

**AN EVALUATION OF THE MANAGEMENT OF DEOXYRINUCLEIC ACID (DNA)
EVIDENCE**

by

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ABSTRACT

DNA is identified as a powerful tool in the solving of rape cases, but it is often destroyed either by members of the public or the police officials who attend to the scene.

The aim of the study was to evaluate the management of DNA evidence in rape cases in the Bishop Lavis Policing Area. To address the research topic under investigation, research questions, a legal framework and policies were used.

The outcome of the study indicated poor performance in securing the crime scene and ensuring that physical evidence is preserved and not tampered with. On this basis, it was recommended that developmental workshops and intensive training on the management of DNA evidence be conducted to all members of the South African Police Service attend to rape crime scenes. This should be done to equip them with knowledge and an understanding of the management of DNA evidence.

KEY TERMS

Crime investigation

Crime scene

Deoxyribonucleic acid

Forensic investigation

Chain of custody

Rape

Individualisation

Identification

Physical evidence

Management

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DECLARATION

DECLARATION

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An evaluation of the management of DNA evidence

I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

CAPT
Zukiswa

Signature

2018. 09. 04

Date

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CHAPTER 1: GENERAL ORIENTATION

1.1 INTRODUCTION

Societal knowledge and application of the use of forensic evidence in the Criminal Justice System (CJS) is very limited. Criticism to this effect ranges from the disturbance of vital deoxyribonucleic acid (DNA) samples at a crime scene to poor collection and management of DNA evidence. The management of rape crime scenes is not an exception in this regard (Geldenhuis, 2013:54). The golden rule of this approach requires proper management of a crime scene by never touching, changing or altering anything until it has been documented, identified, measured and photographed by the responsible parties responding to a crime scene.

When a body or article has been altered, moved or tampered with, it can never be restored to its original position (Geldenhuis, 2013:55). To avoid this, the access routes, command centre, areas for witnesses and suspects, identification of possible witnesses/suspects, providing of evidential information, handing over of all logs and notes and briefing the crime scene manager on all activities should be established and indicated openly (Geldenhuis, 2013). Adams, Cadell and Krutzinger (2004:02) revealed that rape crimes are resolved by the evidence that has been presented; perpetrators are convicted based on the physical evidence collected and CJS is effective due to the proper management of the physical evidence.

Fish, Miller and Braswell (2011:141) stated that physical evidence such as blood and seminal fluid are the most frequently found evidence on rape crime scenes. In connection to this statement, the view of the researcher is that DNA forms part of the physical evidence mentioned above. Osterburg and Ward (2010:69) described DNA evidence as the greatest breakthrough in solving crimes such as rape.

The mere presence of DNA evidence at the crime scene is not sufficient; it is therefore essential that the management of DNA evidence is conducted in a manner that is above reproach to limit criticism in the investigation of rape cases and contamination of evidence (Adams et al., 2004:02). Hess and Orthomann (2010:143) mentioned that one of the responsibilities of Crime Scene Technicians (CSTs) is the management of DNA evidence found on rape crime scenes; CSTs must therefore be properly trained on the packaging and preservation procedures of DNA evidence to avoid failing investigation processes. Brown and Davenport (2012:09)

corroborated this statement by stating that proper training is essential in the field of investigation to reduce the risks of errors in this regard. Osterburg and Ward (2010:69) believed that the responsible investigators should exercise greatest care during the management of DNA evidence in order to prove that a suspect committed a rape crime in question. To support this statement, Gilbert (2010:281) advocated that DNA evidence must be managed with great care as contamination and preservation problems may occur at any time.

1.2 RESEARCH PROBLEM

Brynard, Hanekom and Brynard (2014:18) believed that the research problem gives guidance on the preparation of the research. The author also highlighted that research problems need a short yet detailed description which, in its shortness should still tell the maximum amount about the research topic.

Rape crime has taken its toll on the community in Bishop Lavis Policing Area (BLPA), with many members of the community falling victim to such crime. Presumably, for this very reason, the inhabitants of BLPA community are living in fear for their safety. As a consequence of the unrest and hostility brought about by the increasing prevalence of the rape crimes, the community members have taken measures of intervention to combat the said crime in their area. The community has established awareness programmes and weekly Community Policing Forum (CPF) meetings in anticipation of having a significant preventative impact on the resulting rape crimes.

There exists a cloud of no confidence in the police amongst the members of the community in BLPA, as rape crimes are increasing and a deterrent effect (combat strategy) seems to be unavailable. It becomes evident that a review of the combating strategy is of paramount importance to establish a combatant and deterrent effect required to have the desired (rape-free) environment in the community.

Research conducted by the Institute for Security Studies (ISS) (2015:03) shows that sexual assault is a major problem in South Africa. South Africa Crime Statistics (2015:01) supported this statement by revealing that 310,049 sexual offence cases have been reported to the South African Police Service nationally from 2011-2015. In addition, the crime statistics in Table 1 show the breakdown of the number of reported rape cases for the period from 2011–2015 across the country as per above indications:

Table 1: Rape cases reported in South Africa between 2011 and 2015

Rape reported cases	2011	2012	2013	2014	2015
Total	66,021	63,906	65,180	61,325	53,617

Source: South Africa Crime Statistic (2015:01)

Consequently, it is common knowledge that BLPA is no exception to the highlighted crime statistics shown above. The main conclusion that was drawn from this study is that development and training of CSTs in the management of DNA evidence in rape cases are required in the field of forensic services to enhance the investigation procedures thereof.

Against this background, the crime statistics in Table 2 show the number of reported rape cases in the BLPA from 2011–2015:

Table 2: Rape cases reported in the Bishop Lavis Policing Area between 2011 and 2015

Rape reported cases	2011	2012	2013	2014	2015
Total	114	125	136	138	85

Source: South Africa Crime Statistic (2015:06)

Two of the cited reasons for the low rape conviction rates are thought to relate to the improper management of DNA evidence and insufficient DNA evidence in the rape crime scenes. This remains a worrying factor in this regard. The information in Table 2 was obtained from the South Africa Crime Statistics (2011–2015) and further corroborated through the conversation with the researcher’s SAPS colleagues who are responsible for rape investigations in the BLPA.

Furthermore, the inadequate management of DNA evidence during the investigation of rape cases highly contributes to the withdrawal of these cases. Thus, the researcher believes that if the collection of DNA evidence is not conducted properly by the CST or if it is tampered with by the parties involved, it will have a negative impact on attempting to solve cases of this nature.

Kempen (2015:05) states that the people who arrive at the crime scene first are usually inexperienced to handle a scene of crime. The author further suggests that all sectors that are involved in the management of DNA evidence should receive proper training in the preservation of such evidence.

Most importantly, the researcher found it challenging to determine if the improper management of DNA evidence indeed accompanies the low conviction rate. This situation prompted the researcher to investigate the existing strategies practised by CSTs on the managing of DNA evidence during rape cases in the BLPA.

With this study, the researcher intended to evaluate the strengths and weaknesses of the existing strategies and initiate recommendations on how the identified strategies could enhance the management of DNA evidence to improve the conviction rates of rape cases in the BLPA.

1.3 PURPOSE OF THE RESEARCH

Welman and Kruger (2005:22) described the purpose of research as follows: (1) To describe how things are; (2) To explain why things are the way they are; and (3) To predict phenomena, such as human behaviour in the workplace environment, with the aim of using this information in the study. The researcher therefore based the focus of this study on the management of DNA evidence from rape scenes in the BLPA.

The aim of the study was to evaluate the current strategies that CSTs apply in the managing of DNA evidence found during the investigation of rape cases with the intention of recommending new strategies for speedy conviction rates and prosecution.

During the study, the researcher ensured that the guidelines to manage a rape crime scene were covered to provide necessary information to the relevant stakeholders. In collaboration with this statement, literature indicates that no two crime scenes are the same, and each must be handled accordingly. Still, there are guidelines that need to be followed to ensure that these crime scenes (a rape crime scene is no different) are properly managed, controlled and documented and that the integrity of valuable items such as DNA evidence is guaranteed. The primary purposes of crime scene management are to:

- take control of the crime scene and secure it;
- ensure the integrity and originality of evidence and exhibits;

- investigate and process the crime scene thoroughly and undisturbed;
- coordinate and maximise the collection of exhibits;
- utilise the investigation support sources optimally;
- record facts and events properly; and
- ensure that the crime scene remains under police protection for the necessary period, to be determined by crime scene management (Geldenhuys, 2013:56).

The researcher's opinion is that adherence to the above-listed guidelines whilst approaching rape scenes can pay positive dividends in line with the achievement of successful investigation procedures and the proper management of DNA evidence. This will aid in effective conviction rates in the BLPA.

1.4 RESEARCH AIM

De Vos, Strydom, Fouché and Delport (2011:94) defined the research aim as what a researcher wants to achieve at the end of the conducted research. The aim of this study is to assess the management of DNA evidence in rape cases in the BLPA. It is envisaged that this study will be useful for investigating officers who investigate rape cases across the BLPA and elsewhere.

1.5 RESEARCH OBJECTIVES

De Vos, Strydom, Fouché and Delport (2005:116) explained that the objectives should be specific, clear and achievable. Thus, for this study, the following objectives are used as a guide:

- To evaluate the management of DNA evidence in rape cases in the BLPA.
- To assess the current strategies to manage DNA evidence in the BLPA.
- To determine the value of the management of DNA evidence in rape cases in the BLPA.

1.6 RESEARCH QUESTIONS

Ormrod and Leedy (2005:54) believed that the research question provides guidance on what information should be collected, and gave suggestions on how the collected data should be analysed and interpreted. Therefore, this study aims to answer the following research questions:

- What is the application of DNA evidence in the investigation of rape in the BPLA?

- How is DNA evidence managed in the investigation of rape crime in the BPLA?
- What is the role of DNA evidence in the rape crime scenes in the BPLA?

1.7 CLARIFICATION OF KEY CONCEPT(S)

Maxfield and Babbie (2005:120) stated that the process of clarifying the key concept(s) is to provide the study with a particular explanation to ensure that the readers understand what is meant by the specific concept(s). For this study, the conceptual limitations were directed at the following keywords:

1.7.1 Crime investigation

Osterburg and Ward (2010:05) defined crime investigation as the gathering of information and evidence to search for the truth. Pena (2000:404) added that crime investigation is the searching for all evidence connected with crime to establish the truth, what occurred and the person responsible.

1.7.2 Crime scene

A crime scene is a place where physical evidence has been left or transferred during the commission of a crime (Buckles, 2007:07). Gilbert (2007:513) expressed that the crime scene is where the commission of an offence has occurred.

1.7.3 Deoxyribonucleic acid

Buckles (2007:198) described DNA to be the most important tool in the identification of the offender from skin cells and body fluids that are obtained from the scene of crime. Buckles (2007:198) further stated that DNA evidential material can be recovered and analysed for the identification of its genetic code and the results of unknown origin are compared with the results of known origin.

1.7.4 Forensic investigation

Jackson and Jackson (2004:xiii) described the forensic investigation as the application of scientific methods that explains and simplifies the circumstantial evidence to give clarity in the court of law on the evidence in question. Geldenhuys (2002:48) held the view that forensic

investigation is when scientific methods and techniques are used in the reconstruction of the crime.

1.7.5 Evidence

Hess and Orthomann (2010:122) illustrated that evidence is anything real that can be seen, touched, smelled or tasted that helps to establish the fact of the case for identifying, apprehending and convicting suspected offenders.

