What Are The Myths of Criminal Investigations in TV Shows vs The Facts?

Anonymous

Department of English, Anoka-Ramsey Community College

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Prof. Chris McCarthy

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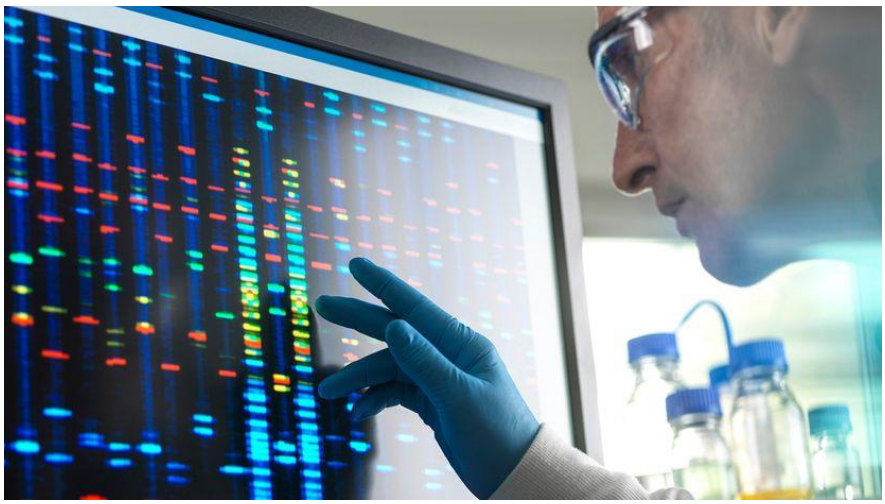
I grew up during the 2000s, when crime-related TV shows like *Law and Order: Special Victims Unit*, *CSI: Crime Scene Investigation*, *NCIS*, and *Dexter* were being released in droves. When watching these shows, I was always fascinated by the logistics behind the criminal investigations that were being displayed. I loved the idea of investigators discovering a key piece of forensic evidence that definitively solves the crime, detectives using deception detection techniques to know when a suspect is lying in an interrogation, and criminal profilers analyzing a crime scene to create the perfect physical and psychological profile. My interest in these shows led me to do some research on actual criminal investigations. I expected some exaggeration from TV shows because their primary purpose is to entertain, but I'm sad to say that many aspects of the criminal investigations shown on television are teeming with myths. While forensic evidence like DNA, fingerprints, and bloodstain pattern analysis are gathered and/or analyzed in many criminal investigations, their effectiveness at immediately solving cases or giving a perfect analysis of the crime is a myth. Also, deception detection tools like polygraph tests are used in real life criminal investigations, but they do not actually detect whether or not someone is lying. Additionally, criminal profiling may be commonly practiced in real life criminal investigations, although the idea that profilers are able to give an exact physical or psychological description of the culprit consistently is a myth. Many of these TV shows also rely on portraying the analysis of things like DNA, fingerprints, bloodstain patterns, body language, and polygraphs as an exact science that gives definitive results. However, this is not the case due to the fact that all of these investigative tools require subjective interpretation and come with a myriad of factors that make it extremely difficult to know whether a suspect has actually committed a crime. I believe it's important to present these distinctions between the myths and facts of criminal investigations to help increase fairness in the criminal justice system.

When breaking down the myths of criminal investigations in TV shows, the best place to start is forensic evidence and more specifically DNA. The reason for this is because the most common way you see an investigation being solved in crime TV shows is through the use of DNA gathering and analysis. Whether it's blood, semen, saliva, skin, and/or hair being discovered in a TV show crime scene, investigators act as if inserting that "found DNA" into a DNA database is a surefire way to close the case. There are some major issues with these portrayals of both DNA and DNA databases in their frequency of use and ability to definitively solve crimes. According to Learn.Genetics (n.d), courtrooms use forensic DNA analysis "in less than 1% of all criminal cases." Also, when DNA analysis is used during investigations, it tends to lead to acquittals rather than convictions (Learn.Genetics, n.d.). DNA databases on TV shows make it seem like if you find DNA at a crime scene, you are guaranteed to get a match. However, Ken Klippenstein (2023) at The Intercept gives a more realistic view of the size of DNA databases by stating, "The FBI amassed 21.7 million DNA profiles – equivalent to about 7 percent of the U.S. population." With only a small percentage of the U.S. population being included in DNA databases, the likelihood of finding a DNA match is drastically lower than what TV shows would lead you to believe. I remember watching episodes of *NCIS* where the criminal investigators would bring DNA evidence to their forensic scientist, who would then plug it into their database and get a match within hours. Real DNA analysis requires interpretation and how it's interpreted can lead to false convictions. In the TED Talk, The Dangers of Misinterpreted Forensic Evidence, Ruth Morgan (2018) states, "In 2015, the FBI did a study, they looked at 268 cases where hair evidence was used to incriminate a suspect and what they found was in 257 of those cases erroneous statements were made" (2:03 – 2:19). Essentially, of the 268 forensic cases from the study, 96% were misinterpreted (Morgan, 2018). This shows that there is a human component to DNA analysis that relies on interpretation and inevitably creates error. By

presenting the statistics of DNA analysis in criminal cases, the limitations of DNA databases, and the human interpretation required in analyzing DNA, you can see that the portrayal of DNA gathering and analysis in TV Shows is riddled with myths. Even with the TV myths and real-life faults of DNA analysis, I still think it is important to understand that DNA is an ever-evolving tool in solving ongoing criminal investigations and cold cases. In 2018 a 40-year-old cold case involving the infamous "Golden State Killer" was solved due to DNA. If you are interested in learning more, this video, "https://www.youtube.com/watch?v=Y2jnJTQWBVM" from the *Real Stories* YouTube channel, gives a great breakdown of how DNA solved the case.

