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Cold Case Homicides: an Examination of Clearance Factors

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Disclaimer

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Abstract

The killing of one individual by another is something in our culture that garners a lot of attention from the media as well as community leaders. Law enforcement agencies have a duty to find resolution to these crimes. Yet, even with the rapid growth of forensics and the technology associated with it, there are still cases that go unsolved. These cases are commonly referred to as cold case homicides.

In order to evaluate whether forensic evidence or investigative technique plays a larger role in the clearance of cold case homicides, a retrospective study was conducted to examine previously solved cold case homicides to reveal what factors lead to their clearance.

This study explored the role of forensics in closing cold case homicides as the culture around homicide has changed in recent years. A qualitative case-study analysis was utilized to examine the research questions: (a) what role does forensic evidence play versus investigative technique in the clearance of cold case homicides, and (b) is clearance by forensic evidence or investigative technique affected by the method of death? The criminological theory of Moral Disengagement Theory was utilized to explain why an individual would take another's life, as well as the increase in homicide cases turning cold.

The examination identified four themes that were used to answer the two research questions that were proposed.

Keywords: cold case homicide, investigative technique, forensic evidence, criminology

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Introduction

The death of an individual represents an absence that is grieved by family and friends of the decedent. When the death is violent and unexpected due to the act of another individual the co-victims have an expectation that their loved one's death will be solved; that justice will be served. This is not always the case with homicide investigations. A number of deaths become cold after no new leads come in and the current leads do not materialize. This research hopes to shed light on ways to improve the investigation of these deaths by reviewing successfully cleared cold case homicides.

Statement of Problem

Cold case homicides present unique challenges to the law enforcement community and co-victims alike. Evidence gets destroyed or lost, witnesses move away or die, and investigators continually take on new cases that take them away from older, cold cases. The killing of one individual by another is something in our culture that garners a lot of attention from the media as well as community leaders. This is for good reason. No other offense creates the sort of finality that a homicide does. Law enforcement agencies have a duty to find resolution to these crimes. Yet, even with the rapid growth of forensics and the technology associated with it, there are still cases that go unsolved. In the United States from 1960 to 2002 there has been a 76% increase in the number of homicide cases that are unresolved (McClellan, 2007). With this increase in cold cases and the rapid growth of forensic technology there needs to be studies that focus on the importance of forensic evidence in clearing cold case homicides as compared to traditional non-forensic investigative techniques.

Overview of the Problem

There is no other crime that creates the sort of finality that a homicide does. Not only is a life lost, but there are co-victims that are left in the wake of this tragedy. Without clearing the case of their loved one's death there is a lack of resolution. There is research showing grief that results from the sudden death of an individual does not follow the traditional stages of grieving (Malone, 2007). Research by Stretesky, Shelley, Hogan and Unnithan (2010) identified two main concerns as they relate to law enforcement through interviewing co-victims. The first is that there was a lack of information related to the homicide being communicated to the family. The second is that the perception of the criminal justice system is altered due to their post-loss status. The researchers found that co-victims thought there were more rights for the offender(s) than their loved one who lost their life.

The impact that homicide has on co-victims and the community as a whole cannot be understated. In a time when there has been an increase in homicides that turn cold, it is important for law enforcement agencies to evaluate and develop their methods for how to address this issue. This includes developing best-practices within their investigative unit(s) and exploring advancements in forensic science that may lead to the clearance of cold case homicides.

Purpose of the Project

Cold case homicides provide unique challenges for the investigators that are working them as traditional methods do not produce similar results. There are various investigative techniques that are most effective for homicide investigators, but in a new age of technology and the CSI effect there is an increased focus on utilizing forensic evidence to close cases, especially cold case homicides.

Many studies support the proper structure for a homicide or cold case unit in the clearance of these cases, but very little of the literature explores the role of the fast-growing field of forensic science in the clearance of homicides. Therefore this qualitative, explorative case-study examined:

Research Question 1. What role does forensic evidence play versus investigative technique in the clearance of cold case homicides?

Research Question 2. Is clearance by forensic evidence or investigative technique affected by the method of death?

Limitations

The study was designed to investigate clearance factors based on one particular department's cleared cold case homicides, thus there is a limited scope. What might work in one urban department in one part of the world may not be applicable to a different population somewhere else. Cleared cold case homicides were reviewed from the San Antonio Police Department utilizing their publicly available list of closed cases. Additionally, a LexisNexis search was performed to supplement the information made available by the law enforcement agency. This causes the data set to only include information that was made public by the investigating law enforcement agency or found through other public documents. As such, the information is not a complete representation of the case file, but rather the information that was made public and included by the journalist. These two factors limit the generalizability of the study meaning what may be found in the included cases is not necessarily true of clearance factors as a whole (Babbie, 2010).

With any qualitative research there is a limitation due to the potential bias in the analysis and interpretation of the data by the researcher. In order to avoid bringing a bias based on this

author's own experience with cold case homicide investigations the case studies were only evaluated on the questions that were posed to investigate. Keeping detailed notes on each case evaluated will be essential to developing an understanding of the complexities of each case and what lead to their eventual clearance (Locke, Spirduso, & Silverman, 2007).

Review of the Literature

When a crime has been committed it is law enforcement's duty to investigate and develop a theory as to who was responsible for the act. This is especially true when there has been a homicide. It is the investigator's job to tell the story about what has occurred, creating a narrative of the events (Innes, 2003). Creating a narrative for an investigation is still an important function for cold cases. The investigating agency as well as the prosecutor's office must be able to paint a picture regarding the case that is able to be justified in a court of law (Innes, & Clarke, 2009).

