



DIFFICULTIES ENCOUNTERED BY THE FORENSIC UNIT PERSONNEL IN THE ANALYSIS OF EVIDENCES ON CRIME

Mary Jane G. Ibañez¹, Princess Marie F. Bansale², Jessica A. Ordas³

¹Colegio de la Purisima Concepcion,

²Colegio de la Purisima Concepcion,

³Colegio de la Purisima Concepcion

ABSTRACT

The primary goal of the study was to ascertain the challenges faced by the forensic unit staff when analyzing the evidence from crimes being investigated in Roxas City, including issues on laboratory operations, technological difficulties, health and safety issues, and cooperation and information sharing. The study used the descriptive research design. The data gathered were through the use of a researcher-made questionnaire which was statistically treated and analyzed with the aid of the Statistical Package for Social Sciences (IBM SISS Version 25). The research tools used were frequency count, percentage, mean and t-test/f-test as statistical tools to analyze and interpret the gathered data. Findings of the study revealed that the difficulties encountered by the forensic unit personnel in the analysis of evidence on crime was moderately high in the laboratory operations, technological challenges, but very high difficulty in safety concerns and collaboration and information sharing. There was no significant difference on the difficulties encountered by the forensic unit personnel in the analyzes of evidences on crime as to sex, years in service, educational attainment, estimated monthly income, but with significant difference in terms of age.

Keywords: *Forensic Crime Scene Investigation*

1. Introduction

1.1. Background

There are several types of evidence, and they often differ depending on the academic discipline or topic of discussion. In fact, if a claim or argument is made without supporting data, it is considered unfounded or poorly researched. Strong evidence is required to support the point, demonstrate how the argument and conclusions were reached, and persuade the speaker that they are knowledgeable about the subject matter. Without these features, the evidence has low credibility.

In keeping with this, forensic scientists have set up criminalistics labs to evaluate and scrutinize tangible evidence using various instruments in order to obtain evidence relevant to criminal activity. The first forensic laboratory was established in a Parisian police station by scientist Edmond Locard, who is known as the father of forensic science. Similarly, August Vollmer led the first U.S. police force and was appointed Berkeley's chief of police. Other attempts in the field of forensic science were made, according to Saferskin (1998), who mentioned that in 1932, J. Edgar Hoover established the Federal Bureau of Investigation in order to provide forensic services to all law enforcement agencies in the nation, Edgar Hoover founded the Federal Bureau of Investigation. Meanwhile, the Central Research Establishment was founded in England in 1966.

Studies that summed up the police's readiness and difficulties in applying science to crime prevention and control were conducted by the Forensic Science Program at the School of Health Sciences, Universities Sains Malaysia (Sarki and Saad, 2018). The Philippine National Police Forensic Group also felt and experienced some difficulties with regards to forensic science. Though it is one of the machines in the criminal justice system that helps people investigate evidence collected from the

crime scene, whether physical, chemical, biological, or digital, challenges and problems sometimes arise pertaining to evidence. The collected evidence from crime scenes, suspects, and victims is analyzed and preserved using science in the fields of law enforcement and legal circles. In spite of unique methods, the reliability of the evidence is not 100 percent. Forensic science appears to have big impact to the police investigations and humanitarian action so as to solve the problems.

The units that make up the Philippines National Forensic Group are: 1) Forensic Chemistry; 2) Medico Legal; 3) Physical Identification; 4) Firearms/Ballistics; 5) Fingerprints/Dactyloscopy; 6) Question Document; 7) Polygraph; 8) Photography; and 9) Scene of the Crime Operations. Every member of this group has important tasks to complete, especially with regard to the evidence that is assigned to and received from different laboratories. This unit adopts an interdisciplinary approach, fusing a solid background in the social and natural sciences, criminal justice, and a wealth of laboratory and fieldwork. In this regard the research intended to gather data on the extent of challenges and difficulties encountered by forensic personnel in the conduct of examination on evidences.

1.2. Statement of the Problem

This study aimed to determine the difficulties encountered by the forensic unit personnel in their analyses of evidences on the crime being studied or solved. Specifically, this study sought to answer the following questions:

1. What is the socio-demographic profile of the respondents in terms of age, sex, civil status, educational attainment and estimated monthly family income?
2. What is the level of difficulties encountered by the forensic unit personnel in the analyses of evidences on the crime being solved by PNP Forensic Crime Laboratory in Roxas City as a whole and in terms of laboratory operations, technological challenges, health and safety concerns, and collaboration and information sharing?
3. Is there a significant difference in the level of difficulties encountered by the forensic unit personnel in analyzing the evidences gathered on the crime situation at the PNP Forensic Crime Laboratory in Roxas City when respondents are grouped according to socio-demographic profile in terms of age, sex, educational attainment, estimated family income and years of experience?