1.7.6 Rape

Joubert (2013:116) submitted that rape is an act of sexual penetration by a person with a complainant without the complainant's consent. Lindquist (2000:3) explains rape as an act of sexual assault where the penis or another object is used to forcefully commit vaginal, oral or anal penetration without the victim's consent or to a person who is not capable to consent to the act.

1.7.7 Management

Hellriegel, Jackson, Slocum, Staude, Amos, Klopper, Louw and Oosthuizen (2008:04) explained that management involves the act of managing and controlling an organisation through planning and leading. For the purpose of this study, management includes the organisation of DNA evidence in the rape cases by the CSTs in the BLPA.

1.8 VALUE OF THE RESEARCH

Brynard et al. (2014:28) mentioned that during any study, a researcher is forced to think through the details of the plan of action to be able to convince reviewers of their sincerity. Denscombe (2002:43) further stated that the study must be of relevance to current issues, contribute to existing knowledge and resolve practical needs.

This study is aimed at giving insight into how DNA evidence can be properly managed by CSTs while investigating rape cases. This study will also be available to the academic community through the internet. It can be used as a source for students of the University of South Africa (UNISA) and elsewhere who would like to conduct a study of this nature. Clients who make use of forensic investigators will benefit from the information contained in this study. Upon approval, this study will be made available to the South African society and the

academic world holistically to benefit interested parties in learning more about the management of DNA evidence during the investigation of rape cases.

1.9 RESEARCH DESIGN AND METHODOLOGY

Mouton (2001:55) described research design as the plan of how the researcher intends to conduct the research; it deals with the end results of the study. In this study, the researcher used an empirical design as on-field investigations were conducted. Maxfield and Babbie (2008:06) further explained that empirical research is the end result acquired through experience or observation. A qualitative empirical method also provides a more comprehensive picture of each aspect of the study.

1.9.1 Methodological approach

A qualitative approach was adopted in this study. De Vos et al. (2005:74) described qualitative research as a non-statistical method that is concerned with understanding. The authors further stated that a small sample of a population is selected. Ormrod and Leedy (2005:133) believed that the qualitative research approach deals with the phenomena that occur in the real world. CSTs were asked to reflect and share their perspectives on the management of DNA evidence on rape case scenes as they experience it in their daily operations.

Therefore, the researcher adopted a qualitative approach to obtain detailed information to address the research problem, aim, objectives and questions respectively. The adoption of a qualitative research approach in this study was based on the exploration of the research topic to gather a deeper meaning and understanding of the phenomenon associated with this study, namely the management of DNA evidence in rape cases in the BLPA.

1.9.1.1 Target population and sampling

Cox (2013:01) confirmed that the target population is the entire set of units for which a research data are used to reach a conclusion. The author further mentioned that the target population refers to those units for which the findings of the survey are meant to be transferred. The target population for this study was the CSTs involved at the Bellville Local Criminal Record Centre (LCRC), based on their expertise and their experience in the management of DNA evidence in rape cases.

In light of the above, Welman and Kruger (1999:62) described sampling in qualitative research

as a grouping of people that is used as participants in the study. The purposive sampling technique was applied to identify information richness that is elicited from the participants (De Vos et al., 2014:392) based on their expertise and experience in the management of DNA evidence in rape cases. During the pilot study, the researcher reached the decision to include CSTs involved at the Bellville LCRC who are involved in the management of DNA evidence.

The experienced selected sample for this study consisted of members who have five (5) years' experience in the management of DNA evidence in rape cases and who have attended courses in the management of DNA evidence. The inexperienced selected participants in this study consisted of members with minimum or no experience in DNA evidence management and who are still novices in the management of DNA evidence concerning rape cases.

1.9.1.2 Data collection methods

Gray (2009:320) stated that the gathering of data should be very comprehensive as the important understandings may appear only once the data have been analysed. This implied that the researcher had to use various data gathering tools, like semi-structured interviews, in this study.

Ormrod and Leedy (2005:143) provided that the researcher usually utilises numerous forms of data in the study. The authors further claimed that the researchers might use everything that can assist them in explaining their research questions. The information that was collected from various sources was then utilised to substantiate the intended study as follows.

1.9.1.2.1 Literature study

De Vos et al. (2005:124) described literature as an excellent source for selecting a topic that must be researched, as it reduces the chances of choosing an outdated topic. The authors further mentioned that it decreases the chances of choosing a topic that has already been investigated. Blaxter, Hughes and Tight (2008:122) expressed that the ability to conduct a competent literature review is an important skill for researchers because it helps the researcher to place their work in context of what has already been done. The literature used in this study was collected from different sources, such as primary and secondary sources, as follows.

➤ Primary sources

Primary sources included the SAPS Act (68 of 1995), SAPS National Instructions and SAPS policies and regulations. The Criminal Law (Forensic Procedures) Amendment Act (37 of

2013) (hereafter referred to as the DNA Act), the Sexual Offences Act (32 of 2007) and the Constitution of the Republic of South Africa (108 of 1996) also served as primary sources, as well as interviews with the SAPS officials involved in the Bellville LCRC in the BLPA.

➤ **Secondary sources**

Books from UNISA Library, SAPS crime statistics, Forensic Science study guides of Mitanoya Training College and SAPS journals were used as secondary sources in this study. Dissertations and theses published on the topic were also used.

1.9.1.2.2 Interviews

Welman and Kruger (2005:287) explained that the interview is a method used to understand the world from the participants' perspective to reveal the meaning of people's experience that uncovers their lived world before the scientific explanations. Remler and Van Ryzin (2011:215) added that interviewers need to be friendly, trustworthy and able to appreciate and follow strict survey procedures.

The researcher adopted semi-structured one-on-one interviews. De Vos et al. (2011:347) defined this interviewing method "as an information collection method whereby the researcher interviews one participant at a time to get information". Fox and Bayat (2013:72) supported these authors by stating that this method of interview is conducted on a one-to-one basis.

Therefore, the researcher used the one-on-one interview method for participants that are experienced in the collection of DNA evidence. Jarbandhan and Schutte (2006:678) pointed out that semi-structured interviews are structured in an area of certain interest. In addition, the authors further stated that with semi-structured interviews, the researcher has predetermined questions on hand and the interview will be based on the given questions.

The selected participants were interviewed and the researcher recorded all answers with a voice recorder during the said interview to capture the responses of the participants in a comprehensive manner.

Focus Group Discussions (FGDs) were also employed by the researcher to obtain information from the inexperienced SAPS officials who are participants in this study. Ormrod and Leedy (2005:146) explained that during FGDs the researcher facilitates a process where several participants discuss a particular issue for one (1) to two (2) hours. The authors further provided that during FGDs, the participants feel more comfortable talking in a group than alone. De Vos

et al. (2011:360) described the FGD as the interview method that consists of a group of people. The authors further mentioned that during this type of interview the interviewees are selected because of their certain characteristics that are related to the study.

In this fashion, the selected participants shared their views and experiences in the management of DNA evidence. This method was used for the inexperienced participants in this study to share their view in terms of the management of DNA evidence. During the FGDs, the audio recorder was used to capture all information discussed by participants for transcribing at a later stage.

Thus, the researcher conducted FGDs with SAPS members who are inexperienced and have less than five (5) years' experience in the management of DNA evidence. The one-on-one interviews were conducted with experienced SAPS officials who have more than five (5) years' experience in the management of DNA evidence and who have attended courses in the management of DNA evidence.

1.9.1.2.3 The trustworthiness of the data

De Vos et al. (2005:345) stated that the research must be in line with the standards that set the criteria against which the trustworthiness of the project can be evaluated. The research aim and research questions are used to determine the relevant literature.

Vithal and Jansen (2008:32) described validity as the method to determine whether the meaning and clarification of an occasion is thorough or whether a particular measure is a precise image of what the researcher intends to find out. Welman and Kruger (2005:106) further corroborated the former authors by explaining that the concept of validity is crucial to the integrity of a research project and the conclusions that can be drawn from it.

Guba and Lincoln (in Trochim, 2006:02) stated that in order to ensure that qualitative research is accurate and correct, the following four elements of trustworthiness for validity and reliability must be taken into consideration:

- Credibility
- Transferability
- Dependability
- Confirmability.

In light of the above, Guba and Lincoln (in Trochim, 2006:02) briefly described the four elements as follows.

➤ **Credibility**

Credibility refers to the establishment of the trustworthiness of the results of the study. The participants are the only ones who can fairly evaluate the credibility of the study. Credibility depends on the quality of the information obtained during data collection.

➤ **Transferability**

Transferability means the transfer of study to other related situations. The readers compare the specifics of the study to a situation with which the readers are familiar. If the specifics were similar, the study would be considered trustworthy. Therefore, the researcher provided a detailed description of this study conducted to ensure credibility.

The researcher interviewed CSTs of Bellville LCRC based on their experience and inexperience in the management of DNA evidence in rape cases. During the interviews, participants' responses were recorded using the audio recorder and jotted down. The participants' responses were compared to illustrate themes in this study. The gathered information was also treated confidentially and nothing was manipulated in any manner during this study.

➤ **Dependability**

This element ensures that the findings of this study are consistent and could be repeated. Bailey (1994:318) stated that the trustworthiness of the study may be evaluated by the documents that are similar to the information in the study. The researcher constructed various theoretical notions to try to ensure the credibility of this research.

➤ **Confirmability**

Confirmability refers to the degree to which the end product of the research could be confirmed or supported by other people. There are numerous strategies for increasing confirmability. To ensure the trustworthiness of this study, the researcher noted down the procedures for thoroughly checking the information obtained throughout this study.

To increase confirmability, the researcher ensured trustworthiness, which relates to the reliability of the results obtained from semi-structured interviews such as one-on-one interview

and focus group discussions. The information obtained from the selected participants was made available to the make sure that the data gathered were a true reflection of the information obtained from the participants and that the researcher remained neutral throughout the data collection period (conducting of interviews). The references of the cited sources were correctly acknowledged to ensure reliability for this study.

1.9.1.3 Data Analysis

Ormrod and Leedy (2005:152) believed that data analysis involves the categorisation of data according to its meaning and according to the regularity of patterns and critical events identified. Brynard et al. (2014:62) mentioned that throughout the course of gathering information, the researcher conducted preliminary analysis of data. Brynard et al. (2014:62) further stated that a detailed analysis of the information is done by sifting and integrating the views of different participants.

The researcher analysed the collected data to get relevant and required data for this study. In using the above-mentioned data analysis, the researcher sifted an extensive amount of data available until specific and relevant data were acquired. The researcher analysed data that were collected during one-on-one interviews and during FGDs in order to make sense of the collected information. Vithal and Jansen (2008:27) listed three steps of data analysis, which were followed by the researcher, namely: (1) Scanning and cleaning the data; (2) Organising the data; and (3) Re-presenting the data.

As a result, the researcher read all the information that was collected, checked for irrelevant information gathered during one-on-one interviews and FGDs and integrated views of the selected participants. Information gathered was arranged to create themes stemming from provided answers by these participants in line with the management of DNA evidence in rape case scenes. In support of the researcher's views, Bak (2004:58) stated that a modest volume of high-quality data analysed in considerable depth and with methodological precision will often be far better than many data superficially analysed. Therefore, all information obtained was analysed to obtain a more complete view of the study topic to be investigated by the researcher. Data analysis was further applied to assist the researcher to bring about informed recommendations.