There are a lot of tools available to law enforcement agencies to clear homicide cases. What most investigators conceptualize as tools is often advancements in forensic science. However, investigators have the experience as well as organizational leadership of their colleagues. Even with the rapid growth of forensic science and the experience of seasoned investigators there are still cases that go unsolved. In the United States from 1960 to 2002 there has been a 76% increase in the number of homicide cases that are unresolved (McClellan, 2007). Part of the reason for this is due to the lack of a solid connection between the offender and the victim. This lack of a connection could be the result of drug or gang activity where there is no clear connection between the two unlike, as an example, familial homicides.

Moral Disengagement Theory was used to explain why an offender does not have an issue with taking the life of another human being. Moral disengagement is when an individual does something by separating the act from their normal self-regulated moral standard (Bandura et al., 1996). This fits with the current trend in homicides were there are fewer connections between the involved parties. An offender may not view the killing of another individual as immoral if they do not know the individual, feel the potential victim themselves is immoral, or have a hatred for someone based on a gang affiliation. With cold case homicides, just like fresh

case, there are a number of factors that influence whether or not a case is solved. It is a mix of investigative technique as well as forensic evidence that helps link suspects to the crime.

Forensic Technology

Forensic science has seen an unprecedented growth in recent years. This has led to a greater availability of forensic evidence due to the increased ability to collect and process genetic material (Williams, & Johnson, 2008; McCartney, 2006). The advancements and availability of DNA evidence allows for some cases to be able to be prosecuted (Innes, & Clarke, 2009). There can, unfortunately, be problems associated with processing evidence that further delays action on cold case homicides.

While the technology related to testing genetic material has advanced significantly in recent years, there are growing issues related to back-logs as well as the general understanding of forensic testing by law enforcement officials. Research by Strom and Hickman (2010) examined responses from 3,153 state and local law enforcement agencies regarding this issue. They found that there were 3,975 homicide cases, or 14% of all reported unsolved homicides, that had possible DNA evidence that had not yet been submitted for DNA analysis. This creates a situation where cases could be solved if only they were properly submitted. It is very possible that cold case requests for testing does not get processed as quickly as evidence that comes in for current cases. This could be due to agency policies that prioritize cases that are going to trial first (Strom, & Hickman, 2010). The lack of understanding about current forensic testing capabilities could be due to previous experience where, in the past, forensics did not play a key part in criminal investigations.

Before the recent advancements in forensic science, there was little effect of clearance rates of cases based on forensic evidence. Research by Parker and Peterson (1972) revealed that

only 1% of cases utilized forensic evidence even though there was the availability in 90% of the cases. This would suggest that forensic sciences played little significance on clearance rates. A later study by Feeney (1983) found that the greatest predictor of future conviction was having an eyewitness to the crime that could positively identify the offender(s). More recent research has also focused on the investigators handling the cases. There is evidence to suggest that investigators that have formal, quality homicide training are more successful at clearing cases (Keel, Jarvis, &Muirhead, 2009). Additionally, the timelines in which investigators interviewed key witnesses and persons closest to the decedent played a major role in bringing resolution to cases (Wellford, & Cronin, 2000). These factors could be used to address cold case homicides as well. The persons that knew the decedent that may be interviewed again are trying to remember information that is no longer fresh in their mind, they may not live in the area anymore, or they may be deceased. It takes a well-trained and skilled investigator to be able to work like a historian; piecing together information from the past while integrating new technology or approaches. There is some research, conversely, that does show the importance of forensic evidence.

A review of cases referred for prosecution indicated the importance of forensic evidence in today's society. A review of 150 completed cases referred for prosecution by law enforcement revealed that the cases with DNA evidence were more likely to be accepted for court. Additionally, DNA evidence appeared to play an important role in the minds of the jurors in convicting the accused of the crime (Briody, 2004). The increase in knowledge regarding forensic science, particularly from the popularity of forensic science television shows, there could be an effect on juries who believe there should be forensic evidence in order to convict.

There have been technological advancements supported by the United States federal government that have assisted in the clearance of all cases, including cold case homicides.

Three systems have been developed for law enforcement officials to aid in the identification of victims, offenders and for the purpose of aiding in the clearance of cases. They are the automated fingerprint identification system (AFIS), the combined DNA index system (CODIS) and the national integrated ballistic information network (NIBIN). These three government-funded systems deal with a different aspect of forensic evidence.

The AFIS program assists cold case homicide investigators by linking fingerprints entered into the system from known offenders and links them with unknown prints recovered from a scene or a piece of evidence (Elipoulos, 2003; Jain & Pankanti, 2001). The CODIS system utilizes a tiered index system with two parts. The first, the Forensics Index, is a database of unknown offender's DNA from a scene. The second, the Offender Index, is a database of known offender's DNA that has been loaded into the system (FBI, 2000). A case could get a significant boost towards clearance if a known DNA profile matches up with another unknown offender profile in the system; this is known as a "hit." The third system, NIBIN, is the newest and works similarly to the CODIS system. This database is run by the Bureau of Alcohol, Tobacco, Firearms and contains images of ballistic evidence from crimes scenes that has entered by various agencies across the country. If an agency has a case they would like to compare the ballistic evidence with previous cases from other jurisdictions, the system allows them to do so throughout the country (BATF, 2001). These programs are important to the improved clearance of cold case homicides because they help reduce the effect time has on cases. Time used to be a detriment to homicide investigations, but with new technology old evidence is given a second, more sophisticated look (Walton, 2005).

CSI Effect

Roane (2005) believed that the effect of the popularity of crime scene and forensic television shows created a situation where the general public assumed they knew more about forensics then was really the case. Thus, the CSI effect states that jurors have an expectation that forensic evidence will definitively prove who committed a crime, every time. This expectation could lead to an acquittal at the time of trial if jurors do not hear their expected level of forensic evidence in a case (Cole, & Diosco-Villa, 2007, 2009). This perception of the need for forensic evidence could deter prosecutors from taking on cold case homicides if the case is solely based on investigative technique. There is some evidence, however, that does not support the presence of a CSI effect on juries who watch a lot of forensic-based crime shows on television.