1.3. Hypothesis

Based on the above statement, the hypothesis below was formulated: There is no significant difference in the level of difficulties encountered by the Forensic Crime Laboratory Personnel in the analysis of evidences on crime at the PNP Forensic Crime Laboratory in Roxas City when respondents are grouped according to socio-demographic profile in terms of age, sex, educational attainment, estimated family income and years of experience.

1.4. Theoretical Framework

The study was anchored to the conflict theory of Karl Marx (1818-1883). According to conflict theory, dominance and power rather than agreement and compliance maintain social order. Conflict theory holds that people in positions of money and power will do everything in their power to maintain their studies in life by oppressing the weak destitute. Conflict theory's fundamental. Tenet is that people may cooperate to do things unlawful through the use of influence in the society

The study was also anchored to the Mindset Theory of Miller (2013) which states that the "fixed" mindset fosters a sense of urgency to prove oneself and each setback experienced that may be viewed as direct indicator of incapacity are self-worth. This theory is significant in crime scene investigations and studies because it includes several determining what happened based on the evidence left by the criminal.

1.5. Conceptual Framework

The schematic diagram showing the independent variable and dependent variable portrays the conceptual framework of the study. The independent variable includes the socio-demographic profile of the respondents in terms of considering age, sex, civil status, educational attainment and estimated monthly family income while the dependent variable was in the difficulties encountered by the

Forensic Unit Personnel in the Analysis of evidences on crime among PNP Forensic Unit in Roxas City.

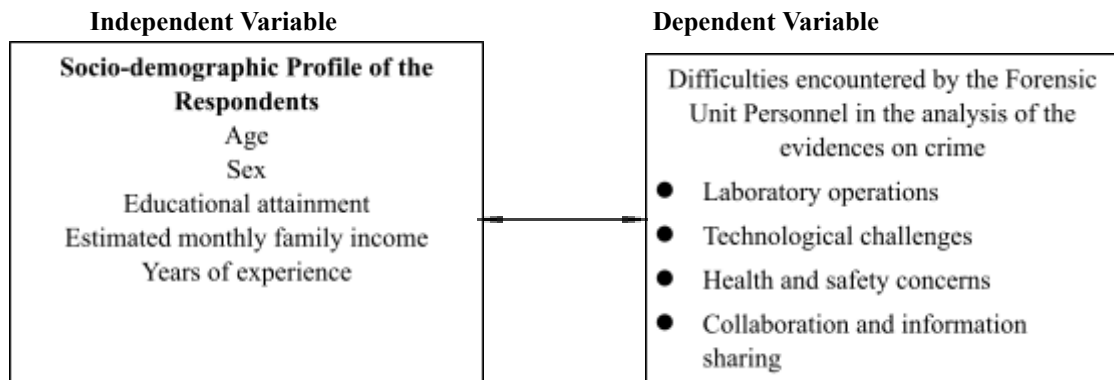


Figure 1. The schematic diagram showing the variables of the study.

2. Literature Review

A crime laboratory, commonly recognized as a forensic group, has facilities that deal with evidences from crimes and occasionally civil infractions. Crime laboratories employ experts in a range of fields, such as behavioral forensics in science, pathology, anthropology, crime-scene investigation, and ballistics. The materials examined may be physical, chemical, biological, or digital evidence. Notwithstanding the rise in private labs that focus on services like drug scrutiny and breakdown and DNA fingerprinting, the majority of crime labs are funded and managed by local, state, or federal governments. Just a small number of the 400 or so communal crime labs in the US are run by the federal government. While there have been few attempts at interstate coordination and regional planning, every state maintains a crime-lab system. While some are managed by the district attorney or the state-run division of justice, most labs are housed within the police or sheriff's departments.

Every crime laboratory has an evidence-intake unit of some kind, where evidence is received, given a special case and laboratory identification, and kept. The evidence is always available in the lab with a corresponding bar code based on the bar-code system of the laboratory, which also automatically creates a chain of custody, which also automatically creates and follows traceability processes. After logging in, the evidence is typically kept in a secure location, which could be the primary lab storage area or a temporary storage area until it is delegated to one or more adjudicators. Within a regional laboratory system, a minimum of one lab provides all services offered in that state or province, while other labs provide services that are not as comprehensive.

