurate reporting (Moyo, 1999: 1; National Department of Health, 2003: 149).

Syndromic management of sexually transmitted infections means a client with symptoms indicating a sexually transmitted infection gives his/her history (subjective data). Based on the history, the client is physically examined by the health-care worker, (collection of objective data) and receives an encompassing treatment even at the first level consultation, without having to wait for a specimen to be sent to the laboratory and for results to be returned. This results in a client being treated timeously without a follow-up visit, as many clients do not return. In a study that was conducted by Mukenge-Tsibaka, Alary, Lowndes, Van Dyck, Guedou, Geraldo, Anagonou, Lafia and Joly (2002: 324 – 330), to examine whether the syndromic approach would diagnose more cases of cervicitis due to Neisseria gonorrhoea or Chlamydia trachomatis than laboratory tests, specimens were collected from 481 female sex workers (on the basis of clinical findings), and they were asked to return to the clinic within 10 days for laboratory results and appropriate treatment where necessary. Though the sensitivity of the syndromic diagnosis approach for the detection of Neisseria gonorrhoea and Chlamydia trachomatis infection was considerably lower than that of laboratory tests, 57.6% of the infected women did not return to the clinic within 10 days as requested. Thus, the women who did not return were missed.

However, the syndromic approach to treatment, has advantages and disadvantages.

- **Advantages of the syndromic approach of treatment:**
  - treatment is quick, often using a single or immediate dose of drugs, this improves compliance;
  - the treatment regimen is designed to cover all the common causes of the syndrome;
  - expensive laboratory tests are unnecessary;
  - treatment is simple, straightforward and easy to give;

  treatment successes are common (Advantages and limitations of the syndromic management 2006:5).

- **Disadvantages of the syndromic approach of treatment:**

  in situations in which a practitioner makes a wrong diagnosis based on signs and symptoms, the patient receives more medication than may be necessary, increasing the cost of care, for example,

  - a mild vaginal discharge may be normal in a woman and not be a sexually transmitted infection; some symptoms like dysuria may be due to cystitis and may not be sexually transmitted;
  - the lack of a specific diagnosis can mean treating contacts and clients who do not really have a sexually transmitted infection, for example, treating a male partner unnecessarily on the basis of his female partner's normal vaginal discharge that was wrongfully interpreted as ''abnormal" (Evian 1996:255). Colvin (2003:3) adds that, the syndromic approach to treatment cannot be used with clients who are infected, but show no signs and symptoms.

USING THE SYNDROMIC APPROACH FOR TREATMENT

The different syndromes of sexually transmitted infections are treated by the use of flow charts. Flow charts are designed by the World Health Organisation to follow a diagnostic logic, and they clearly map out the steps needed to determine symptoms and treatment. The flow charts also remind providers to educate clients about the treatment and how to prevent further transmission by methods such as condom use, referring partners for treatment and explaining how clients will know whether a follow-up visit is necessary (Mukenge-Tsibaka *et al.,* 2002: 4 – 6).

Sexually transmitted infection syndromes that are treated using flow charts are: the genital ulcer syndrome, the urethral discharge/dysuria syndrome (in males), the vaginal discharge syndrome, the lower abdominal pain syndrome (in females), and the scrotal swelling syndrome. An example of the systematic sequence of activities to follow in using a flow chart, is demonstrated on the following flow chart that is used for treatment of the genital ulcer syndrome:

GENITAL ULCER SYNDROME

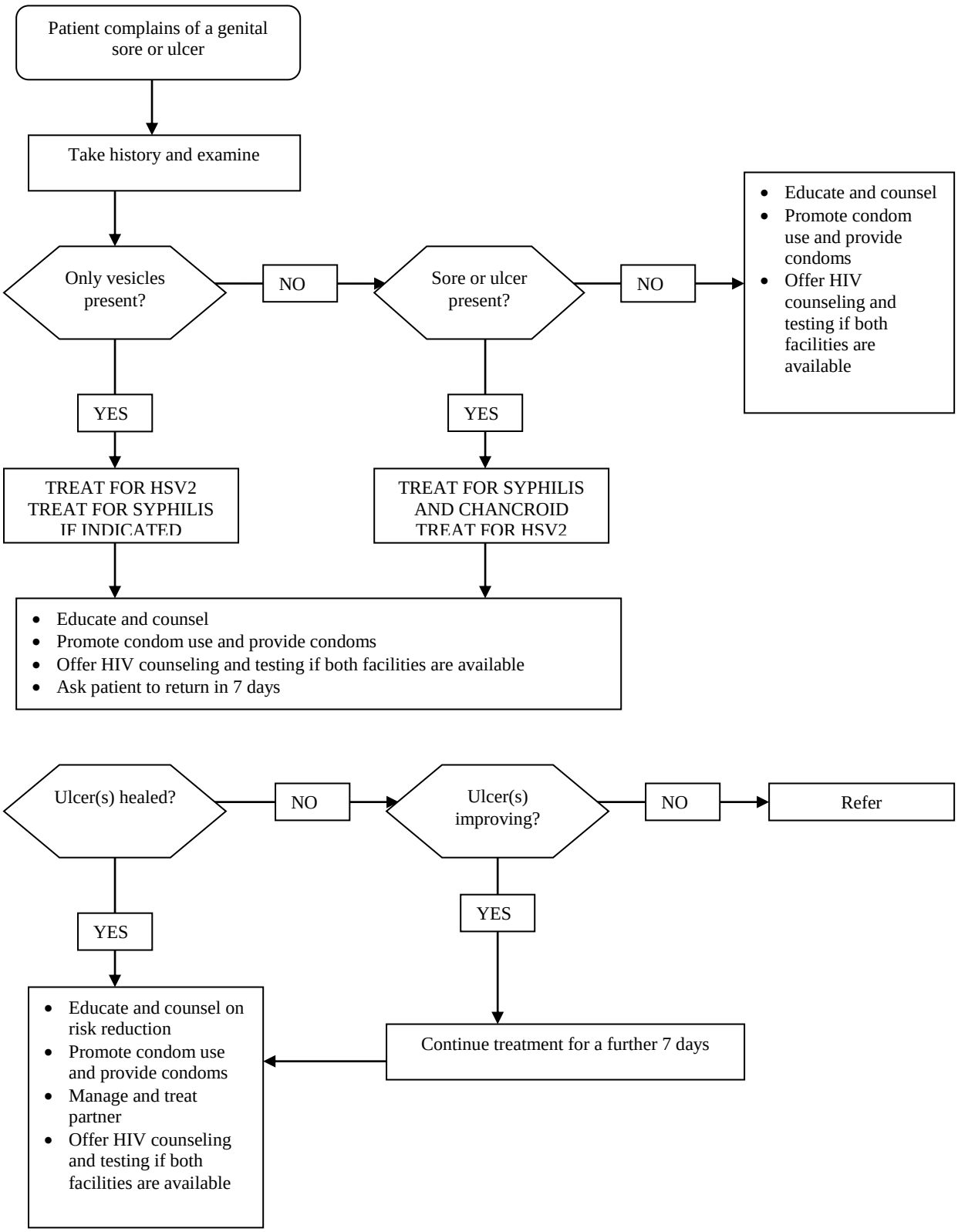

Figure 3.7 Management of genital ulcers

(WORLD HEALTH ORGANISATION, 2003 : 15)

3.8 PREVENTION OF SEXUALLY TRANSMITTED INFECTIONS

As cited by Workowski *et al. (* 2002: 255), sexually transmitted infections are a public health problem, with many people worldwide contracting a new sexually transmitted infection every year. Sub–Saharan Africa has high morbidity and mortality in young adults as a result of sexually transmitted infections. Approximately 11 million cases of sexually transmitted infections are treated in South Africa annually (Colvin 2003:3; Reddy. Meyer-Weitz, Van den Borne & Kok 1999 :6).

The following are preventive measures that can be taken :

- **Health Education**

  The aim of health education is to provide guidelines for healthy living, and that includes sexually responsible behaviour. Education on sexual health is primarily the task of parents, though sometimes parents are embarrassed to talk with their children about sexuality and sexually responsible behaviour. Institutions like churches, health care facilities (especially youth targeting services like adolescent health corners), and schools should all take part in educating the youth about issues of sexuality. Based on a review of programmes on sexuality in the United States, it was concluded that school-based programmes were the most successful as they gave consistent, accurate information based on a theoretical framework (Obaid, 2003: 30–31). It would therefore be beneficial to introduce sexual health programs in all schools.

- **Educating the youth on the application of the A.B.C. Strategy**

  The A.B.C. strategy, namely, A-Abstinence, B-Be faithful and C-Condomise, was pioneered in Uganda, a country which was experiencing very high rates of sexually transmitted infections in the recent past. However, this strategy, implemented among young adults, has been proven to be most effective as part of a sexually responsible lifestyle. According to Genuis and Genuis (2005:299-300), the A.B.C. approach advocates delayed sexual involvement for unmarried youth, until such time that they are married or in a stable sexual relationship. According to the A.B.C. strategy, the youth are educated that they are not yet ready (physically, emotionally and socio culturally), to practise

responsible sexual behaviour and they should practise **abstinence**. The youth should therefore, abstain from sexual activity for as long as possible until married or in a stable relationship. By **being faithful** to their partner/s sexually responsible adults do not engage in promiscuous sexual behaviour, but stay faithful to their partners at all times. Individuals who fail to practise abstinence or faithfulness, should **use condoms** properly and consistently.

3.9 SUMMARY AND CONCLUSION.

Sexually transmitted infections infect men and women of all age groups and are a common public health problem globally. Sexually transmitted infections need to be diagnosed and treated at an early stage in order to avoid serious consequences like infertility in both men and women, neonatal complications (for example blindness), ectopic pregnancy and even death.

Because consequences can occur many years after the initial infection, it is difficult and expensive to treat sexually transmitted infection complications, while other complications cannot be treated at all (Diale and Roos, (2000:136) ; Workowski *et al* 2002:255).

Colvin (2003:4); Wright, Giele, Dance and Thompson (2003:124-128), state that the recognition of the role played by sexually transmitted infections in promoting HIV infection has focused attention on sexually transmitted infections in the domain of Public Health. HIV is one of the biggest and most alarming problems of modern times, especially in Sub-Saharan Africa. As sexually transmitted infections enhance the sexual transmission of HIV, timeous detection and treatment of sexually transmitted infections should be an integral component of public health preventative strategies.

Sexually transmitted infections can, however, be reduced and controlled by responsible sexual behaviour, community members being informed about effective treatment strategies, partner screening and follow-up procedures. Good management of sexually transmitted infections should involve the participation and

collaboration of all parties involved, that is the clients, the community, health-care workers and also the government.

Health care workers must be aware of the possible presence of sexually transmitted infections, when seeing patients/clients for other health ailments. This awareness will create a climate of general awareness and alertness, leading to members of communities being better informed about when and where to seek help for sexually transmitted infection screening and treatment. Moreover, future medical advances with their promise of a cure for viral sexually transmitted infections, and vaccines for certain other sexually transmitted infections, would further brighten the sexually transmitted infection scenario.

ESSAY 4: STATING AN APPROPRIATE PROBLEM TO RESEARCH

4.1 INTRODUCTION

To do research, the problem(s) underlying the study has/have to be identified and stated. A research problem is a situation of concern because a gap exists between the actual and desired ideal state of affairs. In other words, there is something worth studying, namely, a discrepancy between the way things are and the way they should be (Polit and Hungler, 1999:49 and 58; Brink, 1996:66; Leedy and Ormrod, 2001:49).

Therefore, identification of what to study will lead to a problem statement, which is very important as it gives focus to a research study (Sullivan, 2001:88-105; De Vos, 2001:64-65). In a problem statement, the problem is clearly and distinctly expressed so that it is easily understood. As indicated by Burns and Grove (2001:85), the way in which the problem statement is written should be simple, clear and concise.

In this paper a discussion of the problem statement will be done. The criteria that a good problem statement should meet will be given, and based on this criteria five problem statements will be evaluated.

4.2 FACTORS TO CONSIDER IN FORMULATING A RESEARCH PROBLEM

A research idea is just an 'idea' until it is transformed into a researchable research problem or research question.

The following different factors have to be looked into in order to turn a research idea into a research problem, namely:

- Literature review
- Levels and units of analysis
- Reactivity
- Qualitative, Quantitative or Blended research approach/design
- Cross- sectional versus longitudinal research

- Assessment of relationships between variables
- Clarity about research objectives
- Research topics
- Research questions
- Sources that generate research problems

4.2.1 LITERATURE REVIEW

A literature review, which is a search of all previously written research sources relating to the topic of present interest, is very important in assisting the formulation of the research problem. Literature review helps researchers to familiarize themselves with the current state of knowledge regarding the proposed research problem, and to learn how others have addressed similar problems. It is also done so as not to duplicate past efforts exactly, but to widen and deepen them. A researcher is not likely to formulate a research problem that is identical to any of the previous ones unless he/she is planning to do a replication study (Sullivan 2001:92; Bless and Higson–Smith, 1995:23-25).

