

Review article

UDC:

Received: February 05, 2024.

177.3:159.925

Revised: April 03, 2024.

159.925.8-058.53

Accepted: April 09, 2024.

 10.23947/2334-8496-2024-12-1-229-238



Criminal Profiling as a Method of Detecting Lies in Nonverbal Communication

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Abstract: The exponential growth of crime, violence, and wrongdoing is linked to dysfunction in restraining aggressive impulses, leading to neglect and disrespect of others' feelings, rights, and needs. Two basic forms of communication, verbal and nonverbal, serve individuals to interact and exchange ideas and attitudes with other people in everyday life situations, including within the framework of criminal investigations and criminal justice. The purpose of this study was to draw an analogy between verbal communication (oral speech, written speech) and nonverbal communication (body language, gestures, and silence), with the tendency to explore different components of nonverbal communication and place them in the context of criminal profiling as a method for detecting lies in nonverbal communication. The aim of this study was to emphasize the importance of nonverbal communication as an equal part of the communication process, and often a predominant one in this domain, which helps us demystify suspects, perpetrators, and criminal acts.

Keywords: *nonverbal communication, verbal communication, criminal profiling, lie detection.*

Introduction

We live in a world full of contradictions. Very often, the destructive character of people prevails over reason as their essential trait. This implication gives rise to numerous sociopathological phenomena. Instead of well-being and striving for harmony and peace, social anomalies have led to the expansion of crimes against humanity, such as modern slavery (Bjelajac, 2014a), and have complicated the ubiquitous violence (Bjelajac, 2013), which is increasingly manifesting in digital/virtual form (Bjelajac, 2012). In fact, what makes our time different and disturbing is the intensity of psychodynamics and the escalation of violence in all its forms, in which anyone can become a victim due to the transformation of ordinary individuals who directly or indirectly support criminal behavior. This directs us to the need for a more comprehensive understanding of human nature, the emotional and psychological dimensions of violence, and the clear tendency towards the brutalization of this phenomenon. Moreover, human nature is determined by a series of natural, striking characteristics, which among other things relate to ways of thinking, feeling, and acting, as a product of our inherited or innate traits and our individual experience acquired in the environment in which we exist (Bjelajac, 2023). Unfortunately, this experience suggests to us that the increasingly prevalent alienation of man from man (Bjelajac, 2014b) in the era of scientific and technological development and globalization contributes to the rise and diversity of organized crime with catastrophically high rates of violence and chaos in our living environment.

"The world is a dangerous place to live, not because of the people who are evil, but because of the good people who do nothing," said Albert Einstein. In the spirit of this wise thought, as part of the response to crime, in the context of crime prevention policy (Bjelajac, 2015), we present criminal profiling as a relatively new criminal investigative method/tool that law enforcement agencies use as a

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systemic approach to investigate the background of a criminal act and create a psychological profile of the criminal based on evidence from the crime scene. Profiling is often used in cases of particularly serious crimes such as murders and rapes to find unknown perpetrators in the absence of evidence collected by conventional means (conventional evidence) and/or when a criminal investigation reaches a deadlock. In order to have an effective insight into the thought processes, personality characteristics, and motivations of offenders, we must understand the origins of criminal behavior (developmental risk factors, biological factors, learning, and situational factors) and the behavior trends of current and potential delinquents.

Profilers, while observing suspects, witnesses, and victims, monitor verbal and nonverbal communication. It is known that verbal communication is more under the control of consciousness, so criminals characterized by “indifference” with a lack and/or absence of empathy, along with pronounced manipulative character with good intellectual abilities and potential for “acting,” can master “words” that will exclude their guilt due to lack of evidence. Nevertheless, if we have a pronounced ability to perceive microfacial expressions and “body language” in nonverbal communication, we have an instrument that helps us to uncover and better understand lies, and thereby demystify the criminal and the crime.

Methodology

In the process of conducting descriptive research, we formulated research questions in an appropriate and concise manner to explore the perspective of detecting lies in nonverbal communication. We utilized qualitative research methods to conduct a deeper analysis and provide more detailed explanations, offering a comprehensive and broader picture of nonverbal communication in this domain, and addressing why this form of communication is important and unjustly neglected. Through the method of comparative analysis, we uncovered common and different characteristics of verbal and nonverbal communication as two fundamental and key forms of human interaction. We interpreted that there are pronounced capacities of nonverbal communication manifested through the presence of characteristic behavioral signals accompanying lying or manipulative behavior.