Crime labs' drug units were tasked to examine illegal substances and identify potentially illegal tablets, powders, or liquids. The International Quality Assurance Programmer was introduced by the UN Office on Drugs and Crime in 1995 with the goal of enhancing and harmonizing drug testing procedures in crime labs globally. Evidence such as plasma, sperm, mucus, skeletons, organic material, and insects is analyzed in the biology unit. Bloodstain patterns, particularly those that splatter back and forth, can show where an attacker was when a shooting occurred as well as where victims and attackers went after the crime was committed. The presence of metal plates or pins, certain dental traits, or anomalies in the bone can help identify and confirm a decedent's maturity level, gender, dimensions, social position, wellness, and citizenship. Although several types of analysis are frequently combined with the trace-evidence unit, cells such as hair and skin are included in the examination performed at the biological unit. Spores, seeds, and leaves from fungi and plants may reveal the geolocation where the crime scene is situated and the movements of the assailants. Insects taken from a decaying body can be examined to ascertain the amount of time that has passed since death. That unit's forensic scientists might visit crime scenes to gather biological evidence, such as blood spatter. Evidence handling, chain of custody, forensic analysis, and explanation may be contaminated or go against accepted standards of conduct in forensic science. These are a few of the reasons it is necessary to address the issue of police personnel's readiness. Some reasons that hinder the effective utilization

of forensic science, according to Yoo et al. (2013), were post-traumatic stress, interdisciplinary differences, an inadequate and reliable database, a lack of standard regulation, and the multiplier effect. Furthermore, post-traumatic stress in terms of number was found to be challenging for the investigators due to the number of years of forensic investigations, personality types, emotional intelligence, fatigue, and death anxiety.

Similarly, Gabel (2014) and Edmond (2014) mentioned that a lack of standard regulations as to the operation and application of forensic outcomes prevents police and other beneficiaries of forensic scenes. Another factor was the difference in the form of disharmony and misunderstanding during operations among investigation personnel from different fields.

Another cause is inadequate personnel and laboratories, which also affect the police use of forensics (Obfuwa et al., 2015). Another challenge was the questionnaire results arising from wrong methods, contamination, and a lack of standard procedures (Lee and Pagliaro, 2013).

There are basic principles of forensic science and these are considered in the global criminal world together with the basic principles like 1) Law of individuality that explains that everything is natural or man-made with a feature of individuality like fingerprints, DNA and others. These are the individual basis for identification of humans from which no one can deny 2) Exchange is the next principle that expresses that “everything contact leaves a trace which means that when criminal or his object encounter the victim or crime scene; 3) Law of progressive change is the third which is also considered crucial which means that every evidence changes demonstrates that for examining the physical evidence, it is necessary to preserve the same physical evidence to be compared (Howit, 2018)

Furthermore, Sharma (2015) mentioned that criminal investigation is the process wherein evidence is collected that is related to crime and efforts are made in the case to provide legal proof against the culprit in court. Similarly, Nabar (2015) also mentioned that a criminal investigation is basically a complete inquiry into a criminal case. In fact, it includes different aspects of the investigation, like interviewing the eyewitnesses, the suspect, and the victims. Other aspects include interrogating the suspects in order to extract the facts pertaining to crime and proper documentation of crime from a crime scene up to a court verdict, but the one that is emerging and helping in solving criminal cases rapidly is the so-called forensic investigation. As a reminder, the scene of occurrence is the most crucial spot where crime has been carried out, and physical evidence of such a crime can be collected by the investigation. In the Philippines, lack of resources is the most significant and worrisome problem facing the Philippine CSI sector. The ability of investigators to carry out thorough crime scene investigations is hampered by outdated equipment and budgetary restrictions. Moreover, the lack of skilled workers compromises quality. Unexpectedly, a lot of police stations are devoid of even the most basic forensic equipment, which can cause aggravating case selection delays and give victims a spooky feeling of unfairness. Our investigators find it difficult to stay current with forensic developments in the absence of sufficient financial support.

The country's urbanization presents law enforcement officials with yet another formidable obstacle. Cities with high population densities make it more difficult to find crime scenes fast, which can lead to lost or tainted evidence. Due to worries about their security or fear of prosecution, of witnesses may be reluctant to come forward, which prevents the gathering of crucial information. Major cities have congested roads, which makes things even more difficult. These problems are exacerbated by insufficient funding and resources, which provide investigators with outdated tools and inadequate forensic services.

