

## Availability of forensic science equipment and the challenges of applicability in Niger State Judiciary System, Nigeria

Ibrahim Muhammad Hassan<sup>1</sup>, Fidelis Ngaji Akwaji<sup>2</sup>, Cyril O. Ugwuoke<sup>3</sup>, Akunesiobike Adindu Chibueze<sup>4</sup>

<sup>1</sup>Department of Social studies, Niger State College of Education, Minna. dodondawa2000@gmail.com

<sup>2</sup>Department of Criminology & Security Studies, University of Calabar, Cross River State, akwadelis@gmail.com

<sup>3</sup>Department of Sociology and Anthropology, University of Nigeria, Nsukka, Cyril.ugwuoke@unn.edu.ng

<sup>4</sup>Department of Sociology and Anthropology, University of Nigeria, Nsukka, akunesiobikechibueze@yahoo.com

Corresponding author: akwadelis@gmail.com

### Abstract

This paper examined the availability of equipment and challenges of applying Forensic Science in the adjudication and dispensation of justice in Niger State Judiciary. The importance forensic methods were outlined; the study aim, objectives and hypotheses were posited in line with the emergence of forensics in Nigeria. The Cognitivism Theory was adopted as the framework. The survey design method was adopted in which 108 questionnaires were returned and analysed. The findings revealed that there is no/inadequate functional Forensic Science equipment, laboratory in Niger State. More so, inadequate funding, staffing, manpower training, poor maintenance culture, nature of appointment and poor personnel welfare negatively affects application of forensic science investigation negatively in Niger State, recommendations advanced is targeted at constructing a befitting Forensic Laboratory for state and Nigeria in general.

**Key words:** Availability, challenges, Forensic Science, Judiciary.

### Introduction

The 21<sup>st</sup> Century Nigeria Criminal Justice system is faced with multiple pressures that are being peculiar to the administrator of Justice Process. These pressures include increase demand for speedy access to justice; demand for effective coordination in intelligent gathering and sharing among or between Criminal Justice System; additionally, there is a necessity to establish a clear distinction between the crime victim and the offender. It is clear that the Nigerian legal system needs to undergo significant reform, not only to align with contemporary practices in both developed countries but also to enhance the overall effectiveness of the Criminal Justice System for victims, offenders and the state. Some of the problem areas include the objective for which the Criminal Justice System is founded, the amount of time it takes to conclude a matter and the question of who is the victim as recognized by law, among other areas. More so, the Criminal Justice faced with inadequate funding by the state government, inadequate facilities, inadequate skilful manpower, corruption and politics. Also, the system is experiencing inadequate training and re-training of the available personnel on forensic science and its application to effectively carryout investigation as expected by the law.

Forensic science utilizes scientific techniques to retrieve, examine, and interpret pertinent materials and information in criminal inquiries and legal proceedings. It serves as both informative and evidential resource to support the administration of justice (Government Office for Science, 2015). It is a nature of science that new technologies and methodologies emerged from the wider scientific community. Forensic applications are tested and where necessary, validated and incorporated into operational use as a quick and effective measure. Examining applications might be and conducting the appropriate tests for relevance, reliability and robustness is costly and time-consuming (Government Office for Science, 2015). Traditionally, forensic science is seen as a compilation of various subfields that share fundamental principles, procedures and tasks. Within these subfields, there exists as diversity of primary objectives, as well as variations in the scientific

foundation and reliability of the techniques utilized. Thompson & Thompson (2012) summarized the following different categories of forensic science activity:

- **Trace' or 'Wet' Forensics:** This is the process by which a laboratory conducts one of several established tests to recognize or correlate a substance discovered at a crime scene or linked to a specific individual.
- **Interpretation:** This is the situation in which the outcome of the trace examination is unclear, yet there is still a need for some form of inference or determination. 'Interpretation' may entail calculating a statistical likelihood, but it can also encompass offering a contextual explanation or forming a hypothesis regarding the events in question.
- **Reconstruction of Events:** This is when a proficient investigator integrates numerous diverse 'traces' along with observations and testimonial evidence, to craft a comprehensive account of a series of occurrences, instances of this encompass road traffic accidents, crime scenes, the utilization of mobile network location data to chart an individual's movements, and the scrutiny of a computer or smartphone to reveal planning and a course of action tied to a criminal act.
- **Opinion Evidence:** This is when a specialist has examined various situations and provides an assessment based on their expertise, education and practical knowledge.

