

**PSYCHOPATHY AND THE POLYGRAPH: INVESTIGATING IMPLICIT BIAS IN
DECEPTION DETECTION**

BY

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A thesis submitted

in partial fulfillment of the requirements for the degree of

Master of Arts in Forensic Psychology

California Baptist University

School of Behavioral Sciences

2017

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DEDICATION

"Every challenging work needs self-effort as well as guidance of elders especially those who are very close to our heart." My humble effort I dedicate to my loving father and mother who have inspired me to higher ideas of life; for their prayers, for their sacrifices, and for their endless patience. They are "Heaven on Earth" for me. To my close friends and family, whose love, encouragement and prayers got me through sleepless nights and endless deadlines.

To my love, who listened patiently through every nervous breakdown that I had and who constantly reminded me that I am able to tackle anything the world throws at me, you are my treasure.

ACKNOWLEDGMENTS

Researcher would like to sincerely thank Dr. Mike Ward, senior polygraph examiner with the Los Angeles Police Department, and Polygrapher, Raphael Guzman. This study would not have been possible without you!

To Dr. Ana Gamez, thank you for being a genius when it comes to statistical analysis!

To Dr. Anne-Marie Larsen, my solid foundation throughout my academic journey, thank you.

ABSTRACT OF THE THESIS

Psychopathy and the Polygraph

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2017

A technological shortcut to the truth is one of the many portrayals that refer to what is known as the polygraph. This study is the third to examine the validity and accuracy of the polygraph in a non-clinical and non-criminal psychopathic and non-psychopathic ($N = 36$) sample. Possessing limited capacity for anxiety, guilt, or shame, psychopathic individuals tend to be non-reactive to specific stimuli; this asserts the notion that they may be able to "beat" a polygraph. Results broadly support researchers' hypothesis: There was a significant relationship between possessing psychopathic traits and the increased probability of passing a polygraph exam. There was also a unique association with the severity of psychopathy and passing a polygraph examination.

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Chapter 1

THE PROBLEM STATEMENT

"Polygraphers, including those with scientific training, claim that polygraph tests have greater than 90% accuracy, that this claim is supported by scientific literature, that their techniques are based on scientific principles, and that scientist agree with these claims" (Iacono & Patrick, 1999, p. 440). According to Honts, Raskin, and Kircher (1994), despite the long-standing controversy regarding their validity, physiological detection of deception has been and continues to be a widely used technique, especially within law enforcement agencies. Polygraph tests play a major role in national security and employment opportunities despite being inadmissible in court proceedings. One major concern, being that polygraph machines only measure specific physiological reactions to "lying" (e.g. heart rate, blood pressure, perspiration, and respiration), is that individuals who are criminal psychopaths are able to pass a polygraph test successfully. This belief stems from the fact that psychopathic individuals feel no remorse for their crimes and as a result fail to produce physiological reactions to

negative stimuli (Honts, Raskin, & Kircher, 1994). In layman's terms, during an investigative polygraph interview, the machine would have no physiological response to measure if the individual is not producing responses. The failure to produce physiological responses is something that one tends to see in psychopathic individuals because of their lack of emotion and their tendency to have no conscious.

Problem Statement

Polygraph tests have been disputed in U.S. Congress, courtrooms, and in a number of scientific and nonscientific forums (Saxe, Dougherty, & Cross, 1985). At the center of this controversy is validity and whether physiological measures can actually assess truthfulness and deception. The fact that there is no evidence that any pattern of physiological reactions is unique to deception sheds further doubt on the reliability of polygraph testing (Lykken, 1998). In addition, psychopaths make up about one percent of the general population and as much as 25% of offenders in correctional settings (Parry, 2011); subsequently, when it comes to the legitimacy of the polygraph test, psychopathic individuals produce a significant concern.

Purpose of the Study

The purpose of this study was to examine the validity of the polygraph test and if the test can truly measure deception, especially among the psychopathic population. One position in research claims that the polygraph has a 90% accuracy rate among *all* individuals, psychopaths included and that polygraph techniques have great evidentiary value (Forman & McCauley, 1986). However, opposing research refutes the claim that polygraphs are a credible method to deception detection and furthermore, fails to discriminate against psychopathic individuals. Through conducting polygraph examinations on individuals who exhibit psychopathic traits, one can reach a few preliminary conclusions that include establishing the validity of the polygraph itself and determining the reliability of the technique when it comes to psychopathic individuals.

Research Questions/Objectives

Within this research study, specific questions regarding the validity and reliability of the polygraph test with psychopathic individuals was explored. The individuals that will be participating will have taken a

Levenson Self-Report Psychopathy Scale (LSRP) questionnaire to establish primary and secondary psychopathy.

The following research question and hypothesis will be explored and addressed:

Research question 1. Does possessing moderate to severe psychopathic characteristics increase the probability of passing a polygraph?

H₁. Moderate to severe psychopathic characteristics within an individual will increase the probability of passing a polygraph examination

Research question 2. Does an individual's LSRP score differ in passing a polygraph exam?

H₂. The higher an individuals' LSRP score is, the more likely he or she will pass a polygraph exam.

Delimitations

What will be covered in this study is the role of psychopathy within the field of lie detection and how it affects the validity of the modern polygraph. Participants will be selected out of the general population, will not be from a criminal or forensic setting and will not have a certified diagnosis of psychopathy. This research is not intended to determine causality of passing a polygraph test but to determine a possible relationship between

psychopathic traits and having the ability to go undetected during a polygraph exam.

Assumptions

All polygraph results were analyzed by a trained and licensed polygraph examiner and will be taken as accurate. LSRP results will be analyzed through a researcher who is familiar and trained in using the statistical software, IBM SPSS Statistics for Windows, Version 23.0 and will be taken as accurate. Any commentaries and opinions before, during, or after polygraph exams will not be taken as accurate; however, professional opinions and commentaries will be examined for validity.

Definition of Key Terms

Admissibility. The concept in the law of evidence that determines whether or not evidence can be received by the court (Burton, 2007).

Affect. A psychological term for an observable expression of emotion. A person's affect is the expression of emotion or feelings displayed to others through facial expressions, hand gestures, voice tone, and other emotional signs such as laughter or tears. Individuals' affect fluctuates according to emotional state (Encyclopedia of Mental Disorders, 2017).

Levenson Self-Report Psychopathy Scale (LSRP). A self-report scale that was developed for non-clinical and non-criminal samples and is used in psychological research to measure primary psychopathy (psychopathic emotional affect) and secondary psychopathy (psychopathic lifestyle) (Levenson, Kiehl, & Fitzpatrick, 1995).