Research by Mancini (2011) utilizing students to create mock juries found that viewership of popular forensic science shows did not affect their decisions regarding guilt or innocence. This would indicate that further research is needed to determine the actual validity of the CSI effect. Additionally, there were no studies that examined the CSI effect as it related to forensic evidence, or lack of, presented at trial for cold case homicides.

Investigative Technique and Leadership

As previously described, there is a deficit in the literature as it relates to cold case homicides. However, the research that is available focuses primarily on the organization, leadership and investigative technique that support the clearance of cold cases.

According to Keel, Jarvis and Muirhead (2009) there are a number of factors that affect a department's ability to clear a homicide case to help bring resolution to the community and persons affected. The research identified specific areas where best practice was essential to the clearance of homicides: (a) the homicide unit's staffing and management, (b) proper

investigative procedures, (c) the utilization of analytical methods, (d) the specific demographics of the community where the crime occurred, and (e) the influence of political power. A more recent study by Lundman and Myers (2012) examined similar factors when analyzing 816 homicides from Columbus, Ohio. There was a slight difference with their research in that they reviewed the data at two different times to see if the passing of time revealed how additional cases were cleared from the same years examined. Their findings were consistent with previous research on homicides.

Many factors were evaluated to try to understand what leads to the successful arrest of a violator. The clearance rate for a homicide was significantly higher if a knife or firearm was used to commit the act (Lundman, & Myers, 2012). This would suggest that forensic evidence is an essential aspect of the clearance of homicide cases. Additionally, consistent with previous research, homicides that occurred in primarily black neighborhoods had a lower clearance rate due to less information being provided by the community (Lundman, & Myers, 2012). The data from the state of Colorado will be examined to see whether forensic evidence is an essential piece of the cold case homicide puzzle.

Recognized as the first doctoral dissertation on the topic of cold case homicides, Walton (2005) examined cold cases from inside a large, urban sheriff's department. Walton examined solvability factors related to cold case homicides by reviewing 20 previously solved cold cases; identifying four themes that influenced outcomes at the investigator level. The themes that were identified were: (a) the role of traditional homicide investigation, (b) the importance of ethics, integrity and credibility within the cold case homicide unit, (c) leadership and organizational support for the unit, and (d) the service to the community and organization as a whole. This study focused on the organization's structure to evaluate clearance potential for future cold case

investigations much like Keel, Jarvis and Muirhead (2009) did with current homicide investigations. Both of the previously listed studies are in-line with an earlier study that found the most important determinant in cold case squad success was the personnel. Among some of the identified factors leading to success was the ability to have strong research skills as well as being highly motivated (Turner, & Kosa, 2003). Furthermore, Eliopulos (2003) found that having investigators with experience in not only criminal investigation techniques but in undercover operations was essential. Of course, this all depends on department staffing needs and availability. Many departments regardless of size do not have a dedicated cold case unit. Regardless of a dedicated cold-case unit, researchers have identified effective techniques to utilize in a cold case investigation.

Research by Turner and Kosa (2003) identified five key elements to initiating a cold case homicide investigation. The first was for the new investigators handling the case to review the case file and speak with the previous investigators that worked the case to obtain any information that may not be found in the case file. This will allow the investigators to have a better understanding of the case details. Second, investigators should look for gaps in the case file and identify individuals that should be interviewed. Having statements from all persons involved will help develop a timeline and account for each individual's whereabouts. Inconsistencies could also be identified at this point. Third, all undocumented actions should be review. An example of this would be a search warrant that was never served. Fourth, a review of available evidence should be done to see if any advancement in technology would allow for further testing. Lastly, the significant witnesses should be re-interviewed. This could be done to advance any viable leads in the investigation.

Challenges Facing Investigators

Regini (1997) discussed various factors that make solving homicides more difficult and thus, increase the number of homicide investigations that go cold. The four factors that were identified as a shift in previous trends in homicides were: (a) there were an increase in drug-related homicides, (b) an increase in stranger killings, (c) greater difficulty in law enforcement identifying the relationship between victim and offender, and (d) fear amongst witnesses decreasing cooperation with investigators. The increase in homicides has a trickle-down effect as well. With an increased case load not only do investigators have more work with less time, but so don't forensic specialties that are utilized in homicide investigations.

Whenever a homicide is reported, many agencies respond to investigate the incident with their own unique perspective and skill set. This could be crime scene investigators with specializations in photography, DNA, ballistics or blood spatter. In addition to crime scene investigators and detectives, the medical examiner/coroner with jurisdiction carries out their own medicolegal death investigation. Turner and Kosa (2003) worry that this increased workload related to cases that take a significant amount of time to investigate creates a situation where some important forensic evidence is going uncollected.

Lastly, a major challenge facing law enforcement as it relates to the investigation of a cold case homicide is the availability of funding. There is often times a lack of time for investigators to step away from their current caseload and focus on a time-consuming cold case homicide. One way to get around this is to have staff dedicated to working these cases. Unfortunately, there is often a lack of funding to support this mission (Pettem, 2012). Some departments have turned to using volunteers with backgrounds in law enforcement and investigation in order to work these cases in a cost-effective manner. In the future, departments

will need to continue to develop innovative means to addressing the issue of funding to ensure that these cases continue to be worked for the greater good of the community they serve.

The current literature in the field of homicide studies, and more specifically cold case homicides, is an important base for the current study as well as illustrate the need for further research. The vast majority of the literature focuses on the leadership, structure and investigative technique associated with these types of cases. However, there is very little research on how forensic evidence, especially in this current age of rapid growth in technology, can be used in the clearance of cold case homicides. This is important for academics and practitioners because having a greater understanding for how cold case homicides can be cleared based on case-specific information. One aspect of case-specific information is the method of death utilized by the offender.