After completing a literature study and learning from mistakes and experiences of previous researchers, the ultimate decision that a researcher will make regarding whether or not to duplicate or abandon the problem, will be justified , especially if the literature review is done early enough before starting research questions and deciding on a study design.

4.2.2 LEVELS AND UNITS OF ANALYSIS

In formulating a research problem, researchers also need to identify the level at which the analysis of their research will be done, whether **micro level** research which is face to face social interactions among individuals, or **macro level** research which focuses on large scale social structures and interactions that occur among them. According to De Vos (2001:68), these are the two levels of analysis that can be identified. Also to be selected are the units of analysis, as the units of analysis are the specific elements about which data will be collected, and whose characteristics a researcher wishes to describe or explain. Examples of units of analysis can be individuals, organizations, institutions, social actions and events.

4.2.3 REACTIVITY

Another consideration in refining a research problem is the issue of reactivity. People can react differently when knowing they are being studied than when they do not know they are being studied. The data that is collected from similar people in these two instances may be different (Sullivan, 2001: 97-98).

4.2.4 QUALITATIVE, QUANTITATIVE OR BLENDED RESEARCH APPROACH

Another aspect that a researcher must look at when refining a research problem is whether a qualitative, quantitative or blended research approach is appropriate to be used.

To be able to decide on the appropriate research approach, the researchers' knowledge of the particular research topic and also of the phenomenon to be studied is essential, as is good knowledge of these different research methods (Babbie 1995:340-341, De Vos 2001:71-72).

4.2.5 CROSS SECTIONAL VERSUS LONGITUDINAL RESEARCH

A researcher also has to decide how long the period to collect data should be and also when the study has to be completed. In a cross-sectional study, data is collected at only one point in time, whereas in a longitudinal study data is collected over a long period of time, or even at different points in time (Sullivan 2001:99-100).

4.2.6 ASSESSMENT OF RELATIONSHIPS BETWEEN VARIABLES

For there to be a cause-effect relationship between variables, the causal variable must be seen to occur earlier than the variable that it affects. So a researcher should bear in mind whether or not any of the variables are causally related as this may influence the way in which a problem is formulated. (The problem may have to be formulated in a manner that will involve tests to determine whether or not a variation on an independent variable is the cause of a variation on a dependent variable).

Another issue to consider, is whether the research will be correlation or experimental in nature. In a correlation study, the statistical analysis shows that two variables are linked, they vary together somehow, whereas in an experimental study, changes in

an independent variable occur some time before those in a dependent variable (Babbie, 1995 : 342-348; Mouton, 2003:49-51).

4.2.7 CLARITY ABOUT RESEARCH OBJECTIVES

A researcher also needs to be clear about the general objectives, aims or goals of the study, which are to be achieved by doing the study, so that if he/she decides to formulate research questions or research hypotheses, the questions or hypotheses can be specifically directed at the aspects or variables of real research interest.

4.2.8 RESEARCH TOPICS

After examining the world around him/her a researcher identifies research topics, generates questions and ultimately comes up with a research problem (Polit and Hungler 1999 : 35).

4.2.9 RESEARCH QUESTIONS

It is very important for a researcher to ask the correct kind of questions so as to elicit valuable answers. Different kinds of questions can be created regarding different situations in nursing:

- Questions that can be answered by an already existing body of knowledge, in theory and procedure manuals.
- Questions which can be answered just by problem solving or evaluation projects.
- Questions that need further knowledge to answer and therefore generate the need for research. Of the above three instances, this last situation creates the type of questions that would generate valid problems for research (Burns and Grove, 2001 : 94-96).

Problems of research can be found in many places surrounding the researcher, and it does not only take fantasy and creativity to formulate a research problem. There are circumstances that sometimes trigger a researcher's mind to generate a research problem. The following are some of these sources:

4.2.10 SOURCES OF RESEARCH PROBLEMS

Research problems and their sources can be diverse. The following are some of the areas from which problems of research significance can arise:

4.2.10.1 Experiences at work

The researchers' contact with the world and their observations of happenings around them in their workplace, or identified needs for solutions, can result in researchers coming up with problems to research. Workplace identified problems are actually better than those more remote from workplace experiences, especially for novice researchers. An example can be technological changes and protocol developments for managing patients/clients, which are always creating new problems and new opportunities for research (Best and Kahn, 1993:37-38).

4.2.10.2 Theory

According to Neuman (2000:60-61) and Burns and Grove (2001:90-92), if a theory that is already developed is correct, one would expect certain things to occur under particular circumstances. Research would be necessary to test the applicability of that theory. This is often the reason for carrying out quantitative research.

4.2.10.3 Previous research

Previous investigations can induce new ones. This can happen either because of disagreement with results or the procedure that was used before; because it was a recommendation in the last study; because of the existence of unclear facts implicated by the last research; or it can be due to the necessity to repeat the study in different situations or with different study participants. Novice researchers can gain much insight from reading past literature on topics of research interest, research reports and recommendations for further studies (Bless and Higson – Smith 1995:18).

4.2.10.4 Social issues

Research topics can also be encouraged by happenings of the time. If, for example, there is a lot of violence, women and child abuse or drug abuse in the community, these might spark an idea for research (Terre Blanche *et al.,* 2006:19-20).

4.2.10.5 Ideas from external sources

Research ideas can at times come from sources other than the researcher, for example:

- A lecturer may assign research topics to students in order for them to show their skills in applying research methodology. In this case it will usually be professional priority areas that are suggested for research.
- While attending professional conferences, novice researchers can get ideas about research from expert researchers, or even from interaction with peers (Best and Kahn 1993: 34-35).

Research topics usually contain numerous potential research problems, and quantitative researchers especially are inclined to act at an early stage to delimit a broad topic area so that it becomes refined and specific (Polit and Hungler 1999:49).

The following process of delimiting a problem is suggested by Best and Kahn (1993:18-20) ; Leedy and Ormrod (2001:56-60).

4.3 DIVIDING A RESEARCH PROBLEM INTO SUB-PROBLEMS

Identifying a research problem from a broad topic area entails the following process:

- **Selection of a topic area**

  The choice of a topic area may be determined by factors such as academic interest, practical or professional interest or even personal interest, as mentioned in the ‘sources of research problems’ section.

- **Selection of a general problem**

  Within the identified topic area, whether it arose from scientific/academic, practical or personal interest, a general problem is chosen, and usually (especially with novice researchers) the problem is so extensive, so all encompassing and on such a vast scale that it cannot feasibly be researched. It then becomes necessary for it to be cut down into precise and narrow questions, so that only one part of the problem is considered for a research project.

❖ **Reduction of the general problem to a specific, precise and well delimited sub-problem**.

One way of reducing the broad problem to one that can be handled in a single study, is to list different possible answers to the problem and express them in the form of questions (Best and Kahn, 1993:18-20 ; Leedy and Ormrod, 2001:56-60 ; Polit and Hungler, 1999:53-55).

This process of delimiting a research problem can be done as illustrated in the following example: Say the selected broad topic area is 'Adolescent Delinquency'

The broad research problem could then be, for example:
'What factors can lead to adolescent delinquency that results in pregnancy in Lesotho?'

❖ **Questions**

'What causes adolescent sexual behaviour that leads to pregnancy?'

Possibilities or component parts could include:

1. Level of education of adolescents.
2. Exposure to proper sex education.
3. Socio-economic class of adolescents.
4. Level of parental guidance.
5. Level of the adolescents' self–actualisation and assertiveness.

If, for example, point (1) is selected, it could be expressed as:

'Is pregnancy more common among adolescents who are less educated than among adolescent academics?' This is a more precise question than the initial one and it would be easier to conduct a study to answer this last question. The same can be done with the rest of the possibilities. The example actually shows how many potential research problems can be drawn from a broad topic area. It is, however, very important when searching for and identifying a research problem, to realize that

not all topics can be researched scientifically. Only those that are empirically based, that is, which deal with objective reality, can be scientifically researched, and not those concerned with subjective issues, preferences, beliefs, values and moral judgments. Concepts used in research also have, in some way, to be measurable, otherwise modifications and ways of measuring them have to be created (Sullivan, 2001:91-92).

According to Leedy and Ormrod (2001:49-51), the following types of problems are not suitable for scientific research:

- Problems of a moral or ethical nature. For example, '*Is there a God*?' This is not a suitable problem for a scientific research.
- Problems seeking achievement of self-enlightenment, for example, it would not need research to learn more about the way in which a manual resuscitator is made.
- A problem whose sole purpose is to compare two sets of data. For example, comparing the number of patients admitted with congestive cardiac failure in 1990 to the number admitted in 2000 would not need to be researched.
- Problems that are stated in a manner that requires a yes or no answer. For example, 'Is exercise beneficial to elderly people?' instead of maybe, 'Which components of exercise are beneficial for elderly people, which are counter-productive?'

Brink (1996:69), adds that questions that involve values and opinions and just require a philosophical analysis are not researchable:

- ***'Should heart transplants be allowed in state hospitals?***
- ***Should abortion on demand be allowed?***
- ***Should additional clinical experience be included in the nursing curriculum?***
- ***What should the nurses' role be in the AIDS epidemic?'***

These are some of the reasons why there have to be some criteria on which researchers can base themselves when they formulate their research problems.

4.4 CRITERIA THAT A GOOD PROBLEM STATEMENT SHOULD MEET

According to Polit and Hungler (1999:56-58); Burns and Grove (2001:97-99); Brink (1996:97-99); Sullivan (2001:108-110) and Leedy and Ormrod (2005:45-47), a good problem statement should meet the following criteria:

4.4.1 A SELECTED PROBLEM SHOULD HAVE SIGNIFICANCE FOR THE PROFESSION.

- New information that will be discovered in solving this problem must be theoretically relevant and contribute meaningfully to the improvement of the knowledge base of the nursing profession.
- It must relate to practical problems that concern the wider nursing community and change their practice for the better.
- As a result of solving this problem, new policies relating to the profession must be formulated and poor nursing practices be altered.

Prospective researchers should then ask themselves the following questions and answer 'yes' to all of them:

- ✓ *How important is the problem?*
- ✓ *It is worthwhile to carry out this research?*
- ✓ *Will the findings thereof be of benefit to nurses and other health care workers?*
- ✓ *Will this study enhance the knowledge of the body of nursing?*
- ✓ *Will the findings of this research help to improve nursing practice or policies?*
- ✓ *Will putting the findings into practice be affordable?*

(Brink 1996:97-99)

Additionally it is not always easy to determine whether a precise problem of interest to a researcher is new or has never been researched before. So, prior studies on the subject should be reviewed. However, though it is important to be original, the fact that a problem has been investigated before does not mean it is not worthy of being studied again. There are times when it is necessary to replicate a study to verify its initial conclusions or extend the validity of its findings to a different situation

or population. Replicating studies can also extend universality of the theory, thereby making practice more universal (Leedy and Ormrod 2005:45-47).

4.4.2 THE PROBLEM SHOULD BE FEASIBLE AND RESEARCHABLE

This refers to whether or not the proposed study will be workable or manageable, taking into account requirements such as:

- whether or not time is available;
- whether there are prospective study participants;
- whether there are adequate funds;
- whether the researcher is interested and motivated;
- whether the researcher is knowledgeable and competent;
- whether he/she is prepared to deal with problems that may arise;
- how it will affect the particular race of people concerned;
- whether the researcher is likely to get others to co-operate;
- how extensive the problem is;
- how valuable the theory developed from the study will be;
- how valuable the study is. (Burns and Grove 2001:97-99; Bless and Higson-Smith 1995:17-18; Sullivan 2001:110 and Polit and Hungler 1999:56-58).

A well chosen problem should satisfy not necessarily all these criteria, but as many as possible of them.

4.4.2.1 Availability of time

Conducting research usually requires more time than is anticipated and it is not easy to estimate how long a project will take to complete. The researcher must consider whether or not he/she has enough time to complete the project, devise the procedures, select data-gathering devices, gather and analyse data and complete a report, especially if there is a time limitation (Burns and Grove 2001:97-98).

4.4.2.2 Availability of prospective study participants

In order to generate valuable research findings, it is very important for a researcher to secure a sample of a reasonable size for it to be truly representative (especially in quantitative research). The researcher must think about whether or not he or she will have time and maybe money to find a sample for the study, especially if the

study involves investigating a rare population that is not easy to find (like homosexuals who are not open about their sexual preferences in some communities). Even if a population with a sufficient number of potential subjects is selected, they may sometimes not be willing to take part in the study, for different reasons. Nevertheless, as mentioned already, researchers should always do their utmost to get an appropriate sample size (Sullivan, 2001:108-110).

4.4.2.3 Availability of financial means

Researchers also have to consider whether or not they will have the necessary financial resources to carry out their study. They have to consider expenses, such as those for gathering data, computer searches, copying articles, buying books, paying subjects for their participation, travel costs, other necessary facilities and equipment and also consider whether or not they can negotiate a grant (Sullivan 2001:109-110).

4.4.2.4 Researcher knowledge and competency

Although a problem may be a good one to research, the researcher must consider whether he/she is competent and has the skill to plan and carry out the kind of study he/she has proposed. The selected problem must be challenging and important/significant, but if it is too complex for the researcher, it will only frustrate him/her, especially if he/she is inexperienced (Polit and Hungler, 1999:56-58).