Polygraph. A deception detection test that involves the study of autonomic (rather than verbal or other operant) responses to psychological stimuli (Lykken, 1974). During a standard polygraph test, such as one that is used in a criminal investigation, the subject's physiological responses to unpleasant stimuli (relevant questions pertaining to the investigation) are recorded and analyzed by a polygraph examiner. These responses are then measured through blood pressure, heart rate, perspiration, and respiration. Physiological changes that occur within the subject are assessed in reaction to a carefully structured set of questions (Saxe, Dougherty, & Cross (1985).

Psychopathy. Characterized by a specific set of interpersonal (e.g. deceitfulness and manipulation), affective (e.g. lack of empathy, remorse or guilt), and behavioral (e.g. irresponsibility and impulsivity) characteristics within an individual (Hare, 2016).

Chapter 2

REVIEW OF THE LITERATURE

A technological shortcut to the truth is one of the many portrayals that refer to what most know as the polygraph. The polygraph is "[a machine that records and graphs up to four different physiological responses: the galvanic skin response, the cardio response, roughly the mean of the systolic and diastolic blood pressures, respiration, and, if used, changes in the peripheral vasculature, as represented by blood flow in the tip of the index finger]" (Stapleton, 2001, p.2). The validity and accuracy of the polygraph remains an ongoing debate, with a long history of controversy regarding the utility for using the infamous lie detector machine (Brooks, 1985). According to Saxe, Dougherty, & Cross (1985), much of the debate in regards to polygraph testing has been concerned with ethical issues. At the core of the controversy is validity, especially when it comes to criminal investigations that involve psychopathic individuals. Researchers suggest that the typical psychopath holds a reputation of manipulation and skillful deception (Patrick & Iacono, 1989). Possessing limited capacity for anxiety, guilt, or shame, psychopathic

individuals tend to be nonreactive to specific stimuli, thus allowing them to "beat" a polygraph; essentially allowing psychopathic individuals to become a great concern to the criminal justice system and society in general. Since psychopathic individuals constitute a substantial portion of criminal offenders, especially violent offenders, this possibility is also of major concern to the accuracy of the lie detector (Patrick & Iacono, 1989). When assessing the validity and reliability of the polygraph, it is important to note several major areas of concern. These areas of concern include the history and science behind the polygraph, types of tests that exist, published research studies, psychopathy, admissibility, training, countermeasures and the infamous cases that may have assisted precarious psychopathic individuals to pass a polygraph, thus calling into question the overall dependability of the test.

The History of the Polygraph

The field of lie detection can be dated back to ancient and medieval times where procedures to determine the truth lacked scientific method, scientific technique, and psychological insight (Trovillo, 1939). A few of these methods included the red-hot iron test, the test of

balance, and the boiling water test. The red-hot iron test involved the accused being told to prove one's innocence by applying one's tongue to a red-hot iron nine times and if burned, one was put to death (they believed that a sense of guilt caused the mouth to be dry) (Trovillo, 1939). The test of balance, which included the accused stepping onto a scale with a counterbalance at the other end, only ended in an acquittal if the accused was able to step off the balance, listen to the judge give an exhortation to the balance, and step back on the scale without being heavier than before (Trovillo, 1939). Lastly, the boiling water test involved dipping one's arm in cold water up to the elbow and then dipping it into a pot of boiling water (Trovillo, 1939). If one showed signs of blisters and peeling skin the next day, one would be accused of mischief (Trovillo, 1939).

Prior to the 20th century, psychological testing along with physiological discernment was inconceivable. A psychologist named William Marston first developed the design for the modern polygraph (Lykken, 1974). Marston's device, however, only measured the subject's systolic blood pressure. Despite reassurance by Marston in detecting deception, the machine itself was rejected in two

historical landmark cases which included *Frye v. United States* (1923) and *Daubert v. Merrell Dow Pharmaceuticals* (1993) (Stapleton, 2001). A forensic psychologist named John Larsen and his student, Leonarde Keeler, later added the physiological measures of pulse, respiration, and galvanic skin response. Although the new improvements within the polygraph were considered groundbreaking, Larsen ended up rejecting his own contributions claiming that polygraphy itself was a 'racket and a psychological third degree' (Stapleton, 2001, pg. #1). The last major breakthrough, the development of the control question technique, which is the approach most polygraph examiners utilize today (Stapleton, 2001). Understanding the history and science behind the development of the modern polygraph is significant to comprehending why, despite claims of recent advances in polygraphy, any method of lie detection should not be viewed as valid scientific evidence.

The modern polygraph test involves the study of autonomic (rather than verbal or other operant) responses to psychological stimuli (Lykken, 1974). During a standard polygraph test, such as one that is used in a criminal investigation, the subject's physiological responses to unpleasant stimuli (relevant questions pertaining to the

investigation) are recorded and analyzed by a polygraph examiner. These responses are then measured through blood pressure, heart rate, perspiration, and respiration. Physiological changes that occur within the subject are assessed in reaction to a carefully structured set of questions (Lykken, 1974). The pattern of autonomic responses to the corresponding set of questions is used as the deciding factor in determining a subject's truthfulness or deception (Saxe, Dougherty, & Cross, 1985). However, since there is no one unique physiological response to deception, the critical task of interpreting a subjects' autonomic arousal is left up to the examiner. Even more of a challenge is determining if the autonomic response of a subject is the result of true deception or the result of an entirely different stimulus, such as anxiety, fear or shock. This is where much of the present debate among psychologists, scientists, and researchers exists. What may be indicative of deception for subject A, sweating and increased heart rate for example, may not be true for subject B, who may exhibit a rise in blood pressure and increased respiration. Furthermore, what may be true for both subject A and B, may be entirely different for subject

C, who may not yield any clear physiological responses at all.

According to Stapleton (2001), the polygraph machine itself is only an aid in determining deception. The most crucial aspect to lie detection is the examiner; most of which are not necessarily licensed to practice their trade (Iacono & Patrick, 1999). "The examiner is the single most important component of the polygraph test" (Stapleton, 2001, p.2). The examiner has several major tasks to adhere to when conducting a polygraph examination to arrive at a reliable result. These tasks include determining the suitability of the subject for examination, conveying proper test questions, establishing the necessary connection with the subject before testing takes place, detecting possible attempts to perform countermeasures, encouraging the subject to react, and finally, thoroughly analyzing the results (Stapleton, 2001). However, none of this accounts for human error. As stated before, what the examiner may observe as deceptive behavior for one subject may not be deceptive behavior for the next. Researchers suggest, then, that if the examiner is the single most important component of the polygraph test, the physical polygraph machine is not necessary (Stapleton, 2001). Since

deception itself cannot be measured directly, the polygraph lacks an appropriate theoretical explanation as a lie detector. This proposes the idea that the polygraph technique lacks serious construct validity. It fails to measure directly what it claims to measure. Furthermore, if a technique lacks construct validity, internal validity can be compromised. Internal validity refers to how well an experiment has the ability to establish a cause and effect relationship (Trochim, 2006).