1.10 ETHICAL CONSIDERATIONS

Welman and Kruger (2002:171) held the view that ethical considerations come into play when participants are recruited, during the involvement with the research that they are subjected to and in the release of the results that were obtained during the research. Bak (2004:28) stated that the goal of ethics in research is to ensure that no one is harmed because of the research activities. Levine (1975:02) highlighted that for ethical principles to be met, the researcher must consider certain basic principles of ethics, such as respect for persons, beneficence and justice. The author further explained the above-mentioned basic ethical principles as follows.

➤ **Respect for Persons**

Respect for persons is comprised of at least two ethical convictions, such as that persons should be treated as independent people who are able to make their own decisions and that people have the right to be protected. The principle of respect for persons consists of two separate moral requirements, such as the acknowledgement of independence and the respect and protection of an individual's personal goals. The author further mentioned that a number of people need more protection, which includes removing them from the activities that may endanger them while other persons need little protection other than making sure they undertake activities freely and with awareness of possible adverse consequences. The degree of protection given should depend on what danger persons are exposed to and what the benefit will be.

➤ **Beneficence**

In the principle of **beneficence**, people are treated in an ethical manner, not only by accepting their decisions and ensuring them that they are out of danger but also by ensuring that their wellbeing is being protected. The researcher is advised not to harm people during the investigation of this study but to minimise possible harm.

➤ **Justice**

The author highlighted that to do **justice**, the researcher should give each person a benefit according to the individual need, the effort and societal contribution and according to the merit. The researcher was familiar with the content of the Unisa Research Policy and reached a consensus to adhere to the content of this policy. The researcher adhered to general ethics principles such as the protection against harm, informed consent, right to privacy, transparency and honesty with professional colleagues.

To ensure that the research is in line with ethical principles, United Nations Educational and Cultural Organization (UNESCO) (2013:24) listed the following twelve golden rules for ethical research:

- Respect the integrity and dignity of persons.
- Follow the “do no harm” principle. Any risks must be clearly communicated to subjects involved.
- Recognise the rights of individuals to privacy, personal data protection and freedom of movement.
- Honour the requirement of informed consent and continuous dialogue with research subjects.
- Treat animals with respect and work under humane conditions before, during and after the research.
- Design animal research in accordance with the three r’s: replacement, reduction, refinement.
- Respect the principle of proportionality: do not impose more than is necessary on your subjects or go beyond stated objectives (mission creep).
- Treat societal concerns seriously – a researcher’s first obligation is to listen to the public and engage with them in constructive dialogue, transparently, honestly and with integrity.
- Try to prevent being openly available for misuse or malignant dual use by terrorists or military organisations.
- Recognise the wholeness of an individual and that any modification (genetic or technological) does not interfere with this principle.
- Respect biodiversity and do not impose irreversible change that threatens the environment or ecological balance.
- Build on the understanding that any benefits are for the good of society, and any widely shared expressions of concern or threats from your research must be considered (with the acceptance that perhaps certain research practices might have to be abandoned).

1.10.1 Protection from harm

Ormrod and Leedy (2005:101) stated that the researcher should not expose research participants to unnecessary physical and psychological harm. To comply with the above this statement, the researcher ensured that the study participants were protected from any harm. The researcher conducted the interview with the participants in the SAPS offices and boardroom to

create a conducive environment where the safety of the participants was prioritised, without exposing them to any risk. In anticipation of any risk to arise while conducting the interviews, the researcher was in a position of a contingency plan where the study participants would be evacuated from their offices and boardroom. The interviews lasted for an hour.

1.10.2 Informed consent

De Vos et al. (2009:58) suggested that the researcher inform the participants regarding the effect of the research. In this case, the participants were informed of the purpose of the study. Consent to participate in this study was obtained from the selected participants and they were informed that they were free to withdraw from the study at any time with no obligation to provide an explanation. The researcher also clearly informed the study participants that they were not going to suffer any penalty by withdrawing from the study and that they would remain anonymous.

The study participants were also assured that the notes taken and the voice recorder used during the interviews would be safely locked in a location known only to the researcher, and the passwords would be destroyed at a later stage. The participants were informed that their involvement in this study was voluntary and it did not entitle them to any form of compensation, reimbursement or gifts/services. The researcher also obtained permission to conduct interviews with the selected participants in this study.

1.10.3 Right to privacy

Ormrod and Leedy (2005:102) emphasised that the researcher should respect the privacy of the participants. In this regard, the participants were treated with respect and the information obtained was treated with the greatest confidentiality. The identities of the study participants were not mentioned and they remained anonymous throughout the study. Audio recordings of the interview were locked in a secured location known to only the researcher and would be destroyed immediately after the completion of this study, as explained (see paragraph 12.3).

1.10.4 Honesty with professional colleagues

Ormrod and Leedy (2005:102) suggested that researchers report their outcomes in a thorough and authentic manner, without distorting the results. The researcher reported the findings to the study participants and the literature used was acknowledged. The researcher also discussed the

research problem, objectives and research question with the study participants to avoid misunderstandings.

1.11 SUMMARY

This chapter provided the research problem central to this study. The aspects on the purpose of this study, research aim, research objectives and research questions were discussed. Key concepts were identified and explained to give clarity on their meaning. The values of this study, the study design and methodology have been explained. There has been an intense discussion on the target population and sampling, data collection, data analysis, methods to ensure validity and reliability, ethical considerations and literature.

Chapter 2 provides an understanding of DNA, the use of DNA as individualisation technique, types of physical evidence and the importance of DNA evidence.

1.12 RESEARCH LAYOUT

The research layout will consist of the following five chapters:

Chapter 1: General orientation.

Chapter 2: Review of literature on deoxyribonucleic acid evidence and rape cases.

Chapter 3: International and local legislative framework on deoxyribonucleic acid evidence in rape cases.

Chapter 4: The presentation of data and interpretation of research findings.

Chapter 5: Recommendations and conclusions.

CHAPTER 2: REVIEW OF LITERATURE ON DEOXYRIBONUCLEIC ACID EVIDENCE IN RAPE CASES

2.1 INTRODUCTION

South African rape cases are not easy to prosecute because the perpetrators often cannot be identified. The use of DNA evidence for solving rape cases can be the solution, as it has been confirmed to be the most reliable method in the resolution of rape crimes. DNA evidence can assist in the identification of the suspects, assist in the conviction of criminals that are found guilty and exonerate those who are innocent (National Institute of Justice, 2002:v).

The utilisation and ability of DNA evidence as a tool to convict criminals or exonerate suspects has been greatly supported by most literature. DNA has played an integral part in the investigation of rape cases and has been said to be the most powerful tool during the conviction of criminals in the CJS.

The benefits of using DNA evidence were quickly acknowledged in scientific journals and have become effective in both the identification of a criminal and the exoneration of people who are wrongly accused of committing crime (Fish et al., 2011:141). DNA evidence has become instrumental in judging the guilt of an offender. Therefore, it is the view of the researcher that without DNA evidence CJS will not be effective in making informed decisions on whether to convict or exonerate the accused.

This chapter will provide a detailed discussion of DNA evidence. The chapter explores using DNA as an individualisation technique, the explanation of types of physical evidence and the impact of DNA. The importance of DNA evidence where rape has been committed is clarified using case studies as examples.

2.2 UNDERSTANDING DEOXYRIBONUCLEIC ACID EVIDENCE

Houck (2007:103) defined DNA as a polymer molecule comprised of smaller repeating units called monomers. The author further explained that DNA can be found in all living cells except in red blood cells and nerve cells. This explanation is in conflict with Fish et al. (2011:141), who defined DNA as an organic compound that is found in the chromosomes of the nucleic acid. In addition, Fish et al. (2011:141) stated that the personal blueprint that is found in DNA

contains unique genetic information of each individual, comprising approximately 3 billion base pairs of chromosomes.

Fish et al. (2011:142) further elaborated that DNA is a very stable molecule that can remain undamaged for many years. The statement of Fish et al. (2011:141) is supported by Gilbert (2010:279) who stated that DNA is a genetic material in humans, located in the cell nucleus. Osterburg and Ward (2010:70) described DNA as a substance that is found in cellular chromosomes; its function is for hereditary characteristics. Osterburg and Ward (2010:70) further provided that DNA is a large heavy molecular that consists of two strands that are intertwined or twisted together which gives the structure of a double helix.

Gilbert (2007:270) concurred with Osterburg and Ward (2010:70), agreeing that the DNA molecular consists of two strands that are twisted together to form a double helix which resembles a twisted rope.

2.3 THE USE OF DEOXYRIBONUCLEIC ACID AS INDIVIDUALISATION TECHNIQUE

Fish et al. (2011:141) pointed out that DNA evidence was quickly acknowledged in scientific journals and has become effective in the identification of and to individualise a criminal. To address the use of DNA as individualisation technique, the researchers discuss both the identification and DNA individualisation processes.

2.3.1 Identification process

The two strands of DNA that form a twisted rope provide a comparative image for positive identification of an individual (Gilbert, 2007:270). Lee, Palmbach and Miller (2007:274) defined the identification process as a comparison process that uses the sample of known origin to compare with the physical evidence collected from the crime scene. The identification involves the sorting of items based on a similar set of characteristics (Gilbert, 2007:184).

Saferstein (2013:104) agreed with the statement by Lee et al. (2007:274); the author indicated that physical evidence is usually examined for identification and comparison purposes.

Fisher and Fisher (2004:07) referred to the identification process as items with the same properties that can be classified into groups and that share a common source. Similarly, Ogle

(2007:07) describes identification as the collective set of patterns that is recognisable; the set of patterns includes all characteristics that are clustered together.

Lee et al. (2007:275) outlined the following specific areas that are used during identification:

- Species determination
- Age determination
- Sex determination
- Race determination
- Source determination
- Genetic marker typing
- Population distribution
- Pattern interpretation.

2.3.2 DNA individualisation process

Bell (2004:180) submitted that individualisation is a method of connecting physical evidence to a sample of known origin, starting with the process of linking a unique object to physical evidence. Lee et al. (2007:184) supported Bell's (2004:180) assertions and submitted that individualisation follows the identification to establish whether a particular sample is different from another sample of the same group. Lee et al. (2007:275) further elaborated that the conclusions drawn from individualisation are the important aspects in a final reconstruction of a crime.

The forensic examination of a crime scene for seminal stain is usually approached as a two-step process whereby the stain must be identified or located, followed by the comparison that is done by the presumptive test (Girard, 2011:337). In addition, Van Rooyen (2004:11) undisputedly revealed that identification and individualisation are concepts that cannot be separated.

Ogle (2007:09) described individualisation as the process that involves the comparison of an unknown sample to a sample of known origin; this is done by an analyst at the laboratory. Ogle (2007:09) linked the individualisation with the identification of an individual source of the physical evidence. The author further stated that hair pulled from a scalp of a person may be

analysed for DNA and that hair may be individualised. In addition, Fish et al. (2011:141) pointed out that DNA carries the genetic code that individualises each person.

2.4 TYPES OF PHYSICAL EVIDENCE

Wright (2007:78) advocated that on crime scenes where there are no suspects, common sources of DNA found include traces of blood, semen, saliva, hair follicles and sweat. These samples are carefully preserved for comparison to swabs that are taken from the suspect.

Ogle (2007:151) pointed out that semen, hair, fibres, fingerprint impression and blood are the most physical evidence found in sexual assault cases. According to Fish et al., (2011:141) biological stains such as blood, seminal fluid, vaginal secretions, urine and faeces are the most common DNA evidence found on the rape scene. The authors further stated that DNA evidence can be obtained from blood, hair, seminal fluid, vaginal or rectal cells and teeth.