4.4.2.5 Interest and motivation of the researcher

Since conducting a research project is a long difficult task, a researcher must be motivated to carry out the proposed research, the research of a topic about which he/she personally wants to learn more. Without enough internal motivation, a study will almost always produce a deficient outcome. Good quality research usually results from a deep-seated interest. However, it is not enough just to research a problem because it is interesting, it must also be an important problem to the researcher and also to the participants, for the researcher to conduct a study (Bless and Higson-Smith, 1995:18-19).

4.4.2.6 Ethical considerations

It would not be feasible to address a problem if this required posing unethical demands on study participants. There are sometimes risks in research, but the risks should not be so great that they outweigh the value of the study. If a problem appears to infringe on the rights of subjects, it should be revised or abandoned.

Bless and Higson-Smith (1995:21-22), and Burns and Grove (2001:99), add the following as also being of importance:

4.4.2.7 Co-operation of others

A researcher must have good working relationships with all the people involved with the study, whether directly or indirectly: the subjects themselves, research assistants, persons working in the setting where a study is going to take place, guardians of minors or mentally incapacitated study participants.

4.4.2.8 The scope of the problem

If a problem is too narrow, too specific or has too little importance quantitatively, it may not be worthwhile conducting the study. For example, if a nurse wants to quantitatively study the use of various new contraceptive methods, it would not be worthwhile to sample only female university student nurses, as they constitute too small a percentage of female contraceptive users.

4.4.2.9 Theoretical value

The problem should be such that the resultant research will contribute to the advancement of knowledge in a particular field. The researcher must show how his/her project:

- ❖ will extend the work that has previously been done;
- ❖ will serve to develop stronger collaboration between existing initiatives;
- ❖ will avoid the mistakes and/or errors that have previously been made (Bless and Higson-Smith 1995:17-18).

4.4.2.10 Dealing with problems that may arise.

According to Sullivan (2001:110-111), a researcher must anticipate and if possible, try to avoid problems that may arise during a study. He/she must have courage and

determination to deal with and work through the problems that may arise (where possible), for example, data may be difficult to gather, people may be reluctant to co-operate or the researcher may run out of financial resources.

4.4.2.11 The problem should be researchable

Only a problem that is based on empirical facts, which will not keep on changing, can be answered by studying reality. Thus, the researcher has to ask him/herself if the problem that he/she has come up with, is appropriate for research (Polit and Hungler 1999: 55). As such, the researcher should formulate a problem statement.

4.5 THE PROBLEM STATEMENT

In addition to the mentioned criteria of a research problem, a good problem statement should always contain the following in brief:

a) The problem itself, stated clearly and with enough detail to establish why it is important.
b) The method of solving the problem.
c) The purpose statement or objective for tackling this problem (Problem statement guidelines 2006:1-3).

Lastly, as a basis for a research project, the research problem statement should clearly show that the need to address this problem is a concern, not only of the current researcher, but of other sources as well. Additionally, Mouton (2001:48) cites that, a problem statement can also be formulated in the form of specific research questions or research hypotheses.

Having discussed the problem and how it should be stated, it is now important to identify important points to look at when critically analysing a research problem.

4.6 GUIDELINES FOR THE CRITICAL ASSESSMENT OF A RESEARCH PROBLEM

The statement of the problem

- ❖ Is the problem written in clear and scientific language?
- ❖ Is the conceptualization of the problem clear and appropriate?
- ❖ Is the relationship of the problem to prior work clearly stated?

Significance of the problem

- ❖ Does the problem have relevance to theory?
- ❖ Is the problem important and beneficial?
- ❖ Does the problem have the potential to improve or change practice/policies?
- ❖ Is researching the problem likely to improve the related knowledge base?
- ❖ Will it be cost effective to implement the related research findings?
- ❖ Is the problem a research priority?
- ❖ Does the problem challenge untested assumptions?

Researchability and feasibility of the problem

- ❖ Is the problem scientifically researchable?
- ❖ Are study participants available?
- ❖ Is there enough time to carry out the study?
- ❖ Will there be financial resources available to carry out the study?
- ❖ Is it within the researcher's knowledge and competency to carry out the study?
- ❖ Is the researcher interested and motivated to carry out this study?
- ❖ Have the related ethical issues been considered?
- ❖ Will there be co-operation between the researcher and all people directly or indirectly involved in the study?
- ❖ Does the problem have enough scope?
- ❖ Is there any value in doing the study?
- ❖ Is the stated problem compatible with the research design?
- ❖ Has the problem been researched before?
- ❖ Are the related concepts/variables included and are they measurable?

Importance of doing a critique

A research assessment is very important and necessary as it gives an outline of important points to include in a particular phase of the research project, for that phase to be considered accurate.

The following tool will be used to evaluate the problem statements which are attached as annexures. The problem statements will be graded on the tool, however, the remarks will be written following their respective evaluation tools as they are too long to be accommodated on the tool itself.

4.7 EVALUATION OF PROBLEM STATEMENTS

4.7.1 Grading of Problem Statement: Needs of children affected by HIV/AIDS in Mangaung in the Freestate.

Key to abbreviations**: O** – **O**utstandingly met, **S** – **S**atisfactorily met, **P** – **P**artially met, **U**- **U**nmet

STANDARD: The problem statement satisfies all the necessary criteria of an appropriate problem statement.

CRITERIA	INDICATORS	O	S	P	U	REMARKS
		3	2	1	0	
THE PROBLEM STATEMENT						
1.A problem statement that effectively portrays the problem.	1.1 Written in language that is accurately scientific but easy to understand. 1.2 Conceptualization clear and appropriate. 1.3 Stating a problem in the context of existing knowledge or prior work related to it.					
THE PROBLEM						
2. Significance of the problem.	2.1 Theoretical relevance. 2.2 Importance of the problem-why it is worth doing. 2.3 Benefits of the problem. 2.4 Potential to improve or change practice/policies. 2.5 Improvement of knowledge base. 2.6 Cost effectiveness in implementing findings. 2.7 A research priority. 2.8 Challenging untested assumptions.					

3. Researchability and feasibility of the problem.	3.1 The problem is subject to scientific research. 3.2 Availability of study participants. 3.3 Availability of time. 3.4 Availability of financial means. 3.5 Researcher's knowledge and competency. 3.6 Researcher's interest and motivation. 3.7 Ethical considerations. 3.8 Co-operation of others. 3.9 The scope of the problem. 3.10 Value of the study. 3.11 Compatibility of the problem to the research design. 3.12 A new, refining, extension, and or duplicating kind of problem. 3.13 Concepts/variables Included and measurable.					

4.7.1.1 REMARKS ON PROBLEM STATEMENT: Needs of children affected by HIV and AIDS in Mangaung in the Free State

- **Remarks regarding the problem statements' effectiveness in portraying the problem:**
  In this problem statement, the researcher has used scientific but simple clear English, to discuss the different ways in which HIV and AIDS can impact on children. The importance and the rationale for finding out from the children what their needs are, (especially older age groups) are also highlighted. Thus this problem statement shows the importance of the problem, why it is worthy of being researched. Reference to other literature sources is also made regarding the effectiveness of the problem statement in showing the importance of the problem; I would give this problem statement three marks for ''outstanding'' on the scale/tool indicating Outstanding, Satisfactory, Partially met or Unmet (O.S.P.U. scale).

- **Remarks regarding the significance of the problem to the profession:**
  The needs of children affected by HIV and AIDS are a problem whose solution could contribute significantly to professional knowledge in nursing. Nurses in their practice usually become the first professionals to know of situations in which parents die and leave their children with poor elderly guardians or even alone to fend for themselves.

  Most of these concerns were also an issue in a study conducted in Uganda to support and make a difference to children affected by HIV and AIDS (Gilborn, Nyonyintono, Kabumbuli and Jagwe-Wadda 2002:3-4), and they are also mentioned by UNICEF (2003:8). Nurses in these instances usually have to liaise with other departments like the Department of Social Welfare, to get help for these children. This problem is obviously relevant and does have professional significance for nurses.

  Theoretical knowledge developed in researching this problem would be very useful for nurses to refer to while dealing with children affected by HIV and AIDS. Even if they may have no solutions, they will know what the exact needs of these children are so that they can get specific help where possible. Carrying out this study, would have the potential to determine the specific needs of the HIV and AIDS-affected children in Mangaung, though this could not be generalized to other children due to the methodological nature of this particular study.

This researcher points out that there is a risk also to older children of between eight and eighteen years. This is the age group that is always overlooked due to the fact that their risk of death is not so apparent since they are older. Study findings in this research could generate knowledge on the needs of these particular children.

However, carrying out this study / its results, would not have much impact on general policies regarding the needs of HIV and AIDS-affected children, as policies are made for everyone and they could not be changed on the bases of the specific needs of children in Mangaung. On the other hand, modifications and additions could be made to related local policies as a result of this study. Regarding the criteria of significance to the profession I would give this problem statement two marks on the O.S.P.U. scale for "satisfactory".

- **Remarks regarding researchability and feasibility of the problem**

The answer to this problem is not a matter of opinion and it does not require a yes or no answer. It is amenable to scientific investigation. It gives a reason for the researcher to go out and collect information that will specify these children's needs. The study to address this problem would be possible to carry out, as with the HIV and AIDS pandemic, there would be available children affected by HIV and AIDS in Mangaung who would qualify to take part as study participants. (Though due to fear of stigmatization, it cannot be said whether or not they would be willing to participate).

This would be an ethically sound study as its aim would not be to violate the children's rights. Finding out what the children affected by HIV and AIDS need would be morally correct. This problem also relates to other social problems created by the HIV and AIDS pandemic, for example, effects of the increased morbidity on the economy and resultant increase in disrupted family life.

However, the other aspects of feasibility, such as availability of time, availability of financial means, researcher knowledge and interest, availability of equipment, and others are not possible to establish from the problem statement as they are not mentioned. So I would give this problem statement two marks for 'satisfactory' on the O.S.P.U scale.

4.7.2 Grading of Problem Statement: Male reproductive health in Lesotho: Needs, knowledge, attitudes and practices

Key to abbreviations: **O** – **O**utstandingly met, **S** – **S**atisfactorily met, **P** – **P**artially met, **U**- **U**nmet

STANDARD: The problem statement satisfies all the necessary criteria of an appropriate problem statement.

CRITERIA	INDICATORS	O	S	P	U	REMARKS
		3	2	1	0	
THE PROBLEM STATEMENT						
1.A problem statement that effectively portrays the problem.	1.1Written in language that is accurately scientific but easy to understand. 1.2 Conceptualization clear and appropriate. 1.3 Stating a problem in the context of existing knowledge or prior work related to it.					
THE PROBLEM						
2. Significance of the problem.	2.1 Theoretical relevance. 2.2 Importance of the problem-why it is worth doing. 2.3 Benefits of the problem. 2.4 Potential to improve or change practice/policies. 2.5 Improvement of knowledge base. 2.6 Cost effectiveness in implementing findings. 2.7 A research priority. 2.8 Challenging untested assumptions.					

3. Researchability and feasibility of the problem.	3.1 The problem is subject to Scientific research. 3.2 Availability of study participants. 3.3 Availability of time. 3.4 Availability of financial means. 3.5 Researcher's knowledge and competency. 3.6 Researcher's interest and motivation. 3.7 Ethical considerations. 3.8 Co-operation of others. 3.9 The scope of the problem. 3.10 Value of the study. 3.11 Compatibility of the problem to the research design. 3.12 A new, refining, extension, and or duplicating kind of problem. 3.13 Concepts/variables included and measurable.					

4.7.2.1 REMARKS ON PROBLEM STATEMENT: Male reproductive health in Lesotho: Needs, knowledge, attitudes and practices

- **Remarks regarding effectiveness of the problem statement to portray the problem:**

  Although too long this problem statement gives detailed information on the lack of and the significance of including men of different sexual preferences and ages in reproductive issues and plans. The detrimental implications of the men's non-inclusion in such programs are also shown.

  Most of the literature used to highlight this problem is from studies done in Lesotho and some in South Africa, which makes it feasible for the study to be conducted in Lesotho. The aim of carrying out the study has also being given clearly and in simple language. Thus, the problem and its importance have been made very clear. It would also get three marks for "outstanding" on the evaluation tool.

- **Remarks regarding the significance of the problem to the profession**

  As the researcher says, finding out and assessing the reproductive health needs, knowledge, attitudes and practices of males is very important in order for sexual health policies and programs to be all inclusive. Use of findings of this study would definitely lead to modification of reproductive health policies in Lesotho.

  Nurses who offer family planning services often come into contact with women who have to use services secretly and sometimes even default because their male partners do not support them. At times a woman may have to delay having children due to medical indications, but will have a problem convincing her male partner even to use a condom. This problem clearly relates to everyday problems in the nursing practice.