Types of Tests

There are currently four types of tests that aid in the process of lie detection along with the physical polygraph machine: the control question test, the directed lie test, the guilty knowledge test and the relevant/(ir) relevant test. According to Iacono and Patrick (1999), because there is no unique pattern of physiological responses that are unique to deception, these tests aid in asking different types of questions that yield responses to determine outcomes. The first test, known as the control question test (CQT), is popular amongst polygraphers who are conducting criminal investigations that involve known criminal acts (Iacono & Lykken, 1997). This test includes a combination of ten relevant and control questions that are

crucial in determining guilt or innocence (Iacono & Patrick, 1999). Relevant questions directly address the incident under investigation (e.g., did you stab John Doe on the night of August 12?). Control questions address past behaviors that may reveal the type of person that is capable of committing the criminal act (e.g., before the age of 18, did you ever intentionally hurt someone you were close to?). According to Iacono and Patrick (1999), guilty suspects are believed to be more anxious about relevant questions than control questions and tend to yield a more clear physiological response. As characterized by Raskin (1986), the control questions, which are deliberately vague and therefore difficult for anyone to answer truthfully, are designed to give the innocent person the opportunity to become more concerned about questions other than the relevant questions and to produce stronger physiological reactions to the control questions; stronger reactions to the relevant questions indicate deception (p. 34).

The CQT also includes a pretest interview, usually ranging from about 30 minutes to two hours, followed by the administration of three separate presentations of the question sequence while monitoring physiological responses (Iacono & Lykken, 1997). The pretest interview is critical

in conducting a successful polygraph exam. However, a common criticism of the CQT is that it is unintentionally biased towards innocent individuals because physiological arousal to control questions can just as easily mirror physiological responses to relevant questions if the individual believes his or her freedom or livelihood is at stake (Iacono & Patrick, 1999). In addition to this criticism, the test-retest reliability of polygraph testing has yet to be evaluated (Iacono & Patrick, 1999).

Directed lie test

The second test in polygraph examinations is known as the directed lie test (DLT). As an alternative to the control questions that are used in the CQT, some examiners substitute a "directed lie" question for the control question (Iacono & Lykken, 1997, p.428). The DLT is an extension of the control question test (Iacono & Patrick, 1999). The chief difference between the two tests is the type of control questions probed by the examiner (Iacono & Patrick, 1999). The probable lie questions (control questions) of the CQT are substituted with directed lie questions, which involve statements that the individual admits include a lie before the examination takes place (Iacono & Patrick, 1999).

Subjects are instructed to think about a particular time they told a lie or broke a rule when they were asked a control question (Iacono & Lykken, 1997, p. 428). Guilty subjects are expected to show stronger reactions to the relevant questions, whereas the innocent subject's focuses on the directed lie questions should elicit stronger reactions to them than to the relevant questions (Raskin, 1989).

The Guilty Knowledge Technique

The third test, which has been extensively researched and discussed, is the guilty knowledge technique (GKT). The GKT is based solely on a series of multiple-choice questions with each set of questions containing one relevant alternative question and several control questions (Ben-Shakhar & Dolev, 1996). The relative alternative option that is included in the multiple-choice questions includes information that is strictly relevant to the guilty individual. On the other hand, innocent individuals are expected to respond to all questions without discriminating against the relevant alternative questions (Iacono & Lykken, 1997). The GKT relies solely on the physiological responses of the individual who reacts to key information that would be considered as a distinctive or

important part of the investigation (Iacono & Patrick, 1999). The primary difference between the control question test (CQT) and the guilty knowledge test is that the GKT tests for knowledge of information rather than deceptiveness (Iacono & Patrick, 1999). The control question test aims at inferring deceptiveness from a pattern of physiological responses to relevant questions; on the contrary, the GKT aims at recording a pattern of consistent reactions to critical items (relevant questions that pertain to the crime itself) (Iacono & Patrick, 1999).

The Relevant/(Ir)relevant Test

The fourth and final test that is used in polygraph examinations is known as the relevant/(ir)relevant test (R/I). In contrast to the aforementioned techniques, while it may occasionally be used for criminal investigations, the R/I test is primarily utilized for pre- and postemployment screening (Iacono & Lykken, 1997). According to Iacono and Patrick (1999), the R/I test includes only two types of questions: relevant questions pertaining to specific matters of interest (e.g. drug use, loyalty, criminal behavior) and innocent or irrelevant questions (also referred to as "norms"). Questions such as "Is your last name Arias?" or "Is today Monday?" would be examples

of irrelevant questions. While maintaining a thorough record of the examinee's ability to respond, the polygraph examiner also pays close attention to consistent greater reactions to the relevant items which would be interpreted as deceptiveness (Iacono & Patrick, 1999).

According to Stapleton (2001), although the R/I test is still used by polygraphers, it has been largely replaced by the Control Question Test (CQT).

Research Studies

Currently, there have been very few research studies on the validity of the polygraph; especially in the area of psychopathy. Raskin and Hare (1978) conducted a notable study where subjects were obtained from an inmate population at a correctional facility in British Columbia. Subjects (psychopathic and non-psychopathic) were placed into two conditions: the guilty and the innocent. Each subject was informed about a \$20 bill inside of an envelope in the next room. The guilty subjects (who were medically diagnosed as psychopathic) were instructed to take the \$20, undetected, and deny having taken the money. Innocent subjects were also instructed to deny having taken the \$20 (the truth), and if they successfully beat the polygraph, they were allowed to keep the \$20 (innocent and guilty

subjects alike). The subjects were then required to take a polygraph examination where the examiner, unaware of who was designated "guilty" or "innocent" utilized the control question technique. Electro-dermal, respiration, and cardiovascular activity was recorded and evaluations of physiological responses were made. The examiner reported results that showed that 88% of subjects were correctly identified (innocent and guilty), 4% were wrongly identified, and 8% were inconclusive.

This study has received much criticism because it failed to involve genuine and realistic fear of failure. According to Lykken (1979), the fear that one might fail to win the \$20 is drastically different than from a criminal suspect's fear of going to prison. Essentially, measuring artificial guilt and imitation fear incredibly differ from measuring genuine fear and true guilt.

David T. Lykken conducted another research study that encompassed psychopathy in 1955. Lykken was a behavioral geneticist and professor of psychology and psychiatry. According to Lykken (1974) "the field of polygraphic interrogation is about as well integrated into psychology as is the field of chiropractic into medicine" (p. 725). Using tones and electrodermal shock waves, Lykken conducted

a study requiring subjects to select a number one through five and then concealing the number by answering "no" when asked about the number (Raskin & Hare, 1978).

Interestingly, non-psychopathic criminals and noncriminal subjects yielded larger electrodermal responses to the chosen number; however, psychopathic criminals portrayed larger electrodermal reactions to all numbers. Conversely, Lykken's study received criticism and lacked credibility because he failed to use current polygraph examination techniques. Unfortunately, because current polygraph techniques were not yet developed at the time of Lykken's study, not much can be concluded with regard to the detectability of psychopathic individuals (Raskin & Hare, 1978).