The analogy between verbal and non-verbal communication

Verbal and nonverbal communication are two fundamental ways of human interaction that play a primary role in expressing and conveying messages, emotions, ideas, information, and intentions among different individuals. A proper understanding of the differences between these two basic forms of communication is crucial for effective relationships among people.

Figure 1. *Tabular Difference Between Verbal and Non-verbal communication*

Aspect	Verbal Communication	Non-Verbal Communication
Medium	Spoken or written words	Body language, facial expressions, gestures, etc.
Channel	Auditory and visual	Primarily visual
Language Barriers	Language proficiency can affect understanding	More universal, transcending language barriers.
Speed of Delivery	Faster in conveying information	Slower, allowing for more subtle nuances
Conscious Control	Often requires conscious effort and articulation	Often unconscious and spontaneous.
Ambiguity	Can be more precise and explicit	Can be ambiguous and open to interpretation.

Aspect	Verbal Communication	Non-Verbal Communication
Emotional Expression	Tone of voice conveys emotions	Facial expressions and body language convey emotions.
Memory Retention	Easier to remember and recall	Non-verbal cues can be challenging to recall accurately.
Cultural Differences	Language may have cultural nuances	Non-verbal cues can vary significantly across cultures.
Scope	Covers a broad range of topics	More effective for expressing feelings and attitudes.

Source: Difference Between Verbal and Non-Verbal Communication, (2024)

According to Albert Mehrabian, “Verbal communication refers to the use of words in conveying the desired message. The main components of verbal communication are sound, words, speech, and language. Three elements differently explain our liking for the person conveying the message about their feelings: words account for 7%, tone of voice for 38%, and facial expression for 55% liking. It becomes more likely for the receiver to believe the prevailing form of communication, which, according to Mehrabian’s findings, is the nonverbal influence of tone + facial expression (38% + 55%), rather than the literal meaning of words (7%). This is known as the “7%-38%-55% rule” (Mehrabian, 1971). Verbal communication can be direct or indirect, formal and informal, and the variation can also be reflected in the pitch of the tone, depending on how a particular message is perceived.

When considering nonverbal communication, it is advisable to refer to a quote from the famous philosopher Friedrich Nietzsche: “The most understandable in language is not the word itself, but the tone, strength, modulations, tempo with which a series of words is spoken - in short; the music behind the words, the person behind that passion: thus, everything that cannot be written.” According to David Matsumoto, one of the recognized experts in the field of nonverbal communication, it is “the process of sending and receiving messages without the use of words, either spoken or written.” Therefore, this form of communication can convey emotions stronger than words and includes eye contact, facial expressions, hand gestures, tone of voice, and body language.

Body language, tone of voice, and physical appearance greatly influence our communication on our behalf. Most people are not aware that besides verbal language, our brains subconsciously process microexpressions, general “vibes,” and appearance to assess almost everyone we come into contact with. If someone were to pretend to punch you while walking down the street without saying a word, how would you react? You would probably instinctively react by running, flinching, or retaliating with a punch. Reacting to a fake punch is a subconscious reaction that is easy to recognize, but what if someone crosses their arms or establishes awkward eye contact while talking to you? Are you aware of how your body naturally reacts? By understanding nonverbal cues (vibes), you can be more aware of what your subconscious picks up and more aware of how you present yourself to others (Conscious Vibe, 2021). Microexpressions are unconscious, extremely fast, sometimes full expressions of emotions. Sometimes they are partial and very subtle expressions of emotions. But since they are extremely fast and unconscious, when they appear, they often last less than half a second - sometimes even a tenth of a second or even a fifteenth of a second. Most people don’t see them. Some people see them but don’t know what they see. They see something that has changed on the face, but they don’t know exactly what has changed. It is very short-lived, but if you freeze-frame on video, you will see that many times there is a large facial expression that clearly speaks to the person’s mental state (Hamilton, 2016). Facial expressions of emotion are universal in the sense that everyone around the world, regardless of race, culture, nationality, gender, etc., regardless of the demographic variable, we all show the same facial muscle expressions on our faces when we have the same emotions (Hamilton, 2016), anger, sadness, rage, joy. This suggests the

importance of paying attention to nonverbal communication in everything, from intercultural exchanges to criminal investigations, because understanding facial expressions/changes or body language can signal a variety of different emotions, which guide us to what is being sought.