However, forensic science encompasses science, legal aspects, policies, and investigative processes, and it should be considered as a continuum that covers everything from the initial crime scene to the courtroom. The Federal Republic of Nigeria operates a dual Criminal Justice System, one at the Federal Level and another at state level; both systems operate side by side each other, with two sets of courts, Federal and State. The Criminal Justice System in Nigeria begins with the occurrence of crime and proceeds with subsequent actions taken by law enforcement agencies, which include the authority to apprehend, arraign, try, and impose penalties on the wrongdoer. A criminal trial encompasses the involvement of the state, society, and the individuals who have committed the offense. The procedure for establishing whether the accused or defendant is guilty of the alleged act or omission hinges on determining their culpability and subsequently penalizing them for their misconduct. In certain legal frameworks, the terms "sentence" and "judgment" are used interchangeably.

The criminal justice system serves as a mechanism for controlling and preventing crime, representing the entire array of government institutions responsible for upholding societal standards of behaviour. These standards are crucial for safeguarding the safety and freedom of individual citizens and for maintaining order (Olonisakin, et al., 2017). The criminal justice system's mission is carried out through various stages, including the detection, apprehension, prosecution, adjudication, and sanctioning of individuals within society who violate established rules and laws. In Nigeria, this system is founded on the principles that emphasize the recognition of the dignity of suspects and defendants (accused) and the presumption of innocence until proven guilty by a competent court. Unfortunately, these fundamental procedural principles are frequently violated in our society (Nigeria) (Oraegbunam, 2019). Such violations clearly undermine the human rights of defendants and, more significantly, jeopardize the very core of the Nigerian criminal justice system (Ladipo, 2020).

Forensic evidence can be utilized in both civil and criminal legal proceedings, typically gathered from the scene of an incident and subsequently analysed by forensic scientists in specialized laboratories. While the application of scientific methods in criminal investigations has been present to some extent since the Roman Empire, the concept of forensic science as a distinct discipline and profession is relatively young, barely reaching 100 years of age (Morgan, 2019). It is only in the last century that law enforcement agencies and the court systems have significantly relied on scientific techniques in their crime scene investigations. Throughout history, there are instances of various evidence analyses leading to convictions or acquittals that align with what we now recognize as forensic evidence (Morgan, 2019). As new technologies emerge, criminals also find ways to exploit them for unlawful purposes. With the proliferation of web technologies, nearly all major global businesses have an online presence, exposing their data to legitimate and illegitimate users. Computers have become an integral part of our daily lives, with businesses streamlining operations and saving substantial sums thanks to web technologies and services. Both businesses and consumers are heavily reliant on these technologies. Given the deep entwinement of computer technology in all aspects of our lives, it has also become a significant form of legal evidence in both civil and criminal cases. Hence, this study examined the availability equipment and challenges of application of forensic science in criminal justice investigation proceedings and dispensation of Justice in Nigeria with particular reference to Niger State.

**Aim and Objectives:** The purpose of this study is to ascertain the availability of equipment and challenges of applicability of forensic science in the administration of criminal justice system in Niger State and to advance recommendations with regard to the use of forensic science in our criminal justice system. The objectives of the study are as follows to:

- i. Examine the availability of equipment for forensic science application in criminal justice system in Niger State.
- ii. Identify the challenges of the utilization of forensic science in the field of criminal justice process in Niger State.

**Hypotheses:** The following hypotheses were postulated to guide this study:

- i. **H01.** Availability of forensic science equipment has no effect on its application in criminal justice system in Niger State.
- ii. **H05.** There are challenges in the applicability of forensic science in criminal justice process in Niger State.

### **Forensic science in Nigeria**

Forensic science is widely acknowledged and accepted by the legal system in the prosecution of criminal offenders. It serves to eliminate bias and injustice by relying on scientific techniques. These techniques, employed within the Criminal Justice System, are collectively referred to as forensic science. They include practices such as DNA profiling and other forensic evidence, which are not only recognized but also admissible in the courtroom. Consequently, forensic science laboratories have been established worldwide, and various countries, including the USA, Canada, and Australia, have enacted special legislation to enhance the practice and application of forensic science. These legal measures aim to promote fairness and increased certainty in criminal cases, ultimately leading to improved crime detection (Eyewu, 2020).