Through the Witness Protection Program, the Philippine government has taken steps to protect witnesses and promote their positive engagement in the justice system. Community-based awareness campaigns seek to remove cultural beliefs that obstruct justice. The Philippine National Police (PNP) has recognized the need to modernize and fund forensic departments. Training programs have been designed to help forensic specialists and investigators improve their skills. Cooperation with international organizations such as INTERPOL has brought advanced forensic tools to our law enforcement agencies, such as DNA analysis and digital forensics. Increased investment in judicial units will enable our justice officers to use cutting-edge and innovative instruments, as well as hire qualified personnel.

In a nutshell, the obstacles to crime scene investigations in the Philippines are substantial but not insurmountable. It has to look forward to a brighter future in criminal justice if the country wishes to continue to upgrade equipment, increase training, and promote global cooperation. By adapting and standardizing procedures, these obstacles can be overcome, thus

reducing constraints and achieving significant advances in crime prevention. Resources devoted to the advancement of forensic technology will provide much-needed assistance, just as educational initiatives can empower individuals and law enforcement to combat crime.

In a study on the extent of forensic practices in police investigations: a basis for an enhancement plan, it was concluded that police investigations in the province of Antique were highly capable of performing and applying forensic science during the conduct of crime scene investigations, particularly in ballistics and photography. The participants of the study were the sixty-five (65) police investigators assigned to different municipalities in Antique. The socio-demographic profile. Educational attainment and length of service were the essential variables of the study (Quiape and Painga 2022). Only three laboratories in the country were able to perform forensic analysis, according to a 2019 paper by Rodriguez and colleagues on incorporating assumptive and conclusive sperms factual information into DNA profiling of sex assault proof as a Philippine example. Despite the large number of cures, laboratories at the Natural Sciences Research Institute's Dna testing Analysis Laboratory, the University of the Philippines Diliman, and the third crime laboratories of the Philippine National Police (PNP) and the National Bureau of Investigation (NBI) have all examined for investigations into sexual assaults.

3. Research Method

3.1. Research Design

The study used the descriptive research that described the situation in terms of the socio-demographic profile of the study, the difficulties encountered by the forensic unit personnel in the analysis of evidences on crime in terms of laboratory operations, technological challenges, health and safety concerns and collaboration and information sharing.

3.2. Research Participants and Sampling Procedure

The research participants of the study were the sixteen (16) personnel of the Capiz Provincial Forensic Unit, DPWH Compound, Hemingway St. Roxas city for the year 2023-2024. Total sample size was used in the study.

3.3. Research Instrument

The study used a researcher-made questionnaire as a primary tool in gathering the data. The researcher-made questionnaire had two parts. Part I dealt with the socio-demographic profile of the respondents in terms of age, sex, years of experience, educational attainment, and estimated monthly family income. Part II dealt with the difficulties encountered by the forensic unit personnel in the analysis of evidences on crime in terms of laboratory operations, technological changes, health and safety concerns and collaboration and information sharing. There were ten (10) statements for each category. These were give responses for each category from which the respondents may choose according to his perception namely: 5 – always, 4 – very often, 3 – often, 2 – Seldom, and 1 – Never. The researcher-made questionnaire was submitted to validation to panel of experts which included the English critic, research experts and statistical comments and suggestion as of the panel members were incorporated to have final researcher-made questionnaire. After the face and content validation of the questionnaire, this was subjected for pilot testing to the thirty (30) individuals who have knowledge on criminology aspects and they were not included as the respondents of the study. Pre-test was done to measure the content and reliability of the questionnaire. In support to this, according to Calmorin (2007), a questionnaire is reliable if the computed reliability coefficient is equal to 0.80 or more but more than 1.0. The reliability coefficient was .89 using the Cronback Alpha of the Statistical Package for Social Sciences (SPSS).

3.4. Data Gathering Procedure

The researchers prepared a letter of request to the dean of the College of criminology, Sir Lester Cadelina to conduct this study on the “Difficulties Encountered by the Forensic Unit Personnel in the Analysis of Evidences on Crime.” Once approved, the researchers reproduces the questionnaire after their adviser gave them the go signal to do so the researchers sought approval from the head of the Forensic Unit Personnel to conduct the study and upon approval, the researchers distributed the

questionnaire to the sixteen (16) respondents. The respondents were given enough time to answer the questionnaire and after they were through answering the questionnaire, the researchers gathered these one by one and checked if there were missing answers in the questionnaire.