Figure 1

DNA Sample Analysis.



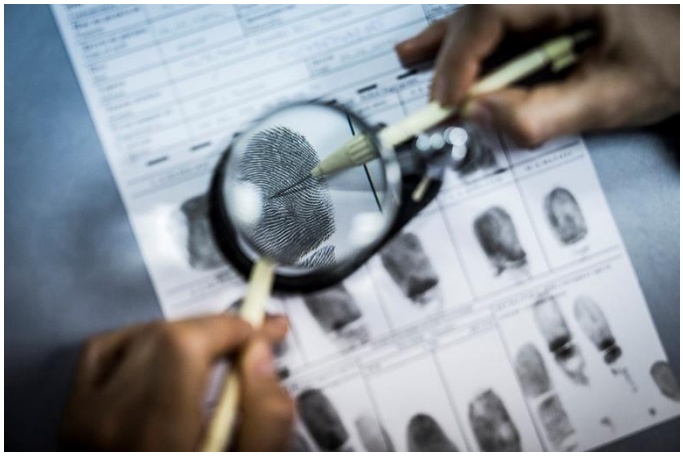
Note. Source: (HowStuffWorks, 2023)

I've covered quite a bit about DNA, but I haven't touched on the criminal investigation myths revolving around fingerprints. I can't think of a TV show involving criminal investigations that hasn't used a fingerprint, also called a "mark", as forensic evidence in one way or another. In crime TV shows, marks are often found as full prints at the crime scene, get promptly put into a database which comes back as an exact match, and are then used as evidence to catch the

perpetrator. While fingerprints are used in real life criminal investigations, most prints found are partials, require fingerprint analysis, and don't always lead to catching the person who committed the crime. In the article, "Fingerprints at the Crime-Scene: Statistically Certain, or Probable?" Cedric Neumann (2012) states that a mark found at a crime scene, "may be in blood, or grease, or powder; it may be smudged or smeared or distorted from a finger pressed at an angle; it may be incomplete." For these reasons, a mark will almost never be as clear or have the exact same attributes as a fingerprint from a database. Neumann (2012) also mentions how, "Fingerprints have been used for a century to identify criminals. But, astonishingly, fingerprint experts rely on subjective opinion, not on objective science. Yet they are required to claim absolute certainty for their judgements – a certainty that is mythical." This demonstrates how matching a mark to a person's fingerprint isn't as easy as just throwing it into a database. When it comes to court proceedings, both the defense and prosecution can come to different conclusions on fingerprint analysis, furthering its complexity and unreliability. An article by the Center for Statistics and Applications in Forensic Evidence (CSAFE) (2022) references a study published in 2021 by Gregory Mitchell and Brandon Garrett which showed how "a rebuttal expert's testimony could affect jurors' beliefs in the reliability of fingerprint evidence." When referring to the results of the study, Mitchel was quoted in the article by stating, "Jurors come to a trial believing that fingerprint evidence is generally reliable evidence, but when our jurors learned details about the fingerprint comparison process and its susceptibility to error, many of them were no longer willing to convict" (CSAFE, 2022). Fingerprint analysis relies on interpretation, and that interpretation can be the difference between catching the true culprit or putting someone innocent behind bars.

Figure 2

Fingerprint Analysis.



Note. Source: (Interpol, n.d.)

To round out the myths involving forensic evidence in TV show criminal investigations, I will be discussing the depictions of bloodstain pattern analysis or BPA. For those unfamiliar with BPA, it is defined by Forensic Science Simplified (n.d.) as, “the interpretation of bloodstains at a crime scene in order to recreate the actions that caused the bloodshed.” Popularized on the TV show *Dexter*, BPA was used consistently throughout the show because the main character, Dexter Morgan, was a “blood spatter analyst.” Dexter would always be able to recreate exactly what transpired during the original crime, down to the most minute details, just by looking at the blood stains. *Dexter* makes it seem as though BPA allows you to fully recreate crime scenes off just the blood stains alone and it also allows you to figure out an exact description of the object(s) used in a crime. These depictions from *Dexter* are complete misrepresentations of how BPA actually works in real criminal investigations. To give an example of why this is the case, Forensic Science Simplified (n.d.) declares, “BPA cannot produce a playback of the entire crime. Bloodstains tell analysts, with reasonable certainty, what happened at specific moments in time corresponding to each useable stain.” Additionally, in the YouTube video, Forensics Expert Examines 20 Crime Scene Investigations from Film & TV | Technique Critique | WIRED, Mathew Steiner (2018) breaks down a scene from Dexter by stating, “To say it definitely came