  Most men do not utilize their limited range of contraceptives, such as hormonal contraception and immunizations (Theron and Grobler 1998: 34), and it would be interesting to learn why. With nurses knowing what the men need, what they know, and how they feel about reproductive health issues, they will be in a better position to assist couples, as they will have a broader knowledge base. Regarding significance to the profession, I would give this problem statement three marks for "outstanding".

- **Remarks regarding researchability and feasibility of the problem**

  This problem is researchable as its solution does not involve opinions and values but needs answers, explanations and comments that can only be elicited from the prospective research subjects. These answers, explanations and comments would add to what is already known in theory about this problem and thus improve the nursing practice. This problem statement involves variables, needs, knowledge, attitudes and practices, all of which can be defined and measured. This is an important attribute, according to Polit and Hungler (1999: 55-58). As is the case with the other problem statements, it is not easy to determine the feasibility of this problem only from the problem statement, and because I cannot comment on these other aspects of feasibility, I would not give this problem statement more than two marks.

4.7.3 Evaluation of Problem Statement: Home based care needs of AIDS patients and their care- givers in Lesotho.

Key to abbreviations: **O** – **O**utstandingly met, **S** – **S**atisfactorily met, **P** – **P**artially met, **U**- **U**nmet

STANDARD: The problem statement satisfies all the necessary criteria of an appropriate problem statement.

CRITERIA	INDICATORS	O	S	P	U	REMARKS
		3	2	1	0	
THE PROBLEM STATEMENT						
1.A problem statement that effectively portrays the problem.	1.1Written in language that is accurately scientific but easy to understand. 1.2Conceptualization clear and appropriate. 1.3Stating a problem in the context of existing knowledge or prior work related to it.					
THE PROBLEM						
2. Significance of the problem.	2.1 Theoretical relevance. 2.2 Importance of the problem-why it is worth doing. 2.3 Benefits of the problem. 2.4 Potential to improve or change practice/policies. 2.5 Improvement of knowledge base. 2.6 Cost effectiveness in implementing findings. 2.7 A research priority. 2.8 Challenging untested assumptions.					

3. Researchability and feasibility of the problem.	3.1 The problem is subject to scientific research. 3.2 Availability of study participants. 3.3 Availability of time. 3.4 Availability of financial means. 3.5 Researcher's knowledge and competency. 3.6 Researcher's interest and motivation. 3.7 Ethical considerations. 3.8 Co-operation of others. 3.9 The scope of the problem. 3.10 Value of the study. 3.11 Compatibility of the problem to the research design. 3.12 A new, refining, extension, and or duplicating kind of problem. 3.13 Concepts/variables Included and measurable.					

4.7.3.1 REMARKS ON PROBLEM STATEMENT: Home Based Care needs of AIDS patients and their care-givers in Lesotho.

Remarks regarding the effectiveness of the problem statement to portray the problem:
In the problem statement, the researcher has written a clear and concise introduction to HIV and AIDS with special emphasis on incidence in Lesotho. The high AIDS incidence statistics which indicate why it is difficult to keep all AIDS patients in hospital for as long as quality care is needed are also shown, as well as the relevance and importance of incorporating the needs of care-givers into this study. The rationale for doing this study has also been stipulated.

There is, however, not much said on the potential home-based care problems that AIDS patients could have, that would necessitate studying their needs. It is as if the researcher assumes that everybody knows that AIDS patients have special needs. I feel that stating some of these would have put even more emphasis on the problem. For this reason; I would not give this problem statement full marks regarding its effectiveness in showing the importance of the problem. It would score two marks for 'satisfactory'.

- **Remarks regarding the significance of the problem to the profession:**
  Because of the magnitude of HIV and AIDS as well as other chronic illnesses, it is not possible for all patients to be admitted to hospital for care. Most of them choose to be cared for at home while others find themselves having to be cared for at home. Nurses come across this situation everyday, so this study would be relevant.

  Lipinge and Botes (2002:22), state in their Namibian study that the increasing health problems in many countries outweigh the capacity of hospitals to care for in-patients. Some patients sleep on the floor, and in some situations, they even have to share beds, hence the increasing need for patients, families, communities and health care professionals to join hands in facilitating home-based care.

  Therefore, the new knowledge that would be created through this study would furnish the nurses in the community, those in hospitals and the community members themselves with an additional knowledge base so as to help with the planning of community home-based care and also to support potential care-givers in their job.

Community home-based care is very important as patients are cared for in the comfort of their own homes by familiar people who have all the time to give them care and support. It therefore needs to be included in any primary health care strategy (National guidelines on community home based care 2000: 51). In fact, it is a concern of nurses that continuity of patient care be of good quality. A study in Australia by Peters and Sellick (2006:524), shows that patients on home-based care experience less symptom severity, better physical health and quality of life than those in in-patient care.

As the researcher stated in the problem statement, results of this study would be used to assist in the planning and implementation of a home-based care program in Lesotho. With such a program in place, primary health nursing practice would be reinforced with an informal health care level that is even closer and more primary to the patient at no cost at all. Therefore, regarding significance of the problem to the profession, I would give this problem statement three marks for 'outstanding'.

Remarks regarding researchability and feasibility of the problem:

This is a researchable problem as the researcher would have to look for factual information in order to find out what the home-based care needs of AIDS patients and their care-givers are. The elements of feasibility can however not be decided upon only from the content of the problem statement. So, I would give this problem statement two marks for ''satisfactory'' regarding this criteria.

4.7.4 Grading of Problem statement: Consumption of indigenous and traditional foods by adults living with HIV/AIDS at home-based care centers in Botswana.

Key to abbreviations: **O** – **O**utstandingly met, **S** – **S**atisfactorily met, **P** – **P**artially met, **U**- **U**nmet

STANDARD: The problem statement satisfies all the necessary criteria of an appropriate problem statement.

CRITERIA	INDICATORS	O	S	P	U	REMARKS
		3	2	1	0	
THE PROBLEM STATEMENT						
1.A problem statement that effectively portrays the problem.	1.1 Written in language that is accurately scientific but easy to understand. 1.2 Conceptualization clear and appropriate. 1.3 Stating a problem in the context of existing knowledge or prior work related to it.					
THE PROBLEM						
2. Significance of the problem.	2.1 Theoretical relevance. 2.2 Importance of the problem-why it is worth doing. 2.3 Benefits of the problem. 2.4 Potential to improve or change practice/ policies. 2.5 Improvement of knowledge base. 2.6 Cost effectiveness in implementing findings. 2.7 A research priority. 2.8 Challenging untested assumptions.					

3. Researchability and feasibility of the problem.	3.1 The problem is subject to scientific research. 3.2 Availability of study participants. 3.3 Availability of time. 3.4 Availability of financial means. 3.5 Researcher's knowledge and competency. 3.6 Researcher's interest and motivation. 3.7 Ethical considerations. 3.8 Co-operation of others. 3.9 The scope of the problem. 3.10 Value of the study. 3.11 Compatibility of the problem to the research design. 3.12 A new, refining, extension, and or duplicating kind of problem. 3.13 Concepts/variables included and measurable.					

4.7.4.1 REMARKS ON PROBLEM STATEMENT: **Consumption of indigenous and traditional foods by adults living with HIV/AIDS at home-based care centers in Botswana.**

- **Remarks regarding effectiveness of the problem statement to portray the problem:**

  In this problem statement, the researcher uses literature that shows the relationship between nutrition and AIDS, how nutrition impacts on AIDS and how AIDS impacts on nutrition. The researcher further, specifically highlights the fact that in most African families lack of or insufficient use of proper available nutrition has a negative effect on HIV and AIDS patients' welfare. In stating this, the researcher has used language that is scientific, concise and simple to understand. Regarding this criteria, I would give the problem statement three marks for "outstanding" on the evaluation tool scale.

- **Remarks regarding the significance of the problem to the profession:**

  Nurses in their daily practices are always teaching AIDS patients how important good nutrition is in the management of their condition, how they have to eat more nutritious foods, and that (usually available indigenously or traditionally) this helps to delay the progression of HIV to the AIDS stage.

  In the problem statement, the researcher uses proof from literature regarding this relationship of HIV and nutrition. This problem is also theoretically relevant as its findings add new knowledge to an existing body of knowledge relating to the use of indigenous foods by adults living with HIV and AIDS. It is stated by the researcher that this study is a result of recommendations made by a previous researcher, on the issue of consumption of traditional foods by HIV adults in Botswana, so there is already a theoretical base. As a result of this study, local policies and practices with regard to traditional nutrition practices and HIV and AIDS can be changed or modified. Patients may be encouraged to eat certain available kinds of food that have been tested and proven to be good. Implementing these results would not cost anything. For these reasons, regarding significance, I would give this problem statement a score of three for 'outstanding' on the O.S.P.U. scale.

- **Remarks regarding researchability and feasibility of the problem**

  The issue of whether or not there is availability and consumption of indigenous and traditional food by adults living with HIV and AIDS in community home-based care centres in Botswana is not something that can be debated. It can only be proven in a scientific research process. This is where facts proving or disproving this statement can be shown. As with the other problem statements, the only indicator of feasibility that can be evaluated

from this problem statement, (even though only in part) is the availability of study participants. Since this study is a follow-up of a previous researcher's recommendations, one can assume that there would be available study participants, provided they agree to participate. Because of this, on the issue of researchability and feasibility, I would give this problem statement a score of two for "satisfactory".

4.7.5 Grading of Problem Statement: Adolescents' health problems in Leribe, Maseru and Mafeteng districts of Lesotho.

Key to abbreviations: **O** – **O**utstandingly met, **S** – **S**atisfactorily met, **P** – **P**artially met, **U**- **U**nmet

STANDARD: The problem statement satisfies all the necessary criteria of an appropriate problem statement.

CRITERIA	INDICATORS	O	S	P	U	REMARKS
		3	2	1	0	
THE PROBLEM STATEMENT						
1.A problem statement that effectively portrays the problem.	1.1 Written in language that is accurately scientific but easy to understand. 1.2 Conceptualization clear and appropriate. 1.3 Stating a problem in the context of existing knowledge or prior work related to it.					
THE PROBLEM						
2. Significance of the problem.	2.1 Theoretical relevance. 2.2 Importance of the problem-why it is worth doing. 2.3 Benefits of the problem. 2.4 Potential to improve or change practice/ policies. 2.5 Improvement of knowledge base. 2.6 Cost effectiveness in implementing findings. 2.7 A research priority. 2.8 Challenging untested assumptions.					

3. Researchability and feasibility of the problem.	3.1 The problem is subject to scientific research. 3.2 Availability of study participants. 3.3 Availability of time. 3.4 Availability of financial means. 3.5 Researcher's knowledge and competency. 3.6 Researcher's interest and motivation. 3.7 Ethical considerations. 3.8 Co-operation of others. 3.9 The scope of the problem. 3.10 Value of the study. 3.11 Compatibility of the problem to the research design. 3.12 A new, refining, extension, duplicating kind of problem 3.13 Concepts/variables included and measu-rable.					

4.7.5.1 REMARKS ON PROBLEM STATEMENT: Adolescents' health problems in Leribe, Maseru and Mafeteng districts of Lesotho

- **Remarks regarding effectiveness of the problem statement to portray the problem:**

  In the problem statement, the researchers clearly state that they are specifically going to study adolescent reproductive health, family life education, nutrition, drug abuse and problems related to the education of adolescents. However, most of the statement only highlights reproductive health issues as important problems to study and not the other issues. There are no reasons given to warrant family life education, nutrition, drug abuse and adolescent educational problems as also being important and worthy of study. The rationale for doing the study is, however, clearly stipulated. On the O.S.P.U scale I would then give this problem statement one mark for "partially met".

- **Remarks regarding the significance of the problem to the profession:**

  There is a theoretical relevance to this topic as there is already literature on the different adolescent problems, but the topic is too broad (though ultimately the researchers specify that they want to concentrate on reproductive health and family life problems, the topic does not limit them to those problems). These are, however, relevant health problems as even literature proves that drug use is common in the population of reproductive age. Among women aged 15-44, almost 90% have used alcohol, approximately 44% have used marijuana and at least 14% have used cocaine (Bolnick and Rayburn, 2003 : 545).

  The findings of the study would add to the existing knowledge on the health problems of adolescents that would be studied. Adolescent problems like drug abuse and adolescent pregnancy pose many health problems, such as HIV, mental health complications (for example, schizophrenia and mood disorder), pregnancy and childbirth complications that nurses have to deal with in their everyday practice, so the problem does relate to practical nursing problems. This study was to be carried out in three of the ten districts of Lesotho, one district in the south, another in the northern part and the third in the central part. The findings would probably be generalized to the adolescents in the other districts, as such recommended practice changes would apply to all adolescents. According to the set criteria, on a scale of O.S.P.U regarding significance to the profession, I would give this problem two marks for "satisfactory.''

- **Remarks regarding researchability and feasibility of the problem**

  This is a scientifically researchable problem as it is based on issues that can be scientifically investigated. There would be adolescents with health problems in these districts as these are not isolated problems, but it cannot be concluded that they would agree to participate in the study. In addition, the potential study participants being adolescents, some of them would need their parents or guardians to give consent for them to participate. I would therefore give this problem two marks for "satisfactory" regarding these criteria.