The method of death could be an important aspect of a cold case investigation as it could be used to determine how a case will be investigated. If the method of death were to indicate close contact between the offender and victim, as an example, could lead investigators to review what forensic evidence they may have at their disposal and what new advancements in technology could be utilized to help clear the case. Conversely, if the method of death were to indicate the lack of physical contact between the offender and victim, or an impersonal attack then investigative technique may be more critical in the clearance of the case.

Method

Research Design

A qualitative, explorative case-study was done to examine the research questions: (a) what role does forensic evidence play versus investigative technique in the clearance of cold case homicides, and (b) is clearance by forensic evidence or investigative technique affected by the method of death?

There are two kinds of data collection for research; quantitative and qualitative. The easiest way to differentiate between the two is that quantitative deals with numbers for data collection while qualitative looks at non-numerical data to attempt to find a deeper understanding of the topic(s) (Babbie, 2010). By utilizing quantitative data, researchers are able to give exact values to explain an issue. One of the main advantages of utilizing quantitative methods is to show cause-and-effect relationships (Mauch, & Park, 2003). This could limit the understanding, however, of a certain topic since researchers are only looking at compiled numerical data. They might be missing the various complex issues that surround the topic.

There is a deficit in the literature as it relates to cold case homicides, but what is in print often utilizes qualitative methods. This could be due to the fact that qualitative research focuses on the meanings, traits and defining characteristics of an issue, providing a greater depth of understanding (Tewksbury, 2009). For researching the topic of clearance factors for cold case homicides qualitative methods were utilized to evaluate cleared cold case homicides from the San Antonio Police Department. The data, collected from public sources of information, resulted in a total of fifteen cases included in the study, which was enough to reach a saturation point.

The qualitative method used to perform research on the topic was case-oriented analysis. This analysis method allows for there to be a greater understanding of the series of cases utilized

for this study (Babbie, 2010). This adds to the body of knowledge of cold case homicides by reflecting on previously cleared cases to evaluate what were the deciding factors in the agency's ability to come to a resolution. This method also allows for a deeper understanding of the case details. For instance, if a weapon was used was there a greater likelihood of forensic evidence used to clear a case based on the type of weapon? According to Babbie (2010), there is the disadvantage of this method due to the inability to develop generalized findings based on a single issue. It is also important to ensure that the data being collected is accurate.

Sample

Cleared cold case homicides were reviewed from one urban police department utilizing their publicly available list of closed cases. Additionally, a LexisNexis search was performed to supplement the information made available by the law enforcement agency. Only major news agencies or the local newspapers for the jurisdiction in which the homicide occurred was utilized. The target number of cases to be included was between ten and twenty so as to reach a saturation point with the data. The final data set utilized fifteen cases from the San Antonio Police Department for this examination.

Measurement Methods

The cases were reviewed for the presence of certain factors: time from crime to clearance, if there were witnesses to the crime, if there was forensic evidence used to clear the case, the method of death (i.e. strangulation/asphyxia, GSW, sharp-force injury, blunt-force injury or poisoning/toxicology), and the investigative techniques, if any, that were employed to clear the case (i.e. re-interviewing parties, informants, consultations with expert or investigation of new tips). These questions were utilized to help evaluate the research questions as they pertain to this particular large, urban police department.

Results

A review of the San Antonio Police Department's public information on closed cold case homicides resulted in a total of fifteen cleared, cold case homicides for inclusion in this examination.

Case One

Facts of the Case. This case involved a 29 year-old female who was found by the fire department after responding to and mitigating a house fire on April 17, 1980. She had extensive fire-related injuries and death was pronounced on-scene. At the time of autopsy, the medical examiner discovered evidence of sharp-force injuries as well as strangulation. This would suggest the victim had close contact with the offender during the attack. The fire-related trauma was post-mortem.

Process Utilized. Based on information that was seen on a public cold case website by a woman in Virginia that used to live in San Antonio information was given that implicated the decedent's husband in the homicide. Investigators utilized the investigative technique of re-interviewing involved parties as well as two identified witnesses with information about the homicide. The results of the investigation lead to the arrest warrant of the decedent's husband in October, 2004.

Case Two

Facts of the Case. This case involved a 32 year-old old female who was found pulseless and apneic on the floor of the business she worked at on June 6, 1983. Death was pronounced on-scene. The decedent had been strangled with a silk stocking and there was evidence of a sexual assault. The medical examiner later confirmed the method of death as strangulation. The method of death and the sexual assault point to obvious contact between the victim and offender.

Process Utilized. A previously identified suspect in the case with a history of prior rape convictions was identified as the offender after DNA testing was done on the rape kit from the medical examiner's office. The current DNA technology was not available at the time of the offense. The offender DNA profile that was developed from the rape kit was then compared to the known DNA profile of the suspect. As a result of the DNA match, an arrest warrant was issued for the offender in June, 2003.

Case Three

Facts of the Case. This case involved the death of a law enforcement officer who was working a security detail outside of a night club. The decedent was attempting to interrupt a car burglary when he was abducted by the offenders and drug down the street behind their truck. He was eventually thrown into oncoming traffic causing his death. This type of blunt-force injury would be less-likely to create a situation where forensic evidence would be recovered to identify a suspect(s) as opposed to another kind of blunt-force injury, bludgeoning.

Process Utilized. In 2000, a suspect in an unrelated narcotics investigation provided information related to this homicide in exchange for a lighter sentence on their drug charge. The investigative technique of utilizing an informant lead to information about the offender as well as the location of the truck that was used in the commission of the homicide. After following up on the information provided by the informant, an arrest warrant was issued for the offender in April, 2001.