Additional research, conducted by Patrick and Iacono (1989) and Forman and McCauley (1986), utilized mock crimes in a laboratory setting to imitate circumstances found in real life settings. Both studies produced error rates that were very different from classic studies. Patrick and Iacono (1989) utilized prison inmates who were led to believe that failing a CQT could possibly lead to retaliation from other inmates who were "relying" on them to pass. Forman and McCauley (1986) allowed their

participants to choose whether they wanted to be part of the innocent or guilty group with the additional incentive of a monetary reward if they passed the CQT. Within both studies, the average accuracy of the CQT for detecting deception was 73%, which turned out to be considerably lower than the 88% reported by previous laboratory studies. Since much was unknown about the area of psychopathy, not many studies elected to involve psychopathic individuals.

Psychopathy

Although a variety of personality factors may influence the frequency of lying behavior, psychopathy is one of the most essential personality and psychological constructs in a forensic context (Hare, 2016). According to Klaver, Lee, Spidel, and Hart (2009), psychopathic individuals are disreputable for manipulation, pathological lying, and deceptive presentation styles. According to Bate, Boduszek, Dhingra, and Bale (2014), psychopathy is characterized by a specific set of interpersonal (e.g. deceitfulness and manipulation), affective (e.g. lack of empathy, remorse or guilt), and behavioral (e.g. irresponsibility and impulsivity) characteristics. Multiple research studies have further established the clinical importance of psychopathy by authenticating the significant

association between psychopathy and criminal behavior (Bate et al., 2014). Clinical psychopathic samples have verified reduced autonomic responses to emotional stimuli, which further validate the concern for psychopathic individuals being able to beat a polygraph test. Furthermore, past research indicates that certain psychopathic individuals can control some physiological responses, similar to the manipulation of self-report scales, producing results that are beneficial to themselves (Bate et al., 2014).

Psychopathy, measured by the international standard for the clinical assessment of psychopathy, the PCL-R, entails four facets that relate to emotional responding: Interpersonal, Affective, Lifestyle, and Antisocial (Hare, 2016).

According to Cooke and Michie (2001), "within applied settings, psychopathy is an important predictor of criminal behavior" (p. 171). This factor is relevant because the proposed hypothesis states that individuals with psychopathic traits have the increased probability of passing a polygraph test. Despite the questionable validity of the polygraph, it continues to be heavily utilized in criminal investigations (Cooke & Michie, 2001).

Interpersonal

According to Tillier and Alberta (2015), individuals with psychopathic traits are commonly characterized by a smooth interpersonal style and an ability to effectively manipulate others. The interpersonal factor within psychopathy encompasses five defining characteristics of a psychopath. The characteristics include glibness/superficial charm, grandiose sense of self-worth, pathological lying and manipulation (Hare, 2016). An individual who can be characterized by these individualities are often glib, voluble, verbally facile individuals who convey an insincere and artificial charm (Hare, 2016). These individuals are often amusing and entertaining conversationalists, are often ready with a quick and clever response, and possess the ability to tell unlikely, but convincing stories that place him or her in a good light (Cooke & Michie, 2001). According to Hare (2016), psychopathic individuals possess a grossly inflated view of his or her abilities and self-worth, may impress as a braggart, often appears self-assured, opinionated and arrogant, and may have an inflated ego. Psychopathic individuals also tend to be interpersonally dominant (Hare, 2016).

In regards to pathological lying, psychopathic individuals are capable of fabricating elaborate accounts of his or her past, even if he or she may know that his or her story can easily be fact checked. Lying and deceit are characteristics that are naturally apart of their interaction with others, his or her readiness to lie can be quite extraordinary, and he or she often lies for obvious reasons, but deceiving others appears to have intrinsic value (Hare, 2016). When it comes to dishonesty, although they may come off as straightforward and direct most times, psychopathic individuals are prone to use deception under a variety of circumstances and may be quite talented at fooling others, getting out of trouble, and persuading others to do what they want (Tillier & Alberta, 2015). The use of scams is motivated by a desire for personal gain and is typically carried out with no regard for the effects it may have on victims (Hare, 2016). Manipulative and deceiving behaviors of psychopathic individuals may also account for criminal and noncriminal behaviors. According to Tillier and Alberta (2015), psychopaths are characterized as having an "arrogant and deceitful interpersonal style" (p.3).

Affective

Facet two consists of four characteristics that make up the affect of a psychopath (Hare, 2016). The characteristics of facet two include lack of remorse or guilt, shallow affect, callous or lack of empathy, and failure to accept responsibility. According to Tillier and Alberta (2015), the behaviors of individuals with psychopathic traits frequently suggest that they are less impacted by emotional experiences than are others. Part of the reasoning for the difficulty in detecting the lack of emotional reactivity is that everyone displays emotion in different ways (Cooke & Michie, 2001). In addition, when things go wrong, psychopathic individuals are often proficient at explaining the chain of events in a way that leaves them with no responsibility for negative outcomes (Cooke & Michie, 2001).

Psychopathic individuals have a general lack of concern for the consequences that his or her actions, both criminal and non-criminal, have on others (Hare, 1991). Psychopaths are more concerned with the effects that his or her actions have upon themselves than they are about any suffering their victims may have gone through or any damage done to society. According to Hare (1991), psychopathic

individuals possess a shallow affect, which is their inability to experience a normal range and depth of emotion. At times, psychopaths may seem cold and unemotional yet the display of emotion is generally dramatic and short-lived (Hare, 1991).

To the typical psychopath, emotionality is a sign of weakness. In addition, attitudes and behavior indicate a profound lack of empathy and a callous disregard for the feelings, rights and welfare of others (Cooke & Michie, 2001). Psychopathic individuals often view others as objects to be manipulated and actions may contain callous and sadistic treatment of others. According to Cooke and Michie, 2001), while emotional disconnect allows the psychopath to enhance observation in other areas and tactile decision making, psychopaths are able to read the facial expressions of others better than normal, but fail to react to it. In regards to affect, psychopaths can be characterized as having a deficient affective experience (Tillier & Alberta, 2015).

Lifestyle

The lifestyle of a psychopathic individual is typically parasitic, requires stimulation, impulsive, irresponsible and fails to possess realistic, long-term

goals. According to Hare (2016), the parasitic lifestyle of a psychopathic individual involves avoiding steady, gainful employment and obtaining what he or she wants by presenting his or herself as helpless, using threats or coercion, or by exploiting his or her victims' weaknesses. Psychopaths tend to fail to meet commitments (e.g., paying bills, contributing resources, honoring marital and business contracts) and behave in ways that put others at risk either willfully, recklessly, or through inattention to the needs of others (Tillier & Alberta, 2015). Additionally, psychopaths tend to consistently verbalize commitment to others, but their behavior suggests otherwise (Tillier & Alberta, 2015).