4.8 SUMMARY AND CONCLUSION

Identifying a research problem is a very important part of the research project, and the research problem is the 'heart of the research project', according to Leedy and Ormrod (2005:43).

Nurse-researchers therefore must make sure that they generate researchable problems that satisfy the required criteria:

- The problem statements must be written in simple language that is easy to understand. They must be to the point and they must highlight the importance of the research problem.
- The problem to be researched must be important to the profession so that the results can lead to an overall better professional practice.
- The problem should also be scientifically researchable and not only satisfy personal curiosity.

The problems must also be feasible, as without satisfying some aspects of feasibility, it will not be possible to carry out a worthwhile study. Like other professions, nursing needs research. As communities become increasingly knowledgeable, the need for research also increases. Since nursing is dynamic, nursing practice always has to be based on facts in order to keep up with world developments. Formulation of important problems will ensure that the theory that is developed enhances practice.

4.9

OVERALL SUMMARY OF THE ESSAYS

In this paper, four essays are discussed.

- The first essay is a comparison of qualitative and quantitative research, with emphasis on similarities and differences. A short discussion of the blended research design is included in the discussion.
- The second essay is on sampling. The different sampling methods, as well as the way in which they can be used in nursing research are discussed.
- The next essay is a literature review on sexually transmitted infections.
- The last essay is on the research problem, with emphasis on the criteria that a good problem statement should meet.

All these topics are very important in research, as understanding and addressing them appropriately will result in research efforts that yield a quality product.

ESSAY 1: A COMPARISON OF QUALITATIVE AND QUANTITATIVE RESEARCH

This essay showed that, although there are some similarities, there are also different ways in which qualitative and quantitative researchers go through the different stages of the research process. As a similarity, both qualitative and quantitative researchers identify an important problem in need of study. Then they decide how they are going to go about conducting the study on this problem (research design), as well as the ethical principles that need to be adhered to.

It is after deciding on a research design, that qualitative and quantitative researchers differ. There is not as much planning prior to activities like sampling and data collection in the qualitative research process as there is in the quantitative research process. In qualitative research, the emphasis is on objectivity and proper understanding of the phenomena being researched. The qualitative study is conducted in the most natural setting, with the data and their results being viewed in the perspectives of the subjects being studied. In quantitative research on the other hand, importance is placed on the precise numerical results that can be generalized to populations.

Blending qualitative and quantitative research designs in one study can produce better quality results, due to the fact that, the best of the two methodologies are combined, with shortcomings in one design being compensated with the strength in the other.

ESSAY 2: SAMPLING

In this essay, the important concepts usually found in sampling were discussed to ease an understanding of the sampling procedure. The different sampling designs were discussed in detail, as well as how they can be of use to nurse researchers.

It was shown in this essay that the different research designs usually engage different sampling methods (quantitative researchers using probability sampling and qualitative researchers using non-probability sampling). In the discussions of the different sampling methods, reasons why some sampling methods are usually used in one and not in the other research designs became evident. The exception to the norm is cases in which a researcher is blending qualitative and quantitative sampling in one study. Sampling designs used in published nursing research studies were also highlighted to reflect the ways in which sampling designs are practically applied.

ESSAY 3: LITERATURE REVIEW ON SEXUALLY TRANSMITTED INFECTIONS

Sexually transmitted infections are nowadays being overshadowed by HIV/AIDS and this essay served to show a variety of sexually transmitted infections other than and as well as HIV: how they are transmitted, their signs and symptoms and their complications. Rendering a service to clients who suffer from sexually transmitted infections was highlighted as well as the important role care-givers play. The different cultural perspectives regarding sexually transmitted infections were also highlighted. It was shown how best clients with sexually transmitted infections can be medically treated in the most cost effective but efficient manner (the syndromic approach).

This literature study showed that sexually transmitted infections are still a highly prevalent public health problem. As shown in the literature study, sexually transmitted infections result in high morbidity and they contribute to the high rate of HIV infection, especially in Sub-Saharan Africa.

ESSAY 4: THE PROBLEM STATEMENT

In the last essay, the research problem was discussed, with special emphasis on the criteria that a good problem statement should meet. Based on these criteria, five problem statements were evaluated to see whether they met all the necessary requirements of a proper problem statement.

GENERAL CONCLUSION TO THE ESSAYS' SUMMARY

In conclusion, all of these essays served to shed light on the discussed aspects of the research methodology, that would make it an easier task (for a novice researcher) to conduct a research study, using either a qualitative design, a quantitative design or a blended research design.

OPSOMMING

Vier navorsingsvoorstelle word in hierdie studie uiteengesit en bespreek.

- In die eerste essay is ‘n vergelyking tussen kwalitatiewe en kwantitatiewe navorsing getref met beklemtoning van die ooreenkomste en verskille. ‘n Kort beskrywing van die saamgevoegde (“blended”) navorsingsontwerp is ook in die bespreking ingesluit.
- In die tweede essay is steekproefneming bespreek. Die verskillende steekproefnemingsmetodes is uiteengesit asook die wyses hoe steekproefneming in verpleegnavorsing toegepas word.
- In die volgende essay is ‘n literatuuroorsig rakende seksueel oordraagbare infeksies gedoen.
- In die laaste essay is die navorsingsprobleemstelling bespreek met beklemtoning van die kriteria waaraan ‘n goeie probleemstelling moet voldoen.

Al bogenoemde onderwerpe is in navorsing van belang omdat begrip daarvan en die korrekte uitvoering daarvan tot goeie resultate aanleiding kan gee wat op ‘n kwaliteit produk dui.

NAVORSINGSOPSTEL 1

‘N VERGELYKING TUSSEN KWALITATIEWE EN KWANTITATIEWE NAVORSING:

In hierdie essay word daar aangetoon dat daar sekere ooreenkomste asook sekere verskille bestaan waarvolgens kwalitatiewe en kwantitatiewe navorsers te werk gaan tydens die verskillende fases van die navorsingsproses. ‘n Belangrike ooreenkoms tussen kwalitatiewe en kwantitatiewe navorsing is die feit dat beide navorsers ‘n belangrike probleem (wat ‘n navorsingstudie regverdig) moet identifiseer. Hierna besluit die navorsers hoe hulle die navorsingstudie gaan aanpak (ontwerp van die navorsingstudie) tesame met die etiese beginsels wat hulle sal nakom.

Sodra daar op ‘n navorsingsontwerp besluit is, gaan kwalitatiewe en kwantitatiewe navorsers verskillend te werk. In die kwalitatiewe navorsingsproses word daar nie soveel aandag aan steekproefneming en data-insameling gegee soos wat daar in die kwantitatiewe navorsingsproses verwag word nie. In kwalitatiewe navorsing word omvattende begrip van die verskynsel beklemtoon omdat die navorsing in die natuurlike omgewing plaasvind en die data en resultate vanuit die perspektief van die respondente geïnterpreteer word. In kwantitatiewe navorsing daarenteen, val die klem op presiese numeriese resultate wat dan op die bevolking van toepassing gemaak kan word. Deur die kwalitatiewe en kwantitatiewe navorsingsontwerpe saam te voeg, kan beter resultate verkry word omdat die beste van die twee ontwerpe gekombineer

word en die tekortkominge in die een ontwerp deur die sterkpunte in die ander ontwerp aangevul word.

NAVORSINGSOPSTEL 2

STEEKPROEFNEMING

In hierdie essay is die belangrikste konsepte wat deel uitmaak van steekproefneming bespreek om sodoende ‘n beter begrip daarvan te bekom. Die verskillende steekproefnemingsontwerpe word in detail uitgelig asook hoe dit in verpleegnavorsing gebruik word. Daar is ook verder aangedui hoe die verskillende navorsingsontwerpe van verskillende steekproefnemingsmetodes gebruik maak – kwantitatiewe navorsers maak hoofsaaklik van waarskynlike steekproefnemingsmetodes gebruik terwyl kwalitatiewe navorsers die nie-waarskynlike steekproefnemingsmetodes gebruik. Tydens die bespreking van die verskillende steekproefnemingsmetodes is die redes waarom sekere steekproefnemingsmetodes vir ‘n spesifieke navorsingsontwerp geskik is en nie in die ander navorsingsontwerp gebruik kan word nie, aangedui. Die uitsondering op hierdie reël is die saamgevoegde navorsingsontwerpe omdat die navorser van beide kwalitatiewe en kwantitatiewe steekproefnemingsontwerpe in dieselfde studie gebruik maak. Laastens is die wyses waarvolgens steekproefnemingsontwerpe in gepubliseerde verpleegnavorsing gebruik word, uitgelig om die verskillende maniere hoe steekproefnemingsontwerpe prakties gebruik word, aan te dui.

NAVORSINGSOPSTEL 3

‘N LITERATUUROORSIG RAKENDE SEKSUEEL OORDRAAGBARE INFEKSIES

Seksueel oordraagbare infeksies word huidig oorskadu deur MIV/VIGS en hierdie essay dien om die verskillende seksueel oordraagbare infeksies anders as en insluitend MIV/VIGS te beskryf: hoe die infeksies oorgedra word, die tekens en simptome wat gemanifesteer word en die verskillende komplikasies wat kan intree. Dienslewering aan kliënte wat aan seksueel oordraagbare infeksies lei is beklemtoon asook die belangrike rol wat die gesondheidsorgpraktisyns speel. Die verskillende kulturele perspektiewe insake seksueel oordraagbare infeksies is ook uitgelig. Verder is ook aangetoon hoe die kliënte wat aan seksueel oordraagbare infeksies ly koste effektief dog medies behandel toereikend moet word deur die sinkroniese benadering te volg. Gegrond op die literatuurstudie is aangetoon dat seksueel oordraagbare infeksies huidig nog steeds ‘n omvangryke openbare gesondheidsprobleem is. Soos uiteengesit toon seksueel oordraagbare infeksies ‘n hoë morbiditeitsyfer en dra dié groep infeksies tot die hoë voorkoms syfer in MIV/VIGS infeksie, veral Sub-Sahara, Afrika by.

NAVORSINGSOPSTEL 4

PROBLEEMSTELLING/OMSKRYWING VAN DIE NAVORSINGSPROBLEEM

Die laaste essay is aan die omskrywing van die navorsingsprobleem gewy. Die kriteria waaraan ‘n goeie probleemstelling moet voldoen, word aangedui en volledig bespreek. Gegrond op die gestelde kriteria, is vyf probleemstellings geëvalueer om te bepaal of die omskrywing van die navorsingsprobleem aan die gestelde kriteria vir ‘n goeie probleemstelling voldoen.

ALGEMENE SAMEVATTING VAN DIE OPSOMMING VAN DIE ESSAYS

Samevattend kan verklaar word dat bogenoemde essays verskillende aspekte van die navorsingsmetodologie verduidelik en uitlig met die oog daarop om dit makliker vir nuweling-navorsers te maak om ‘n navorsingstudie aan te pak en te voltooi – ongeag of dit ‘n kwalitatiewe, ‘n kwantitatiewe of ‘n saamgevoegde navorsingsontwerp is.

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4.10 ANNEXURES

4.10.1 ANNEXURE A. PROBLEM STATEMENT: NEEDS OF CHILDREN AFFECTED BY HIV/AIDS IN MANGAUNG IN THE FREE STATE.

AIDS orphans and children of terminally ill AIDS parent/s are extremely vulnerable children, who may suffer myriads of problems that can have a lasting impact persisting into their adulthood. The illness and death of their parents will leave them devastated, with no one to cater for their specific needs. If these needs remain unmet or inadequately met the following will become apparent:

- Increased mortality and morbidity.
- Physical and psychological underdevelopment.
- Delinquency
- New high risk groups, vulnerable to HIV infection (Foster, 1997:4-5; Loudon, 1998:5-6; Smart, 2000:24; Wekesa, 2000:12-14)

Children will be affected in various ways, one of these manifesting in physical problems.

PHYSICAL PROBLEMS

HIV/AIDS affects children long before the death of their parents. As there is lack of attention to the emotional, physical and developmental needs during the parent/s illness and death, the children may become predisposed to high incidences of infectious diseases, mortality rates and poor levels of nutrition (UNAIDS *et al*., 1999:1-3).

In developing countries, mothers are considered as primary health care workers since they can easily see if there is anything wrong with a child. Again, if illness or death strikes the mother, the caregivers may not respond to the ailments of the child early enough, and/or may even neglect good nutritional practices, hence malnutrition may occur. The child's immunizations may be ignored; hence children may be predisposed to preventable communicable diseases like polio, measles and tuberculosis (Foster, 1997: 4-5). The issues of physical effects do not happen in isolation when a primary caregiver is either ill or dead, but in addition, children will also need a place to stay or somebody to look after them.

RESIDENTIAL PROBLEMS

The traditional model of surrogate childcare, in which the extended families have to absorb the orphans, remains questionable because of the increasing number of AIDS orphans that are to be adopted or fostered into the family that already has other children. These very families and

communities that are expected to respond to the plight of AIDS orphans are also faced with the social and economic problems that prevent them from total commitment in the caring of these children affected by AIDS (Kerkhoven, 1998:4-5).