The Mode of Recognizing Lies in Non-Verbal Communication

In our often cruel and harsh world, gripped by a global crisis of morality, lying has become a “normal” trait in the existence of the modern individual. Hypocrisy and deceit cloak selfish aims of individuals, aiming to conceal crimes, deny acts such as rape, robbery, theft, and perpetrate other serious offenses in the most insidious manner. Individuals who lie about transgressions typically appear more disturbed than those speaking the truth, often exhibiting more inhibition in their gestures signaling deceit.

Psychologist Robert Feldman from the University of Massachusetts has been studying lying for over a decade, and his research has led to astonishing conclusions. Most shockingly, 60% of people lie during a typical 10-minute conversation and average two to three lies during that short time frame. In Feldman’s studies, most people do not even realize all the lies they have told until after the conversation when it is played back to them on video (Bradberry, 2016). Everyone has been caught in a lie at some point in their life, and it seems this event remains in the memory of most people through stories about those experiences. Vrij, Edward, Roberts, and Bull (Vrij, Edward, Roberts, and Bull, 2000) suggest that a liar can be caught in three different ways. One strategy is observing the behavior of the individual (i.e., whether they make restless movements or avert their gaze). Another strategy is to analyze what they say (i.e., whether they stutter, have hesitations in their voice, or take long pauses in speech). Lastly, a liar can be caught by measuring physiological correlates, which can be explicitly measured (i.e., pulse, GSR). Verbal cues are linguistic traces of deceit expressed in an individual’s statement, such as stuttering, variations in pitch, etc. Nonverbal cues are traces of deceit expressed through facial expressions, eye movements, and body language (Wang, Chen and Atabakhsh, 2004; Hicks and Ulvestad, 2011). Therefore, learning to read microexpressions and nonverbal behavior in general can be very valuable for anyone whose job is to understand the true feelings, thoughts, motivations, personalities, or intentions of others. These would be people in the criminal justice system, police, national security, intelligence services - people whose job is to try to uncover whether a person is withholding knowledge or has some information that would be useful for solving crimes or obtaining other data (Hamilton, 2016). “Interviewers must be able to properly use their own knowledge and skills about nonverbal communication. Facial expressions can reveal attitudes of sincerity, shock, surprise, humor, sadness, or concern. Meaningful communication also depends on tone of voice, inflection in delivery, emphasis on words, use of guttural sounds, body space, body movements and gestures, proper timing, control of vulgarity and slang, appropriate physical appearance, and study of clothing usage. When interviewees lie, skilled interviewers can recognize countless biological and physiological processes occurring in their minds and bodies. Indicators of lying include sweating; flushing or paling of the skin; increase or decrease in pulse, which is visible from the appearance of visible veins on the head, neck, and throat; dry mouth and tongue; excessive swallowing; respiratory changes; muscle twitching; lip licking; thick and blurred speech; stuttering; rapid eye movements; body stiffness; ‘playing’ with hands; clenched fists; and cold, clammy palms (Kuhlman, 1980).” Signals for detecting lies in nonverbal communication are most noticeable on the face in the form of ticks. Individuals often display “irregular” eye contact, dust off their clothing, or are preoccupied with “fiddling” with objects. However, not all individuals express the same meaning of nonverbal communication in similar circumstances. For example, blushing on someone’s face after a question does not necessarily mean that person is hiding the truth.

In many encounters between police and citizens, the primary focus is always on the verbal statements of suspects/citizens, rather than on how and what their body conveys while “telling a story.” This study advocates for an integrated approach in which police officers understand that they also communicate nonverbally with suspects and reveals that nonverbal communication, known as body language, proxemics, and kinesics behavior, often tends to make up a much larger part of police communication models than verbal communication, which should help police officers establish authority and dominance and provide a safe environment (Otu, 2023). Recognizing lies in nonverbal communication is not an imposed tool in police investigations, but it is an effective means that necessarily imposes itself as a powerful method serving criminal justice.

“Almost every person who lies feels nervous, although it may be more or less pronounced, depending on “professional experience.” If you want to know if someone is lying to you, pay particular attention to their state and try to insist on discussing the suspicious topic as much as possible. Some signs of nervousness are nail-biting, restlessness, sweating, rubbing hands from legs, tapping feet, and playing with items in their pockets. What are the differences between men and women in nonverbal communication? Certain stereotypes and general characteristics attributed to men are aggression, dominance, loudness, and loud speech, while women are believed to be mainly emotional, tender, and sensitive to others, but also passive and prone to gossip. Everyday perceptions of non-verbal communication and the difference between men and women reflect these common beliefs about gender differences (Paunović and Orlandić, 2013).” “You may have noticed that when you ask someone a question, their eyes constantly move in a different direction. Research has shown a connection between the movements of the person’s eyes and what they are thinking about at that moment. The research results further explain six different directions in which a person can look - up right, up left, middle right, middle left, down right, and down left. Each of these directions reflects what the person is currently thinking about. For example, if a person you are talking to looks up and to the left while telling you something, they are probably constructing a story they intend to tell, which may also mean they are lying to you (Paunović and Orlandić, 2013).” The question remains open whether the results of such research are sufficiently reliable. Critics point to a lack of empirical evidence and suggest that this is inductive reasoning, and every inductive conclusion carries within it elements of “problematic.”