2.4.1 Semen evidence

Gilbert (2007:272) posited that semen is the most often tested substance found in rape crimes. It is the central evidence in rape cases as the sperm cell in the semen contains actual DNA. Consequently, Fisher and Fisher (2012:207) submitted that the presence of semen is one of the most probative pieces of evidence in rape cases.

Semen evidence that is collected during rape cases can play a major role in solving most cases of rape (Ogle, 2007:151). The authors further revealed that semen evidence can be collected from the victim themselves, the crime scene, clothing of the victim or bedding such as sheets, blankets and comforters.

Ogle (2007:241) argued that semen evidence can be very helpful in the identification of the perpetrator of rape crimes and can help in the elimination of the perpetrator who has been falsely accused of rape. The author further mentioned that DNA typing from semen evidence may provide crucial information that can assist in the identification and prosecution of the accused in a court of law.

Gilbert (2007:305) supported Ogle's (2007:241) assertions and corroborated that the seminal fluid that comes from semen evidence can be of importance in the identification of a suspect. The author further stated that semen analysis involving DNA may be used to connect an

offender to a place where a crime was committed or to the victim of the crime. Lee et al. (2007:187) substantiated Gilbert's (2007:305) contribution and submitted that semen is of great value during the investigation of a rape crime.

Similarly, Girard (2011:330) believed that semen found at the crime scene provides a direct connection to the suspect of the crime scene. Fisher and Fisher (2012:207) concurred with Girard's (2011:330) assertion and indicated that the presence of seminal fluid at the scene of a crime can confirm that the rape crime was indeed committed.

Fraser and Williams (2009:160) revealed that spermatozoa which are found in semen evidence are a rich source of DNA. The authors further stated that the detection of bodily fluids such as semen would be necessary in identifying the perpetrator.

2.4.2 Bloodstain evidence

Gilbert (2007:272) regarded blood as the most commonly found sample in murder and rape cases. The author further stated that bloodstains collected from the victim can be of investigative value in reconstructing the crime scene. In addition, the author mentioned that blood at the crime scene does not necessarily belong to the victim; it may also belong to the offender.

The bloodstain evidence expert Herbert Leon Macdonell (Gilbert, 2007:276) highlighted that the pattern of blood spots and the shape may point out the direction of the falling drops that produced the pattern. Gilbert (2007:276) mentioned that blood distribution on the crime scene or on any type of object is useful in the interpretation of an incident that occurred during the commission of a crime. The author provided that a bloodstain is useful in the establishment of the relative positions of the suspect and the victim during the attack.

Gilbert (2007:274) held the view that blood evidence may be found on different places, such as on the victim, offender, at the crime scene or on a weapon. The author further revealed that when a stain resembling blood is encountered during the investigation, it must first be determined if the stain is indeed blood. This is done by using a phenolphthalein test that will change to a pink colour if the presence of blood is detected.

Fisher and Fisher (2012:194) agreed with Gilbert's (2007:272) contributions and provided that bloodstain evidence is often present at crime scenes, especially crimes of violence such as rape and murder. Fisher and Fisher (2012:194) further stated that the shape, grouping and

distribution of blood can assist the investigator in the reconstruction of a crime. The authors further identified three basic classifications of bloodstains found at the crime scene, namely passive, spatter and altered.

2.4.3 Hair evidence

Gilbert (2007:277) submitted that hair evidence is commonly found in a wide variety of crimes. The author further stated that hair from the offender may be left at the scene by naturally falling from their head. The author also indicated that the victim could forcibly pull the hair of an offender during the commission of crime. The author further mentioned that the hair root that is found at the end of the hair is rich in DNA.

Osterburg and Ward (2010:69) and Fisher and Fisher (2012:185) agreed with Gilbert (2007:277). These authors mentioned that hair that is pulled out with roots intact is suitable for DNA analysis and can be used to identify the racial origin of a person. This is done by comparing hair of unknown origin to possible known source.

Furthermore, Buckles (2007:196) submitted that through DNA analysis, hair can be used for the positive identification of an individual, offer strong circumstantial evidence and identify the race of a person. Hair evidence may be found at the place where the crime was committed, on the victim of the crime, on the offender and his clothing or even attached to a weapon used in the commission of an offence. It can be linked with crimes involving violence such as murder, rape and assault (Fisher & Fisher, 2012:185).

2.4.4 Impression evidence

Fisher and Fisher (2012:221) described impression evidence as those marks left at the crime scene either by pushing or forcing an instrument into a material that is capable of picking up an impression of the tool. The authors further identified impression evidence as shoe prints, tyre impression, bite marks impression and fabric impressions. The above authors further mentioned that the impression evidence is studied by a comparative method.

Ogle (2007:191) indicated that impression evidence is made in a softer surface such as soil by an object such as footwear. The author further identified three types of impression, namely footwear impression, tyre tread impression and finger impression. A comparison of the impression in question with the suspect's shoes may be made by a direct comparison with the soles of the submitted footwear.

2.4.5 Fingerprint evidence

Ingram (2009:615) submitted that the primary purpose of fingerprinting is the identification of an accused. A comparison is made of the fingerprints of the perpetrator to the ones left at the scene of crime or fingerprint attached to the object connected to the crime. The author further illustrated that because no two persons have identical fingerprints, fingerprint identification is one of the infallible methods of identification.

Buckles (2007:184) highlighted that a person who touches an object at the crime scene leaves finger impressions on the object they touched in the form of latent fingerprints. Furthermore, the forensic value of the fingerprints is the identification of a person through the patterns and characteristics because the patterns and characteristics of each finger provide a unique identification of that individual.

Moreover, Osterburg and Ward (2010:58) highlighted that the fingerprint value lies in connection that is established between the crime scene and the identified individual. The authors further submitted that when the friction ridgelines of a fingerprint are properly analysed and the identity between the print and unknown print can be shown, there is irrefutable evidence that the identified person made the print.

2.4.6 The rape scene investigation process

Rape crime scenes require a multi-disciplinary approach during the investigation and the primary goals are the protection of the victim, the apprehension of the suspect and the protection of the scene (Ogle, 2007:238). Conversely, Osterburg and Ward (2010:437) pointed out the following primary goals of the investigation of rape:

- Linking the victim and the offender to the crime scene;
- Determining whether a sexual act did in fact occur;
- Determining whether force or violence was used; and
- Establishing what the perpetrator's actions were.

In the light of the above, Fisher and Fisher (2012:329) submitted that the first officer on the scene plays a vital part in the collection and preservation of physical evidence during the investigation of a rape. The authors further stated that the first person on the scene must have an understanding of physical evidence that is likely to be found at the rape crime scene.

In addition, Gilbert (2007:290) suggested that the rape crime scene be processed immediately to avoid contamination or the destroying of evidence. The author further advised investigators that if the rape occurred outdoors, investigators should request the victim to return to the place where the crime was committed to indicate the exact place of the attack.

The author further mentioned that in outdoor rape scenes, it is possible to locate soil tracing or shoe prints of the offender. The author indicated that to cover the possibility that the offender has deposited soil or taken soil from the scene, samples should be taken for comparison with the shoe of the offender. The author further suggested that all clothing found at the crime scene must be taken to determine the presence of seminal fluid, bloodstains or hair of the offender.

Moreover, Osterburg and Ward (2010:436) opined that a rape crime scene must be dealt with cautiously and sensitively and the investigator must be aware that the lives of the victims and the offenders can be ruined through negligence.

2.4.6.1 Challenges in investigating rape cases

In a South African context, more especially in African communities, rape crimes are regarded as humiliation and something a person cannot easily talk about or mention in public. Talking about rape almost seems strange.

Fisher and Fisher (2012:329) expressed that due to the psychological trauma, victims of rape may feel dirty. As a result, they want to wash, bathe, douche themselves, throw away clothing worn during the incident and clean up the scene of rape. This might in the process destroy all possible evidence that could assist in the investigation.

In addition, Gilbert (2010:316) pointed out that the investigation of rape crimes displays unique challenges to the investigators of crime; interviewing demonstrates many challenges to the investigators at large. The author further indicated that, besides providing detailed statements under difficult situations, many rape victims are very traumatised by the offences committed to them. The researcher supported this by advocating that many people view the rape crimes as an embarrassment and humiliation of the victims.

The researcher of this study observed the challenges of rape investigation while she was an investigator in the SAPS. She discovered that it is challenging to get truthful information from rape victims because the victims are scared to be labelled and feel embarrassed to talk about the rape incident.

Osteburg and Ward (2010:429) indicated that the manner in which rape crimes are investigated could have an impact on the psychological and social wellbeing of the victim, as they are likely to leave scars on the victim. In most cases, the victim knows the perpetrator, which makes the ordeal even more traumatic.

According to the National Centre for Women and Policing (NCWP) (2001:08), rape crimes are a challenge to be investigated because most victims do not want to cooperate with the investigating officers to resolve the rape crimes. Furthermore, the investigation could also be challenging when the victim feels that their credibility will be undermined in court due to their criminal history or their involvement in prostitution or drug abuse. The NCWP (2001:04) sketches the following scenarios as examples of the rape crime.

➤ **Case 1**

Toni was raped by a masked man while sleeping at her home. He threatened her with a knife, forcing her to have sexual penetration and to perform oral sex with him. The perpetrator in question left the location of crime. The victim reported the rape to the police and the victim denied performing oral sex with the perpetrator, owing to the feeling of shame and guilt.

➤ **Case 2**

Patricia was a drug addict; she arranged to buy some crack from her dealer. A drug dealer physically assaulted her after she had refused to adhere to the conditions of the sale during the transaction. The perpetrator then dragged her behind a vacant house and forcefully had sex with her. Patricia reported the incident of assault and rape to the police and completely omitted the details of the drug deal with the drug dealer.

➤ **Case 3**

The victim (Kathryn) was forced by her neighbour to have sexual penetration and oral sex with him. The victim reported the sexual assault to the police because she feared being contracted with venereal disease and wanted to access free medical service. Due to the fear of her neighbour and the threat that was exerted to her, Kathryn gave a description of the perpetrator as a masked stranger. However, the victim blatantly denied the oral occurrence.

Investigating officers experience challenges to investigate rape crimes where misleading information is provided by the victims. These cases, however, should not be ignored unless the accusations are unfounded (NCWP, 2001:08).

2.5 THE SIGNIFICANCE OF DEOXYRIBONUCLEIC ACID AS INVESTIGATING TOOL

The researcher discussed the use of DNA evidence in rape cases and the nexus of DNA evidence in rape cases. The researcher also differentiated between sources of DNA such as semen, blood, hair roots and skin scraping.

2.5.1 The use of DNA evidence in rape cases

DNA techniques can be used in a number of cases, including murder and rape (Gilbert, 2007:272). The author further stated that blood is regarded as the most commonly tested sample of liquid or dried stain, whereas semen is regarded as the central evidence in sexual crimes. According to Fish et al. (2011:141), DNA is found in blood and seminal fluids. Fish et al. (2011:141) further provided that DNA can also be found in vaginal secretions, faeces, as well as in urine. The author further mentioned that DNA carries the genetic code that helps in individualising each person.

Schwikkard and Van der Merwe (2002:371) concurred with assertions by Fish et al. (2011:141) and contented that DNA can be obtained in blood samples and semen. Moreover, Schwikkard and Van der Merwe (2002:371) argued that DNA can be found in vaginal secretion, faeces and urine. The author identified hair roots and skin scraping as the other source of DNA evidence. Ogle (2012:213) differed from statements by Fish et al. (2011:141) and Schwikkard and Van der Merwe (2002:371) and revealed that DNA is found in semen.