Case Four

Facts of the Case. This case involved the death of an elderly female who lived alone in an apartment complex. A friend had grown concerned when she was unable to get a response from the decedent when knocking on her door. The friend and neighbor then notified the

complex manager. Once the manager made entry into the apartment she located the decedent pulseless and apneic on the floor; death was pronounced on-scene on April 17, 1989. There was significant blood found at the scene. The medical examiner later determined the decedent died from blunt-force injuries as the result of a bludgeoning. This would lead investigators to believe that there may be good forensic evidence at the scene due to the close, personal nature of this offense.

Process Utilized. The investigators in this case utilized the investigative technique of re-interviewing individuals with knowledge of the case. This practice helped establish a motive and a suspect. The identified suspect was a former cleaning lady who had been fired just prior to the death for suspicion of stealing from the deceased. Based on this investigative work, forensic evidence was resubmitted for testing. After two DNA profiles were found, one from the decedent and an unknown, a subpoena was obtained to collect DNA from the identified suspect. The known DNA obtained from the suspect matched the unknown profile collected from the crime scene. A grand jury indictment was issued in September, 2005.

Case Five

Facts of the Case. This case involved the death of a 33 year-old male who was initially unidentified. The decedent had been shot multiple times in the yard of a private residence. Death was pronounced on-scene on July 19, 1991. This method of death does not exclude the possibility of close contact between the offender and victim, but the use of a firearm does allow for an offender to leave behind minimal forensic evidence, minus ballistics.

Process Utilized. In September, 2001 representatives from multiple law enforcement agencies interviewed a convicted serial killer to try to gain information on other homicides the offender, on death row at the time, may have committed. Through the investigative technique of

interrogating a known serial killer the agencies were able to obtain a recorded confession of three additional homicides. One of these cases seemed to match known information from case four's file. In 2006, law enforcement returned to speak with the convicted serial killer who at this time drew a map of the crime scene that was consistent with this case. Additionally, the offender provided information on the type of firearm that was used in the commission of the crime. This information was compared to the ballistic information recovered from the scene. The information provided was consistent with the forensic evidence recovered at the scene. This information was used to clear the case without formal charges due to the offender's status on death row.

Case Six

Facts of the Case. This case involved an individual who was found lying pulseless and apneic next to his car in the parking lot of a commercial structure on January 4, 1992 by a security guard. Death was pronounced on-scene. The method of death appeared to be due to a gunshot wound. This was later confirmed by the medical examiner's office. This method of death does not exclude the possibility of close contact between the offender and victim, but the use of a firearm does allow for an offender to leave behind minimal forensic evidence, minus ballistics. This is especially true in an open, public space that many people utilize daily.

Process Utilized. There was a break in the case when a prison informant came forward with information about multiple cases. The detectives utilized the investigative technique of attaching a wire to a prison informant to collect documentable information related to the possible unresolved homicides. This information lead to an arrest warrant being issued for the suspect in 2002.

Case Seven

Facts of the Case. This case involved an individual who was shot and killed while getting money outside of an ATM machine in a commercial area on January 4, 1992. As with the previous cases discussed where the victim died of a gunshot wound(s), this scene would lead investigators to believe that there was not close contact between the victim and offender. Additionally, there was nothing about the scene that would lead investigators to believe that the decedent knew the offender.

Process Utilized. There was a break in the case when a prison informant came forward with information about multiple cases. This was the same informant that was able to provide information related to case six. The detectives utilized the investigative technique of attaching a wire to a prison informant to collect documentable information related to the possible unresolved homicides. This information lead to an arrest warrant being issued for the suspect in 2002.

Case Eight

Facts of the Case. This case involved a female who was initially reported missing. The decedent was last seen alive during the early morning hours of February 19, 1994 behind a grocery store. She was a sales representative for a large food vendor. Her vehicle was later located in the parking lot of an apartment complex less than a mile away. Later that evening, the decedent's body was found inside of a 55-gallon drum behind a church less than two miles from the location she was last seen alive. The medical examiner determined that the victim had been sexually assaulted and strangled. The method of death and the sexual assault point to obvious contact between the victim and offender.

Process Utilized. This cold case received the needed information for clearance through forensic evidence. Investigators received a hit in the combined DNA index system (CODIS)

when the DNA profile they had entered into the Forensic Index section of the system matched up with a known DNA profile entered by law enforcement in another state into the Offender Index. This DNA match in the CODIS system resulted in an arrest warrant in September, 2002.

Case Nine

Facts of the Case. This case involved two young girls, ages 12 and 13, who were found on the side of a roadway on December 17, 1994, approximately twenty-four hours after their last seen alive time. The detectives involved in the initial investigation believed that the two girls' bodies had been dumped along the roadside, and had been killed elsewhere. The medical examiner determined that both decedents had died of strangulation. The method of death which would indicate close contact between the victims and the offender, as well as the known fact that the bodies were moved in order to dispose of them on the side of a roadway could create a situation where there could be the transfer of DNA.

Process Utilized. This cold case did, eventually, receive the needed information for clearance through forensic evidence. Investigators received a hit in the combined DNA index system (CODIS) when the DNA profile they had entered into the Forensic Index section of the system recovered from both decedents matched up with a known DNA profile entered by law enforcement from the same state into the Offender Index from a convicted murderer from a case in 2001. This DNA match in the CODIS system resulted in the eventual conviction for capital murder in October, 2002.

Case Ten

Facts of the Case. This case involved a male who was found deceased in the doorway of his residence. The decedent was found to have been shot during the commission of a drug deal. There was no available forensic evidence available on-scene, with the exception of ballistics, that

provided any leads for the detectives working on the case. The use of a firearm in the commission of this crime may have allowed the offender to not leave behind any DNA evidence as there may not have been close contact between the offender and victim.