Besides the family's social economic problems and the increasing number of AIDS orphans, there are issues of culture in the black communities that do not fit in well with the western practices of fostering children. Fostering in the African societies is only acknowledged if the couple is childless; hence less emphasis is placed on the needs of the child but on the needs of the childless couple (Harber, 1999:9-10)

With the relentless toll of HIV/AIDS fuelled by poverty, prejudice and ignorance, the ability of the families and communities to support these children will be reduced; hence the following troubling scenarios will occur:

GRANDPARENT/S CARING FOR THE ORPHANS

At this time of their lives one would expect them to be recipients of care. Instead, the very old and probably very poor people, have to struggle to raise these children with their meager government grants. According to Foster (1997:4-5), the average age of grandparents recruited into childcare is 62. At this age and with their economic problems one could expect serious implications for child health.

HOUSEHOLDS HEADED BY CHILDREN

According to UNAIDS *et al.* (1999:1-3), children who often become heads of households are of primary-school age. Not only are these children deprived of parental care and nurturing during the parent/s illness and death, but they also have to act like adults by looking after young siblings. These children are not only engaged in household tasks like supervision and care of younger siblings, but also have to take care of parents who are sick and dying. In such households, basic and social needs are largely inadequate because of the immaturity and lack of experience of the caretaker. Many may quit school and jeopardize their own health and developmental needs in order to take on roles as parent, nurse and provider.

CHILDREN WITHOUT SHELTER

Commenting on the AIDS orphans' situation, Loudon (1998 : 5-6) reports that the children's formative years will be shrouded in uncertainty, as they will be shunted from one relative to another, and many will be raised by strangers. Young children are likely to be abandoned, and this

is particularly inevitable if parents are dead and an extended family is faced with a vast number of orphans (Smart, 2000:22). Without shelter, education, work skills or family support, many will end up living on the streets. As literature indicates, children living on the streets have poor access to basic needs, and in many cases these children often lose their dignity and human rights. Street children are easily drawn into crime and selling of sexual favours because of hunger or a need to belong, and this can predispose them to HIV infections (Smart, 2000:31-32).

EMOTIONAL NEEDS

Literature indicates that emotional needs are: the need for love and security; need for new experiences; need for praise and recognition and the need for responsibility (Pringle, 1975:148-149). With the death of parent/s, lack of affection, insecurity and loneliness are inevitable.

STIGMATIZATION

Families frequently experience abandonment and social isolation if the diagnosis of HIV/AIDS is made known publicly. The lack of knowledge and understanding born out of stigma, discrimination and fear regarding the nature and transmission of HIV/AIDS has denied most children access to education and health care services (UNAIDS *et al.* 1999:1-3) As a result, most parents and caregivers do not disclose the HIV diagnosis to the children lest he/she becomes isolated or rejected by the peer group or service providers (Ledlie, 1999:41-148).

It has been identified that people with HIV/AIDS force themselves into isolation because of embarrassment and humiliation, while the society will abandon them with a connotation of potential harm. This is ultimately reflected onto the children affected, as they will also be isolating themselves or being discriminated against by other children (Zerwekh, 2000:47-60).

The fear that still surrounds people with HIV/AIDS and their families has built a wall that prevents the communities from recognizing the impact of AIDS on children, especially in families where the integrity of the family has been threatened by the economic stress (Zerwekh, 2000:47-60).

ECONOMIC CRISES

Many communities that are severely hit by the HIV/AIDS epidemic are already disadvantaged. Poverty and poor infrastructure [little or no access to essential services] are characteristics of these communities (Kerkhoven, 1998:4-5). These conditions are conducive to the rapid transmission of HIV and individuals mostly affected in South Africa are black and poor (Harber, 1999:6-8). Besides being poor, the income of the HIV-infected parent becomes reduced due to loss of earnings, because of repeated sick leave and the high medical expenditures (Foster,

1997:4-5). If the parent dies, the funeral expenses further deplete the resources, and the children will then be plunged into an economic crisis and insecurity (Smart, 2000 : 22, Wekesa, 2000:12-14).

Owing to the total loss of income, children in these households are at the increased risk of malnutrition and ill health. They will not be able to afford costs of transport, consultations or medicines and thus cannot access the basic needs of survival. Cullinan (2001:15) reported in the Sunday Times newspaper that children in some schools in rural Kwazulu-Natal are being sent away from school because they cannot afford to buy uniforms or pay school fees.

HIV STATUS OF THE CHILD

In describing the facts about children affected by HIV/AIDS, literature indicates that some of the children may be infected by HIV/AIDS through vertical transmission and sexual transmission (because of the roles children fill as poor, hungry, exploited and abused human beings) and also through unsafe cultural practices as in the case of scarification and circumcision (Smart, 2000:290)

PROBLEM STATEMENT

There are various ways in which children can be affected, and this can limit the possibility of a successful childhood, which in turn could affect their future as productive members of the community. Several studies have shown that the need for caretakers of infants and very young children is obvious and immediate as a matter of basic survival. However, the needs of older children (approximately 8 to 18 years of age) can be easily underserved, overlooked or underestimated because the risks to their survival are less apparent (Lyons, 1998:6).

In the light of many problems that surround children affected by HIV/AIDS, and also in the light of promoting children's participation in democratic decision-making, it is of utmost importance that these children be given an opportunity to express their needs, so that the institutions and the systems that serve them can improve the efficiency of their services, based on better knowledge and understanding of these children's needs.

4.10.2 ANNEXURE B. PROBLEM STATEMENT: MALE REPRODUCTIVE HEALTH IN LESOTHO-NEEDS, KNOWLEDGE, ATTITUDES AND PRACTICES.

Male reproductive health has been somewhat overshadowed by an interest in female reproductive health that began in the 1960s after development of modern contraceptive methods for women (Berstrom, 1994:307). However, reproductive health programmes around the world are now increasingly recognizing that men are important targets for their services. According to Bergstrom (1994:307), men do not only have reproductive health concerns of their own, but their health status and behaviours also affect those of their partners. Men's reproductive health problems come in several varieties such as sexually transmitted diseases, sexual dysfunction, infertility and urologic conditions. Herndon (1998:8) states that the lack of services to address these problems may contribute to stress, anxiety and loss of self-esteem. Therefore, emphasis on male reproductive health as influenced by their (men's) needs, knowledge, attitudes and practices is imperative.

PROBLEM STATEMENT

A number of reproductive health care programmes and providers around the world are seeing that men deserve more attention for their own sake and for that of their partners. Drennan (1998:3) explains that this new perspective on men comes from an evolution of thought about reproductive health rather than from a revolution in attitudes. Similarly, this interest and commitment to involve men in reproductive health intensified during the 1990s for a number of reasons, such as a growing concern about the spread of the human immunodeficiency virus and acquired immunodeficiency syndrome and the fact that men are more interested in family planning than is often assumed. As such men need programmes and services directed specifically at them so that couples can talk to one another about family planning and reproductive health – resulting in the making of better informed decisions by the persons as individuals or partners.

Involving men in reproductive health programmes and services by health care providers, is nowadays a strong impetus worldwide as well as in many African countries. According to Barnett (1998:23) gaps may exist between the services offered and what men want from reproductive health programmes and services should be sought, in order to bridge this gap. Wasileh (1999:182) adds that the first step towards increasing men's participation in reproductive health and reproductive health services is to understand their needs, knowledge, attitudes and practices regarding a range of reproductive health issues. With the human immunodeficiency virus spreading faster among women than among men and with men as the main decision makers in the family, men's needs, knowledge, attitudes and practices regarding reproductive health issues have become a major concern for the Ministry of Health of Lesotho, because a strategy for targeting men to utilize reproductive health services has to be decided on.

Following the 1994 International Conference on Population and Development in Cairo and the Fourth World Conference on Women in Beijing, all the Member States of the African Region recognized the role of men and its centrality to reproductive health, and felt there was an urgent need to improve current family planning and other reproductive health services to include men (World Health Organisation, 1998:1). The International Conference on Population and Development programmes also actively encourage that all reproductive health programmes should move away from considering men and women as separate entities by adopting a more holistic approach to include both single and married men and all forms of marriages (monogamous and polygamous).

During the last century no studies were done in Lesotho to determine men's reproductive health needs, knowledge, attitudes and practices. Most available data concerns family planning in relation to women. In a survey on the evaluation of maternal and child health and family planning (Ministry of Health, 1993), women stated that they use contraceptives secretly because of their husband's disapproval. In another study by Let`sela, Mokitimi and Mochebelele (1997:49) on the evaluation of family planning awareness, men who were interviewed regarded family planning as an issue relevant to women only. From the above scenario, it is evident that men are neither involved in their own, nor female reproductive health issues.

At this time no baseline data exists in Lesotho that enables policy makers and programme-designers to cater for men's reproductive health concerns beyond family planning and sexually transmitted diseases, such as infertility, sexuality dysfunction, prostate and testicular cancer. Lack of services to address these contributes to stress, anxiety and loss of self–esteem in men (Herndon, 1998:8) . Even today some men in Lesotho still do not know whom to consult when

confronted with reproductive health concerns. According to Drennan (1998:16) young and unmarried men must be taught about contraception, sexually-transmitted diseases, reproductive anatomy and physiology, sexuality, pregnancy and other related reproductive health matters to become responsible sex partners. If programmes reach men with appropriate information, more men would take better care of their own reproductive health as well as that of their partners. Furthermore, older men are often left out of reproductive health programmes under the assumption that they are not sexually active like young men. Because there are gradual changes in their (older men's) physical and sexual capacity, they may have reproductive health concerns that need to be addressed. Homosexual and bisexual men are also underserved although they have the same reproductive health needs as heterosexual men.

According to Lesole (Sino, Anno1), efforts were made in the past in Lesotho to involve men in family planning services. According to the report, the Lesotho Planned Parenthood Association attempted to involve men by giving them information on family planning and sexually- transmitted diseases – but men still remained aloof. In collaboration with the Lesotho Planned Parenthood Association, the Ministry of Health also held awareness workshops with village development officers, traditional healers, journalists, parliamentarians and factory managers with the intention of having the participants pass on the information to the communities – but unfortunately these efforts failed.

Despite the efforts made by the Lesotho Planned Parenthood Association and the Ministry of Health, it is widely recognized that some men in Lesotho do not participate in existing reproductive health services in terms of utilization and support of their partners (Ministry of Health, 1993:14). This under-utilization of public services is probably attributed to the fact that such services do not specifically address the needs and concerns of men. Let'sela *et al*. (1997:19) further note that former family planning programmes focused only on women to the exclusion of men. The reasons for this are that women bear the risks and burdens of pregnancy and childbearing and that most modern contraceptives are for women only. On the basis of the above, many men may have considered such programmers as serving only women and as such felt uncomfortable in seeking services and information regarding treatment and counselling on sexual dysfunction, information on family planning or any other male issues in such a setting. Another problem is that young unmarried men and boys often find it difficult to obtain male contraceptives such as condoms because they are scared that they may come across people who know them and who may tell their parents about their visit(s) to such services.

According to Kimane, Molise and Ntimo-Makara (1999:86) social and cultural factors also impede men from participating in reproductive health matters in Lesotho. Culturally, a husband is not allowed to be present during the delivery of his child and may not take part in the immediate care of his wife and child following delivery. It is also expected that a man should abstain from intercourse with his wife during the post-partum period. Traditionally, it is also a practice to avoid intercourse especially while the mother is breastfeeding – a period which is indeterminate, but can last up to a year or longer. Another factor that complicates the situation is the fact that sexually related matters, according to Kimane *et al*. (1999:86), are still taboo for both men and women to discuss: a husband might consider his wife promiscuous or unfaithful if she tries to discuss contraceptives or insists on the use of condoms. Complicating the above, is a fact that some men believe that practicing contraception is contrary to the teaching of their religion.

Another aspect of concern is the decline of traditional institutions (such as initiation schools, ‘‘Thakaneng’’) that socialized boys and girls regarding what to expect in life and included sexual and reproductive health matters (Mturi,2001:3; Kimane *et al*.,1999:90). These institutions are weak and in some cases they no longer exist, especially in the urban areas. As a result adolescent boys lack guidance regarding information on life skills and reproductive health matters. Therefore, adolescent boys rely on their peers for information – information which may sometimes be inaccurate.

Motlomelo and Sebatane (1999:14) further comment that men in Lesotho lack knowledge about reproductive health and do not have access to reproductive health facilities. According to these two authors, many men are unaware of the services that are rendered. Another complicating factor is the fact that the services are too far to visit and are not held on a daily basis in some facilities. Men also lack access to accurate information about male contraceptive methods resulting in some men not even knowing how to use these methods correctly. Other obstacles that prevent men from using male reproductive services are misinformation and rumours and myths surrounding them.

Other problems that limit men from participating in reproductive health in Lesotho are associated with men’s attitudes towards the services. Let’sela *et al*. (1997:49) indicated that men feel reproductive health is only for women and are uncomfortable with discussing family planning issues openly and publicly. Most men also felt it was a woman’s responsibility to discuss family planning with children. In support of this point, Motlomelo and Sebatane (1999:79) and Kimane *et al*. (1999:103) contended that parents are generally reluctant to discuss sexual and reproductive health issues with their children because this is culturally unacceptable. Parents mostly emphasize

good behaviour and abstinence from premarital sex. As a result young men and boys resort to information from their friends, magazines, radios, television, movies and newspapers – information which is limited and sometimes inaccurate.