Furthermore, Ogle (2012:213) mentioned that semen contains sperm that is contained within a fluid produced in the reproductive glands. Ogle (2007:150) described semen as male ejaculation that is formed by number of glands in the male reproductive tract. The author further mentioned that semen contains sperm formed in the testes and that the presence of sperm indicates the presence of semen.

Gilbert (2007:270) identified blood, semen, skin cells, saliva and hair roots as objects where DNA evidence can be obtained. The author went on and advised criminal investigators to process physical objects containing DNA to link the suspects with the victim or even with the crime scene. In addition, Gilbert (2007:272) illustrated that blood is the most common evidence that can be tested for DNA.

Fraser and Williams (2009:160) concurred with Ogle's (2012:213) contribution and submitted

that spermatozoa are a rich source of DNA, and that a small amount of semen is adequate for DNA testing. The authors further highlighted that DNA can be obtained from spermatozoa and a small amount of semen is sufficient to conduct DNA profiling technique.

Osterburg and Ward (2010:69) further stated that in a case of hair, DNA evidence will be available only if hair is pulled out with the root intact. The authors further mentioned that in skin cells DNA could be obtained only if nucleated epithelial cells are present. Ingram (2009:627) supported Osterburg and Ward's (2010:69) statements and mentioned that DNA is present in human cells, blood and other body fluids such as semen specimen and bloodstain.

Most of the above authors mentioned blood and semen as the source of DNA. Osterburg and Ward (2010:69) and Ingram (2009:627) confirmed that the source of DNA evidence includes hair root and skin scraping as well. The researcher supported the viewpoint of Gilbert (2007:270) that, in reality, DNA can also be obtained from hair that was pulled from the root and from the skin cells that are found in the fingernails of a victim who scratched the suspect during the rape crime.

2.5.2 The nexus of DNA evidence and rape cases: Examples of DNA cases investigation process

To provide the evidential value of DNA in our postmodern society, the researcher introduced some notable local and internationally rape crimes where DNA evidence was utilised as the decisive factor.

➤ Case 1

In a rape case of Baby Tshepang that occurred in 2002, six men were convicted to imprisonment for a crime that was not committed by them.¹ Three months later, after the DNA evidence had been analysed, only one male person who was not among the six men was linked to the rape. The man was linked through DNA evidence that was found on Baby Tshepang. DNA evidence was collected from the man and it matched the sample that was found at the scene and from the victim. The suspect was arrested and the six were released.

➤ Case 2

In the case of Mr Samson Mawela Mudau, an offender was convicted in the Limpopo High

¹ *S v Pontse 2003 JOL 11151 (O)*

Court of raping his thirteen-year-old niece. He was sentenced to life imprisonment through the positive match of DNA evidence that was collected from the victim.²

➤ **Case 3**

In the case *S v Nyembe*, the accused was linked to a rape crime that occurred in Chiawelo.³ The accused was sentenced based on DNA evidence that was taken from the victim and the crime scene. DNA evidence played a crucial part in the identification of the perpetrator resulting in the sentencing of the accused Mr Nyembe for rape.

➤ **Case 4**

Mr Bokolo was arrested for murder, rape and indecent assault of his daughter.⁴ From DNA samples that were collected from the victim's private parts, which they positively matched with samples taken from him, the accused was convicted of rape.

These four cases are representative of a large number of cases that have been successfully linked with the perpetrators using DNA evidence. These cases indicated that DNA evidence can point in the direction of a perpetrator who committed rape crime. Osterburg and Ward (2010:69) regarded DNA evidence as an important tool to provide proof of identify and to resolve cases swiftly and precisely.

2.5.3 Contributing factors of DNA evidence in rape cases

Buckles (2007:198) believed that DNA is a powerful technique in the identification of suspects due to the skin cells and body fluids that are obtained from the victim as well as at the scene of the crime. The author further highlighted that evidence containing DNA can be taken and analysed for the identification of its genetic material and the results of unknown origin are compared with the results of known origin. The analysis can easily link the victims and suspects with each other or with the crime scene.

Wright (2007:77) submitted that DNA evidence is the most trusted evidence in legal history because it gives a chance of finding and matching DNA to a suspect. According to Lee et al. (2007:189), it is possible to obtain the DNA profile of the offender and the offender can be identified by direct comparison with a known blood sample or through the Combined DNA

² *S v SMM 2013 (2) SACR 292 (SCA)*

³ *S v Nyembe 2014 (1) SACR 105 (GSI)*

⁴ *S v Bokolo 2014 (1) SACR 66 (SCA)*

Information System (CODIS) database.

Houck (2007:112) stated that a comparison between profiles in the forensic index which contains DNA profiles can link the crime scene to a profile and possibly identify the serial offender. Similarly, Heathfield (2014:01) described DNA evidence as a technique that is used to assist in identifying suspects and to connect scenes of crime to each other.

Hess and Orthomann (2010:142) mentioned that DNA evidence could provide conclusive evidence in most of cases. The authors further reported that DNA evidence can even indicate the race, gender, eye colour as well as the hair colour of the person in question. Osterburg and Ward (2010:69) further revealed that DNA evidence is the most important forensic tool used to exonerate the innocent. It can also confirm the involvement of the suspect to the crime committed and confirm whether the suspect had the intention to commit such crime.

Houck (2007:02) and Fish et al. (2011:141) supported Osterburg and Ward's (2010:69) assertion and provided that DNA evidence not only helps to link and convict the offender, but it can also be used for the exoneration of those who have been wrongly accused of committing rape crime. The authors went on to state that DNA evidence can provide the capacity to form a strong association or exclusion of the individuals as possible donors of DNA evidence that was exchanged or left at the crime scene.

Consequently, Fisher and Fisher (2012:209) supported this statement and provided that DNA evidence is capable of eliminating as well as incriminating suspects. Therefore, to give meaning to DNA evidence collected from the crime scene, DNA samples that are collected from the victim must be forwarded along with the evidence collected from the crime scene for analysis.

Following is an example of a case study where the suspect was exonerated through DNA evidence from the rape crime which the suspect was alleged to commit. Michael Shirley was convicted and sentenced to life imprisonment for the rape and murder of Linda Cook.⁵ DNA samples that were taken from the victim and Michael Shirley were analysed. The results of DNA analysis ruled out Michael Shirley as the perpetrator of rape crime, resulting in his exoneration. NIJ (2002:19) mentioned that DNA evidence is capable of associating a known person to the crime scene, dispute the statement of self-defence, connect the suspect with the weapon used in commission of an offence and prove that the suspect did in fact commit the

⁵ *R v Shirley 2003 Court of Appeal CR (London)*

crime.

2.5.4 Admissibility requirements for DNA evidence

The Constitution of the Republic of South Africa (108 of 1996) revealed that evidence has to be obtained subject to the provision of the Constitution. Joubert (2013:296) highlighted that the rules that applied with regard to the admission of evidence in the South African courts were English rules.

In terms of these English rules, all evidence was generally admissible in court as long it was relevant. However, Joubert (2013:296) indicated that the approach was in contradiction with the exclusionary approach followed by other countries, including the United State of America (USA). Therefore, evidence obtained in an illegal manner is regarded as inadmissible in court. It should be noted that DNA evidence is no exception to the above statement.

Moreover, section 35(5) of the Constitution of Republic of South Africa (108 of 1996) places an obligation on the courts to exclude all evidence that was obtained in infringement of any right in the Bill of Right if its admission would render an unfair trial or otherwise be detrimental to the administration of justice. This was confirmed in *S v Mthembu*, where the court dismissed the evidence that was obtained from an accomplice after he had been tortured by the police officials; the court ruled the evidence as inadmissible.⁶

Ingram (2009:197) revealed that if evidence proves or refutes any fact that is at issue in the case, it will be admissible unless one of the parties objects the admissibility of such evidence. The onus rests with the party objecting to convince the court that unfair prejudice occurred as a result of the admission.

For evidence to be admissible in court, it should meet the requirements of relevancy and competency (Ingram, 2009:541). Criminal investigators should be aware of the rules regarding the care, custody and admissibility of scientific evidence to secure the introduction of evidence in court (Ingram, 2009:229).

According to section 37 of the Criminal Procedure Act (CPA) (51 of 1977), police officials may take into account the bodily features of a person including requesting the taking of blood and DNA samples. However, police officials who do not adhere to the scope of section 37 of

⁶ *S v Mthembu 2008 (2) SACR 407 (SCA)*

CPA will not be able to rely successfully on the said Act. Furthermore, police officials who personally take blood samples from the accused may be guilty of assault because section 37(2) (a) of CPA states that only a registered medical practitioner or nurse is authorised to take blood samples.

2.5.5 The international status quo on rape cases

Section 1 of the Sexual Offences Act (42 of 2003) of England states that it is an offence to intentionally penetrate the vagina, anus or mouth of another person with the penis without the consent of the person who is being penetrated. The Act further states that the person who performs the sexual penetration will be liable to life imprisonment.

Section 2 of the Sexual Offences Act further provides that a person who commits an offence is liable for the conviction of life imprisonment if he intentionally commits an act of sexual penetration in the vagina, anus or mouth of another person who is under 13 years with his penis. The Act further mentioned that the consent of a person is irrelevant, as the consent of a person below 13 years old is invalid.

In Saudi Arabia, under the Law of Sharia (which is the Islamic Law referring to “way or path”) the public and some private aspects of life are regulated for those living in a legal system based on Islam within this legal framework. To this course, rape cases usually target both the perpetrator and the person who has been raped. In some cases, the person who has been raped can be sentenced to an even harsher sentence than the perpetrator.

According to the National Policing Improvement Agency (NPIA) (2010:13), the United Kingdom (UK) came up with the Sexual Offence Act (42 of 2003), effective since 1 May 2004. This Act replaced all existing legislation in relation to sexual offences. The main purpose of the Act is to improve preventive measures and the protection of all individuals from sexual offenders and to strengthen and modernise the law on sexual offences. The Act stated that a person commits an offence if:

- The person intentionally penetrates the vagina, anus or mouth of another person with the penis;
- The person being penetrated does not consent to the penetration act; and
- The person performing the penetration does not have reasonable grounds to believe that the victim gave permission.

2.6 CURRENT DEOXYRIBONUCLEIC ACID MANAGEMENT STRATEGIES TO INVESTIGATE RAPE CASES

The researcher revealed the current strategies of the management of DNA evidence in investigating rape cases in the BLPA. It is of utmost significance to maintain the integrity of DNA evidential material; therefore, the collection, packaging and preservation of DNA evidence should be performed accurately to link the suspect with the crime committed.

2.6.1 Collection of DNA evidence

De Wet, Oosthuizen and Visser (2011:171) submitted that the initial collection of biological evidence from the crime scene is of extreme importance in maintaining the integrity of DNA evidence. De Wet et al. (2011:171) held the view that various aspects in relation to the collection, documentation and preservation of DNA evidence are outlined and assessed.

In addition, Gilbert (2010:281) pointed out that evidence that may contain DNA must be collected with great care to avoid contamination and preservation problems. The author further stated that wet or moist evidence containing DNA should be air-dried to avoid bacteria that can damage DNA. Hopping (2007:16) submitted that the manner in which DNA evidence is collected is important. The author further submitted that it is easy to destroy one piece of evidence while collecting another. The author further suggested that investigators must first collect the small evidence and follow with the larger items.

Pepper (2010:73) advocated that in the case of a blood stained sample, an item should be collected as a whole as the best evidence will be obtained by recovering the whole item. The author further suggested that if it is not possible for an item to be collected the sample should be dried up and the blood be scraped directly to the folded paper wrap.