from a sharp knife not a sword, there's not really any way to say the exact object that it came from." (12:03 – 12:10) This quote from Mathew Steiner (2018) is in reference to him stating that Dexter Morgan describing the exact weapon used in the crime from just blood pattern analysis alone is impossible. I'd also like to address how the show makes BPA seem like there is a single correct interpretation of the blood stains due to Dexter always being accurate in his analysis. This is a complete myth according to a study by R. Austin Hicklin et al. (2021) on the "Accuracy and reproducibility of conclusions by forensic bloodstain pattern analysts". The results from the study show that, "Conclusions by bloodstain pattern analysts were often erroneous and often contradicted other analysts" (Hicklin et al., 2021). Even though I absolutely love *Dexter*, it definitely created some myths through its portrayal of bloodstain pattern analysis.

Figure 3

Bloodstain Pattern Analysis.

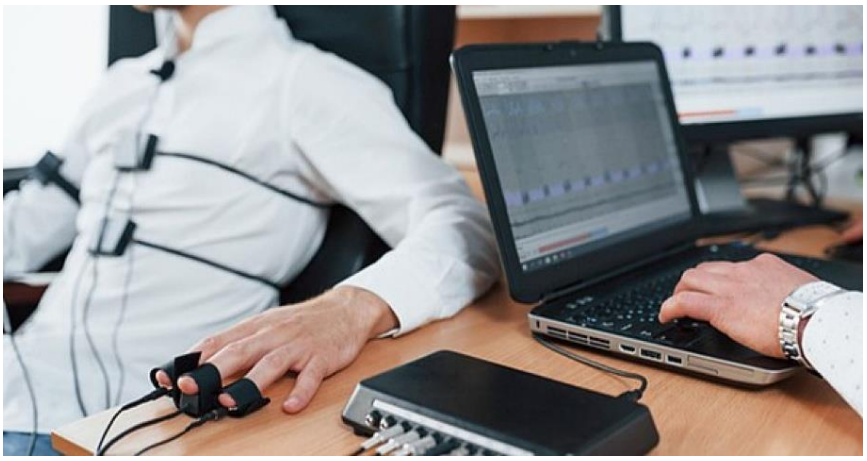
Note. Source: (Thomas Scientific, n.d.)

Moving on from forensic evidence, we now get to take a look at a myth involving deception detection using polygraphs. Polygraphs portrayed in crime TV shows will make you believe that they are instantly able to detect when someone is lying. However, this is actually a myth. According to the American Psychological Association (n.d.), "Even the term 'lie detector,' used to refer to polygraph testing, is a misnomer. So-called "lie detection" involves inferring

deception through analysis of physiological responses to a structured, but unstandardized, series of questions." The key take away from this statement should be the word "inferring." Polygraphs actually assess, "three indicators of autonomic arousal: heart rate/blood pressure, respiration, and skin conductivity." (APA, n.d.) This means that polygraphs require a tremendous amount of interpretation and should not be viewed as a definitive determiner of deception.

Figure 4

Polygraph examination.



Note. Source: (Psychology Today, 2022)

The last myth that I will be covering has to do with the depictions of criminal profiles and profilers seen in various crime TV shows. These shows present criminal profilers as being able to consistently give perfect physical and psychological profiles that always lead to identifying the perpetrator. While criminal profiling is used in real life criminal investigations, profilers don't consistently give perfect physical and psychological profiles. Forensic and Legal Psychology (4th ed.), by Mark Costanzo and Daniel Kraus (2021) demonstrates why this is the case by referencing a study that analyzed the difference in profiling ability of trained profilers vs. those with no profile training. The study found:

> "Trained profilers were slightly better than the other groups at guessing murderers' physical attributes, but were less accurate at inferring murderers' thought processes, social habits, and personal histories. However, even when profilers performed better than other groups, profilers' accuracy rates were fairly low, generally less than 50%." (Costanzo & Kraus, 2021).

This shows how the capabilities of criminal profiling in crime TV shows are blown way out of proportion and create the illusion that trained criminal profilers have superhuman intuition.

Whether it's forensic evidence, deception detection, criminal profiling, or some other topic that I didn't cover, we can all agree that TV shows depict numerous myths involving criminal investigations. I was initially disappointed that this was the case, but when you do deep dives into these topics you start to get an appreciation for the complexity involved in trying to solve real crimes. There is so much incredible information about real life criminal investigations that I was unable to cover in a single essay, so I encourage you to do your own research if this essay sparked your interest. The Britanica website, "https://www.britannica.com/topic/criminal-investigation" is a great place to start, because it gives you a general overview of criminal investigations as well as easy access to specific subtopics that may interest you. I want to leave you with a quote from Ruth Morgan (2018) that I feel incapsulates why dispelling the myths and learning the facts of criminal investigations is important. She says, "Not all of us are going to commit a crime, but every single one of us could be accused of one" (0:57 – 1:04).

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