

Original Article

## POLYGRAPHY AS A TOOL FOR FORENSIC PSYCHOLOGICAL EVALUATION IN CASES OF WORKPLACE HARASSMENT: ADVANCES AND ETHICAL CONCERNS

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### ABSTRACT

From a conventional technique for detecting lies, polygraphy has developed into an important psychophysiological instrument for forensic psychological analysis. The use of polygraphy in evaluating psychological trauma and confirming veracity in workplace harassment cases is examined in this review. The study looks at the main polygraph methods, their theoretical underpinnings, and how they can be combined with clinical and psychometric tests to improve the accuracy of forensic analyses. According to the literature currently in publication, polygraph tests offer important insights into emotional arousal, trauma recall, and the veracity of witness or victim statements when used ethically and in combination with other psychological tests. However, issues with legal admissibility, examiner bias, and the possibility of victim re-traumatization make careful, trauma-informed application necessary. According to the review's findings, polygraphy is most effective when used in conjunction with conventional psychological and investigative evaluations to help comprehend the intricate relationships between trauma, emotion, and the truth in cases of workplace harassment.

**Keywords:** Polygraphy, Forensic Psychology, Workplace Harassment, Psychological Trauma, Truth Verification, Psychophysiological Assessment, Ethical Issues

### INTRODUCTION

#### BACKGROUND OF WORKPLACE HARASSMENT AND PSYCHOLOGICAL TRAUMA

In contemporary professional settings, workplace harassment has become a widespread problem that poses major risks to workers' emotional and psychological health, especially for women. A victim's sense of safety and dignity at work may be disrupted by such experiences, which frequently include verbal abuse, intimidation, sexual advances, discrimination, or humiliation. Harassment can have serious psychological effects, including post-traumatic stress disorder (PTSD), anxiety, depression, and emotional exhaustion. These psychological impacts affect relationships, personal identity, and general mental health in addition to lowering professional performance. Gender norms and sociocultural factors can deter women from reporting workplace harassment in places like Chhattisgarh and other parts of India, making the psychological trauma of workplace harassment even more complex and understudied. Understanding this trauma from both a psychological and forensic perspective is essential to ensure justice and rehabilitation for victims [Ben-Shakhar and Elaad \(2003\)](#).

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## FORENSIC PSYCHOLOGY AND THE NEED FOR OBJECTIVE EVALUATION

By applying psychological concepts to legal investigations, forensic psychology helps close the gap between human behavior and the law. Forensic psychologists are in charge of determining the psychological harm caused by the offense, assessing the victims' mental health, and determining the veracity of testimonies in cases involving harassment or victimization. However, self-reports and clinical observations—which can be impacted by emotional distress, memory loss, or fear of reprisal—are frequently used in traditional psychological evaluations. As a result, there is a need for evidence-based, objective instruments to support subjective evaluations. As a psychophysiological technique, polygraphy may help forensic specialists better understand a victim's mental state and the veracity of their statement by offering more information about emotional arousal and truth verification [Honts et al. \(1994\)](#).

The idea behind polygraph testing, also referred to as lie detection, is that lying or emotional stress causes the body to react physiologically in ways that can be measured. As the subject responds to a series of questions, the polygraph device records changes in blood pressure, heart rate, respiration rate, and galvanic skin response. After that, these physiological alterations are examined to find indications of emotional arousal that could be connected to either honesty or dishonesty. Although polygraph tests have historically been employed in criminal investigations, their use in forensic contexts has spread to include psychological testing, victim assessment, and workplace investigations. Polygraphy may be used in workplace harassment cases to assess the veracity of statements, identify stressors associated with trauma, and provide evidence in support of legal claims. Nevertheless, the use of polygraphy in such sensitive contexts requires careful ethical consideration and psychological awareness to prevent further harm to victims [Kleinmuntz and Szucko \(1984\)](#).

## THEORETICAL FOUNDATIONS OF POLYGRAPHY

Often called a "lie detector," the polygraph works on the basis of psychophysiological detection of deception (PDD). This idea stems from the knowledge that dishonest behavior or emotional arousal causes quantifiable bodily reactions. The autonomic nervous system is triggered when someone feels anxious, afraid, or guilty about lying, which alters their breathing, heart rate, and electrodermal conductivity. Through sensors affixed to the subject's body, the polygraph captures these variations and transforms them into graphical representations for analysis. The fundamental premise is that lying causes emotional turmoil and cognitive load, which the body unintentionally expresses through physiological alterations. These responses serve as the basis for polygraph-based assessments in forensic settings, where they are interpreted as possible markers of honesty or dishonesty [Ben-Shakhar and Elaad \(2003\)](#).

