



IMPORTANCE OF ARTIFICIAL INTELLIGENCE AS EVIDENCE IN CASES BETWEEN UNDERAGE VICTIMS OF RAPE AND OFFENDERS IN NIGERIA

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ABSTRACT: *Underage girls are gradually becoming the major victims of rape in some developing countries such as Nigeria in recent years. Many of such cases of rape were either underreported or unreported to relevant authorities. Some of these underage victims of rape have experienced trauma, stigmatization, and depression which have affected their well-being. While some of the victims of rape are battling to overcome the negative outcome of the act, other victims among them have lost their lives because there was no prompt help for them to survive it. The perpetrators of the crime who were responsible for the crime were not equally punished for their crime because of lack of verifiable evidence that associated them with the act and the victim of rape. However, to demand justice for the underage victims of rape, Artificial Intelligence (AI) serves as a vital technology that can be used to present evidence in the case of rape between the victim of rape and the offenders. The objective of this article is to examine the importance of AI in presenting an evidence-based method in cases of rape between the underage victims of rape and offenders in society. The paper adopted a descriptive theoretical approach in the study. The paper revealed that AI technology is important and can be used to establish evidence in cases of rape between underage girls and offenders through some AI application methods, such as surveillance devices, facial recognition, DNA match, video and photo analysis, and object retrieval analysis among others.*

KEYWORDS: Artificial intelligence, Underage girls, Rape, Perpetrators of rape.



INTRODUCTION AND BACKGROUND TO THE STUDY

The growing number of rape incidents is becoming alarming (Njideka, 2020) with many leading cases that involve underage girls and adults (Idoko et al, 2020), especially in developing countries. Globally, the World Health Organization [WHO] in wisevoter (2023) revealed that 1 in 3 women, during their growing years, will encounter sexual violence with 7% of them being raped or attempting to be raped. Wisevoter revealed that statistically, Botswana, Lesotho, Grenada, Sweden, Eswatini, South Africa, Saint Kitts and Nevis, Panama, Iceland, and Suriname, were ten countries that had the highest recorded incidents of rape per 100,000 in the World with 96.87, 89.29, 88.87, 87.97, 82.73, 70.22, 56.4, 53.98, 46.3, and 43.3 respectively. The incidents of rape in Africa were recorded to be high in South Africa with 42,289 cases in 2019 and 2020 (Gouws, 2022), and 5,935 cases reported between October and December 2022 (South Africa Government News Agency, 2023). The assertions were supported by Cowling (2023) who affirmed that between 2022 and 2023 fiscal year, 80% of 53,900 cases of sexual crime were reported incidents of rape in South Africa. In Nigeria, rape cases were underreported with 0.47 of 100,000 incidents recorded in the country. This indicated that rape is an issue (World Population Review, 2023) all over the world no matter how it is defined or classified. Onyesi (2023) then presented that sexual violence was becoming rampant among young girls aged 10-20 with 39% of them liable to be sexually assaulted or raped. The National Bureau of Statistics (2019) in that regard recorded that girl within the age range of 1-17 were raped in either home, school or others between the years 2015 and 2017. The act has resulted in many of the victims becoming traumatized and depressed (Dania, 2022) because of the fears created in them by the offenders to conceal their demeaning acts from society. It has left some of the victims of rape not adequately getting justice (Rachlin, 2018; Aginga, 2019; Dania, 2022; Rainn, 2023) over the assault as a result of their age (Rao, 2018; Karasz & Searcey, 2019; Quedraogo et al., 2022), society's justice system (Rainn, 2023), the financial ability of the victim, relationship ties with the offender, or the societal perception (DaSilva et al., 2020; Tade, 2020) of the act. For that reason, some of the underage victims of rape have suffered that heart burden to their grown-up age and indirectly led some of them to enter psychological trauma and at times remain in self-seclusion from the public. In some cases where the offender of rape escapes the wrath of the law, he or she may become a psychological tormentor to the victim who is left to nurse the wounded heart. Some victims of rape may result in committing suicide or experience depression which can make them have a negative perception of the opposite gender or any other perceived person in society. The reasons for the low rate of punishing offenders can be associated with the lack of concrete evidence (Dania, 2022; Rainn, 2023) that links such crime with offenders, under-reported cases of rape by the victims (Eze, 2013; Idoko et al., 2020; Onyesi, 2023), the familiarity that exists between the victims of rape and offenders as well as the instance where justice is delayed to be delivered. Victims of rape are left to go through some mental distress which does not anchor well for their health. That is why relevant agencies, government, and non-government organizations are putting up different measures to ensure that victims of rape, especially the underage, are given the justice they deserve to encourage more victims of rape to speak up and deter any intending offenders of rape in society. Institutions, agencies, and laws have been put in place by some governments in developing and developed countries. Nigeria for instance, has acted in this way to reduce the cases of rape in the country. The World Health Organization [WHO] has also acted in this direction to support any concerned government in that direction to curb the rising cases of rape in society. WHO (2020) stated that the organization had collaborated with the Nigerian government to stop the rising cases of rape in the country. In a related submission by