In Nigeria, the inaugural official forensic science laboratory was established by the Lagos State government on September 27, 2017, with the objective of enhancing security and improving the delivery of justice through technological means (LSD&FC, 2020). These facilities serve the purpose of supporting the legal system in detecting crimes, apprehending criminals, and exonerating the innocent. Over time, there has been a significant increase in the number of such laboratories, signifying the growing importance of forensic science within the criminal justice system and the expanding field of forensics in Nigeria. For instance, the former Attorney General of Lagos State noted, "Late last year, another forensic laboratory owned by the Nigeria Police Force commenced operations... However, he emphasized that it is not just the quantity of these facilities that matters but their effective utilization and the extent to which the general public is informed about their functions. He further stressed the importance of raising public awareness about the availability of these laboratory facilities" (Chibuikem & Gideon, 2021).

### **Challenges of forensic science**

The primary aim of scientific investigation is to transform suspicion into a reasonable level of certainty regarding either guilt or innocence. However, until recently, Nigerian courts had to heavily rely on non-scientific evidence due to the unavailability of adequate technology (Nkobowo, 2023). The field of forensic science in Nigeria has not yet been fully integrated. Often, neither the judge, the lawyer, nor even the police fully grasp the advancements and extensive, promising potential of this science and the integration of new technologies, methodologies, modalities, and research. The multifaceted and interdisciplinary nature of forensic science requires an inter-professional approach, which is often lacking. The current level of forensic science application in crime investigations remains relatively low in Nigeria. Reluctance to utilize forensic evidence in criminal investigations can be attributed to various factors. These include the mishandling of physical evidence, improper collection and preservation, neglecting to gather crucial evidence, and a lack of proper chain of custody maintenance, as well as delayed submission of physical evidence for scientific analysis, which has been a significant issue within the criminal justice system (Powell, 2022). Neglecting to send an accused for a medico-legal examination or failing to collect fingerprints by the investigating officer, and sending bloodstained metal objects for chemical examination without proper packaging, are additional issues.

At times, scientific evidence is compromised due to technical shortcomings, such as the omission of blood group information in a serologist's report, insufficiently meticulous testing, a lack of supportive data provided by the expert alongside the report, and delays in examining exhibits in the laboratory, among other concerns. Forensic labs in Nigeria also grapple with inadequacies in personnel, infrastructure, equipment, and funding Aigbokhaevbo and Iyamu-ojo (2021). According to Susruthan and Sundaram (2022) the staffing, equipment, and other facilities available in these laboratories are insufficient to meet the demands placed on most of these scientists. In addition, the workload is constantly increasing leading to delays and some cases insufficient examination.

Unexpectedly, there is an absence of effective coordination between these two entities; forensic experts and the police. Corruption and distortion or contamination of forensic evidence is another major challenge. For instance, the murder of Chief James Ajibola Idowu Ige (1930-2001) and Nigeria's former Minister of Justice and Attorney General would have been traced and brought the perpetrators to book, but for the distortion and contamination of forensic evidence and the scene of crime, such vital information could not be found at the crime scene (Nwokolo and Ivongbe, 2022). According to Nwanze (2023), the inevitable result of this system characterised by inadequate police training and the absence of ongoing retraining is subpar policing, which extends to

encompass criminal investigations and the overall criminal justice system. Inadequate funding, staff, manpower training, poor maintenance culture, nature of appointment and poor personnel welfare negatively affect application of forensic science investigation negatively. To Sarki and Mat Saat (2020), most of these constable investigators have completed only the fundamental three-month entry training at the Police College. This training predominantly centres on physical exercises, with minimal attention given to the nuances of policing. In a similar vein, Deslauriers-Varin and Fortin (2021) proposes that the expertise and proficiencies essential for practical criminal investigation are often acquired by officers through on-the-job learning. Furthermore, they are often assigned to handle complex investigations while still relatively inexperienced. Deslauriers-Varin and Fortin underscores that uncooperative informants, inadequate funding, and corruption are the principal challenges in crime investigation in Nigeria. Additionally, a significant portion of these "in-station" instructors have not had the opportunity to further their education through training, seminars, or workshops to enhance their understanding of current policing methods and practices.