Fish et al. (2011:153) provided that all clothing worn by the victim must be collected. Fish et al. (2011:153) further revealed that DNA samples can be collected using buccal swabs by rubbing clean sterile swabs on the inside surface of the cheek.

Van der Walt (2000:351) gave the following aspects as guidelines on the collection of DNA evidence:

- Handle the samples with gloves to avoid contamination;
- Change gloves between the collection of samples to avoid cross-contamination;

- Ensure good quality of blood samples or buccal swabs to allow duplicate testing;
- Store the samples in temperature below 4° C, labelling samples and packaging them in a sealed container;
- Air-dry stain material such as cloth or swab containing blood or semen before it is packaged;
- Forward the samples to the forensic laboratory immediately after collection.

Ingram (2012:282) agreed with the above guidelines and added that wet or moist evidence containing DNA evidence should be air-dried to avoid bacteria that can destroy DNA evidence; evidence containing seminal fluid should be kept to a minimum. Moreover, Hess and Orthomann (2010:143) pointed out that DNA evidence must be placed in the original paper packaging or envelope and be sealed. Ogle (2012:213) further advised criminal investigators to air-dry semen before packaging to prevent bacterial and mould stain.

2.6.2 Preservation of DNA evidence

Brown and Davenport (2012:10) highlighted that DNA evidence must be collected and preserved properly so that the crime scene technician can identify and compare the evidence effectively. NIJ (2002:05) advocated that DNA evidence that is obtained from the scene of the crime or the body of the victim or suspect should be stored correctly to avoid contamination. The author further stated that DNA evidence must be obtained and stored appropriately so that valuable DNA evidence can be found in order to identify the perpetrator who committed such crime.

Fisher and Fisher (2012:194) indicated that collected DNA evidence such as blood should be packaged separately in airtight containers such as plastic bags to avoid contamination of evidence and transferring foreign traces to the evidence. The authors defined contamination as the presence of unwanted substance or the impurity of material through contact or by mixing with something unclean or foreign. The authors advised investigators to eliminate or at least minimise the accidental transfer of DNA evidence when collecting or processing the crime scene as this could lead to the contamination of evidence. The authors further stated that biological evidence that is packaged together runs a risk of being transferred from one item to another.

Fisher and Fisher (2012:205) further revealed that DNA containing evidence such as blood, semen and saliva might require special handling when dealing with the preservation thereof to

avoid degrading and the deterioration of such evidence. The authors stated that failure in this regard might cause the offender to be acquitted from court. Fish et al. (2011:15) revealed that the proper identification, collection and preservation of physical evidence could connect the offender to a victim or a scene of crime or even to other physical evidence in the crime scene.

Horswell (2004:47) and Pepper (2005:05) further explained the transfer of evidence according to the Locard principle as the transfer of an object to another. The authors revealed that the transference of material is done when two or more items connect and the items that connect will then leave traces to one another.

2.6.3 Chain of custody

The Rape, Abuse and Incest National Network (RAINN) (2009:03) revealed that the chain of custody confirms that the handling of evidence was done carefully and was not altered in any manner. RAINN (2009) advised that each person involved, such as the police official and the technician who handles the evidence, must keep a detailed record of the handling of the evidence.

Swanson, Chamelin and Territo (2003:33) explained the chain of custody as an unbroken, sequential record of everybody who handled physical evidence, stating the condition of the item upon reception, when they received it and the condition it was in when they handed the item to another person. Bennett and Hess (2004:92) suggested that the date, time and the location of where the collection of the evidential material was done must also be stated.

Chain of evidence involves the preservation, safekeeping and documentation of evidence from its collection through the resolution of the case (Buckles, 2007:79). The author further mentioned that documentation should include everyone who handled the evidence, where the evidence went and anything done to the evidence. The author clearly highlighted that the chain of evidence is imperative to give an indication of whether the evidence had been tampered with, altered or contaminated.

Osterburg and Ward (2010:108) agreed with the above statement and further emphasised that evidence must be continuously accounted for from the time of its discovery until it is presented in court. The authors suggested that any person who handled or had the evidence in their possession must be called for to give an account of when, where and from whom it was received, what was done to it, to whom it was handed as well as the date and time. The authors

also pointed out that any disruption in the chain of custody may cause evidence to be inadmissible in a court of law.

In the light of the above, NIJ (2002:15) submitted that the chain of custody in all criminal investigations is significant in maintaining the integrity of the evidence and the ability to use DNA evidence to prove that the chain of custody was maintained.

2.7 SUMMARY

This chapter provided a literature review that highlighted the understanding of DNA evidence, the use of DNA evidence as individualisation technique and the types of DNA evidence. A discussion was presented on the significance of DNA evidence as an investigative tool and the emphasis of the use of DNA evidence in rape cases. Examples of rape cases where the accused was linked through DNA evidence were also given.

The challenges in investigating rape cases were indicated. The literature revealed that investigators experience challenges in investigating rape crimes because – in most cases of rape – not all elements that constitute rape are mentioned during the reporting of the said crime. The current DNA management strategies to investigate rape cases were discussed and emphasis was placed on the collection and preservation of DNA and the chain of custody for evidence containing DNA.

CHAPTER 3: INTERNATIONAL AND LOCAL LEGISLATIVE FRAMEWORK ON DEOXYRIBONUCLEIC ACID EVIDENCE AND RAPE CASES

3.1 INTRODUCTION

This chapter explores the legislative frameworks on DNA evidence and rape cases within a local and international context. It is of utmost importance for investigators to clearly understand the legislation in question to be well informed in respect of the utilisation of DNA evidential material in rape crime scenes, while adhering to the required principles, laws, policies and regulations.

Nevertheless, the biggest challenge lies in the management of DNA evidence during rape investigations in determining whether it is in line with the prescribed policies or procedures during the investigation of rape cases. It is important to note that in the investigation of rape cases, SAPS officials and other agencies should apply the correct procedures when dealing with DNA evidence during the investigation of rape cases.

3.2 LEGISLATIVE FRAMEWORKS ON THE USE OF DEOXYRIBONUCLEIC ACID EVIDENCE IN RAPE CASES

The researcher explored international legislation pertaining to DNA evidence and listed all the legislation from different countries, including databases that have been created by these countries.

3.2.1 International legislations DNA evidence in rape cases

Most developed countries have passed legislation that governs the creation of a DNA databases for DNA profiling. These countries include but are not limited to the United States of America (USA) who devised the Justice for All Act (108 of 2004), also known as “Debbie Smith Act”, and the DNA Identification Act (43 of 1998). The United Kingdom (UK) came up with The Police and Criminal Evidence Act (60 of 1984); Mauritius established the DNA Identification Act (15 of 2009) and Tanzania formed The Human DNA Regulation Act (8 of 2009).

Based on the above international laws on DNA evidence, there are DNA databases that have been established in almost all countries in the world. Lynch and Hancock (2012:07) mentioned that Brazil became the 56th country in the world to pass DNA legislation to regulate a DNA

database. In addition, the USA, the UK, Australia, Mauritius and South Africa are also countries that created legislation on DNA.

The following is the legislation adopted by different countries that govern DNA evidence.

3.2.1.1 The Police and Criminal Evidence Act

The Police and Criminal Evidence Act (60 of 1984) was promulgated in England in 1984. This Act authorises the retaining of DNA samples in the National DNA Database (NDNAD) for solely the prevention and investigation of crime. The NDNAD contains individual profiles, samples of suspects and crime scene samples.

3.2.1.2 DNA Identification Act

The DNA Identification Act (43 of 1998) was established in the USA. The Act contains the provisions that regulate the collection, use and storage of DNA. Its purpose is to ensure the establishment of the Combined DNA Index System (CODIS). Houck (2007:104) described CODIS as a database that may assist the investigation by conducting an efficient match of DNA profile generated from biological evidence left at the scene of crime with DNA profiles of a convicted offender. In addition, NIJ (2002:02) defined CODIS as the computer software program that operates a database of DNA profiles from convicted offenders, unsolved crime scene evidence and missing persons. In addition, NIJ (2002:03) described the role of the DNA database as the linking of serial crimes to each other and assisting with the identification of suspects.

These databases contain more than five million profiles consisting of the following different indexes:

- The **Offender Index** contains the profiles of people convicted of various crimes. The crimes that result in the inclusion in the offender index may vary as specified by the State and they range from certain misdemeanours to sexual offenses and murder.
- The **Arrestee Index** contains profiles of people arrested for committing specific violent crimes. The exact crimes may also vary as specified by the State.
- The **Forensic Index** contains profiles taken from crime scene evidence, including blood, saliva, semen and tissue.
- The **Missing Persons Index** consists of two indexes: Unidentified Persons, which contains the profiles recovered from the remains of unidentified persons, and the **Reference Index**, which contains profiles of the relatives of missing persons. These two

indexes are periodically compared to each other to determine if a missing person's remains have been recovered.

3.2.1.3 The Human DNA Regulation Act

The Human DNA Regulation Act (8 of 2009) was introduced in Tanzania in 2009. The Act was provided for the management and regulation of the collection, packaging, transportation, storage and analysis of DNA samples. This Act indicated that the collection of sample for human DNA must be done by sampling officers and analysed for the purpose of criminal investigation, establishing paternity, medical and research in population genetics.

This Act authorised samples to be collected from saliva, hair with root, urine, stool, blood, skin, teeth, bones, semen, vaginal swabbing, objects believed to have stains and any other objects or parts of a body as deemed necessary. If samples are collected for the purpose of criminal investigation, the person from whom the sample for human DNA is to be collected shall be informed of:

- The authorisation of collection of the sample that has been obtained;
- The reasons for taking the sample for human DNA;
- The procedure that will be used to collect the sample; and
- The genetic information to be extracted from that sample, as human DNA may be used as evidence for or against that person.

3.2.1.4 DNA Identification Act

The DNA Identification Act (15 of 2009) was adopted in Mauritius in 2009. The Act was established for the collection of DNA samples of all people previously convicted of an offence, those who had been charged with having committed another offence and those who had not been convicted but had given written consent for DNA samples to be taken. The samples are stored in the DNA database records. The samples from volunteers are kept at DNA population Statistical Database.

3.2.1.5 Justice for All Act

The Justice for All Act (108 of 2004), well known as the “Debbie Smith Act”, was passed in 2004. The Act is an amendment of the DNA Analysis Backlog Elimination Act, which expanded the CODIS. The Act was passed after Debbie Smith had been raped and DNA evidence that could not match the culprit who raped her was placed in a database (Telsavaara & Arrigo, 2006:489). The Act was passed to address the problem of the management of DNA evidence from the backlogged rape cases that are in the crime laboratories across the New York County (Telsavaara & Arrigo, 2006:489).

3.2.2 National law of South Africa on DNA evidence

The researcher reviewed the South African legislation, which includes the Constitution of the Republic of South Africa Act (108 of 1996) and its objects. The SAPS Act (68 of 1995), the Criminal Law (Sexual Offences and Related Matters) Amendment Act (32 of 2007) and Criminal Law (Forensic Procedures) Amendment Act (37 of 2013) (DNA Act) will also be discussed and explained.

3.2.2.1 The Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa Act (108 of 1996) is regarded as the supreme law of the country. It regulates the organisation and the structure of the State. It indicates how a country should be governed and how laws should be drawn up and come into operation.