Joseph and Bamigboje (n.d), they stated that in Nigeria, there were legislative laws that spelled out the definition and punishment for rape offenders in society. However, bringing the offenders of rape to book in society takes more than merely talking about it but demands a comprehensive effort to be made by relevant agencies in that direction to ensure that perpetrators do not evade justice no matter how major or minor the case may be. That is why clear evidence of rape or an attempt to commit such crimes is necessary and needed to aid victims of rape to nail the perpetrator or the offender in the law court. One of the dependable modern technologies to unravel this case is the use of artificial intelligence (AI) technology. The involvement of AI technology in modern years stands to be important in the discovery of many crimes committed, the relationship that exists between victims of rape and offenders, and the process that leads to the crime.

Undoubtedly, the advancement in AI technology and modern science have brought about many innovations and inventions that give room for evidence and fact-finding methods that are established or rejected as regards crime, the health status of the victims as well as the involvement of the offender in such criminal acts. The use of AI goes beyond the usual medical examination that is mostly found in many developing countries like Nigeria and some other developing countries. AI is one of the modern technology of machine use in recent times which can be deployed for use in the discovery of any hidden action like rape that exists between a victim of rape and the offender. Indeed, not so familiar or recognized in many developing countries such as Nigeria, AI is a one-stop shop that can proffer the needed solutions to critical issues such as rape. AI has been used as a modern technology to detect and uncover cases of advanced crime as attested in some developed countries. For instance, AI was used to reveal crimes such as bank robbery, fraudulent acts, and in some cases manslaughter among others in many countries in the world. If such modern technology can be used to curb crime in developed countries, developing nations are not restricted in making use of it in crime cases such as rape.

AI according to IBM Watson is a machine-coded ability that helps to solve problems and make decisions in such a way as the human mind. AI as one of the advanced technologies that is also used as components of modern data science, will help to quantitatively induce or deduce an analysis as regards issues computed for examination and outcome. Although much data examination has not been done using AI technology to solve undisclosed crime-related cases of rape or to arrive at the objective conclusion of the evidence traceable to the offender, the technology has proved to be capable of finding solutions to problems as regards rape cases if adequately put to use.

In revealing the importance of AI as a modern method and technology to establish shreds of evidence, this paper examines the trending cases of rape of underaged girls in society and the impacts on the victims, how AI can be employed in the discovery of rape cases, especially between underage female victims and offenders in developing countries. In addition to the objective, the paper also seeks to present recommendations that can enhance the use of the technology in any cases of rape that may occur in the future.



Methodology

A descriptive theoretical method was adopted in the article to address the rising cases of rape in developing countries such as Nigeria. The paper focused on the underage female girls who are now the trending victims of sexual assault and rape in recent years, more than older female genders in society. And in most cases, such sexual assault and rape are under-reported for lack of concrete evidence or where there is an agreement between the parents of the victim and the offenders to privately settle the case such that the criminal act is concealed from the public. Information from related records, journals, online presentations, and newspaper reports was used in the article as a secondary source of data to juxtapose the several cases of rape among the underage female victims and the importance of using artificial intelligence technology to establish shreds of evidence of rape in any similar case. The article descriptively discusses how AI technology is useful and can be used to curb the rising cases of rape among the underage female gender in society.

Ethical Consideration

The paper used a secondary source of data to establish a few arguments about AI and the underage female victims of rape in society. On that note, no ethical consent from respondents or relevant stakeholders was needed for analysis or discussion in the article. Similarly, there was no argument for funding of study or declaration of conflict of interest in the study.

DISCUSSIONS

Trending cases of rape and the underage female victims

The rising cases of rape in many countries of the world show the extent to which the crime had spread and negatively impacted the lives of many victims, especially in developing societies. Women and underage female children are mostly affected and left to bear the brunt of the crime because of some factors that daily impede victims of rape from speaking up on several occasions. In Africa for instance, victims of rape cases are revealed to be high in South Africa more than other countries in the continent. The common target of rape is the female gender who are violated by some mature male adults who perceive them to be vulnerable, weak, and fragile to resist their criminal act. The cases of rape have become persistent in developing countries, Nigeria for instance (Njideka, 2020), owing to some associated factors despite efforts made by the relevant organizations.