However, there are several nonverbal signals that when particularly appearing together, may suggest that someone is lying. These signs include:

- **Eye area** - A wandering gaze, left or right, indicates discomfort when a person is trying to find a way out of a dangerous and unpleasant situation; Excessive blinking may indicate stress; Avoiding eye contact may indicate lack of confidence or distancing from the interlocutor; Rolling eyes is an act of negative nonverbal communication, signaling disrespect, astonishment, and disapproval of the interlocutor’s words; When a person closes their eyes for a few seconds, it can be interpreted as lying as a defense mechanism and at the same time implies that they do not want to be in the current situation; Rubbing the eyes and touching the eyelids during questioning is a gesture seeking some sort of “time-out” to devise a strategy. Also, this gesture represents the brain’s attempt to block lies, deceit, or suspicion or to avoid looking the person they are lying to in the face; Raised eyebrows mostly represent surprise, while lowered ones indicate emotions of dominance, anger, disagreement, or sadness. Increased pupils, which in men can enlarge up to three times, are a sign of great excitement.
- **Mouth covering** - Hand or fingers or even a clenched fist over the mouth may signal that a person is hesitant to speak. The brain at a subconscious level instructs to suppress the false words being spoken. Many individuals mask this gesture with a fake cough.
- **Touching and rubbing the nose** - The person feels uncomfortable about lying, and this gesture is part of the “ritual.” This gesture is, in fact, a sophisticated, concealed version of mouth covering gesture.
- **Insincere smile** - Only the mouth stretches. There are no signs of wrinkles around the eyes or visible. A twisted smile shows sarcasm. In females, the so-called tight-lipped smile is often a gesture of rejection, secretive thinking, or attitude.
- **“Lying through one’s teeth”** is a term that denotes rubbing the eyes, with clenched teeth, and a fake smile accompanied by loud and unrestrained laughter/chuckling.
- **Ear grabbing** - Involves fiddling, scratching, and pulling the earlobe, symbolizing something one does not want to hear, the listener’s attempt to “hear no evil.”
- **“Pinocchio effect”** - A person lying often scratches their nose or the area behind the ear while covering their mouth. Lying also causes a tingling sensation on the neck due to increased blood pressure, and individuals tend to adjust collars, ties, and touch jewelry.
- **Licking and pressing lips** - Lying causes dryness in the mouth, which is a characteristic sign of insecurity and nervousness.
- **Nervous cough** - May indicate tremor but also increasing nervousness due to lying.
- **Face touching** - When people lie, a chemical reaction can lead to facial itching, reflected in scratching or touching the face.

Figure 2. Body Language – Hand to Face Gestures



Source: www.indiabix.com/body-language/hand-to-face-gestures, n.d.

- **Blushing** - Some individuals may blush after lying, which is certainly a sign that the person feels uncomfortable in the situation they are in. This is an involuntary reflex caused by the sympathetic nervous system and arises due to the secretion of adrenaline.
- **Excessive sweating** - People who lie sweat more than in other situations, which is usually visible on the forehead, cheeks, or the back of the neck.
- **Irregular breathing** - It is a sure sign of discomfort, which can be recognized by actively observing the other person.
- **Foot tapping** - Nervously tapping the feet is one of the most recognizable signs of tension. The reason is usually lying and the desire to leave the exposure situation as soon as possible.
- **Fidgeting with various tics** - Interlocutors recognize these as negative acts of nonverbal communication. Twirling hair, touching jewelry, looking at the watch, squirming are gestures that indicate a loss of control over oneself and insecurity.
- **Palms** - People who lie often hide their palms.
- **Neck rubbing** - Indicates stress relief and reveals present anxiety.
- **Chin movements** - Can be a signal that the listener is making a decision. When the index finger is directed up the cheek, and the thumb supports the chin, the listener has negative or critical thoughts about the speaker.
- **Nail biting** - Is extremely poor nonverbal communication and another habit that shows other people that you are nervous.
- **Shrugging shoulders** - A universal gesture used to indicate that a person has no knowledge or does not understand what you are talking about. Usually accompanied by hunched shoulders, raised eyebrows, and exposed palms.