### **Theoretical framework**

Cognitivism theory was propounded by Jean Piaget in 1936. this theory is rooted in the idea that cognitive processes play a central role in shaping emotion, actions, and thoughts. It places a significant emphasis on the impact of a child's personality on their future behaviour. Furthermore, it examines crime delinquency through the lens of the life development. The theory proposed stages of cognitive development which advocate the process of explaining delinquency and crime in the society. These stages are pre-conventional level, conventional level and post-conventional level. The pre-conventional stage is typically observed in children and is cantered on the external consequences that may result from actions (Winna, 1988). The conventional stage is commonly found in young adults and adolescents, and it places an emphasis on societal expectations and norms. In contrast, the post-conventional stage is prevalent in adults, typically those over the age of 20, and it involves a critical examination of moral principles and human rights. The theory suggests that offenders often do not progress beyond the pre-conventional stage in their capacity for moral judgment.

The cognitivism theory primarily concentrates on the connection between criminality and personality. Although there has been debate among scholars about the significance of personality traits in predicting an individual's future behaviour, criminologists assert that the root cause of crime is not solely a social issue (such as a deficient educational system or high unemployment rates) but also deeply ingrained aspects of an individual's personality and their early life experiences. According to Wilson (2007), impulsive personality, a lack of empathy, and lower intelligence levels are among the factors that contribute to individuals becoming offenders. This theory is relevant as it focused on child's personality as it relates to his/her emotion, attitudes, thoughts, behaviours and manner. The emotion, attitudes, thoughts, behaviours and manner could be positive or negative. The negative is when it leads or makes one to be offender, commit crimes or exhibiting delinquent behaviours. Therefore, this theory could be used by security personnel to effectively carryout crimes investigations.

### **Methodology**

**Research Design:** The study adopted survey techniques. This method was preferred because it describes a phenomenon as it exists at the time of investigation and make inferences about the population under study using the sample drawn from the population (Akwaji, Uyang, & Abonor,

2017). Also, this technique enables the researcher to restrict the study to a selected sample rather than the whole population.

**Study Area:** The research was conducted in Nigerian Police Headquarters (PHQ) in Niger State, Minna, (CID) and High Court of Justice (H.C.J) in Minna Niger State. Minna is the administrative Headquarter of Niger State. These two institutions (PH.Q & H.C.J) are located in Minna and are saddled with the responsibility of handling civil and criminal cases and remain the most active and functional units that handle the justice process from the scene of crime up to Correctional Facilities. The choice of these investigative units is to obtain relevant information on the way and manner forensic science is utilized to determine offender and victim of criminal cases.

**Population of the study:** Since this research was conducted in Police Headquarters, CID and High Court of Justice Minna. The population of the study constituted all detectives, Divisional Crime Officers (DCO'S) and prosecuting police officers in the Police Headquarters, Minna. However, the population comprises of 300 police crime investigators in the Niger State Police Headquarters and 70 High Court of Justice making a total of 370 respondents. This is because of the significant information they will be able to obtain on the role and effectiveness of Forensic Science in the administration of Criminal Justice System.

**Sample size and sampling technique:** Sample size for this study consisted of 90 police crime investigators in the Niger State Police Headquarters and 21 High Court of Justice making a total of 111 respondents. The population was grouped into two parts namely security personnel and court officials. Through a multistage sampling technique, the respondents were adequately selected. However, according to Olaniyiwola (2007) opined that, for descriptive research, 10-30% sample size of the total population is adequate. Based on this, 30% of the population was used. Therefore, the sample size for this study was 111 respondents.

**Research Instruments:** The instrument used to collect data for this study was structured questionnaire. According to Orodho (2009), a questionnaire is a suitable method of data collection because; it has the ability to collect large information in a short time space; respondents' anonymity ensures that they are honest answers; and questions are standardized for everyone who may respond to the set of questions. The instrument titled "An Assessment of the Role and Effectiveness of Forensic Science in the Administration of Criminal Justice System in Niger State". It comprises of 38 items. Section one (1) of the questionnaire was demographic data of the respondents while the remaining sections were made up of item statements to answer the research questions. More so, the items were structured on a four-point Likert scale, ranging from Strongly Agreed, Agreed, Disagreed and Strongly Disagreed.