Age-related factors

Dealing with cases of rape in many societies, it began with the issue of age differences among the victims. The underage female children are the primary target in most cases because they could hardly give their true consent to the criminal act, and are ignorantly brainwashed to conceal the act under a false oath or covenant. So, offenders prey on underage girls to commit crimes, noting well that many of the victims are unaware of their initial intent.



Societal perceptions and Cultural beliefs

Some of the developing countries in the world still associate societal perceptions and cultural beliefs to perpetuate acts that are capable of inflicting harm on the people concerned for a long time. The peoples' perceptions and traditional beliefs among other considerations still play some vital roles in the relationships and communications among the people that coexist in society. That is why many actions and behavioral acts of certain people in societies are still considered to be normal. So, any undefined act of people that falls within those actions and behavioral patterns is considered crime-free and on several occasions, they are not strictly analyzed and scrutinized. Such actions and beliefs are liable to portend negativity to society in the future. In some instances, people may align and explain their actions to the dictates of ancestors, spirituality, or reactivation of their cultural tendencies. These associated factors have given room for cases such as rape to persist in society. DaSilva-Ibru et al. (2020) opined that some societies normalized and trivialized sexual violence that centers on their cultural beliefs. They argued that in such societies, women are seen to be the architect of their misfortunes in rape cases. In places where underage female children are seen to have been sexually assaulted, some adults associate such acts with spiritism to acquire certain mystical powers and fortifications against certain unknown forces. Sessou and Ojeme (2021) and Makhaye et al. (2023) opined that societal perception about sexual assault has seen many underage female children not reporting any rape cases for fear of intimidation and threat of death by the offenders. In such instances, the underaged victims are powerless and vulnerable to resist any act or attempt of rape on them by the offenders who mostly present themselves as friendly people. Tade (2020) viewed the growing cases of rape in society from the angle of gender differences based on the patriarchal belief of people in society. Some developing countries still champion the cause of male dominance irrespective of what the global perception acknowledges as allowing equity and fairness to reign where the female folks are also given the say in society. The absence of allowing the female gender to speak up on cogent matters has resulted in many criminal acts such as the rape cases of underage girls.

Judicial pronouncement and evidence of crime committed

Rape victims such as underage girls are not adequately given the desired justice that ought to nail many of the offenders for the crime committed against them. It has been a usual practice in law that a complainant must produce evidence of assault, molestation, or rape before a suspected person can be charged with the crime. On several instances, a few reported cases of rape that involved underage girls and male adults have taken a longer time for justice to be determined in law court hence, giving the perpetrator a free movement in society. Scholars have argued that the more justice is delayed in determining rape cases, the more certain male adults sexually assault the underage girls and mature females in society. Human Rights Watch (2004) believed that justices are not immediately given to victims in rape cases which are liable for increasing rape cases of underage girls. In a study carried out in Rwanda, it was revealed that justice was delayed because victims could not afford the financial capacity to prosecute their cases. Some scholars believed that the administration of Justices has discouraged some victims of rape and indirectly affected them in reporting such cases (Agiriga, 2019; Dania, 2022; Rainn, 2023). Rachlin (2018) asserted that in some cases where there was no traceable evidence of rape, perpetrators were acquitted from any charges of rape which left some underage girls dejected.



Window of occurrences during the pandemic

Studies have shown that many developing and some developed countries experienced an alarming rise in rape cases during the pandemic and lockdown of the economy in the year 2020 (Frohlich, 2020). A few reported cases of rape in many countries showed that many women and girls were sexually assaulted owing to restriction of movements which allowed perpetrators to prey on the victims without being caught. In Nigeria for instance, there were 11,200 cases of sexual assault and rape as reported during the pandemic (Tolu-Kolawole, 2021) in which underage girls were more affected among the victims. The submission was supported by Amnesty International (2021) and Devatop Centre for Africa Development (2021) which according to Pauline Tallen, former Minister of Women's Affairs in Nigeria, said that there were 3,600 cases of rape in the country during the lockdown. The steady rise of rape cases in that year could be accounted for the restriction of movements of people, partial/total shut down of schools, markets, businesses, and every other crowded place which give room for idle hands of some male adults to prey on underage girls in many areas and places.