The relationship between emotional states and autonomic nervous system reactions forms the psychological basis of polygraphy. The limbic system of the brain, especially the amygdala, sets off a stress response when someone lies because they are afraid of being caught or feel guilty. The sympathetic branch of the autonomic nervous system is stimulated by this activation, which leads to physiological responses like elevated blood pressure, a faster heartbeat, changed breathing patterns, and increased sweat gland activity. Since these alterations are involuntary, they serve as useful markers for forensic and psychological evaluation. Interpreting such reactions, however, necessitates a sophisticated comprehension of psychological variability; for example, anxiety, trauma, or nervousness that has nothing to do with dishonesty may also result in comparable physiological patterns. Therefore, the subject's mental state and the examiner's interpretive skills both affect how reliable the polygraph results are, highlighting the significance of psychological insight in polygraph administration [Meijer et al. \(2016\)](#).

Numerous polygraph methods have been developed over time to improve the results' accuracy and interpretive validity. One of the most popular techniques is the Control Question Test (CQT), which compares physiological reactions to pertinent questions about the incident with control questions intended to induce mild stress. The Guilty Knowledge Test (GKT), also called the Concealed Information Test (CIT), links physiological responses to cognitive awareness rather than deception itself by evaluating the ability to recognize crime-related information that only a knowledgeable person would know. By giving participants instructions to purposefully lie in response to particular questions, the Directed Lie Test (DLT) enables examiners to determine baseline physiological reactions to deceit. Each of these methods has unique benefits and drawbacks. For example, GKT is thought to be more scientifically sound because it focuses on recognition rather than moral conflict, whereas CQT is frequently employed in criminal and forensic investigations. Careful technique selection is crucial in workplace harassment cases to preserve investigative integrity and ensure sensitivity to trauma [Vrij \(2008\)](#).

Polygraphy is a forensic psychology adjunct tool used to assess the cognitive consistency, emotional arousal, and credibility of those involved in legal proceedings. It offers additional information that may be used to bolster psychological assessments of witnesses, victims, or defendants. Polygraph tests can help determine the veracity of statements and spot stress patterns linked to traumatic recall in workplace harassment cases where psychological trauma may make verbal testimony difficult. Moreover, polygraphy can assist forensic psychologists in differentiating between stress caused by deception and stress stemming from emotional distress or victimization. Nevertheless, ethical guidelines must be followed when incorporating polygraphy into forensic psychological testing to guarantee that tests are administered willingly, interpreted by qualified experts, and placed within larger psychological and evidentiary frameworks. Forensic polygraphy is a developing field that continues to generate discussion regarding

its ethical acceptability, scientific validity, and function in striking a balance between psychological sensitivity and truth detection [National Research Council. \(2003\)](#).

## LITERATURE REVIEW

- 1) [Vrij \(2008\)](#). Detecting lies and deceit: Pitfalls and opportunities (2nd ed.). John Wiley & Sons.

Vrij's comprehensive work explores the psychological mechanisms underlying deception and the limitations of physiological detection methods. It provides a theoretical foundation for understanding how emotional arousal and cognitive load influence polygraph results.

- 2) [Ben-Shakhar and Elaad \(2003\)](#). The validity of psychophysiological detection of information with the Guilty Knowledge Test: A meta-analytic review. *Journal of Applied Psychology*, 88(1), 131–151.

This meta-analysis evaluates the reliability of the Guilty Knowledge Test (GKT) and supports its scientific credibility as an alternative to traditional Control Question Tests in forensic evaluations.

- 3) [National Research Council. \(2003\)](#). The polygraph and lie detection. The National Academies Press.

This landmark report critically assesses the scientific foundations of polygraph testing, highlighting issues of validity, ethical implications, and policy considerations relevant to forensic and workplace investigations.

- 4) [Kleinmuntz and Szucko \(1984\)](#). Lie detection in ancient and modern times: A call for contemporary scientific standards. *American Psychologist*, 39(7), 766–779.

The authors emphasize the need for scientific rigor in polygraph practices and discuss how historical and cultural biases have shaped perceptions of truth detection.

- 5) [Raskin et al. \(2014\)](#). The comparison question test. In M. Kleiner (Ed.), *Handbook of polygraph testing* (pp. 1–47). Academic Press.