Irresponsibility is another manifestation of psychopathy and will typically become evident in a variety of areas such as work behavior, financial dealings, personal relationships, business relationships and deviant behavior that puts others at risk (Hare, 1991). A psychopath tends to have little or no sense of duty or loyalty to family, friends, employers, ideas, or causes and typically display a habitual failure to fulfill or honor obligations and commitments to others (Hare, 1991). Unlike the common individual, psychopathic individuals fail to

possess realistic, long-term goals that show through the inability or unwillingness to formulate and carry out realistic plans. Psychopaths tend to live day-to-day, change plans frequently, and are often unbothered by the realization that he or she has done very little with his or her life so far and that it will most likely go nowhere (Cooke & Michie, 2001).

Lastly, psychopaths exhibit impulsive behavior by doing things that are 'spur of the moment' simply because the opportunity presented itself (Hare, 2016). Psychopaths have a chronic and excessive need for novel and exciting stimulation, and sometimes may decide to change partners or jobs impulsively or even act in ways that seem to challenge their own priorities (Hare, 2016). This leads to failing to think before taking action and resulting in impulsive, unpremeditated and lacking in reflection or forethought (Hare, 2016).

Antisocial

The last facet of psychopathy entails characteristics that make up an antisocial profile. According to Tillier and Alberta (2015), the antisocial facet is associated not necessarily with criminal behavior but with early, versatile, and persistent antisocial behavior that often is

extremely distressing and frustrating for others. However, psychopathic individuals are more likely than others to commit offenses, including violent offenses (Tillier & Alberta, 2015). A psychopathic individual reflects an antisocial personality if their actions represent poor behavioral control, early behavioral problems, juvenile delinquency, and criminal versatility.

According to Hare (2016), psychopathic individuals tend to respond to frustration, failure, discipline, and criticism with violent behavior or with threats and verbal abuse and can be suddenly irritable, annoyed or impatient. In addition to poor behavior control, psychopathic individuals experience early behavioral problems, with some as young as 12 years old (Hare, 2016). Behavioral problems may include persistent lying, cheating, theft, robbery, fire setting, truancy, disruption of classroom, vandalism, violence, bullying, precocious sex, substance abuse, and running away from home (Hare, 2016). According to Cooke and Michie (2001), psychopathic individuals tend to have a history of contact with the criminal justice system and serious antisocial behaviors throughout adolescence as well as a criminal record that involves charges and convictions for many different types of crimes.

Additionally, according to Tillier and Alberta (2015), the criminal activities of a psychopathic individual tend to be persistent and generalized, not specific to only one type of offense. Although some crimes of psychopathic offenders may have involved extensive planning, most of their crimes are often impulsive or even careless (Tillier & Alberta, 2015).

Psychopathy and Emotional Responding

According to Bate et al. (2014), psychopathic individuals tend to lack a specific set of emotional stimuli that would otherwise be developed in normal individuals. Psychopathic individuals do not develop normal affective experiences during childhood and adolescence, thus, creating a disadvantage in the area of emotional development (Bate et al., 2014). Past research indicates that individuals who have been diagnosed with mild to severe psychopathy have difficulty in recognizing and acknowledging emotions in others, lack the ability to experience emotions themselves, and exhibit less discerned emotional responses to distressing stimuli (Bate et al., 2014). Psychopathic individuals can also experience exertion in the processing or production of emotional

language and tend to show abnormal brain function when processing emotions (Bate et al., 2014).

According to a study conducted by Levenston, Patrick, Bradley, and Lang (2000), psychopathic individuals react significantly less than non-psychopathic individuals to both pleasant and unpleasant stimuli such as electro-dermal response, startle reflex, and electro-cortical reactivity. This is consistent with the belief that psychopathic individuals have the ability to pass a polygraph test because of the dissociation of emotional responding. Researchers suggest using behavioral measures when examining psychopathic individuals for the purposes of obtaining a more accurate result in emotional responding.

Infamous Polygraph Cases

The polygraph is designed to measure emotion, not deception; this may be the number one reason why deceptive psychopathic individuals may be able to go undetected while taking a lie detector test. There is a history of infamous psychopathic individuals who have committed horrific crimes, and yet, were able to pass a polygraph. Psychopathic individuals worth mentioning include but are not limited to Gary Ridgway (the Green River Killer),

soviet spy, Aldrich Ames, serial killer Charles Cullen (the Angel of Death), John Wayne Gacy, and Ted Bundy.

Gary Ridgeway, an infamous serial killer in the state of Washington, is linked to the deaths of at least 48 women ("Gary Ridgeway - Crime Museum," 2017). Taking nearly 20 years to be brought to justice, Ridgeway preyed on prostitutes and developed a modus operandi of strangling his victims and dumping their bodies near Green River. In 1982, Ridgeway was arrested on a prostitution charge and became a suspect in the slayings; however, after successfully passing a polygraph test in which he denied being involved in any of the murders, he was no longer considered a suspect in the investigation ("Gary Ridgeway - Crime Museum," 2017).

Luring his victims into the car just to kill them, Ridgeway proudly claimed that killing was his "career." Throughout his trial, Ridgeway was emotionless, lacked empathy for his crimes, a pathological liar, impulsive and showed no remorse towards his victims ("Gary Ridgeway - Crime Museum," 2017). Coined as America's most prolific serial killer, Ridgeway quotes, "Most of the time I killed them the first time I met them and I do not have a good memory of their faces. I killed so many women I have a hard

time keeping them straight" ("Gary Ridgway - Crime Museum," 2017).

Aldrich Hazen Ames was an American Central Intelligence Agency analyst turned soviet spy. According to Williams (2012), during the height of the Cold War, Ames was paid \$4.6 million dollars by the Russians in exchange for top secret documents; not only betraying his country but some of the agencies best secret agents. Before finally being arrested in the mid-90s, Ames successfully passed two lie detector tests. Williams (2012) further explained that many believe that he was able to skillfully control emotions and responses that would otherwise be involuntary for the vast majority of people. Although Ames was never officially diagnosed with psychopathy, he was a pathological liar, lacked empathy, and did not feel guilt or fear when presented with specific stimuli; all common traits of a psychopathic individual (Williams, 2012).

Charles Cullen, known as the "Angel of Death" and ranked one of the most elusive serial killers in the country, was yet another individual who portrayed psychopathic traits throughout his life (Gettleman, 2006). Cullen was a career nurse who had a history of mental illness and was known for having an "icy" bedside manner.

Cullen was employed at nine hospitals and one nursing home over the course of 16 years in New Jersey and Pennsylvania (Gettleman, 2006). Never having admitted the real reason why, Cullen killed his victims by sneaking into their rooms late at night and injecting them with an extremely potent heart medication known as digoxin.