Lack of Institutional Support system

Many developing countries like Nigeria do not have a working institutional support system that can adequately cater to and sustain decency, discipline, and protection for underage girls in the country. Although there exist laws and regulations to safeguard female folk from any molestation, and assault, the in-depth execution of such legislation has not effectively brought the needed change in the system to curb and discourage forms of rape and sexual assault. Dania (2022) stated that the absence of an institutional support system has resulted in many cases of rape not being reported to the government authorities for action. And in situations where perpetrators see loopholes to commit crime, they do so without being convicted of the crime. In Nigeria, there is no dependable institutional support system that tends to protect underaged girls against any form of sexual violence and rape that may come from perpetrators.

Limited Reports and Statistics

Scholars and studies have revealed that there were limited reports of rape cases in many countries which have accounted for minimal records and statistics indicating the alarming crime in society. A few reports and statistics have been the ones reported by daily newspapers and online news which indirectly presents the case as being a minor type among other reported crimes in the country. Idoko et al. (2020) opined that records and statistics on cases of rape were not largely reported considering the alarming rate of the case (Tade, 2020; Dania, 2022).

Effects and Impacts of Rape on Underage Female Victims

Australian Institute of Family Studies [AIFS] (2011) affirmed that there were some effects on victims of rape such as psychological and emotional impacts, trauma and post-traumatic stress disorder, physical impacts, social and community impacts, and financial impacts. Joseph and Bamigboje (n.d), and Dania (2022) discussed the physical and emotional impacts of rape and sexual assault on the victims while Idoko et al. (2020) asserted about financial impacts on the victims for a long time.



Artificial Intelligence (AI): Its Importance to Establish Evidence of Rape

AI has become a rallying point for modern technology to proffer solutions in a short time to certain difficult issues that would have taken human efforts a long time to do. That is why Hassan (2022) opined that AI encompassed subfields such as machine learning which had also covered other areas of learning that make human-like decisions. It can act in the form of what human beings can do by suggesting and giving solutions to difficult issues. In the instance of alarming cases of rape that has become one of the societal issues in recent years, where the perpetrators of rape are not adequately prosecuted owing to lack of evidence, AI technology can be employed and deployed to fill in this gap by giving solutions through evidence-based findings of a crime by revealing it for justice to take its cause. The advancements and functionalities of AI in present days make it more important for people to believe that it is capable of not only handling difficult issues such as rape cases but also preventing crime (Voyagerlabs, 2022) in society. A few arguments are presented in favor of AI technology as a powerful tool (Mirage, 2023), where it could be used as surveillance (2018), by detecting connections between crime (Hassan, 2022), facial recognition (Bahl, 2023), analyzing video and photo relationships of crime (Schoppa, 2022), detecting movements (innovation, n.d.), among others. The ability of trained personnel to use the technology can further help and assist any underage girls who are victims of rape to establish the case of rape against them and give other girls and women to speak up when sexually assaulted or molested.

AI: Using it as a Surveillance to Checkmate Cases of Rape (Quest et al., 2018)

The importance of AI stands to be used as a surveillance monitoring device in knowing how and when a crime is committed in such a case as rape. AI works to capture and take records of any crime scene as evidence to know the motive and characterization of the offender in such a case. Reese (2022) affirmed that with AI, new machine learning could help protect and track any culprit or intending offender in a crime through data gathering and surfing. In this way, underage girls can be protected even before any act of rape takes place.

AI: Using it to detect hidden connections between victims of rape and perpetrators

Voyager Labs (2022) asserted that AI has been successfully employed in the past to prevent crime by law enforcement agents in many countries by identifying and interpreting connections of crime, imagery of criminals, and other traceable footage of a crime. In related cases of rape, AI can be used to match and trace any connection between the victim and offender. AI is capable of discovering the connection of touch, violent handling of the victim, and marks of bond that transpire between the victim of rape and perpetrators during the act. Trained security personnel are saddled with the responsibility of taking the necessary exhibits for AI-intensive testing to reveal how the crime was committed.

AI: Using it through video and photo analysis of the crime scene

Schoppa (2022) argued that AI software technology can be used to present a case of evidence in a crime such as rape. AI is used by programming it as software to run in CCTV cameras for video and photo recording where proper recognition of actors in a crime can be easily identified. No doubt, using AI as programmed software to monitor and record scenes of happenings and events in a place where human presence is unnoticed, can go a long way in



assisting underage girls victims of rape to confirm any act of rape or assault by the identified offender. It allows more offenders of rape to be penalized for the crime found guilty of.

