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Forensic science trend, current and challenges in Ethiopia: A narrative review evidence from recent literature and policies

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Abstract

Forensic science is a science of associating people, places and things involved in criminal activities for criminal proceedings. The development of forensic science across the world is less promising when compared with other sciences. Even though, there is strong interest and high demand in the provision of justice for criminal courts. The main aim of this narrative review is to identify the prime forensic science limitations and gaps from the previous studies to speculate on improvements in forensic service. In addition to this, the paper highlights forensic science laboratory standards, accreditation and policy-related aspects and progresses for the betterment of future forensic service. It also tried to explore ways of improving forensic science in Ethiopia from the existing problem and current experience. Among these; perceived less significance of forensic science by administrative government, lack of awareness among forensic officers, absence of independent national forensic institute and shortage of expertise. The author strongly recommends that the Ethiopian government should work to design a national policy of forensic science and an independent national forensic laboratory that will deliver national investigation and training in the arena of forensic science. Therefore, a policy strategy frames a direction for the development of forensic science through governing service provision, quality assurance, accreditation, related research and higher education.

Keywords: Forensic science, investigation, laboratory standards

Introduction

Forensic science is the science of associating people, places, and things involved in criminal activities; these scientific disciplines assist in investigating and adjudicating criminal and civil cases [1]. Forensic science has its own governing fundamental principles, ethics and practices that include duties and responsibility of seeking truth, which in turn adds value to the life of society through bringing justice and fairness [2].

Physical evidence that is collected from the victim, suspect and the crime scene is an important input for forensic science examination. Locard principle asserts "Every contact leaves its own trace evidence." Whenever two objects come in contact, they exchange tiny trace evidence that is incredibly unique and individual, and the law of individuality substantiates the Locard principle. "Everything in this universe is unique neither nature has repeated itself nor man does" [3]. "Evidence never lies only man does" standing from this connotation, the acceptance and persuasive ability of forensic evidence across the world from day to day became widespread with support of scientific research and technology [4]. Furthermore, personal testimony which has been used for centuries was found to have relative drawbacks compared to physical evidence. In which physical evidence has a discriminating power in identification of the distinct suspect. This can be achieved if only the intention and personnel manipulation of the forensic evidence is targeted toward seeking the truth. In addition to this, for the reliability and admissibility of the forensic evidence "Beyond a reasonable doubt", the role of physical evidence is unquestionable unlike personal testimony. However, the incorporation of physical evidence with personal testimony in criminal proceedings was universally recognized and recommended by legal experts.

Forensic science identified gaps and policy related aspects

According to this review, which showed policy-related aspects of forensic science in Ghanaian legislation, there were found limitations in governance, service provision, quality

assurance, accreditation, education, and research [5]. They have highlighted the importance of framing a strategic national policy through adopting the best practice of other countries in the field of forensic science. To compliment, another study also hypothesized that level of literacy, interest and occupation, awareness of police investigative methods and the experience of police operations will predict whether a person had knowledge about forensic science or was aware of its application in crime-solving [6]. Conferring to other studies, most of the study respondents <50% were not aware of the use of forensic service in the criminal investigations in Ethiopia [7]. Whereas, education is an important pioneer of knowledge acquisition and it should be amended to improve advocacy and awareness related to forensic science. In addition to this, the legal framework, governance, and administration are some of the pillars of groundwork for efficient and effective forensic science delivery. Nevertheless, the degree of forensic science considered to be a coherent, consistent, and unified discipline will ascertain how forensic science develops [3, 8]. This article has reiterated that forensic science in the academy is essential in order to establish a virtuous circle that will sustain research in the discipline and address wider policy and socio-economic questions that persistently trouble the field [9]. From another perspective, the rigor of these findings asserts that technologies are highly developed to the level of nanotech and infinite figures of scientific disciplines. Thus, it creates diversity and fragmentation of forensic science. Hence, it is also very necessary to shift from “means to purpose” of current forensic science challenges [10]. And this will help to refocus forensic science on research and development relying on shared principles and purposes. Above all, the surge of globalization from coast to coast, development of technology, dissemination speed of information, execution of crime globally and entry and exit of criminals has become widespread and urges countering of such a crime [11].

Different studies have shown forensic science is not yet widely established as an independent curriculum and it has been called for, over the past centuries, as a “distinctive tertiary education in forensic science” [12-13]. Also, lack of skill in the basics of forensic science theory and professional disciplines are the basic obstacles to service delivery. This study highly encourages mentoring of professionals to join the field and provides the chance of acquiring the skills and knowledge that can infuse “a culture of lifelong learning and integrity in practice.” This author calls for a larger scientific community in advocating and supporting forensic colleagues for financial support and research grants [13, 23]. Another supportive finding shows “Effective partnerships between lawyers and forensic scientists are indispensable for integrating scientific evidence into criminal proceedings and must be renegotiated between individual practitioners on an on-going basis” [14].

Necessity of establishing Forensic laboratory and Accreditation

As a study suggests, forensic science has multiplied almost four-fold since the early 1970s due to the use of various controlled drugs that necessitate the identification of such substances in society [15]. Forensic laboratories serve as a center of evidence examination for justice with the grand drive of providing justice for civilians. Another study stated “It is worthwhile to reimagine forensic science service” with

regards to compromised quality and cost. It is a timely, technologically competitive instrument and effective analysis within a brief time will optimize the value of forensic laboratory service [16].

