



Young Forensic Scientists Forum—2020

Y2 The Efficiency of a DNA Database for Sexual Crimes by Its Victim-Offender Relationship: A Portrayal From Central Brazil

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Learning Overview: After attending this presentation, attendees will understand how DNA databases are extremely useful in investigating sexual crimes and will see their efficiency in the victim-offender relationship.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by showing, through the results obtained in this research, that the hypothesis of the “no need to use DNA databases to investigate sexual crimes” is totally refuted. In addition, the results show greater elucidation of sexual offenses of unknown perpetrators.

Despite the technological advances, there is a growing accumulation of sex crimes evidences stored without being tested for DNA for many reasons. One of these reasons is the idea that most of these crimes are committed by known offenders, thus the law enforcement agencies did not view DNA evidence as helpful or necessary to the task of investigating a reported crime; with the consequence being there was no indication of suspects for confrontation. However, with the advent of DNA databases, this evidence has been seen as valuable sources of information for investigations. International studies indicate that DNA typing can be useful for both known and unknown assault cases. In Brazil, there is no study with this approach, and its implantation of DNA databases is recent. Thus, the objective of this study was to evaluate the potential of the DNA Database of the Estate of Goiás (Brazil) in the elucidation of sex crimes by its victim-offender relationship.

The samples were submitted to DNA extraction by differential lysis with the PrepFiler® Express™ Forensic DNA Extraction kit and the AutoMate Express™ system, followed by amplification of Short Tandem Repeat (STR) autosomal genetic markers with GlobalFiler®, capillary electrophoresis in the ABI® 3500 genetic analyzer, and by the insertion in the DNA Database of State of Goiás using the Combined DNA Index System (CODIS) 7 software. The sample's rate was evaluated with profiles eligible for insertion and coincidence rates according to the victim-offender relationship and for the statistical approaches the program EpiInfo™ v. 7 was used.

A total of 2,165 cases were reviewed, of which 286 had information regarding victim-offender relationships. After DNA typing, 192 were inserted in the DNA Database of State of Goiás, of which 71 were related to known aggressors, 121 to stranger aggressors, and genetic coincidences were detected only with cases of unknown aggressors, involving 41 cases. Thus, the hypothesis of the “no need to use DNA databases to investigate sexual crimes” is totally refuted. In addition, the results indicated greater elucidation of sexual offenses of unknown perpetrators. Due to the limited body of studies with this approach in Brazil, the Brazilian DNA Databases have only been used for a few years and with its characteristics of legal basis, it can be stated that the greater elucidation of sexual offenses of unknown perpetrators is a current picture that can be modified according to the evolution of the Brazilian DNA database's growth. Thus, future research should be performed for a reliable view. Currently, it is understood that this tool cannot be ruled out for crimes of non-stranger aggressors.

DNA Database, Sexual Crimes, Victim-Offender Relationship