**Procedure for Data Collection:** The researchers and their assistants personally administered the instruments. The respondents were informed on the purpose of the study. Where the respondent finds it difficult to understand certain item, the researchers or his assistants helped to clarify the respondent. Each of the respondent was served a copy of the instrument and the instruments were later retrieved (after being responded to) from them by the researchers and the assistants.

**Method of Data Analysis:** The data collected for this study were analysed through frequency counts and simple percentage, mean and t-test. Frequency counts and simple percentage was used to analyse demographic data, mean to answer the research questions while t-test was used to test the hypotheses.

**Limitations of the Study:** Forensic Science is relatively new in the administration of criminal justice system in Nigeria. It was difficult for some personnel to give adequate information since there is lack of public trust on their personnel. Other limitations include financial constraints, time factor and other logistics. Also, there was no standard forensic laboratory in the study areas for the researchers to make further inquiries. The study period span from 2022 to 2023.

## Findings

**Table 1: Mean score of respondents on the availability of equipment for forensic science application in criminal justice system in Niger State**

S/N	Item Statement	SA	A	D	SD	N	Mean
1	Adequate forensic science equipment enhanced effective service delivery	93	15	-	-	108	3.8
2	There are adequate forensic science equipment in Niger State crime investigation and Judiciary system	19	11	26	52	108	1.3
3	There are adequate forensic science equipment but not functional in Niger State crime investigation and Judiciary system	12	24	41	31	108	2.2
4	The personnel to utilize forensic science investigation equipment are not adequate	79	26	2	1	108	3.7
5	Forensic science equipment are effectively utilised for crime investigation	52	37	15	4	108	3.2
6	Forensic science equipment are adequately maintained for effective service delivery	14	31	17	46	108	2.5
7	Poor maintenance culture among the personnel negatively affects application forensic science investigation	73	35	-	-	108	3.8
8	There is need for more forensic science equipment in this state	108	-	-	-	108	4.0

Table 1 shows the responses of respondent on availability of equipment for forensic science application in criminal justice system in Niger State. Item 1 shows the responses of respondents on Adequate forensic science equipment enhanced effective service delivery. From the responses of the respondents, the item statement was accepted by the respondents with the mean score of 3.8. Item 2 shows the responses of respondents on there are adequate forensic science equipment in Niger State crime investigation and Judiciary system, the mean scores of the respondent show that the item statement was accepted by the respondents with the mean scores of 2.8. Item 3 was to find out there are adequate forensic science equipment in Niger State crime investigation and Judiciary system, the responses of the respondents' shows that the item was rejected with mean of 2.2. Item 4 was on the personnel to utilize forensic science investigation equipment are not adequate. The mean scores of 3.7 were obtained from the respondents' responses to the questionnaire. Item 5 elicited data on Forensic science equipment are effectively utilised for crime investigation. Statements to the items were accepted by the respondents with a mean score of 3.2. Item 6 shows the responses of respondents on forensic science equipment are adequately maintained for effective service delivery. From the responses of the respondents, the item statement was accepted by the respondents with the mean score of 2.5. Item 7 shows the responses of respondents on Poor maintenance culture among the personnel negatively affect application forensic science investigation. The mean scores of the respondent show that the item statement was accepted by the respondents with the mean scores of 3.8. Item 8 was to find out if there is need for more forensic

science equipment in this state. The responses of the respondents showed the respondents accepted the item statement with the mean score of 4.0.