After his first victim died, Cullen was asked to take a polygraph test. After successfully passing the polygraph, Cullen went on to kill at least another 39 patients (Gettleman, 2006). Cullen was said to be cold, calculated, remorseless, and had a genuine lack of concern for the consequences of his actions (Gettleman, 2006).

John Wayne Gacy, also known as "Pogo the Clown," was known to his family, friends, and community as a hard-working, friendly, devoted family man that was widely respected and well-liked by anyone he came into contact with. However, this portrayal was the side that he allowed people to see. In fact, Gacy's part time job as an entertainer for children's parties played a significant role in his sinister double life (Taylor, 2003).

At the age of 11, Gacy was hit in the head by a park swing causing a blood clot to form in his front temporal lobe (Taylor, 2003). Gacy suffered front temporal lobe

damage and began acting out as a teenager. In addition to suffering from temporal lobe damage, Gacy endured a heart ailment and physical abuse by the hands of his father. Lonely and depressed, Gacy got into the restaurant business. Shortly after learning the business, rumors began to spread about Gacy's sexual preference concerning young boys (Taylor, 2003). His first victim, a young teenaged boy named Mark Miller, accused Gacy of violently raping him.

After his first victim, Gacy would go on to rape and eventually kill a total of 33 young teenage boys. During the course of the investigation against him, Gacy maintained his innocence and even demanded to take a polygraph. Unfortunately for law enforcement, Gacy's polygraph results were inconclusive and he continued to accumulate more victims until police entered the crawl space under Gacy's home and discovered the bodies of multiple victims (Taylor, 2003).

Ted Bundy, who passed a polygraph test twice, was yet another infamous serial killer who was responsible for the deaths of over 33 women. The handsome, charming, young law student was adored by his family, friends, and anyone who came into contact with him (McCall, 1980); Bundy even wrote a rape-prevention pamphlet for women while working as an

assistant director of the Seattle Crime Prevention Advisory Commission (McCall, 1980). After graduating with a degree in psychology, Bundy worked briefly as a counselor in a psychiatric hospital. Bundy also worked in a variety of notable positions, but by the time he left his home city, Bundy had already been suspected of being involved in eight murders.

Amongst all the chaos of murders, arrests, trials, convictions, and escape attempts, Bundy evaded imprisonment for nearly 17 years. According to McCall (1980), circumstantial evidence suggested that Bundy started killing as a teenager; however, his first documented case of murder was not until 1971. During the course of an intense investigation into the series of murders committed by Bundy, Law enforcement administered a polygraph test twice, in which Bundy passed both times with flying colors (McCall, 1980).

Admissibility

According to Saxe and Ben-Shakhar (1999), psychologically based evaluations of deception have been at the front lines of legal controversy for nearly a century. Pre-Daubert, the admissibility of scientific evidence relied on the Frye test. In *Frye v. United States* (1923),

Mr. Frye (defendant) was convicted of second-degree murder after the trial court did not allow results from a deception test into evidence. The ruling was made based upon the fact that if a test, such as the systolic blood pressure deception test, has not gained scientific recognition from psychological and physiological communities, any expert testimony regarding the results of such a test are inadmissible ("Frye v. U.S | Casebriefs," 2016). The court argued that a procedure like the systolic blood pressure deception test was not valid because it was solely supported by experimental evidence and not based on a well-recognized scientific principle or discovery (Saxe & Ben-Shakhar, 1999). The polygraph has yet to gain general acceptance in the scientific community; thus making it difficult to prove the validity of polygraph examinations.

Post-Frye, the decision of *Daubert v. Merrell Dow Pharmaceuticals* provided the standard for admissibility of evidence. The *Daubert* decision set forth guidelines to judges when determining whether to admit expert testimony that is based on scientific evidence (Saxe & Ben-Shakhar, 1999). The four considerations that were brought about by the *Daubert* decision include testability (or falsifiability), error rate, peer review and publication,

and general acceptance. According to Saxe and Ben-Shakhar (1999), these four *Daubert* criteria provide a framework for the analysis of scientific evidence, specifically for behavior science research. The meaning of these criteria and by what standards they should be judged continues to be of debate within the scientific and legal community (Saxe & Ben-Shakhar, 1999).

One last landmark case involving polygraph evidence was *United States v. Scheffer* (1998). The issue within the case was whether the President was wrong in excluding the use of polygraph evidence in a military court martial trial. Utilizing the Military Rule of Evidence §707 and obtaining a unanimous decision, the court ruled that the exclusion of the polygraph evidence was indeed reasonable because of two reasons: scientists do not agree that polygraph test results are reliable and a large number of experts agree that polygraph tests have intolerable levels of reliability and validity (Saxe & Ben-Shakhar, 1999). In fact, the control question test (CQT) continues to be considered an un-validated procedure among the scientific community and yet, is the most widely used polygraph technique to date.

Legislation

The Employee Polygraph Protection Act (EPPA) was established to prohibit most private employers from utilizing lie detector tests, either for pre-employment screening or during the course of employment, because polygraph examinations were being abused and viewed as an unfit and unfair measure (U.S. Department of Labor, 2016). The act prohibits employers for requesting or requiring employees or potential employees to take a lie detector test at any point in the hiring process or during any period of employment. The act also prohibits employers from discharging, disciplining, or discriminating against an employee or job applicant because of refusing to take a lie detector test (U.S. Department of Labor, 2016). However, subject to restrictions, the act does permit polygraph tests to be administered to employees of private security firms (armored car, alarm, and guard) and pharmaceutical manufacturers who are reasonably suspected of involvement in a workplace incident (theft, embezzlement, etc.) that resulted in specific economic loss or injury to the employer (U.S. Department of Labor, 2016).

In addition to the previous mentioned exceptions, all government and law enforcement agencies are permitted to

administer pre-employment screenings that include polygraph examinations. Additional exemptions include national defense agencies, FBI contractors, ongoing investigations, and state or local security agencies because these agencies include high security risk occupations.

In most European jurisdictions, polygraphs are not considered dependable evidence and are not commonly used by law enforcement. Courts themselves do not order or permit polygraph testing. In most circumstances, polygraph tests are voluntarily taken by a defendant in order to validate his or her defense. Advocates in the United States who are against polygraph testing are currently working on abolishing polygraph testing all together.

Polygraph Training

According to Iacono and Patrick (1999), the field of polygraphy is not regulated and relies heavily on the polygraph examiner. Training in polygraphy is provided by freestanding polygraph schools, most of which are accredited by the American Polygraph Association (APA). The Department of Defense Polygraph Institute (DoDPI), the most prestigious of polygraph schools, provides a one-semester intensive, hands-on course in polygraphy that includes

several techniques and interview practices employed by examiners (Iacono & Patrick, 1999).