AI: Using it in the processing of DNA in rape cases

AI technology can help to present strong evidence in related cases of rape occasioned by male adults against an underage girl. Schoppa (2022) believed that AI can reveal the DNA of the alleged perpetrator of rape in any raging case. AI processes the slightest contact between the perpetrator and the victim through the collection of hair, nails, blood, or semen contact to know that a case of assault or rape has occurred. Although using such AI technology can be expensive and time-consuming, it stands as technology that can help to refute or accept any false claim by the offender of rape. The technology was introduced in 1986. It has been used severally, and in many countries to reveal the truth about a hidden incident that is not restricted to helping victims of rape of underage girls.

AI: Using it as a Risk Assessment Instruments (RAIs) of possible involvement in crime by an offender

Many offenders of rape have records of crime in a similar case. AI technology can be used to curb the increasing and reoccurrence of rape cases in society by serving offenders of rape severe punishment while found guilty. The presiding judge can use this technology to pronounce severe punishment on the offender of rape (if found guilty) if such an offender is likely to commit such a crime in the future or not. Hassan (2022) classified the AI technology as Correctional Offender Management Profiling for Alternative Sanctions (COMPASS). The presence and use of this AI technology can help underage girls to speak up, report more cases of rape or sexual assault and also reduce the alarming rate of rape cases in society.

AI: Using it as biological data recognition

Hassan (2022) asserted that AI technology can reveal any incident of crime by processing the biological data of the alleged perpetrator in a possible involvement in a crime such as the rape of an underage girl. AI in this case is employed by checking the biological data of the perpetrator through fingerprints, iris scans, body structure, and other bodily characteristics. AI technology tools that are associated with this use are Predpol, Dextro, and Rosie among others.

AI: Using it as facial recognition to recognize offenders

The importance of AI technology in the discovery and presentation of evidence of an act in a case of rape cannot be underestimated as it goes as far as recognizing the offender of a crime facially, even if the crime is committed under a hidden mask (Hassan, 2022). Hassan opined that AI technology that can successfully work in this area are such as Facial Recognition Technology (FRT) and camouflage Facial Recognition System (CFRS). It was argued that many developed countries had used the technology in crime-related cases.

AI: How to make it succeed

AI as a modern technology is useful in the presentation of evidence in rape cases any developing country can employ it to reduce the rising cases of rape of underage girls in society. Many countries like Nigeria need more security personnel who are skillful in operating many sophisticated gadgets and tools to curb crime. That is why security personnel must be trained



in many tools and gadgets that can help them in their duty line and expose any perpetrators of rape. Adequate and in-depth technical skill is needed for effective use as a way of reducing rape cases of underage girls. The government must be willing to invest in the technology so that many underage girls who are victims of rape can be protected and given the assistance of better life to overcome the assault. When such AI is constantly used to nail offenders of rape, it deters any prospective perpetrator or offender from committing such a crime.

Government and relevant agencies can do more to sensitize people, especially the helpless underage girls, to the need to come out and speak up about sexual assault, rape, and molestation without any form of intimidation. Such bold moves and determination by victims of rape can help the government intensify its efforts in applying AI technology to reduce and checkmate the rising cases of rape among underage girls. The application of AI technology must be consistently used by the relevant bodies so that people who are victims of rape can easily seek and get help.

CONCLUSION

Many underage girls have been raped and sexually assaulted in developing countries such as Nigeria without getting the needed justice to nail the offenders who perpetrated the act. Some of the victims of rape have entered depression, experienced varying degrees of trauma and even led to death. The inability of the victims of rape to get justice is not only associated with some societal factors, lack of verifiable evidence has also worsened the situation which has resulted in many other underage victims of rape not speaking up and leading to more underreporting of the crime to related agencies. However, to present more evidence that will bring perpetrators of rape to book, AI is one of the untapped technology that can be used to reveal any associated connection, assault, or rape that happen between the underage victim of rape and the offenders in the cause of the act. The importance of using AI as clear evidence in the case of rape centers around its capacity to witness against perpetrator through its surveillance camera, facial recognition of the perpetrator, video and photo analysis, object retrieval on the crime scene, and DNA matching connections among others.

This paper believes that the increasing cases of rape of underage girls can be effectively addressed if AI technology is employed in the process for many developing countries where such cases are still common. The effectiveness of the technology can therefore be strengthened when relevant agencies and security personnel are trained on the technicalities of the technology use in the present days so that more underage girls, and women, who are victims of rape can give their evidence in charging the perpetrators without any intimidation.



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