Process Utilized. During the investigation into the deaths related to case studies six and seven, investigators became suspicious that the prison informant was involved in the death of this individual. When the detectives used the investigative technique of confronting the suspect through an interrogation they were able to obtain a confession from the individual. Charges were filed in the case in 2003.

Case Eleven

Facts of the Case. This case involved two high school boys that were discovered in a field behind a residential housing development in an area known as a gang hangout. The two boys had been reported missing on November 12, 1996 and their bodies were found on December 01, 1996 in a state of severe decomposition. The medical examiner's office used antemortem dental radiographs to identify the boys. Additionally, the medical examiner determined that they died from blunt-force trauma. The close nature of their attack, possibly being struck repeatedly by a large rock, would lead one to believe there could be good forensic evidence available on the scene if they were to have been found soon after their attack. Unfortunately, having their bodies in a field exposed to the elements could diminish this possibility since they were not found until after an extended timeframe.

Process Utilized. This case received the break it needed through the investigative technique of following up on a tip reported to the homicide unit. This tip lead to a suspect being brought in for questioning. During the investigative technique of re-interviewing involved parties the suspect gave a written statement confessing to the murder of the two high school boys in

February, 1999. This case differed from the other cases where the method of death would indicate a close contact between the offender and victims in that forensic evidence was not utilized to clear the case.

Case Twelve

Facts of the Case. This case involved two Hispanic males who were found in a car outside of one of the men's daughter's wedding reception. The men were found to have died from gunshot wounds on February 28, 1997. The case was believed to be tied to drug cartel violence. With the exception of ballistic evidence, there may not be a lot of forensic evidence left at the scene by the offender.

Process Utilized. This case received the needed break during a combined investigation of the Mexican drug cartels with local, state and federal officials. Through the investigative technique of re-interviewing involved parties, law enforcement officials were able to determine that a member of the Mexican drug cartel hired a shooter to carry out the attack on these two men. In 2000, charges were filed in Federal Court for these two homicides.

Case Thirteen

Facts of the Case. This case involved a Hispanic male who was initially a reported missing person on July 29, 1999 but turned into a homicide case when his body was discovered in another county on February 1, 2000. The case was believed to be related to gang violence, but there was not enough information at the time to move forward. The element of an abduction would lend itself to the likelihood of forensic evidence on the victim or scene, but the prolonged time before discovery of the decedent's body may have affected this.

Process Utilized. The initial break in this cold case homicide came in 2001 when an informant came forward with information about who the involved parties were. Through the

investigative technique of interrogation and re-interviewing involved parties who were witnesses to this offense a clear suspect was able to be identified. Once confronted with the new evidence, the suspect confessed to causing the death of this individual and charges were filed in June, 2001. Additional murder charges were filed on another individual who was involved in the abduction.

Case Fourteen

Facts of the Case. This case involved a pregnant mother of two whom was found deceased, fully clothed, in the bathtub of her residence on February 6, 2000. The medical examiner's office determined that the decedent died from a combination of strangulation and drowning. A number of leads were present in the early stages of the investigation of this case, but ultimately no charges were filed. However, the nature of the close personal contact required in the commission of this offense could lead to the presence of forensic evidence.

Process Utilized. This cold case received the needed information for clearance through forensic evidence. Investigators received a hit in the combined DNA index system (CODIS) system when the DNA profile they had entered into the Forensic Index section of the system matched up with a known DNA profile that was entered by law enforcement into the Offender Index in an unrelated case. When confronted with this forensic evidence, the identified suspect confessed to the offense and was charged in January, 2004.

Case Fifteen

Facts of the Case. This case involved a Hispanic male who was previously involved in an altercation. Some of the individuals from that altercation followed the decedent, shooting and killing him with his girlfriend and minor child in the vehicle. The decedent was pronounced dead on-scene on December 3, 2000. The rest of his family escaped the incident with non-life-

threatening injuries. The medical examiner confirmed that the decedent died from multiple gunshot wounds.

Process Utilized. In November, 2004 an individual was arrested for a petty crime and in an attempt to improve his current situation he stated to law enforcement that he had information pertaining to a previous homicide. This case was identified as the unsolved cold case and the informant provided information on some of the individuals involved in the altercation that lead to the shooting. Detectives utilized forensic evidence to positively identify one of the persons involved in the altercation through DNA recovered from the crime scene where the altercation took place. Then, utilizing the investigative technique of re-interviewing involved parties law enforcement was able to gain information on the individuals involved in the shooting. As a result of both the forensic evidence and investigative techniques utilized an arrest warrant was issued for two suspects, the driver and the shooter, in May, 2010.

Table 1

Cleared Cold Case Homicides					
Case	**Time (years)**	**Witness to crime**	**Forensic Evidence**	**Method of Death**	**Investigative Technique**
One	24	No	None	SFI, strangulation	re-interviewed parties
Two	20	No	DNA from rape kit	Strangulation	N/A
Three	16	Yes	None	BFI (traffic related)	Use of informant
Four	16	No	DNA from scene	BFI	re-interviewed parties
Five	10	No	Ballistics	GSW	Interview with convicted serial killer
Six	10	No	None	GSW	Prison informant
Seven	10	No	None	GSW	Prison informant
Eight	8	No	DNA (CODIS)	Strangulation	N/A
Nine	7	No	DNA (CODIS)	Strangulation	N/A
Ten	8	No	None	GSW	re-interviewed parties
Eleven	3	No	None	BFI	Tip line
Twelve	3	No	None	GSW	re-interviewed parties
Thirteen	2	Yes	None	GSW	re-interviewed parties
Fourteen	3	No	DNA (CODIS)	Strangulation, drowning	N/A
Fifteen	10	Yes	DNA from scene	GSW	re-interviewed parties

Discussion/Conclusion

Throughout the series of case reviews on cleared cold case homicides from the San Antonio Police Department a number of themes developed that could be used to answer the two research questions: (a) what role does forensic evidence play versus investigative technique in the clearance of cold case homicides, and (b) is the clearance by forensic evidence or investigative technique affected by the method of death?