However, according to Iacono and Patrick (1999), most accredited polygraph institutions do not offer as rigorous a program as DoDPI and not all practicing polygraphers are graduates of approved schools. Since the field of polygraphy is not regulated in most states, polygraph examiners are not essentially licensed to practice (Iacono & Patrick, 1999).

Countermeasures

When it comes to the psychophysiological detection of deception, the use of countermeasures can also decrease the reliability. It is highly probable that deceptive subjects can learn to artificially amplify their polygraph responses and thus avoid deceptive scoring (Lykken, 1979). According to Ben-Shakhar and Doley (1996), "countermeasures are deliberate techniques that might be used by suspects to alter their physiological reactions" (p. 273).

Countermeasures are deliberate techniques used when a suspect or individual is attempting either to hinder responses to the relevant questions or to produce a reaction to the neutral items (Ben-Shakhar & Doley, 1996). There are currently two forms of countermeasures: mental

and physical. Mental countermeasures include mental relaxation or efforts to concentrate on exciting memories during presentation of the control questions (Ben-Shakhar & Doley, 1996). Mental countermeasures require an individual to bring to mind an emotionally exciting memory when presented with an irrelevant question (Ben-Shakhar & Doley, 1996). This type of countermeasure carries the belief that it reduces deception detection by decreasing expected physiological reactions to relevant questions.

According to Honts, Kircher, and Raskin (1994), training in simple physical measures, such as biting ones' tongue or pressing ones' toes to the floor, can be effective in deceiving polygraph machines by enhancing physiological reactions to control questions. According to a study conducted by Honts, Hodes, and Raskin (1987), 60% of their decisions were incorrect when participants were trained to bite their tongues and press their toes to the floor when asked control questions (Honts, Kircher, & Raskin, 1994). Although the U.S. government has invested a considerable amount of resources in the development of countermeasure detectors, efforts have been in vain. In addition to the effectiveness of physical countermeasures, mental countermeasures pose an even greater threat to the

reliability of lie detector tests because they are "virtually undetectable instrumentally" (Honts, Kircher, & Raskin, 1994, p. 253).

Summary

In summary, the modern polygraph has been a controversial issue for the last 70 years. In fact, "polygraphers, including those with scientific training, claim that polygraph tests have greater than 90% accuracy, that this claim is supported by the scientific literature, and that their techniques are based on solid scientific principles" (Iacono & Patrick, 1999, p.440). However, the polygraph test has yet to gain acceptance into the scientific community.

The overall dependability of the polygraph calls into question several major areas of concern, especially when it comes to assessing validity and reliability. These areas of concern include but are not limited to the history and science behind the polygraph, types of tests that exist, published research studies, psychopathy, admissibility, training, countermeasures and the infamous cases of dangerous psychopathic individuals who evaded police investigations due to inconclusive results of the polygraph.

Not only does the modern polygraph lack scientific foundation, it continues to be rejected by scientific and legal communities alike. Polygraph results remain inadmissible in a court of law and have been banned from use by employers in regards to employee misconduct. Unfortunately, the polygraph continues to be utilized in pre-employment examinations by federal, state, and local law enforcement agencies across the country to weed out potentially dishonest candidates.

Chapter 3

METHOD

Participants

A total of 36 adult participants were recruited using a stratified method. The sample was comprised of non-clinical and non-criminal male and female undergraduate, graduate, and doctoral students. Out of the 36 participants that completed both the questionnaire and polygraph requirements, a total of 75% (n=27) were female and 25% (n=9) were male. Participants ranged in age from 19 to 47 years, with an average age of 27 years (SD=6.13). Ethnicity breakdown was as follows: A total of 39% (n=14) were Black or African American, 22% (n=8) Caucasian, 36% (n=13) Hispanic or Latino, and 3% (n=1) Other/Two or More Ethnicities. Participants' completed education was as follows: A total of 25% (n=9) had completed High School, 3% (n=1) Associates degree, 67% (n=24) Bachelor's degree, 3% (n=1) Master's degree, and 3% (n=1) Doctorate degree.

Instrumentation

A quantitative method was utilized for this study to examine the relationship between individuals who possess

moderate to severe psychopathic traits and the increased probability of passing a lie detector test. Researcher collected data from Levenson Self-Report Psychopathy questionnaires completed by participants. The Levenson Self-Report Psychopathy Scale (LSRP) is a self-report scale that was developed for non-clinical and non-criminal samples and is used in psychological research to measure primary psychopathy (psychopathic emotional affect) and secondary psychopathy (psychopathic lifestyle) (Levenson & Fitzpatrick, 1995). To measure primary and secondary psychopathy, a five point Likert-type scale was utilized. The LSRP includes 16 items that measure emotional affect and ten items that measure lifestyle.

To measure lie detection, a standard polygraph technique known as an acquaintance test was utilized. A standard polygraph machine measures subjects' physiological responses to unpleasant stimuli (relevant questions pertaining to the topic). Only the designated licensed examiner asked relevant questions. These responses were measured through blood pressure, heart rate, perspiration, and respiration. Researcher gathered data that allowed for drawing inferences from empirical research on polygraph validity. Furthermore, by examining the evidence on

polygraph accuracy and reviewing empirical data, researcher developed an effective question technique based upon a thorough assessment of past polygraph research.

Procedure

Data was collected by conveniently approaching students on various approved campuses with flyers. Potential participants were approached, informed of the research study, and asked if they would like to participate. After obtaining the proper consent, participants were asked to complete the Levenson Self-Report Psychopathy Scale (LSRP) prior to scheduling their polygraph examination. After LSRP results were collected and researcher was able to gather preliminary conclusions about potential psychopathy traits, participants were separated into two classifications, psychopathic and non-psychopathic. Through stratified sampling, eligible participants were scheduled to take a polygraph examination.

Participants were required to choose a number between 1 and 7 and write it on their assigned participant information slip, which was handed to the researcher. All participants concealed the number by answering "no" when asked about the number. All participants were selected to

purposefully lie to the examiner for the purposes of deception detection. Upon conclusion of the polygraph, researcher documented results with each unique identification number. Polygrapher made an educated guess as to the number each participant selected based upon the results of the polygraph exam.

Data Analysis

The statistical program IBM SPSS was used to analyze the data. All data was screened for outliers. The statistical analysis used in this study was a 2 x 4 Chi-Square and an independent samples t-test. In addition, each questionnaire result was recorded and analyzed using an online data analysis program developed specifically for LSRP assessments. Scores from the LSRP for primary and secondary psychopathy range from 1 (low) to 5 (high). A score of 0.0-0.9 indicates little to no presence of psychopathy; a score of 1.0-1.9 indicates mild psychopathy; a score of 2.0-2.9 indicates moderate psychopathy; a score of 3.0+ indicates severe psychopathic traits.