3.5. Data Analysis and Interpretation Procedure

After the research instrument had been retrieved, these were collated, scored and entered in the master data. These were then ready for computer processing using a licensed IBM SPSS Statistics 26 program. The researchers made sure that the responses were properly score and computed. For the descriptive data, frequency count, percentage, mean and weighted mean were used.

4. Results and Discussion

The main objective of the study was to determine the difficulties encountered by the forensic unit personnel in analyzing the evidences on the crime as presented. The study used the descriptive research design. This research design describes the present existing conditions. It involves the collection of data in order to test the hypothesis or to answer questions concerning the current status of the subjects under study.

This research design was deemed appropriate for this particular study because a survey was used to gather the data regarding the difficulties encountered by the forensic unit personnel in analyzing the evidences on crime. The data needed for the study were gathered through the use of a researcher made questionnaires which had two parts: Part I dealt with the information on the socio-demographic profile of the respondents and part II dealt with the difficulties encountered by the forensic unit personnel in analyzing evidence on crime in terms of laboratory operations, technological challenges, health and safety concerns and collaboration and information sharing.

The following were the major findings of the study:

The difficulties encountered by the forensic unit personnel in the analysis of evidences on crime was moderately high. There was a significant difference in age with a f-value of 4.069 had a significant value of 0.042 which was lower than 0.05 alpha. However, there is no significant difference in the years of service with significant value of 0.052 which was higher than the alpha. Likewise, there is no significant difference as perceived by the respondents in terms of sex because the significant value is higher than the 0.05 alpha. Furthermore, there was no significant difference in terms of educational attainment and estimated monthly income which was greater than 0.05 alpha. This result implied that there was no significant difference in the difficulties encountered by the forensic unit personnel as perceived by the respondent when grouped according to socio-demographic profile.

Conclusions

With the aforementioned findings, the following conclusions are drawn:

1. Crime scene investigation affects criminal case solving process.
2. Barriers in crime scene investigation is hampering performance of the personnel.
3. Comprehensive investigation is a logical, systematic and coordinated procedure.
4. Integrity and transparency are vital in crime scene investigation.
5. Training of forensic unit personnel contribute much to the success of the operation of the Bureau of Investigation and the Philippine National Police.

References

- Baes, Glenn B. (2020). Dissertation Thesis writing Guide. Colegio de la Purisima Concepcion, Roxas City
- Brown Reavey Kariyeredz; Botty (April 15, 2013).
- David, F. (2005). Understanding and Doing Research: A Handbook for Beginners, Iloilo City, Panorama Printing Press.
- Gabel, J.D. (2014). Realizing reliability in forensic science from the ground up. The Journal of Criminal Law of Criminology, 104 (2), 283-352.
- Gochran W. (1977). Sampling Techniques. Third Edition. John Wiley and sons.
- L, R. (2024, May 10). Addressing Challenges in Crime Scene Investigations in the Philippines.

- Lee, H.C. and Pagliano, E.M. (2013). Forensic Evidence and crime scene Investigation, *Journal Forensic Investigation* September, 1 (2), 1-5.
- Obafunwa, J.O., Fadayile, Soyemi, S.S., Eza, U.O., Nuana, E. J.C., & Odesanni, W.O. (2015). Forensic Investigation of mass disasters in Nigeria: A review. *Nigerian Medical Journal*, 56 (1), 1-50.
- Prajapato, Suncil and Kaur, Sakhminder (2019). Safety Recommendations for Forensic Laboratory Staff During COVID-19 Pandemic.
- Roll Number: 30534. Barriers in crime Scene Investigation: A Study on the inefficiency & Procrastination in solving criminal cases.
- Rossey, Questin and Ribaux, Olivier (2014). A collaborative approach for incorporating forensic case data into crime investigation using criminal intelligence analysis and visualization. *Institute of Police Scientefigna, Universite de Lausanne, Batochine, 1015 Lausanne – Dorigny, Switzerland.*
- Sarki, Zakariyya and Saad, Geshira Ayu Mat (2018). Preparedness and Challenges of Police in Using Forensic science: A Review of some Related Literature.
- Shah, Syed Atizar Ali and Hussain, Basharat (2020). Challenge Faced by Police Officers in Forensic Criminal Investigation: A Case Study of District Peshawar, Khyber-pakhtunkhwa.
- You, Y. Cho, Cha, K. & Boo, Y. (2013). Factors influencing post-traumatic stress in Korean forensic science investigations *Asian Housing Research*, 7 (3), 136 – 141.