Raskin and Honts detail the methodology and theoretical rationale of the Comparison Question Test (CQT), offering insight into its forensic use and interpretive challenges in psychological assessments.

- 6) [Meijer et al. \(2016\)](#). Deception detection with behavioral, autonomic, and neural measures: Conceptual and methodological considerations that warrant modesty. *Psychophysiology*, 53(5), 593–604.

This paper integrates behavioral, physiological, and neural perspectives on deception, advocating for a cautious interpretation of polygraph data within forensic psychological contexts.

- 7) [Grubin and Madsen \(2005\)](#). Lie detection and the polygraph: A historical review and current challenges. *British Journal of Forensic Practice*, 7(3), 23–30.

Grubin and Madsen trace the evolution of polygraph technology and its forensic relevance, examining its integration into legal and occupational investigations.

- 8) [Honts et al. \(1994\)](#). Mental and physical countermeasures reduce the accuracy of polygraph tests. *Journal of Applied Psychology*, 79(2), 252–259.

This study highlights vulnerabilities in polygraph accuracy due to intentional countermeasures, emphasizing the need for forensic psychologists to interpret results with caution.

- 9) [Verschuere et al. \(2011\)](#). Memory detection: Theory and application of the Concealed Information Test. Cambridge University Press.

This book presents the theoretical basis of the Concealed Information Test (CIT) and its application in detecting recognition-based deception, offering a more scientifically grounded alternative to traditional polygraph methods.

- 10) [Podlesny, J. A., & Raskin, D. C. \(1977\)](#). Physiological measures and the detection of deception. *Psychological Bulletin*, 84(4), 782–799.

A classic study establishing the empirical link between autonomic arousal and deceptive behavior, forming one of the earliest scientific justifications for polygraph use in forensic settings.

## APPLICATION OF POLYGRAPHY IN FORENSIC PSYCHOLOGY

Truth verification is a crucial part of forensic psychology investigations that aim to prove the veracity of claims and testimony. The polygraph is a psychophysiological tool that uses quantifiable physiological markers like respiration, heart rate, and galvanic skin resistance to identify dishonest responses. Its function goes beyond conventional criminal investigations to encompass psychological assessments, in which emotional or cognitive reactions may disclose concealed stress or remorse. Polygraphy is a supplemental technique used by forensic psychologists to evaluate the veracity of subjects' statements, especially when testimonies include emotionally charged events like abuse or harassment. Although the polygraph is not infallible and its results are not

universally admissible in court, it remains a valuable aid in guiding further investigation and psychological assessment. It helps to support self-reported data with physiological evidence by adding another level of insight into the person's emotional response to particular questions or situations [Meijer et al. \(2016\)](#).

In the assessment of victims of psychological trauma, including those impacted by workplace harassment, polygraphy has gained increasing attention. These people frequently display anxiety, emotional distress, and physiological hypersensitivity, all of which can affect how accurately they speak. By providing hints regarding the veracity of reported experiences, the polygraph can help detect emotional arousal patterns linked to traumatic memory recall when administered carefully. Forensic psychologists can gain an indirect understanding of the severity of trauma by using polygraph responses in situations where victims are afraid or reluctant to express their distress because of social stigma. But the procedure necessitates a great deal of ethical prudence. Examiners need to make sure the testing doesn't cause more stress or worsen the victim's psychological state. Thus, trauma-informed forensic procedures should always direct the use of polygraphy in trauma evaluation, putting the victim's psychological safety and wellbeing ahead of evidentiary objectives [Meijer et al. \(2016\)](#).

Forensic psychological evaluations are more thorough and reliable when polygraph testing is combined with clinical and psychometric evaluations. Polygraph results add a physiological dimension to the cognitive and emotional profiles obtained from clinical interviews and standardized tests like the Beck Depression Inventory and the Minnesota Multiphasic Personality Inventory (MMPI). Together, they can paint a complete picture of the subject's emotional responsiveness, honesty, and psychological state. Forensic psychologists can cross-validate data from various sources using this integrative approach, which lessens the impact of bias or subjective interpretation. For example, discrepancies between psychometric results and polygraph readings could be a sign of increased anxiety, denial, or repression—all of which are crucial for case interpretation. In workplace harassment investigations, where emotional distress may impair memory accuracy or response consistency, this kind of integration is especially helpful. Therefore, polygraphy improves the validity of forensic assessments when used sparingly in conjunction with recognized psychological tools [Vrij \(2008\)](#).