Chapter 4

RESULTS

It was hypothesized that there is a relationship between the severity of psychopathy within an individual and passing a polygraph examination. A chi-square test of independence was performed to examine the relationship between an individual's severity of psychopathy and passing or failing a polygraph exam. Results indicated that the relationship between these variables was significant, $\chi^2 (2, N=36) = 15.05, p < .001$. Researchers' hypothesis was supported by the analysis and possessing moderate to severe psychopathic traits has a significant relation in passing a polygraph examination.

An independent samples *t* test was performed to compare an individual's LSRP score and passing or failing a polygraph examination. As predicted, individual's on the higher end of moderate to severe psychopathy ($M = 2.9, SD = .32, N = 15$) were more likely to pass a polygraph than individual's on the lower end of moderate or mild psychopathy. Individuals on the lower end of mild to moderate psychopathy were more likely to fail a polygraph ($M = 2.1, SD = .33, N = 21$) than individual's on the higher

end of moderate to severe psychopathy; $t(34) = 8.21$, $p < .05$, two-tailed. The 95% confidence interval around the difference between group means was relatively precise (.68 to 1.13). These results suggest that an individual's LSRP score has an effect on passing or failing a polygraph. Specifically, the higher an individual's LSRP score is, the greater the chance of passing a polygraph.

Chapter 5

DISCUSSION

This study set out to assess the impact of psychopathy in the profession of polygraph examinations. The validity of the polygraph exam, especially among the psychopathic population, remains a controversial issue among the scientific as well as the non-scientific population. Prior research claims that the polygraph has a 90% accuracy rate among *all* individuals, polygraphs have great evidentiary value, and that individuals with psychopathic traits are not excluded. The present study investigated these claims and sought out to begin to refute the current method to deception detection.

The main finding of this thesis is that individuals who demonstrate moderate to severe psychopathic traits have the increased probability of passing a polygraph examination. Furthermore, the higher an individual scores on a psychopathy scale, the more likely he or she is expected to pass a polygraph. A chi-square analysis indicated a significant relationship between having moderate to severe psychopathic traits and the increased likelihood of passing a polygraph examination. An

independent samples *t*-test indicated that individual's with high LSRP scores are significantly more likely to pass a polygraph examination than individual's with lower LSRP scores.

The results were broadly consistent with other studies such as those conducted by Raskin and Hare (1978) and Lykken (1955), where non-psychopathic criminals and non-criminal subjects portrayed higher electrodermal responses as they were lying; On the contrary, psychopathic criminals could not be distinguished in their electrodermal responses. In addition, the average rate at correctly identifying "innocent" and "guilty" subjects was only 73%.

Only the aforementioned studies, to our knowledge, have examined the possible relation between psychopathy and the increased probability of passing a polygraph exam. Other research, such as studies conducted by Patrick and Iacono (1989), and Forman and McCauley (1986) only assessed the validity of the polygraph with no mention of psychopathy. These results present a possible indication that the polygraph may not be as reliable as claimed.

Limitations

This study has a number of possible limitations. First, the sample size of participants was very small. The

sample size, although it may have met the threshold of being considered an acceptable sample, restricted the generalizability of the results. Another limitation to this study is that participants, although suspected of possessing psychopathic characteristics, did not have an actual diagnosis of psychopathy. This limitation, too, restricts the generalizability of the results, especially among the clinically diagnosed psychopathic population. Another limitation to this study is that there were no criminal psychopathic subjects. It would be interesting to perform this study with subjects from the criminal population.

This study also failed to instill genuine and realistic fear of failure within the participants. Fear developed from not being able to earn extra credit is much different from the fear of going to prison. This is significant because this study measured synthetic fear and simulated guilt as opposed to realistic fear and true guilt. The last notable limitation is that there were more females than male subjects. Typically, a good sample has an equal distribution of gender so that inferences can be drawn when making gender-based references; this study lacks the ability to do so. This study was conducted in one

region, so the results cannot be generalizable to other areas.

Future Research

These findings can contribute considerably to the development and evaluation of deception detection techniques or perhaps, the abolishment of deception detection techniques altogether. The results are of direct practical relevance and should be used as a reference to future research studies.

According to Saxe and Ben-Shakhar (1999), post-Frye, the *Daubert* decision set forth guidelines to judges when determining whether to admit expert testimony that is based on scientific evidence. However, polygraph evidence was ruled inadmissible and still remains inadmissible in a court of law. Despite *Daubert* standards, polygraph exams are still used in pre-employment investigations and criminal investigations by a number of law enforcement and government agencies. More research in this area is necessary so that the polygraph does not continue to be utilized unnecessarily.

Future larger studies with statistical analyses would be of great interest. Further studies are required to establish that the polygraph has no true validity and that

society can adopt the correct approach, if any, to deception detection.

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APPENDICES

APPENDIX A

LEVENSON SELF-REPORT PSYCHOPATHY SCALE QUESTIONNAIRE

The Levenson Self-Report Psychopathy scale (LSRP) was developed for non-clinical and non-criminal samples and is used in psychological research to measure primary psychopathy (psychopathic emotional affect) and secondary psychopathy (psychopathic lifestyle) (Levenson, Kiehl, & Fitzpatrick, 1995). It is important to note that the LSRP is strictly for assessing possible psychopathic traits and is not used for an official diagnosis of psychopathy.

APPENDIX A

Levenson Self-Report Psychopathy Scale

Instructions: Please click on each statement on how much you agree with it

	Disagree	Neutral	Agree
Success is based on survival of the fittest; I am not concerned about the losers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find myself in the same kinds of trouble, time after time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For me, what's right is whatever I can get away with.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am often bored.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In today's world, I feel justified in doing anything I can get away with to succeed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find that I am able to pursue one goal for a long time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My main purpose in life is getting as many goodies as I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't plan anything very far in advance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Making a lot of money is my most important goal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I quickly lose interest in tasks I start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I let others worry about higher values; my main concern is with the bottom line.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most of my problems are due to the fact that other people just don't understand me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People who are stupid enough to get ripped off usually deserve it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before I do anything, I carefully consider the possible consequences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Looking out for myself is my top priority.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I have been in a lot of shouting matches with other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tell other people what they want to hear so that they will do what I want them to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I get frustrated, I often "let off steam" by blowing my top.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be upset if my success came at someone else's expense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Love is overrated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often admire a really clever scam.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make a point of trying not to hurt others in pursuit of my goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy manipulating other people's feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel bad if my words or actions cause someone else to feel emotional pain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even if I were trying very hard to sell something, I wouldn't lie about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cheating is not justified because it is unfair to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX B

TABLE 1

Crosstabulation of Pass or Fail Polygraph and Severity of Psychopathy

Pass or Fail Polygraph	Mild	Moderate	Severe	χ^2
Yes	0(0.0%)	8(22.2%)	7(19.4%)	.001**
No	7(19.4%)	14(38.9%)	0(0.0%)	

Note. **= $p < .05$. Numbers in parenthesis indicate column percentages.