**Table 2: Mean score of respondents on the challenges of applicability of forensic science in criminal justice process in Niger State**

S/N	Item statement	SA	A	D	SD	N	Mean
28	Inadequate funding affect application of forensic science investigation negatively	108	-	-	-	108	4.00
29	There are inadequate qualified forensic science investigators	101	7	-	-	108	3.7
30	Inadequate manpower training affects effective application of forensic science investigation	92	16	-	-	108	3.4
31	Poor maintenance culture constitutes a bigger challenge to the application of forensic science investigation in Niger State	108	-	-	-	108	4.00
32	There are limited technologies to effectively adopt forensic science in crime investigation	108	-	-	-	108	4.00
33	The nature of appointing officers/personnel affect effective operation of forensic science investigation	108	-	-	-	108	4.00
34	Poor personnel welfare negatively affects quality service delivery of forensic science investigation	108	-	-	-	108	4.00

Table 2: Illustrates the responses provided by the respondents regarding the challenges related to the implementation of forensic science in the Criminal Justice Process in Niger State. Item 28 focuses on the impact of insufficient funding on forensic science investigation, and the respondents' mean score was 4.0, indicating their agreement with this statement. Item 29 pertains to the availability of qualified forensic science investigators, and the respondents' mean score of 3.7 suggests their acceptance of this statement. Item 30 aimed to determine if inadequate manpower training hampers the effective application of forensic science investigation, and the mean score of 3.4 indicates that the respondents accepted this statement.

Item 31 addresses the issue of a poor maintenance culture posing a significant challenge to the application of forensic science investigation in Niger State, with a mean score of 4.0 reflecting respondents' agreement. Item 32 examines the availability of technologies for efficient adoption of forensic science in crime investigation, and the respondents accepted this statement, as indicated by the mean score of 4.0. Item 33 delves into the effect of the nature of appointing officers or personnel on the effective operation of forensic science investigation, and the respondents' mean score was 4.0, indicating their agreement. Lastly, item 34 explores how poor personnel welfare negatively impacts the quality of service delivery in forensic science investigation, and the mean scores of the respondents suggest their acceptance of this statement.

### Test of Hypotheses

In this segment we have gathered and presented a concise overview of the findings and outcomes derived from the null hypotheses that were formulated and evaluated in accordance with the study's objectives. The data, which were collected in the form of responses from the respondents (CID and Court Staff) through the administered questionnaire, were subjected to testing. The hypotheses underwent evaluation using a one-sample t-test, with a significance level set at 0.05. The statistical package for social sciences (SPSS) was employed for data analysis. The Null Hypothesis was evaluated by contrasting the p-value with the significance level predetermined by



the study, which was set at a 0.05 significance level. If the p-value is lower than the significance level determined by the study, the hypothesis is consequently rejected.

### ***Hypothesis I***

(HO<sub>1</sub>): Availability of forensic science equipment has no effect on its application in criminal justice system in Niger State.

The items within this section were derived from questions 1 to 8 in the questionnaire.

**Table 3: Summary of the t-test on the availability of equipment for forensic science application in criminal justice system in Niger State**

	Status	N	Mean	Df	Std. Deviation	Std. Mean	Error T	Sig.
Equipment	CID	87	3.1080	106	.29382	.03150	0.665	0.417
	Court Staff	21	3.0762	36.829	.23432	.05113		

Based on the information presented in table 3, the F-value is 0.665, and the P-value is 0.417 at the 0.05 significance level. Because the P-value is lower than the significance level, the hypothesis is consequently not supported and is rejected. Therefore, Availability of forensic science equipment has effect on its application in criminal justice system in Niger State.

### ***Hypothesis II***

(HO<sub>2</sub>): There are challenges in the applicability of forensic science in criminal justice process in Niger State

The items within this section were derived from questions 9 to 18 in the questionnaire.

**Table 4: Summary of the t-test on the challenges of applicability of forensic science in criminal justice process in Niger State**

	Status	N	Mean	Df	Std. Deviation	Std. Mean	Error T	Sig.
Challenges	CID	87	3.9805	106	.06069	.00651	7.087	0.009
	Court Staff	21	3.9524	24.279	.09284	.02026		

According to the table 4, the t-value is 7.087 and the P-value is recorded as 0.009 at the 0.05 significance level. Given that the P-value exceeds the significance level, the hypothesis is consequently upheld. Therefore, there are challenges in the applicability of forensic science in criminal justice process in Niger State.