There are also other signals in nonverbal communication that can indicate deception. For example, through body posture, one can notice a person's level of confidence and interpret insecurity. Crossed legs or arms indicate a defensive stance, withdrawal, discomfort, disinterest, and unwillingness to engage with the other person. Finger tapping and foot trembling are characteristic body language signs that usually indicate stress, agitation, or boredom. Crossed ankles convey a sense of discomfort and a stance as if being on the "defendant's bench." "Fidgeting with clothes," holding objects, adjusting hair or makeup, smoking, and holding cigarettes may indicate that the person feels uneasy or uncomfortable. Therefore,

as observed, there are many different gestures in nonverbal communication that can suggest that a person is insincere and lying.

It seems that the detection of lies in nonverbal communication was most notably promoted by the American crime series "Lie to Me," a dramatic series about a psychologist who is a "human lie detector," or an expert in reading facial and body language that reveals deceit. He collaborates with a female clinical psychologist and opens an agency that offers private investigation and crime-solving services. Tim Roth plays Cal Lightman, the world's leading deception expert who studies facial expressions and involuntary body language to uncover not only if someone is lying but also why. Based on the scientific discoveries of Dr. Paul Ekman, the series follows Lightman and his team of deception experts as they assist law enforcement agencies and government agencies in uncovering the truth behind lies (Lie to Me, 2009). Cal focuses on the prisoner's changes in facial expression in a fraction of a second, which unconsciously reveal the location where the bomb was placed. Facing a room full of undercover police officers, Cal replays the video of this interrogation on a polygraph, pausing to illustrate - using extreme close-ups - small twitches at the corners of the eyes and mouth that gave him the information he wanted. In another case, Cal investigates the recent murder of a teacher in a high school. The main suspect is a 16-year-old, one of her students. During the interrogation, Cal notices "irregular eye contact patterns," so the boy's failure to avoid eye contact indicates that he is lying about never being in or near the teacher's house. Interestingly, when asked about the teacher's death, he furrows his brows, meaning he is sad and has nothing to do with the murder. Cal then questions the boy's schoolmates, who point out that he was withdrawn and unadjusted to society, with one girl noticeably showing nervousness and unusual breathing patterns. In this complex plot, Cal found the real culprit who wanted to skillfully "frame" the boy for the crime and uncovered the background of the boy's behavior related to a fantasy relationship and obsessive desire for the teacher, which included stalking. When he saw her dead, he panicked and ran away (Lie to Me – Season 1, Episode 1.).

Discussion

In the past forty years, several studies have been conducted that recorded and analyzed people's behaviors during lying with the aim of determining whether there are specific signs that would indicate deception. Such signs are called objective signs of lying, and they differ from subjective signs of lying in that subjective signs are those that people believe appear during lying, i.e., those signs of lying that represent the beliefs of the majority of people. The results of research conducted so far do not fully agree on which forms of behavior occur in liars (Banjac, 2018). Vrij, Edward, and Bull, in their research, observed significant individual differences in the behavior of individuals who manifest lies and deception as a denial of truth, suggesting that there is no uniform behavior for lying that would establish absolute standards in a given context (Vrij, Edward, and Bull, 2001).

Although lie detection has a long historical background primarily within psychology, the origins of criminal behavior, and criminal investigations, there are still very conflicting studies regarding lie detection in nonverbal communication. Some studies indicate that people are limited in recognizing lies, but much more accurate in recognizing truth, this phenomenon is called the "truth effect" (Strömwall, Granhag, and Jonsson, 2003). Certain authors believe that Paul Ekman's popular hypothesis on micro-expressions of the face as indicators of lying, advertised in many popular courses, lacks scientific support (Porter, S., and ten Brinke, 2008). For example, a recent study, which examined the effect of micro-expression training on lie detection and involved the presentation of real video footage of high-stakes liars, found that trained participants achieved lower chances of detecting lies, similar to untrained or falsely trained participants (Jordan et al., 2019). In some studies, research on lie detection has shown that observers relying solely on signs correctly classify an average of 54% truths or lies (Vrij, Meissner and Kassir, 2015). Despite the expressed reservation regarding the adequate recognition of lies in nonverbal communication, there is a significant number of credible researchers and criminal investigators who argue convincingly that it is possible to detect liars, as opposed to those telling the truth, based on the nonverbal signals sent by the sender.