Research Question 1

To answer the question of what role does forensic evidence play versus investigative technique in the clearance of cold case homicides, two themes were identified. The first was that forensic evidence was a critical factor in clearing cold case homicides where there were no possible witnesses to the offense itself or with knowledge of the events. The second was that investigative technique was more important in cases where there was an extended period between the decedent's last seen alive time and the time in which their body was found.

The need for forensic evidence in the clearance of cases with no known witnesses goes back to Innes' (2003) belief that homicide investigators must develop a narrative for their cases. It is difficult to paint a picture for a jury when there is nobody but the offender able to tell the story. Thus, the story must be told through forensic evidence that links an individual to a crime scene. This creates an issue with cold case homicides that have been unresolved for an extended period of time. The older a case is, the less likely that there was testing done specifically for forensic identifiers like DNA (McClellan, 2007). However, collected and retained evidence like the blood-soaked towel from case four allows for testing with forensic technology that was not available in 1989 when the offense occurred. The advancements like the ones used in that case allow for cases to be prosecuted that would otherwise not (Innes, & Clarke, 2009). The effective

use of the new advancements in technology will allow for more cases to have charges filed and cases accepted for prosecution (Briody, 2004) but it takes the work of the law enforcement agency in-charge of the case to re-evaluate what evidence may be available for testing. The Federally developed CODIS system was a major factor in the clearance of these no-witness cold case homicides.

As discussed earlier, the CODIS system is a dual database system that has an index of unknown offender's DNA profiles from unsolved cases loaded by a law enforcement agency, and an index of known offender's DNA profiles that have been loaded into the system (FBI, 2000). This system was instrumental in the clearance of a number of cases that were reviewed. In case eight the DNA evidence loaded into the unknown offender database, known as the Forensics Index, match a known offender profile when the suspect was required to submit to DNA testing as a condition of his release from the Michigan State Correctional System. In case nine there was a match with a suspect's DNA profile that was loaded into the known database, or Offender Index, when his profile was placed into the system after an unrelated murder conviction. The last case that utilized CODIS in clearing a cold case homicide was case 14. In this case the Forensics Index found a match after a suspect's profile was loaded into the Offender Index following an unrelated charge. In the future, cases cleared by forensic evidence due to national databases may play a larger part in the investigation of cold case homicides as more known offender profiles are loaded into the system especially with more forensic evidence being collected at the scenes.

With the knowledge of what is out there in the field of forensic technology there should be an increase in forensic identification of offenders due, in part, to Locard's exchange principle which states that when an offender comes in contact with a scene, they will end up leaving

something behind (Kirk, 1953). This theory will be discussed later when research question two is examined, but it does illustrate the need for increasing the databases of AFIS, CODIS and NIBIN to allow for the increased potential of the identification of a suspect through forensic evidence.

The second theme identified to answer research question one was that investigative technique was more important in cases where there was an extended period between the decedent's last seen alive time and the time in which their body was found. Changes in the ambient temperature of a scene, especially significant changes in weather pattern or precipitation can have significant effects on a human body (Archer, 2004). The same could be said about the degradation of forensic evidence left on or near a body. This may account for why there was not any forensic evidence available to link a specific suspect in cases eleven and thirteen even though the idea of an abduction would lead investigators to believe there was close contact between offender(s) and victim. The decedents from case eleven were not found for eighteen days and the decedent from case thirteen was not found for over six months, all found outdoors. Additionally, these individuals were victims of gang-related violence which eliminates an obvious individual as a suspect, instead causing investigators to focus on a possible group of individuals.

Research Question 2

To answer the question is clearance by forensic evidence or investigative technique effected by the method of death, two themes were identified. The first was that DNA evidence was present and the main factor in clearing deaths where the method of death was strangulation. The second was that in gunshot wound fatalities investigative technique was the most important in clearing these cases.

Forensic evidence, specifically DNA, was found in every strangulation death with the exception of one. The one exception was case one where the decedent was strangled, stabbed and then the environment she was in was set on fire. It is highly likely that the fire destroyed the possible DNA evidence that would have been left by the offender. This gets back to Locard's exchange principle. In order to strangle someone the offender would have to be in close contact with the victim. This close contact creates a situation where forensic identifiers of the defender transfer onto or around the decedent. With cases two and eight there was DNA evidence from the rape kits that were done as part of the investigation that lead to the arrest of a suspect, and cases nine and fourteen used DNA evidence that was recovered from the body but public reports did not get a specific location where the profile was recovered from. It is important, however, to note that simply getting a hit in a system like CODIS does not mean an investigator's job is done.

The argument is not being made that once there is a forensic evidence match like a hit in the CODIS system the work of the investigator is done. Naughton and Tan (2011) point out that caution must be exercised when there is a match with an unknown profile from a crime and the profile of a known offender. It is important to ensure that it is a complete match and not simply a partial profile that matched the known profile. It takes the follow-up work of the investigators handling the case to ensure it is possible that their match could have been the offender. This would inevitably involve the investigative technique of re-interviewing involved parties, but these cases being cleared were credited to forensic evidence since without these findings the cases would not have been cleared when they were. There were cases where forensic evidence and investigative technique were given credit, collectively, for clearing the cold case homicide.

Forensic evidence and investigative technique were both credited with closing case four because investigators first re-interviewed involved parties to help establish a suspect and motive.