Section 205(3) of the Constitution regulates how the SAPS should perform their duties by indicating the following as the functions of the SAPS:

- Prevent, combat and investigate crime;
- Maintain public order;
- Protect and secure the inhabitants of the Republic and their property; and
- Uphold and enforce the law.

3.2.2.2 The South African Police Service Act

The SAPS Act (68 of 1995) was established in 1995 with the purpose to provide for the establishment of the organisation, regulation and control of the SAPS. Section 13 of the SAPS

Act points out certain principles, which members of the SAPS must adhere to when exercising duties and functions conferred on the members by the law.

Joubert (2013:15) submitted that, in terms of section 13(3) of the Act, police officials might exercise the power and perform the duties assigned to them. Section 13(3)(a) of the Act emphasises that police officials must perform official duties in a manner that is justifiable in the circumstances.

3.2.2.3 Criminal Law (Sexual Offences and Related Matters) Amendment Act

South Africa adopted the Sexual Offences and Related Matters Amendment Act (32 of 2007). The Act is an amendment to the Sexual Offences Act (23 of 1957). This Act came into effect on 16 December 2007. The main aim of the Act is to help combat sexual crimes against all persons, including vulnerable people such as women, children, the elderly and people who are mentally disabled.

Moreover, the object of this Act is to ensure that the law provides the complainants of sexual offences with extreme protection and that the protection is less traumatising to the victims of sexual offences. This can be done by introducing procedures that ensure that the relevant State organs are adhering and complying with the provisions of this Act and that the relevant role-players are fighting and eliminating the commission of sexual offences in the country at large.

The Act has consolidated all sexual-related crimes by creating a sexual offences database. According to Joubert (2013:116), the Sexual Offences and Related Matters Amendment Act expands the common law crimes.

The Act lists the specific conduct relating to rape as follows:

- Sexual penetration
- Absence of consent by the victim.

Furthermore, Joubert (2013:116) revealed that in the legislation, the rape crime does not affect only females as the victims of rape; it affects both males and females and they may equally be perpetrators and victims of rape.

South African Male Survivors of Sexual Abuse (SAMSOSA) is an organisation that was established in 2012. SAMSOSA was created to provide structure for non-offending male survivors of rape and sexual abuse. This organisation addressed the rape and sexual abuse of

both adult and young men around the world that have been ignored, disrespected and discounted.

3.2.2.4 Criminal Law (Forensic Procedures) Amendment Act

The Criminal Law (Forensic Procedures) Amendment Act (37 of 2013) was amended in 2013. The purpose of this Act was to ensure the proper collection of bodily samples from the particular category of persons for DNA analysis and to clearly state the procedures to be followed in the retention of the samples as well as the timeframe of the retention before the samples can be destroyed.

The Act emphasises the collection and the retention of the collected samples. It also makes provision for the regulation of the establishment and maintenance of the National Forensic DNA Database of South Africa (NFDD). Lynch and Hancock (2012:07) further commended the Criminal Law (Forensic Procedures) Amendment Act (37 of 2013) and mentioned that the Act is appropriately managed within the regulatory framework. This Act makes provision for experts to collect DNA samples from all suspects arrested under schedule 8 offences and all convicted offenders (Lynch & Hancock, 2012:07).

De Wet, Oosthuizen and Visser (2011:193) advocated that the police developed a DNA Criminal Intelligence Database (DCID) that is managed in the FSL. In addition, De Wet et al. (2011:193) further indicated that the database consists of a Reference Index and Crime Index. The Reference Index stores the DNA profiles of convicted offenders and suspects in criminal cases. The Crime Index keeps the DNA profiles that are found on the crime scenes.

3.3 SUMMARY

This chapter reflected on the different legislations on DNA evidence and sexual offences. In this chapter, explanations of the international and national law on DNA were offered. Other aspects the researcher looked at included different local and international DNA databases such as CODIS, DCID, NDNAD and NFDD.

The different indices such as Crime Scene Index, Arrestee Index, Convicted Offender Index, Investigative Index, Elimination Index, Missing Persons and Unidentified Human Remains Index that contain DNA were also discussed, indicating the procedure to be followed during the collection of DNA evidence, storage and the importance of maintaining a chain of custody

to prove a case in hand. Chapter 4 presents the research design and methodology as adopted by this study.

CHAPTER 4: THE PRESENTATION OF DATA AND INTERPRETATION OF RESEARCH FINDINGS

4.1 INTRODUCTION

The researcher came up with the findings to address the research problem and the research questions. The findings are based on the following research questions that were asked to address this study:

- What is the application of DNA evidence in the investigation of rape in the BPLA?
- How can DNA evidence be managed in the investigation of rape crime in the BPLA?
- What is the role of DNA evidence in the rape crime scenes in the BPLA?

4.2 FINDINGS

Following are the findings on the research questions.

4.2.1 The application of DNA evidence on the investigation of rape

The following findings stemmed from the interviews conducted.

4.2.1.1 The value of DNA evidence in the investigation of rape

DNA evidence plays a major role in the solving of rape cases. DNA evidence found at the crime scene can be used to link the person who is alleged to have committed the rape crime. It can also exclude innocent people who are not involved in the commissioning of the alleged crime.

The researcher asked the focus group discussion and one-on-one interview participants about the value of DNA evidence in rape crime scenes.

The following were responses by the participants, quoted verbatim:

“DNA can link certain individuals to the crime scene. DNA cannot link the individual on its own; it needs more information to be able to link the individual with a certain crime.” (Focus group discussion participants).

“DNA can assist in identifying the perpetrator and make a case strong against the perpetrator,” (One-on-one participant 1). “It can assist in exonerating the wrongly accused people.” (One-on-one interview participant 2).

4.2.2 Management of DNA evidence

The researcher established the following findings, based on the interviews conducted.

4.2.2.1 Guidelines on the management of DNA evidence in rape cases

The guidelines on how to manage DNA evidence in rape cases are guided by the legislation, SAPS policies and SAPS National Instruction. Adherence to these legal frameworks is imperative. All SAPS role-players in the management of DNA evidence are expected to adhere to and comply with the abovementioned legislation. Non-compliance to the legislation is dealt with according to the SAPS Disciplinary Regulations.

The researcher asked the focus group discussion and one-on-one interview participants about the practical guidelines on the management of DNA evidence in rape cases.

The following are the verbatim responses from the participants:

“Standing Operational Procedures.” (Focus group discussion participants).

“Yes, if you attend rape crimes, ensure that crime scene is secured and victim to be taken to the doctor,” (One-on-one participant 3). “I do not know,” (One-on-one participant 4). New DNA Act,” One-on-one participant 5). People must go to hospital to give evidence,” (One-on-one participant 5).

“Now these days they use the buccal samples,” (One-on-one participant 6). “Make sure when attending the crime scene LCRC, specialised people are attending the crime scene to collect all evidence and to make sure what they obtain is right,” (One-on-one participant 6).

4.2.2.2 Management of DNA evidence on rape crime scene

The management of DNA evidence in rape cases involves the collection, preservation and packaging of DNA evidence. The focus group discussion participants and one-on-one interview participants were asked to describe their experience in working with DNA evidence management located on rape crime scenes.

The participants described their experience as follows, quoted verbatim:

“Do not have prescribed resources to dry the DNA evidence. Plastic bag is not good for packaging the DNA evidence; it can destroy the value of evidence.” (Focus group discussion participants).

“Previously, I investigated rape crime scenes; type of clothing is very important,” (One-on-one participants 1). “I did few cases on rape,” (One-on-one participant 2). “The challenge is that not all crime scenes are cordoned off and most of the victims are not taken to the doctor,” (One-on-one participant 3). “No, I did not attend,” (One-on-one participant 4).

4.2.2.3 Training required for DNA evidence management on rape cases

SAPS members involved in the management of DNA evidence are expected to undergo certain training to gain the expertise to perform their duties effectively. The researcher asked the focus group discussion participants and the one-on-one interview participants to describe training they received, if any, on DNA evidence management of a rape crime scene.

The participants responded as follows, quoted verbatim:

“DNA recovery evidence.” (Focus group discussion participant).

“No, there is no course,” (One-on-one participant 5). “Buccal swab course, collection and packaging DNA,” (One-on-one participant 6). “Presumptive test and package blood.” (One-on-one interview participant 1).

4.2.2.4 The current strategies on the management of DNA evidence on rape crime scene

The Criminal Law (Forensic Procedures) Amendment Act (37 of 2013) is current legislation that was adopted in 2013 to oversee that DNA samples that are collected at the crime scene from the victims and from the suspected are kept on a database to be compared and linked the suspect.

The participants were asked about the effectivity of the current strategies on the management of DNA evidence at a rape crime scene. The responses during focus group discussions and one-on-one interviews were recorded on audio recorder and quoted verbatim as follows:

“It is effective; if it were not effective the police would have changed it by now.” (Focus group

discussion participants).

“It is effective, but I am not sure; not that I know of,” (One-on-one participant 2). “It is very effective, the manner that it can link,” (One-on-one participants 3). “The database used can link all the suspects that are suspected,” (One-on-one participant 4). “More information of DNA to link suspects with a particular case,” (One-on-one participant 5). “It is effective.” (One-on-one participant 6).

4.2.2.5 Packaging of DNA evidence during investigation of rape cases

The DNA evidence that is collected should be packaged on a prescribed packaging container and be properly sealed to minimise the evidence to be contaminated. The prescribed protective gear must be worn during the collection and be changed regularly after the collection of certain items.

The participants were asked what the packaging of DNA evidence during investigation of rape cases involves. The focus group discussion participants and one-on-one participants gave the following verbatim responses:

“DNA evidence that is collected at the crime scene must be dried out and be placed in a plastic bag. It becomes a problem to collect DNA evidence as at times the victims washed and changed their clothes they were wearing before the initial collection is conducted.” (Focus group discussion participants)

“Put it in the forensic bag and keep it in SAPS 13 for safe keeping,” (One-on-one participant 1). “From where you obtain you seal it and hand it over to SAPS 13 clerk,” (One-on-one participant 2). “Forensic collection kit and be recorded by Photographer,” (One-on-one participant 3). “Must be safely closed, keep it in the safe place and send to the lab,” (One-on-one participant 4). “It must be in the packaging bag, sealed properly and used gloves,” (One-on-one participant 5). DNA evidence must be in a correct way and in a correct order, the person who is analysing must understand why evidence was collected,” (One-on-one participant 6).

4.2.2.6 The importance of the chain of custody

Documentation of the handling of the evidence must be done for each and every member involved in the handling of DNA evidence to ensure that the evidence was not tampered with.

The participants in the focus group discussion and the one-on-one participants were asked about the importance of the chain of custody. The participants responded, and their responses were quoted verbatim as follows:

“Collect the evidence, place it in the bag and store it in the exhibit room.” (Focus group discussion participants).

“It is very important that if you collect evidence you must seal it and send it to the lab,” (One-on-one participant 1). “First, chain of custody (continuity of possession) must be maintained,” (One-on-one participant 2). “The chain must not be broken from where the person hands the DNA; bag must be closed and sealed and ensure it is not being contaminated,” (One-on-one participant 3). “It can assist admissibility in court, otherwise if it is questioned it will not be admissible,” (One-on-one participant 4). “Send to the lab to the experts, (One-on-one participant 5). “From the beginning, the chain must be followed,” (One-on-one participant 6). “It is very important, if the chain is correct, there will not be any loophole in the chain custody.” (One-on-one participant 1).

4.2.2.7 The challenges in managing DNA evidence in the investigation of rape cases

The members involved in the management of DNA evidence experience various challenges. These challenges include rape crime scene not being properly secured, weather conditions, humiliation experienced by the victims after the rape incident and inexperienced investigating officers and crime scene technicians attending to the rape crime scenes.