By the mid-1960s, Ekman initiated a series of cross-cultural studies focusing on facial expressions, emotions, and gestures. In addition to basic research on emotions and their expression, he also dealt with deception. In 1991, Ekman conducted a study focusing on the ability to identify lies by individuals of

different professions. This mainly concerned professions where lies are more common. The participants were members of secret services, psychiatrists, judges, police officers, polygraph staff, and a group of students. Individuals were asked to describe changes in behavior, facial expressions, and intonation of the voice of a woman testifying, and based on these clues, come to a conclusion whether her statement was true or false. The most successful group turned out to be the group of secret service agents (Vicianova, 2015; Ekman, O'Sullivan, and Frank, 1999). Indeed, there is tangible evidence that certain categories of professionals such as members of secret services, clinical psychologists, and criminal investigators experienced in interrogating suspects are indeed more successful in lie detection.

Studies on what people believe about lying and deception identify a range of nonverbal signs associated with lying (Vrij, 2000; Vrij, 2008; Global Deception Research Team, 2006) - avoiding eye contact, fidgeting, restless movements of the feet and legs, frequent changes in body posture. Such beliefs are not limited to laypeople, but are also held by legal and psychological experts (Bogaard, Meijer, Vrij, and Merckelbach, 2016; Dickens and Curtis, 2019). Based on such everyday ideas, many organizations offer courses and programs promising the ability to detect lies (Brennen and Magnussen, 2020), scientifically proven methods for interpreting body language, detecting micro-expressions mainly manifested when a person tries to suppress their emotions, leading to rapid display of micro-expressions. These programs offer training not only for detecting lies in criminal investigations but also teach participants to verify the credibility of interlocutors in a business environment during meetings, interviews, or when concluding business contracts. This suggests that there is definitely a future for this line of research.

Conclusion

"There are very few evil people, yet so much evil happens in the world, most of that evil falls on the shoulders of many other people, who are nothing but good people," said Johann Nestroy. Evil people are destructive and self-destructive beings because they emit aggressiveness, alienation, selfishness, lack of empathy... Ultimately, the inability to control aggressive impulses leads to neglecting and disrespecting the feelings, rights, and needs of others, which leads individuals into criminal activities and acts of crime. Therefore, it is up to the "rest" of good people to find mechanisms to restrain the malignant nature of human behavior, separating good from evil and lies from truth. All the more so, as the number of security challenges, risks, and threats is exponentially increasing. A large part of these threats can be prevented and/or brought to a level tolerable for society through proactive action.

In that direction, as a segment of crime suppression policy, adequately proactive action is crucial, as a set of measures and procedures for eliminating, reducing, and timely recognizing future problems. By emphasizing nonverbal communication, compared to known patterns of verbal communication, in the context of criminal profiling as a method for detecting lies in criminal and "preventive" investigations, we wanted to highlight the potential of this "tool" that can contribute to elucidating challenging and complicated crimes through the analysis of specific psychological aspects.

Research and detection of lies have a significant place in the field of forensic psychology. We witness everyday lies in interpersonal communications that can cause human problems and tragedies in addition to personal discomfort. However, lying in criminal investigations and in court seems to have been the leading concern for scientific research interest in lie detection. It is known that testimonies of suspects, witnesses, and victims are crucial for the verdict's decision-making and sustainability, which depends on the perceived credibility of the given statements, especially in cases where there is a lack of undisputed facts and evidence. Therefore, it is crucial to identify liars, not only based on verbal communication but also through the analysis of unconscious nonverbal signals they emit.

Current studies on the accuracy of deception detection using verbal and nonverbal cues focus on two lines of research. The first "line" gives importance to verbal communication over nonverbal communication, as such ideas are not supported by appropriate empirical research, while the second "line" does not dispute the capacities of verbal communication but emphasizes the importance of the existence of characteristic behavioral signals accompanying lying or manipulative behavior, which are neglected in criminal investigations and court proceedings. For criminal investigators and profilers, it is certainly important to follow strategies and principles that involve taking into account both verbal and nonverbal communication cues, which are unjustly neglected.

Conflict of interests

The authors declare no conflict of interest.

Author Contributions

Conceptualization, Ž.B and B.B.; methodology, Ž.B.; resources, Ž.B. and B.B., validation, B.B., writing—original draft preparation, Ž.B.; writing—review and editing, Ž.B and B.B. All authors have read and agreed to the published version of the manuscript.

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