Only after this was done were they able to obtain probable cause to obtain a DNA sample from their suspect. This DNA profile leads to a match with an unknown DNA profile that was found at the scene back in 1989. The new technology available to investigators in 2005 was able to identify the suspect's blood found at the scene. Case five was attributed to both since investigators started by interviewing a convicted serial killer about other cases he may have been involved in. Case five was identified as a possible case from the information that was provided to the investigators from the convicted serial killer. Ballistics testing was then done to confirm the firearm used in that crime was the same as known information about the suspect's firearm. Lastly, case fifteen was closed due to a combination of forensic evidence and investigative technique after an individual was arrested for a petty crime. This individual stated they had information about this homicide and provided investigators with the name of an individual that was involved in the initial altercation before the shooting. The person who was named was in Federal custody. His DNA profile was run against DNA from blood found at the scene and it was determined to be a match. Without this forensic evidence linking the suspect to the scene investigators would have been unlikely to be able to gain information identifying the shooter and driver involved in the homicide.

The second theme that was identified was in gunshot wound fatalities investigative technique was the most important for clearance. This could be due to a number of factors. It could be that, with the exception of ballistics, very little forensic evidence may be left behind at the scene since no close contact is required in this type of method of death. Additionally, the crime may be gang or crime related which presents its own unique challenges to investigators.

In the cleared cold case homicides that were reviewed, there weren't any indications that any of the gun-related homicides involved a physical altercation at the time of the shooting. The

only exception could be case fifteen where there was an altercation prior to the shooting at another location. Even with this case though, no forensic evidence from that altercation linked the person eventually charged with the shooting. Ballistics was available on every gunshot wound homicide that was reviewed, but that comes with its own unique challenges.

The NIBIN system was developed to work similarly to the CODIS system wherein ballistics from a crime scene could be matched to other offenses (BATF, 2001). The inherent problem is that while CODIS can identify a specific person, the NIBIN system only identifies a firearm which may not be tied to one person but instead shared amongst a group of individuals. Bjerregaard and Lizotte (1995) discuss the reality that firearms exchange ownership frequently within a gang. This means that even if the same firearm is used in multiple offenses it does not indicate who the specific user was. This means it is imperative for investigators to develop leads in communities where clearance rates tend to be lower due to less information being provided to law enforcement by the members of a group or community (Lundman, & Myers, 2012). This also illustrates to need to develop experienced, well-trained cold case homicide investigators.

The majority of the cases reviewed were cleared through investigative technique. This supports the research that shows having the proper, experienced unit leadership, investigators well versed in research skills, and highly motivated investigators that are driven to improve their community greatly increase the chances of clearance for cold case homicides (Walton, 2005; Keel, Jarvis, & Muirhead, 2009; Turner, 7 Kosa, 2003).

Moral Disengagement Theory

As stated earlier, Regini (1997) identified various factors that make solving homicides more difficult and thus, increase the number of homicide investigations that go cold. The four factors that were identified as a shift in previous trends in homicides were: (a) there were an

increase in drug-related homicides; (b) an increase in stranger killings; (c) greater difficulty in law enforcement identifying the relationship between victim and offender; and (d) fear amongst witnesses decreasing cooperation with investigators. The findings of this research support these barriers to the investigation of cold case homicides, as well as support the use of moral disengagement theory to explain the homicides that end up turning cold.

Moral Disengagement purports that when an individual does something, in this case taking another person's life, by separating the act from their normal self-regulated moral standard (Bandura et al., 1996). This theory can also be applied to why these cases turn cold over time. The vast majority of these cases had a number of the factors identified by Regini for why cases turn cold. Cases ten and twelve were drug-related and it could be said that the offender feared for their own life in the situation and decided their moral standards did not apply if they felt in danger themselves. When reviewing cases two, three, five through thirteen, and case fifteen there does not appear to be a personal relationship between the offender and victim. Thus, it could be said that at the time the offense occurred they did not view the killing as against their moral standard since they did not personally know their victim. This creates problems for law enforcement since they are unable to connect the offender to the victim in some meaningful way. Lastly, cases three, thirteen and fifteen had witnesses present during the commission of the offense, but they may not have done the morally correct thing and come forward with information because they themselves were scared for their life.

Implications for Practitioners

This research only examined one large, urban police department with a dedicated cold case homicide department, however the findings could be used in conjunction with other research in the field as a guide for how to proceed with cold case homicides. Using the findings

by Turner and Kosa (2003) that identified five key elements to initiating a cold case homicide investigation and the findings with this research could be used to guide new cold case investigators. The first element defined by Turner and Kosa was for the new investigators handling the case to review the case file and speak with the previous investigators that worked the case to obtain any information that may not be found in the case file. This will allow the investigators to have a better understanding of the case details. Second, investigators should look for gaps in the case file and identify individuals that should be interviewed. The results of the fifteen cases that were reviewed from the San Antonio Police Department suggest this is the most important step in the process. Having statements from all persons involved will help develop a timeline and account for each individual's whereabouts. Inconsistencies could also be identified at this point. Third, all undocumented actions should be review. An example of this would be a search warrant that was never served. The review done for this research did not find any such instances, but again, it was a review of publicly available information. This could have been present in a case but not made known to the general public. Fourth, a review of available evidence should be done to see if any advancement in technology would allow for further testing. This was found to be of great benefit in a number of cases, especially case fifteen. In case fifteen, forensic evidence linked a witness to the earlier altercation. Lastly, the significant witnesses should be re-interviewed. With case fifteen, having the forensic evidence linking someone to the scene could be used to pressure a witness into providing information on the actual shooter.

Further research should be done with multiple departments with various demographics in order to either confirm the findings from this research or to expand on the themes seen in this study to improve the clearance of cold case homicides.

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