### **Discussion of Findings**

There is inadequate functional forensic science equipment in Niger State crime investigation and Judiciary system. This was indicated by 52% of the respondents that strongly disagreed that there are adequate forensic science equipment in Niger State crime investigation and Judiciary system. In a corresponding report, Oluwafemi (2009) indicates that the connection between ineffective criminal investigations and certain deficiencies within Nigeria's criminal justice system has been illustrated by the limited availability of forensic facilities and equipment. Furthermore, Onyeozili (2005) asserts that the Nigerian criminal justice system faces numerous challenges, including inadequate and ineffective criminal investigation resources. There is also a shortage of adequately trained and proficient personnel to operate forensic science technologies. Brown (2015)

shares a similar perspective, suggesting that the primary causes for this situation can be attributed to obstacles across jurisdictions, deception, cunning tactics, and the inability of significant figures within the criminal justice system to grasp essential elements of technology-aided crime. Otu and Elechi (2018) assert that the demand for the Nigeria Police to receive training in forensic technology is of paramount importance in the modern world.

The effective implementation of forensic science in the criminal justice process is highly evident in Niger State. Dubord (2008) and Leibolt (2010) share the view that science plays a substantial role in shaping the effectiveness of forensic investigations. Moreover, it enhances the capacity of investigators, prosecutors, judges, and jurors to comprehend the unlawful utilization of technology, which, in turn, has a direct impact on the rates of convictions. Dubord (2008) and Leibolt (2010) concur that science significantly influences the usefulness of forensic investigations. Moreover, it enhances the capacity of investigators, prosecutors, judges, and jurors to comprehend the unlawful utilization of technology, which, in turn, has a direct impact on the rates of convictions. Duru (2016) contends that modern policing relies on the application of technology, forensic science, intelligence, and the consent of citizens. In line with this, Kurtz (1995) states that the decentralized police model offers greater flexibility in service delivery, local control, and specialized training tailored to local needs. Otu and Elechi are in agreement with this viewpoint, asserting that forensic science reduces national corruption, supports customized enforcement efforts, and minimizes costs and national interference in local matters.

Unsystematic evidence collection has a detrimental impact on forensic science investigations. Similarly, Oluwafemi (2009) notes that the improper application of methods leads to baseless accusations against innocent individuals, relying on speculations rather than thorough investigations. Ojo (2005) expresses a similar viewpoint, suggesting that a significant number of individuals who have committed offenses have managed to avoid the justice system, escaping punishment due to incomplete or inadequate criminal investigations. This, in turn, has resulted in a lack of sufficient evidence for court convictions. Oluwafemi (2009) argues that the Nigerian Police Force's deficiencies in the realm of criminal investigations have prompted a shift in investigative methods. This shift has steered away from a comprehensive approach involving the sourcing, analysis, and interpretation of evidence and has instead prioritized the extraction of confessions from suspects through any means necessary. Supporting this perspective, Okiro (2007) reports that, this shift in approach has led to the use of force and torture techniques by the police. Consequently, the validity of confessional statements obtained during investigations has been challenged during legal proceedings.

## **Conclusion**

In conclusion, there has been a growing interest in the crime investigation. Reasons for application of forensic science in crime investigation are due to increase and sophisticated criminals in the society today. However, it was concluded that there are inadequate functional forensic science equipment. More so, inadequate funding, staffing, manpower training, poor maintenance culture, nature of appointment and poor personnel welfare negatively affects application of forensic science investigation negatively in Niger State, Nigeria.

## **Recommendations**

Based on the findings of this study, the following recommendations were made:

- ✓ Government and Private sector should provide adequate and functional forensic science equipment in crime investigation to enhance Judiciary system in Niger State.

- ✓ Police commission in collaboration with judiciary commission should apply forensic science in criminal justice process it is highly effective in Niger State.
- ✓ Government should provide adequate funding; staffing, manpower training and retraining, and personnel welfare should be enhanced to promote effective application of forensic science in crime investigation.
- ✓ Also, personnel should be appointed based on merit and there should be effective and adequate supervision to enhance positive maintenance culture of forensic science equipment.

### **Suggestions for future research**

The authors therefore suggest the following areas for exploration

- i. Application of Forensic Science in the Administration of Justice, the bane of Prison Decongestion and Abuse of Judicial Process in Niger State, Nigeria.
- ii. Impact of Forensic Dependencies on Investigating and Prosecuting Cyber Crime in the Administration of Justice in North-Central Nigeria
- iii. The Impact of Police Reform on the Application of Forensic Science in North-Central Nigeria.

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