The researcher asked the participants of focus group discussions and one-on-one interviews about the challenges in managing DNA evidence during the investigation of rape cases. The following are the responses of the participants, quoted verbatim:

“Environmental factors such as weather. Crime scene not secured properly leads to the contamination. Crime scene not properly managed.” (Focus group discussion participants).

“There is a certain period that you must send all the evidence to the lab,” (One-on-one participant 2). “Lack of training of members processing the crime scene, especially detectives, lack of experience,” (One-on-one participant 3). “Always keep DNA safe and sealed,” (One-on-one participant 4). “I do not know,” (One-on-one participant 5). “Challenge is the timeframe; investigating officer must know the time crime was committed and when was it.” (One-on-one interview participant 6).

4.2.3 The significance of DNA evidence on the rape crime scenes

The following responses were given during the interviews conducted:

4.2.3.1 The role-players in the management of DNA evidence during the investigation of rape cases

During the rape crime investigation, there are certain role-players that need to be summoned for the preliminary investigation of a rape crime scene and for the collection of evidence. These role-players include but are not limited to forensic experts, FCS and investigating officers. Doctors are responsible for the collection of the DNA evidence from the victim and the suspect.

The participants in the focus group discussions and one-on-one interviews were asked who the role-players are in DNA evidence management during the investigation of rape cases. The participants responded and quoted verbatim as follows:

“Detectives, Forensics, LCRC,” (Focus group discussions). “LCRC,” (One-on-one participant 2). “First responder,” (One-on-one participant 3). “FCS, doctors and photography, (One-on-one participant 4). “Experts,” (One-on-one participant 5). “Biology unit, police official and investigating officers,” (One-on-one participant 6).

4.2.3.2 Most common DNA evidence found at the rape crime scene

The most common DNA evidence found at the rape crime scene is semen, blood, hair and saliva. The evidence must be collected and submitted to the forensic biology unit for analysis. The evidence may assist in identifying the person who committed the rape crime.

The researcher asked the participants in the focus group discussions and one-on-one interviews what the most common DNA evidence is found at the crime scene. The participants responded as follows:

“Semen,” (Focus group discussions and One-on-one interview participant 1). “Blood,” (One-on-one participant 2). “Hair,” (One-on-one participant 3). “Clothing,” (One-on-one participant 4). “Blood, if there is any,” (One-on-one participant 5). Injuries and “Men’s thing,” (One-on-one participant 6).

4.2.3.3 The process of DNA evidence collected from the rape crime scene

The member collecting the evidence must wear gloves and the gloves must be changed regularly to minimise the contamination of evidence. The collected evidence must be dried up and submitted to the forensic laboratory for analysis.

The researcher asked the participants of the focus group discussions and the one-on-one interviews about the process of collecting DNA evidence from a rape crime scene. The following were the responses given by the participants, quoted verbatim:

“Cordon off the crime scene,” (One-on-one participant 1). “Secure the scene of crime,” (One-on-one participant 2). “If you collect DNA evidence, you must wear gloves and you collect it and put it the forensic bag,” (One-on-one participant 3). “Trauma, especially in the rape,” (One-on-one participant 4). “The scene is actually the victim so victim experience trauma,” (One-on-one participant 5). “Collected, packed and taken to the laboratory for analysis,” (One-on-one participant 6). Each and every evidence found must be packaged and sealed. It starts by how to enter in the crime scene, you have to understand what to collect at the crime scene.” (Focus group discussions).

4.3 SUMMARY

This chapter (Chapter 4) discussed the presentation of data and the interpretation of the findings of the main research of the study. The responses of the participants were quoted verbatim and presented to address the questions asked during the interview of the participants. The next chapter (Chapter 5) will present the recommendations of this study.

CHAPTER 5: RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

In this chapter, the recommendations are presented, and the conclusions of the research are given after achieving the aim of the study and addressing the research problem. In response to the research that has been conducted and the findings that have been established, the researcher recommends the following aspects to address the research questions and the findings identified.

5.2 RECOMMENDATIONS

The following recommendations are made after a consideration of the findings.

Recommendation 1

The researcher recommends that Forensic Science Services conduct development workshops on DNA evidence to all crime scene technician investigators of the Bishop Lavis Policing Area to equip them with knowledge of the application of DNA evidence in the investigation of rape cases.

Recommendation 2

It is recommended that newly appointed crime scene technicians and detectives undergo an intensive training course of DNA to develop and equip them with knowledge and understanding of how DNA evidence is managed. The experienced crime scene technicians should be taken to a refresher course to be empowered and updated on the new legislation on DNA and other legislation related to sexual offences. Courses for first responders on the crime scene should be conducted to equip police officials who attend the rape crime scenes with the knowledge of securing the crime scene and identifying physical evidence on the rape crime scenes.

Recommendation 3

Programmes that educate about the role of DNA evidence in the investigation of rape crime cases should be created and implemented where all police officials that serve in the BPLA as well as their senior members should be sensitised of the significance and the value of DNA evidence. The Forensic Service in the SAPS should educate and sensitise members of the

community in reporting the rape crime as soon as it occurs to avoid losing the most valuable physical evidence. The victims of rape should be informed that they should not wash and change clothes after the incident to retain the evidence that might be left by the perpetrator during the rape incident. Crime scene technicians and their duties should be made known to the community to avoid confusion.

Recommendation 4

During the data collection, the researcher found that there is minimum information that was obtained on the effectiveness of the current strategy on the management of DNA evidence at rape crime scenes. Therefore, the researcher recommends that further studies be conducted on this topic.

5.3 CONCLUSION

In the study, the key concepts were defined to gain better knowledge and understanding of the concepts. The study has discussed the application of DNA evidence in the investigation of the rape crime scene and the management of DNA evidence with emphasis on the collection, preservation and packaging of DNA evidence. The role and the value of DNA evidence in the investigation of the rape crime scene were discussed using the literature and the responses from the participants of the interview conducted.

The problem most identified pertaining to the management of DNA evidence in the investigation of the rape crime scene is the poor performance in securing the crime scene and ensuring that the physical evidence at the scene is preserved and not tampered with. Findings have been identified and recommendations are made in light of the findings. Recommendations have been made to address the problems identified as well as the research question.

The information obtained from the literature and from the interviews has empowered the researcher to have a complete knowledge and understanding of the management of DNA in the investigation of rape crime. The researcher is certain that crime scene technicians and investigators will benefit and gain more knowledge from this study.

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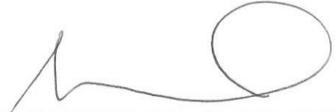
ANNEXURE A: INTERVIEW SCHEDULE GUIDE

1. Based on your experience, do you consider rape more widespread in the last three years in the Bishop Lavis Policing area (BLPA)? (Please elaborate on your answer).
2. Based on your experience, what could be the causes of rape in the BLPA?
3. Based on your experience, what is your understanding of legislation governing South African Police Services (SAPS) officials (investigators) responding to rape crime scenes?
4. Based on your experience, are there any practical guidelines on management of DNA evidence on rape cases? (Please elaborate on your answer)
5. Based on your experience, who are the role players on DNA evidence management during investigation of rape cases?
6. Based on your experience, what is the most common DNA evidence to be found in the rape crime scenes?
7. Based on your experience, what is the value of DNA evidence on rape crime scene?
8. Based on your experience, what is the significance of the chain of custody in the investigation of rape cases?
9. Based on your experience, what are the typical standards of processing rape cases?
10. Based on your experience, what does the packaging of DNA evidence on the rape cases involves?
6. Based on your experience, what is the most common DNA evidence to be found in the rape crime scenes?
7. Based on your experience, what is the value of DNA evidence on rape crime scene?
8. Based on your experience, what is the significance of the chain of custody in the investigation of rape cases?
9. Based on your experience, what are the typical standards of processing rape cases?
10. Based on your experience, what does the packaging of DNA evidence on the rape cases involves?
15. Describe the type of training you received, if any, on DNA evidence management on rape crime scene?
16. Is there any alternative strategy that can be implemented to manage DNA evidence found on rape crime scene?
17. Any other comments you would like to make, regarding DNA evidence on rape crime?

ANNEXURE B: PERMISSION TO CONDUCT RESEARCH

PERMISSION TO CONDUCT RESEARCH WITHIN THE SOUTH AFRICAN POLICE SERVICE: AN EVALUATION OF THE MANAGEMENT OF DEOXYRIBOSE NUCLEIC ACID EVIDENCE ON RAPE CASES: MASTERS DEGREE: UNISA: RESEARCHER: ZM DYWABA

- the researcher will respect the privacy of the members and will not divulge information received from a member of the Service or any person with whom the researcher conducted an interview, and that such information will at all times be treated as strictly confidential;
- If information pertains to the investigation of crime or a criminal case, the researcher must acknowledge that he or she, by publication thereof, may also be guilty of defeating or obstructing the course of justice or contempt of court;
- will pay fees or comply with further procedures in the Service, such as fees or procedures applicable to obtain access to a record of the Service;
- will allow the Service fourteen days to peruse the report in order to determine whether it complies with all conditions for the approval of the research before it is published in any manner and, if it is found not to comply with the conditions, that he or she will not publish it;
- will complete an indemnity form and agree to the undertaking and conditions prior to the commencement of his/her research, in terms of which the South African Police Service is indemnified against any injury, personal damage or any loss suffered during the research;
- the researcher may not take photographs of any office or state building as that may compromise the security of the police station, and is prohibited by law and
- Will donate an annotated copy of the research work to the Service.



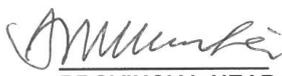
**BRIGADIER
PROVINCIAL HEAD: ORGANISATIONAL DEVELOPMENT
AND STRATEGIC MANAGEMENT
WESTERN CAPE
PL VOSKUIL**

Date: 2016/11/29

PERMISSION TO CONDUCT RESEARCH WITHIN THE SOUTH AFRICAN POLICE SERVICE: AN EVALUATION OF THE MANAGEMENT OF DEOXYRIBOSE NUCLEIC ACID EVIDENCE ON RAPE CASES: MASTERS DEGREE: UNISA: RESEARCHER: ZM DYWABA

RECOMMENDED / NOT RECOMMENDED

Recommended subject to compliance with the conditions set in paragraph 4

 MAJOR GENERAL
PROVINCIAL HEAD: LEGAL SERVICES
WESTERN CAPE
FM MBEKI

Date: 2016-12-01

RECOMMENDED / NOT RECOMMENDED

 MAJOR GENERAL
DEPUTY PROVINCIAL COMMISSIONER: POLICING
WESTERN CAPE
TE PATEKILE

Date: 2016-12-03

APPROVED / NOT APPROVED *14*

 LIEUTENANT GENERAL
PROVINCIAL COMMISSIONER: WESTERN CAPE
KE JULA

Date: 2016/12/21

ANNEXURE C: EDITOR LETTER



Editing Declaration

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To whom it may concern

18 June 2018

I hereby declare that I am a professional editor and have edited and proofread the following dissertation:

An evaluation of management of DNA evidence on rape cases

by

Ms Zukiswa Morencia Dywaba

As a professional editor with an English major obtained from the University of Pretoria in 2003, I am also a Full Member of the Professional Editors' Guild and a member of SATI (membership number 1002503).

Yours sincerely

A handwritten signature in black ink, appearing to read "Lené Kraft", written over a light blue rectangular background.

Mrs Lené Kraft