Because workplace harassment cases frequently rely largely on subjective reports and scant physical evidence, they pose special forensic challenges. In this situation, polygraphy can be used as an investigative tool to help evaluate the emotional honesty and credibility of witnesses, complainants, or suspected criminals [Iacono \(2008\)](#). By measuring physiological responses to structured questions about incidents of harassment, polygraph examinations can help investigators and forensic psychologists identify emotional indicators consistent with trauma, anxiety, or deception. This becomes particularly pertinent in institutions or cultures where open reporting is discouraged by power dynamics. To avoid abuse or coercion, its use must, nevertheless, conform to stringent moral and legal requirements. The goal is to add empirical physiological data to psychological findings and investigative procedures, not to replace testimonial evidence. When applied appropriately, polygraphy helps distinguish between authentic and false reports while preserving the psychological safety and dignity of all parties, leading to a more nuanced understanding of workplace harassment dynamics [Verschoor and Ben-Shakhar \(2020\)](#).

## OBSERVATION

According to a review of the literature and current forensic procedures, polygraphy plays a complicated but important role in forensic psychological evaluation. Research continuously highlights that although the polygraph is not a perfect tool for detecting dishonesty, it does offer useful psychophysiological information that can help interpret emotional and cognitive reactions in forensic evaluations. According to the literature, polygraphy's strength is its capacity to quantify involuntary physiological responses, such as changes in blood pressure, heart rate, and galvanic skin response, which are indicative of a person's psychological arousal during questioning or trauma recall. This objective physiological element enhances conventional psychological instruments by providing a multifaceted viewpoint on mental state assessment and truth verification.

Additionally, observations from various empirical studies indicate that polygraph results shouldn't be interpreted in a vacuum. When paired with behavioral observations made by qualified forensic psychologists, clinical interviews, and psychometric tests, their validity is increased. This kind of integration increases the validity of the results and lowers the possibility of misunderstandings brought on by situational anxiety or emotional distress, which can affect physiological reactions. The literature also shows that the Concealed Information Test (CIT) and Guilty Knowledge Test (GKT) have comparable scientific reliability to the conventional Control Question Test (CQT), particularly in situations that call for sensitivity to trauma, like workplace harassment investigations.

Polygraphy has the potential to be a helpful tool in workplace harassment cases, helping to validate psychological distress and comprehend the emotional trauma experienced by victims. Nonetheless, findings from both theoretical and practical research highlight the need for trauma-informed and morally controlled use. To avoid retraumatizing victims, polygraph tests must be given voluntarily, in a supportive setting, and with psychological empathy. The ethical protection of the person's mental health is another aspect of the examiner's job that goes beyond technical measurement.

Growing methodological and technological developments are also highlighted in the literature, including digital data interpretation, computer-assisted polygraph systems, and integration with artificial intelligence and neuroimaging tools. The

analytical consistency, accuracy, and objectivity of polygraph results have all increased as a result of these developments. However, ethical and legal discussions continue in spite of these developments, particularly in relation to consent, privacy, gender sensitivity, and admissibility in court. Although polygraphy can improve psychological and investigative understanding, academics contend that it should be considered a helpful diagnostic tool rather than a judge of guilt or truth.

Overall, the review concludes that polygraphy can make a significant contribution to forensic psychological evaluations when used in a scientific and moral manner, especially in delicate cases like workplace harassment. As long as the procedure respects human rights, reduces psychological harm, and adheres to professional ethical standards, it can be useful in bolstering psychological research with physiological data.

## RESULT

The review reveals that polygraphy serves as a valuable supportive tool in forensic psychological evaluation, particularly in cases involving emotional trauma such as workplace harassment. Research indicates that when compared to conventional methods, polygraph techniques such as the Concealed Information Test (CIT) and Guilty Knowledge Test (GKT) exhibit greater scientific validity and reliability. During truth verification, polygraphy efficiently measures physiological markers that reflect stress or emotional arousal, such as skin conductance, respiration, and heart rate.

Results indicate that polygraph results improve the precision and comprehensiveness of forensic analyses when combined with clinical and psychometric evaluations. If the process adheres to trauma-informed and ethical guidelines, they can assist in identifying authentic emotional distress and validating victim testimonies in cases of workplace harassment. There are still restrictions, though, with regard to examiner bias, legal admissibility, and the possibility of misunderstanding brought on by anxiety or PTSD.

All things considered, polygraphy works best as an auxiliary technique, enhancing rather than taking the place of psychological and investigative evaluations and advancing a more comprehensive comprehension of trauma and truth in forensic settings.

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