Drennan (1998:16) argues that where men participated in reproductive health programmers and services, they were more positive regarding family planning . In a study done by Let'sela *et al*. (1997:49) the researchers found that most male respondents indicated that male reproductive health issues and family planning should be taught in secondary schools and initiation schools. The unfriendly attitude of service providers is also an obstacle that men in Lesotho face when trying to seek reproductive health services (Let'sela *et al.,* 1997:19). Drennan (1998:2) cites a similar incidence in a South African study in which young field workers, who posed as clients, reported that some clinic staff resisted their requests for condoms and often provided no information on how to use them.

Regarding the knowledge of men about reproductive health, Hulton and Falkingham (1996:90) state that although numerous studies regarding knowledge, attitudes and practices had been done in less developed countries on family planning and contraceptives use, these only focused on women, excluding their partners (married or unmarried). Recent studies done in Africa, about men's knowledge of reproductive health and other issues, indicate that African men are knowledgeable regarding family planning and sexually-transmissible diseases such as acquired immunodeficiency syndrome. Similarly, studies done by Sawyer, Tully, Dovey and Colin (1998:226) regarding the knowledge of males concerning reproductive health and other issues also showed that men with cystic fibrosis know that they are infertile.

Contrary to the above, Bloom and Tsui (1998:388) found that men's knowledge of the physiology of reproduction and the pathology of sexually transmitted diseases is very scanty. The researchers concluded that efforts must be made to increase men's knowledge about male reproductive health issues. Armstrong, Cohall, Vaughan, Scott, Tiezzi and McCarthy (1999:904) recommend that existing family planning services be complemented with reproductive health programmers that are specifically designed for men.

Regarding the sexual behaviour of men in Lesotho, this country is confronted with problems associated with a high prevalence of premarital and extramarital sexual activity. Kimane *et al* (1999:85-86) found in their research study that the practice of extra-marital relationships is long-standing and to a large extent generally acceptable when practised by men – even in contemporary times. Furthermore extramarital relationships are traditionally justified on the ground

of the following: they provide for men's sexual needs at a time when their wives are breastfeeding as well as in cases where couples cannot conceive children because of the infertility of a partner.

Morojele (in Motlomelo & Sebatane, 1999:21) also found that young men in Lesotho are engaged in sexual activities at an early age and have multiple sexual partners without prior information on sexuality, sexual practices and sexually-transmitted diseases. In addition, the young men were not only engaged in sexual practices with young females, but were also sexually active with older women who possess money and cars. According to Drennan (1998:17), the tendency of unmarried young males to be sexually active can be attributed to the influence of high levels of testosterone, a hormone that motivates males to engage in sexual activities. Drennan (1998:17) further accentuates the fact that this factor is very important, but is often overlooked in the sexual behaviour of young males.

Homosexuality is one of the sexual practices in Lesotho which is still practised among some Basotho men. However, it proved difficult to investigate as it is regarded as taboo (Kimane *et al*, 1999 :89). According to Kimane *et al* (1999:89), some males practise their homosexual tendencies in the public services. Other sexual practices found to be common among males according to the authors include inter-femoral coitus (involves rubbing or holding male genitals between thighs, thus avoiding any penetration of the vagina or anus), masturbation and initiation of young men reaching puberty. However, there is limited information related to these practices. Another aspect pertaining to male sexual practices is the fact that Lesotho is experiencing a rapid increase in the prevalence of the acquired immunodeficiency syndrome (Maw, 1998). It is estimated that about 9.2% of men and women were infected with the human immunodeficiency virus and 0.6% had acquired immunodeficiency syndrome in 1998. According to Let'sela *et al*. (1997:17) men very seldom use condoms to protect themselves from sexually transmitted diseases.

Based on the outlined problems, it becomes imperative that men's needs, knowledge, attitudes and practices with regard to male reproductive health be looked into. If the needs of men with respect to reproductive health are not considered, the promotion of better health for both the male and his partner will be hampered. In order to involve men in their own reproductive health issues, it is imperative to understand their needs, knowledge, attitudes and practices. The importance of baseline information on men's needs, knowledge, attitudes and practices regarding reproductive health in Lesotho cannot be underestimated. Therefore, this study is crucial and long overdue since it will provide empirical information and rationale for the Ministry of Health in the planning of health programmers, policies on male health issues and services to be rendered to males.

AIMS AND OBJECTIVES

Aim

The aim of this study is to determine men's needs, knowledge, attitudes and practices regarding reproductive health in Lesotho.

Based on the aim, the study has the following objectives:

1) To identify men's needs regarding male reproductive health.
2) To determine men's knowledge regarding male reproductive health.
3) To assess men's attitudes regarding male reproductive health.
4) To identify men's practices regarding male reproductive health.
5) To determine factors that may facilitate/limit male participation in male reproductive health services.
6) To make recommendations for establishing comprehensive male reproductive programmers sensitive to their needs.

4.10.3 ANNEXURE C. PROBLEM STATEMENT: HOME BASED CARE NEEDS OF AIDS PATIENTS AND THEIR CARE-GIVERS IN LESOTHO

For many years the Acquired Immunodeficiency Syndrome (AIDS) was referred to as the invisible epidemic. HIV made its silent way through a population for many years before infection developed into symptomatic AIDS causing illness and ultimately death (Maw, 1998:8).

The kingdom of Lesotho, a small independent country of about two million people is not an exception. The total cumulative number of reported AIDS cases was 7 317 as of December 1998. Since Lesotho lies entirely within the Republic of South Africa, on the South Eastern part of South Africa, it is estimated that 25% of the adult male population of Lesotho work as migrant workers in South Africa where they stay in single dormitories (Bureau of Statistics Lesotho, 1996).Their wives remain behind with the children in Lesotho. One study found sex outside the primary relationships as almost inevitable in the separated families for both men and women. As a result these mine workers and their wives constitute a risk group for the acquisition and spread of sexually-transmitted diseases and HIV infection (Maw, 1998:12).

Rapid urbanization is gaining momentum in Lesotho with an increasing number of unemployed people leaving the remote mountain villages for towns seeking employment. Soon the men feel lonely and resort to other women for sexual satisfaction (Khokho, 1997:6). This leads to many

sexual partners, which could expose males to the risk of acquiring and spreading sexually transmitted diseases and HIV infection.

Consequently, Lesotho is experiencing a rapid increase in HIV and AIDS. The United Nations Aids and World Health Organisation (UNAIDS/WHO,1998) working group on Global AIDS surveillance in collaboration with national and regional experts computed an estimated number of adults living with AIDS (15 to 49 years old) in Lesotho as indicated in table 1.1.

TABLE 1.1 HIV cases in Lesotho in 1998

HIV EXCLUDING AIDS	LIVING WITH AIDS	TOTAL
92 000	6 000	98 000

This shows 9.2% HIV positive and 0.6% AIDS cases with a total of 9.8% affected adults. This figure is likely to increase (Ministry of Health and Social Welfare of Lesotho, 1997). On the basis of these statistics and the experiences of neighbouring countries, it is becoming increasingly difficult to manage the patients in hospitals and maintain the same quality of service at the same time. It should be borne in mind that AIDS cuts across the board and that health workers have not been spared. They will also become sick and die. Hence it is essential that the community pace itself for a long haul (AIDS/STD unit Botswana, 1996) and urgently get involved.

The Ministry of Health and Social Welfare in Lesotho has developed several strategies to involve communities in the health care system. Many elements of primary health care are in place in Lesotho which can be used to facilitate home-based care for people with AIDS. There is an extensive network of clinics and health posts. There are established links between clinics and hospitals for referral and communication. Out patients departments at the hospital level exist where patients are seen and evaluated for admission. However, all these health care service points are limited to pre-test counselling and blood testing services without provision for care (Frolich, 1997:23).

Testing for HIV is not linked with care specifically at community level in Lesotho, yet most people with AIDS spend a majority of their time outside the hospital (Baigis-Smith &Macguire, 1995:22). Continuity of care is needed not only in hospitals but among community services as well. It could be achieved if care can be based on the needs of persons with AIDS. We need to base our care and support strategies on the need of people living with AIDS (Busse, 1997:23). People with AIDS have multiple needs, which will be identified through this study in order that a comprehensive

home-based care programme may be developed and implemented in Lesotho. However, one cannot go into a home and provide AIDS care and ignore the caregiver. Family, friends and other caregivers are often responsible for enabling an AIDS infected person to remain in a community (Theis, Cohen, Forresr & Zeiewsky, 1997:76). However, they also have needs related to their care-giving role. For example Baigis-Smith and MacGuire (1995:23) have identified a high incidence of chronic fatigue and exhaustion in caregivers. This is the reason why it is also essential to identify caregivers' needs.

The Ministry of Health and Social Welfare is aware of the urgent need to provide home-based care to AIDS patients. In a discussion with the head of the counselling department, AIDS Programme Lesotho, Mr. Mongoako on 3/04/00 he emphasized the importance of having inputs from both the patient and the caregiver in planning and implementing such a programme. He further stated that the programme would benefit not only AIDS patients, but also all terminally ill patients at home.

AIM

The aim of the study is to identify the needs of AIDS patients and their caregivers so that they can be included in the process of establishing a home-based care programme for AIDS patients in Lesotho.

4.10.4 ANNEXURE D. PROBLEM STATEMENT: CONSUMPTION OF INDIGENOUS AND TRADITIONAL FOODS BY ADULTS LIVING WITH HIV/AIDS AT HOME BASED CARE CENTRES IN BOTSWANA.

More research has been done on HIV/AIDS in Botswana since the first case was diagnosed in 1985. This includes, among others, the areas of change of knowledge, attitudes and beliefs related to HIV/AIDS among different individuals; medical treatment and drugs; male circumcision; and resorting to cultural beliefs as being the foremost strategy in the prevention and treatment of HIV/AIDS (Gboku & Mokatse, 2003).

Furthermore, Esilaba *et al* (2003) compiled and edited an annotated bibliography that provided a comprehensive guide to the state of HIV/AIDS research in Botswana since the first case was diagnosed in 1985. This bibliography is a collection of 235 abstracts covering 8 thematic areas. From these abstracts, only one deals with the impact of nutrition on HIV/AIDS, despite the fact that there is a relationship between nutrition and the HIV disease (Collins, 1988;Kotler *et al*, 1989; Sharkey *et al,* 1992; Fields-Gardener *et al,* 2000, p.13). Motswagole *et al* (2003) also emphasized the need for research in Botswana on the role of nutritional intervention in the treatment of HIV infections, especially using indigenous (wild plants and animals) and traditional (home-grown plants and reared animals) foods which are nutritious and cost effective.

The association between nutrition and AIDS is well documented (Kotler *et al*.,1989; Raiten, 1991; Macallan *et al*., 1995) and well emphasized by Niyongabo *et al*. (1999). Food and nutrition can quell symptoms, counter drug side-effects, delay the onset of AIDS-related conditions and subsequently prolong life (Fenton & Silverman, 2000, p.899).

Malnutrition and cachexia are among the major causes of morbidity in relation to HIV infection (Dworkin *et al*., 1990;Pratt,1995, p.265) and was confirmed by Niyangabo *et al*.,(1997). Metabolic changes in , and deficiencies of specific nutrients, vitamins, and minerals are frequently associated with the HIV disease, especially in the late stage of illness (Baum *et al*., 1995; Lee & Watson, 2000, p.16; Bernard, 2003; John, 2004). ADA (2000) listed the two categories of major concerns of dieticians working with HIV-positive patients as: nutrition as the prevention of malnutrition, and nutrition as a therapy for malnutrition.

Piwoz and Preble (2000) indicated that lack of food and malnutrition, rather than lack of medical treatment and drugs are the most important immediate problems faced by households, especially in rural areas in East and West Africa. These researchers have shown that households affected by

HIV/AIDS in developing countries are facing serious food shortages. The cause of the crises may vary from country to country, but the major reason in these countries is drought which significantly reduces agricultural production (Grivetti, 1978) and indigenous foods. These countries have limited or no access to adequate food and very often subsist on diets that are deficient in energy, protein, vitamins and other nutrients. Also, they do not use either indigenous or traditional foods.

Botswana, being on of the developing countries, is no exception to this problem of food inadequacy.

Although it is clear from literature that promoting good nutrition prevents some symptoms of AIDS and may protect patients against further exacerbation (Shizgal, 1981; Ott *et al*., 1993; Castetbon *et al*., 1997), an average Motswana family cannot afford three meals per day. Most of the meals taken are usually not well balanced, as balanced meals are considered to be unaffordable (Motswagole *et al*., 2003). They have few traditional foods, -basically only cereals(Motswagole *et al.,* 2003) and no indigenous foods, despite the fact that indigenous foods are nutritious, could be more freely available and fairly affordable (Molewa, 1990, p.57; Kerapeletswe *et al.,* 1997). Some of the indigenous foods could even have medicinal value (Kerapeletswe *et al*., 1997) that can benefit HIV/AIDS patients.