The work of the ISO Technical Committee TC272 program was intended to foster forensic science development regarding standards and accreditation. As of this study, Ethiopia was not either a member of the participating or observing committee of ISO Technical Committee TC272. Whereas, the establishment of independent forensic science accreditation can produce qualified forensic experts and increase the level of quality services. These ultimate reasons advance forensic facilities to endorse forensic standards and accreditation [17]. Accordingly, Samuels, 2022 stated the limitation of forensic science accreditation globally. For instance, few authorities are left unaccredited and service consumers are forced to get service from unaccredited forensic specialists [18]. Studies have shown the fundamental necessity of forensic accreditation and standards tracks a benchmark for quality and risk management for forensic science which is acceptable and achievable [19, 27].

Olckers and co-authors, 2021, indicated the ultimate purpose of forensic standards is not merely for the provider, preferably for the service consumers. Besides, these operating procedures as per the standards will help the forensic specialist to enhance their reputation for technical excellence [20]. Along with this, established forensic science should be regulated and accredited by professionals. Unless and otherwise, it lacks accountability and pursuit of justice becomes compromised [21, 23]. Thus, the development of forensic science strongly demands international cooperation between specialist and expert witnesses even before the establishment of a forensic institution [22]. Hereafter, strengthening forensic science examination and the use of forensic knowledge and skills for resolving criminal court cases is the only way forward.

Status of Forensic science in Ethiopia

The trend of forensic science overtime in many countries is different as it depends on their historical development perspective of politics, economy, and social structure. In Ethiopia there is indefinite literature that indicates where, when and how forensic science service was started. It was agreed that several types of traditional criminal investigation methods were used. One of these investigation methods was called Lebashay. In this method, the society and local administrators involved in the investigation use different torture activities to reveal and identify the truth, which is unreasonable and traditional application of forensic science in the investigation process [23]. It was during the time of Emperor Haile Selassie that the first Forensic science laboratory was established. The Forensic Investigation Directorate was established in 1947 with the assistance of the German Federal Government, formerly “ABADINA” Police College, and the current Ethiopian Police University College. Its establishment started with two units, with Fingerprint and Police Photograph Laboratories. After many years, the division became expanded into six labs which have served Ethiopian people for many years without showing any expansion in their organizational structure, technology, and professional capacity. Later, the Forensic Investigation Directorate incorporated different Laboratories, like Document examination, Photograph, Bio-chemical, Arson, Ballistics, Explosive, Fingerprint,

Trace/Tools mark and Cyber Crime Examination. Recently, they have also integrated forensic DNA and Serology in 2021/2022. Nowadays, Ethiopian Federal Police University is delivering teaching and training dedicated to producing police officers in different fields in the country, along with research, consultation, community engagement and cooperation with different institutions in police indoctrination.

Existing Problems and Concerns of forensic science in Ethiopia

Sourcing different reviews, Ethiopia does not have higher education apart from Ethiopian Police University, either public or private, which provides teaching forensic science as one independent science discipline. Arba Minch University is the only public university that incorporates forensic chemistry and toxicology under the department of Chemistry for undergraduates, which was opened in 2017. Furthermore, higher education providing social science, like departments of law and other social studies, did not incorporate forensic science as a supportive course, especially in law science. This is a typical indication of the lack of attention for the discipline and it has been regarded as unexplored science by the Ethiopian ministry of education and attorney general. Ethiopian forensic science is under the administration of the Ethiopian Federal police, which has its own pros and cons for the development and independence of forensic science for justice delivery [24]. Mainly, an institute of forensic investigation directed by the attorney general in most countries was found to be very encouraging for autonomy as well as for the advancement as an independent institute at a state level. Whereas, Ethiopia has no independent and structured forensic science institute nationally that guides and guarantees certificates of court testimony and other short- and long-term training for forensic experts. Also, Ethiopia has no closer cooperation between various universities and law schools in terms of curricular development, teaching methods and research [25]. In addition, judges and public prosecutors were not well acquainted concerning forensic science evidence and its reliability for court testimony. Most of these judges and public prosecutors have no clear knowledge of the role of forensic science evidence in the criminal justice system. Their knowledge of forensic science evidence is dependent on their personal knowledge of reading materials, fiction, and movies (26). This is not assumed to be a comprehensive and scientific approach to intervention in court proceedings.

Conclusion

This narrative review was done with the aim of identifying the main limitations of forensic science from previous studies and has found several reconstructions of evidence from an unfamiliar perspective. Different reviews recognized policy-related aspects of forensic science showing gaps in governance, service provision, quality assurance, accreditation, education, and research. Most essentially, framing forensic science into national policy strategy as a primary means of prevailing justice for a society and preventing crime using different scientific methods and technology is found to be a fundamental. Following this, ensuring forensic science laboratories that are operating with appropriate standards and reaching out across the continent through networks will have a far-reaching effect.

Recommendation

The main important recommendation is to improve forensic science by the creation of a policy strategy which frames a direction for the development of forensic science. This could be achieved by solving existing gaps in the skills and expertise of forensic specialists through providing continuous and updated training. Moreover, other governmental and nongovernmental organizations and various public associations should be involved to improve all the pitfalls of the forensic science service. Additionally, international cooperation in the field of conducting forensic examinations, accreditation of professionals, associations and maintaining standards that reproduce competency, accountability, and spirit of competition for the advancement of the sector is mandatory. Finally, the Ethiopian government should awake to design a national policy of forensic science and an independent national forensic laboratory that will deliver national training and investigation in the arena of forensic science.

Conflict of Interest

Not available

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Not available

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