Grivetti (1978) found that the use of indigenous foods is limited because people do not recognize them as food and are scornful of them. This was also emphasized by Mbhenyane *et a*l (2005). Grivetti (1978), therefore, recommended that people should realize the benefit of indigenous foods, in broadening the food base and also enhancing nutritional status and improving household food security.

Botswana is one of the countries in Southern African that is endowed with many species of edible plants and animals. International recognition of some of these veld products, such as phane, morula and sengaparile has led to their commercialization (Kerapeletswe *et al.,* 19970). Most meals of Batswana families do not contain these foods (Motswagole *et al.,* 2003). The utilization of indigenous foods to address the problem of food shortages or food insecurity of people living with HIV/AIDS in Botswana should be encouraged. On the other hand, Molewa (1990, p.57) and Prasad *et al*, (1993) emphasized that traditional food should be used to address the same problem since these foods are, more generally, available, cheaper and nutritious.

Household food security and nutrition are considered to be the crucial components in the management of HIV/AIDS (Piwoz and Preble, 2000) and ought to be given prominence in the

CHBC treatment and care management program. Furthermore, the Head of Otse CHBC centre for people living with HIV/AIDS in Botswana (Borne, 2004), indicated that the meals served at the centres are not adequate because of shortages of funds.

Thus, nutritional requirements of HIV/AIDS patients could be compromised by a shortage of food.

From the available literature, it is evident that the use of indigenous and traditional foods could be of benefit for people living with HIV/AIDS within and outside of the CHBC centres, as these foods are available, affordable and nutritious. The use of indigenous and traditional foods in these centres is, however, not known. Hence this study was undertaken to determine the availability and consumption practices of indigenous and traditional foods by adults living with HIV/AIDS at CHBC centres in Botswana.

1.2 AIM AND OBJECTIVES OF THE STUDY

The aim and objectives of this study are outlined below:

1.2.1. Aim

The aim of the study is to determine the availability and consumption of indigenous and traditional foods by adults living with HIV/AIDS at CHBC centres in Botswana.

1.2.2. Objectives

The objectives of this study are to:

- Determine the demographics (gender, age, occupation, and level of education) of adults living with HIV/AIDS at CHBC centres in Botswana.
- Identify the availability of indigenous and traditional foods at CHBC centres in Botswana.
- Ascertain the consumption practices of these foods by HIV/AIDS adults at CHBC centres; and
- Determine the factors that influence the consumption of indigenous and traditional foods by adults living with HIV/AIDS at CHBC centres in Botswana.

4.10.5 ANNEXURE E. PROBLEM STATEMENT: ADOLESCENTS' HEALTH PROBLEMS IN LERIBE, MASERU AND MAFETENG DISTRICTS OF LESOTHO.

INTRODUCTION TO PROBLEM

There is no general standard that defines the age range for adolescence. However, WHO (1995) suggests that the term adolescents refers to persons who are in the 10-19 year age cohort, while the term youth refers to those of 15-24 years. The two groups are further considered as constituting young people, while the range of 10-24 years of age. Adolescence is characterized by transition from childhood to adulthood, and involves both physical and psychological development of individuals. Kleinman (1978) sees adolescence as a time of growing up when young people are getting to know themselves and know each other and the world around them. They make friends, exchange ideas and have strong feelings about people, about work and play, and how the world should be run. They may form a strong relationship with someone they love. Many adolescents who are not married do have sexual intercourse (p.4).

Adolescent health problems are broad and diversified. It is almost impossible to encompass all of them in one study. Therefore, this study has put more emphasis on reproductive health, including family life education, and other issues that have a direct or indirect bearing on human reproduction. The latter includes issues such as nutrition, drug abuse and problems related to the education of adolescents.

Adolescent problems, with particular reference to sexual and reproductive activities, have far reaching social, health and demographic effects in Lesotho. Studies on health issues in Lesotho indicate that young people frequently engage in sexual activities and have multiple sexual partners (Mitton, 1979). These activities in some cases occur in the absence of proper and accurate sexual information and knowledge of contraceptive use (Commonwealth Regional Health Community, 1991). The situation may result in high incidence of pregnancies, school dropout rates, abortions, and the risk of infection with sexually transmitted diseases, including the deadly HIV/AIDS.

There is serious health problems associated with the psychological and physical immaturity of handling the stresses associated with pregnancy. In addition, teenagers are in most cases unstable and financially incapable of looking after themselves and their newly- born babies, a situation that leads to social problems. In most of the Sub-Saharan Africa, teenage pregnancies are also associated with high rates of school dropouts, abortion, maternal and infant morbidity and mortality. The cost of these problems is enormous for a poor country such as Lesotho, resulting in waste of limited financial and material resources. For example, it is a serious waste when children

leave school without having acquired any skills to help them face the future challenges of life. Furthermore, these teenage problems have a negative social and psychological impact on the individuals, households, communities and the nation at large.

Adolescent sexual and reproductive health problems have been associated with early puberty, economic hardships, urbanization, schooling away from home, and the weakening of traditional structures that used to inform and regulate young people's maturity and sexual behaviour (Motlomelo, 1993). It is further noted that a significant explanatory factor for these problems has been associated with teenagers' limited knowledge of their own reproductive biology. They mature with little information and guidance on how to manage sexual relationships. Sex and sexuality are often viewed as dirty, shameful, and certainly not issues that are appropriate for adolescents. Harding (1998) has lamented that parents resist the idea that adolescents are sexual beings. They do not understand the difference between sexuality and sexual intercourse. She points out that sexuality is a normal and fundamental part of human development, which must be addressed, discussed and supported by families, adults and the society.

Harding (1998) further notes that lack of skills is another huge obstacle that adolescents face. She argues that, ''we are often told to abstain from sexual intercourse, but are not provided with options, such as some other forms of contact to enjoy with our partners in its place'' (p.13). Adolescents are usually not taught negotiating or refusal skills when it comes to sexual relations. It is argued that this is something that the adolescents should learn through experience. There is evidence that most young girls are often cheated into sexual intercourse because of their limited analysis and convincing argument against it to their partners.

It is estimated that nearly 65 percent of the world's one million children now living with HIV are Sub-Saharan. It is further estimated that unsafe abortions are more prevalent in Africa than previously thought. Some hospitals report that as high as 68 percent of the women hospitalized with abortion complications are less than 20 years of age. It is also documented that many women who undergo unsafe abortion procedures are permanently maimed or rendered sterile, while some actually die (The Center for Development and Population Activities and United Population Fund, 1998). In Lesotho, although the statistics may not be that reliable on abortion among the youth, the current figures show that unsafe abortion and its after-effects is a concern for the country.

There are two major problems facing adolescent population in Lesotho in relation to reproductive health. The first is knowledge about, and access to, birth control facilities. For example, in cases where there may be awareness of these facilities, it is difficult for some section of the population in

Lesotho to get to them at the right time (Motlomelo, *et al.* 1989). The second problem is cultural in that there is a tendency to deny women the right to choose when to marry as well as the number of children they would like to have. The United Nations Population Fund (1997) in stressing the need for the empowerment of women in order to meaningfully address reproductive health, notes that ‘‘…equal relationships between men and women in matters of sexual relations and reproduction, including full respect for the physical integrity of the human body, require mutual respect and willingness to accept responsibility for the consequences of sexual behavior’’ (p.3).

Alcohol abuse is one of the major problems facing adolescents in Lesotho since there are no laws that protect young people from the use of alcoholic beverages. There is also a common association between alcohol abuse and unprotected sexual relationships. Mturi, Tuoane and Diamond (1997) have noted that it is not very clear which comes first between alcohol abuse and unprotected sexual relationship. The adolescent population in Lesotho is also exposed to drugs that have serious consequences to their lives. For example, exposure to smoking of tobacco and marijuana is easily observed in both rural and urban areas of Lesotho (Sechaba Consultants, 1998).

RESEARCH PROBLEM

The above scenario shows that the health problems facing the adolescent population in Lesotho are diversified. There is need to systematically investigate these problems in order to establish their dynamics and magnitude. This study was designed to meet that need. It focused mainly on problems related to reproductive health, family life education and other issues that have influence on reproduction among adolescent population. It further investigated events that lead to particular risk behaviors. Where possible, the magnitude of a problem is indicated by relevant statistics. Relationships among variables such as education, gender, age, urban versus rural areas, and the understanding of certain health problems were also investigated.

SPECIFIC RESEARCH QUESTIONS

The following are some of the specific research questions addressed in this study:

1. What contexts, conditions and practices contribute to reproductive health problems among adolescents?
2. How common are sexually-transmitted diseases among adolescents?
3. How common is the use of substances among adolescents?
4. Are the adolescents engaged in these practices aware of their health problems?
5. At what age are young people perceived to be sexually active?
6. Are adolescents aware of the implications of early and unprotected sex?

7. What are some of the circumstances that lead adolescents to sexual practices?
8. Are young people socialized into adulthood, and if so, who is responsible for that process?
9. How common is teenage pregnancy in Lesotho?
10. Are there any reliable statistics to support the magnitude of teenage pregnancy in Lesotho?
11. How common is abortion among adolescents?
12. Are there any reliable statistics to support the magnitude of abortion among adolescents?
13. Is there evidence of school dropout associated with teenage pregnancy?
14. Are there any reliable statistics to support the magnitude of the problem?
15. How common is teenage marriage in Lesotho?
16. How common are rape and other forms of violence among adolescents?
17. Are there any reliable statistics to support the magnitude of the problem?
18. What are the eating habits of adolescents?
19. Are there any statistical relationships between certain practices and awareness of some health issues?
20. What support mechanisms and policies exist to address reproductive health problems among adolescents?

THE RATIONALE FOR THE STUDY

The importance of base-line information on health related problems for Lesotho cannot be underestimated. The study is crucial and important because it provides empirical information and rationale for policy-making, planning and interventions. It also addresses an issue that affects a valuable social group, the adolescents. A healthy and generally well-educated youth leads to a society that is able to meet future challenges, and has the capacity to prepare a better future for subsequent generations. The study is launched at a time when the world is concerned about the health and education of the youth. It is generally accepted that hitherto the focus has been mainly on the health of children under five years of age and that of adults. The health of the adolescent population in developing nations has largely been ignored, since, traditionally, young people have had a low mortality rate relative to both older and younger age groups. It is apparent that the consideration of mortality rates alone has resulted in young people being seen as a healthy age group, and this has led to their being given a low priority in health-rated interventions (World Health Organization, 1995). Furthermore, the significance of this study is supported by the words of Sadik (1997) when he notes that –: Adolescents are typically poorly informed about how to protect themselves against unwanted pregnancy and sexually transmitted diseases, including HIV/AIDS. Parents are often uncomfortable talking to children about sexual matters, and young people get information (much of which is incorrect) from their peers. Contrary to the myth that sex education leads to promiscuity, experience indicates that it encourages responsible sexual

behavior, including higher levels of abstinence, later start of sexual activity, higher use of contraception and fewer sexual partners. These effects are greatest where children and parents discuss human sexuality and reproduction.

A baseline study that would enable health educators to address youth health problems, such as family life education, is very vital for Lesotho which has very limited economic resources. Ideally, every child should be planned for, wanted, and cared for by responsible parents. Furthermore, every mother should be able to decide when to have children and how many she should like to have. Unfortunately, in Lesotho there are still some cases where women are not able to decide on the number of children and on whether or not to use birth control facilities (Motlomelo, *et al*., 1989).

There is documented evidence that in Lesotho, as in many other African countries, there is a threatening increase in youth morbidity and mortality related to unhealthy lifestyles and risk-taking behaviors. The current epideomiological profile of adolescents in Lesotho shows some seriously high incidences of sexually- transmitted diseases (STDs), namely around 37 percent, and teenage pregnancy (as a proportion of first pregnancies among antenatal care clients) at 52 percent (Morojele, 1994). Of the sexually-transmitted diseases, HIV/AIDS seems to be spreading like forest fire among young people of Lesotho, according to the records of the Ministry of Health (1998).

It is generally agreed that traditional African social structures, which had highly structured ways of educating young people the rights and responsibilities of womanhood and manhood, have been lost and dissolved in recent decades (The United Nations Population Fund, 1997). However, there are no studies undertaken to investigate what, if anything, has replaced those structures, and if possible, what should replace them in the future. There is a common observation of a serious violence among the youth in Lesotho. Similarly, there are no formal studies undertaken to investigate the magnitude and the causes of these violence.

Objectives of the Study

The study was designed to investigate contexts, conditions and practices related to reproductive health among adolescents in Lesotho. Specifically, the study was designed to obtain a baseline on the following:

a) Sexually transmitted diseases among adolescents
b) Substance abuse among adolescents

c) The magnitude of teenage marriage

d) Sex and sexuality among young people

e) Socialization from childhood stage to adolescence

f) Teenage pregnancy

g) Adolescent abortion

h) Support mechanisms, and

i) Policies that exist to address reproductive health problems among adolescents.