

Factors influencing the assessment of witnesses in juridical contexts: a literature review. Legal, civil and psychological implications

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Abstract

Purpose – *This study aims to provide an overview of studies concerning bias in law, particularly in judges' decisions. The authors intend to bring to light the factors that can most frequently lead to unequal decisions to enable judges to better perform their function.*

Design/methodology/approach – *A literature review was used as a methodology based on studies involving judges and juries.*

Findings – *The evidence reported by this review suggests how difficult the judge's job is and how they can be unconsciously influenced by inferences, deductions and biases. The results show that the pleasantness of the witness and the confidence they exhibit during testification are crucial factors in influencing the decisions of judges and jurors. From these studies, it can be assumed that different personal aspects – smiling, pleasantness and the witness's credibility – can be positively associated with each other, which could compromise the ongoing evaluation. Gender is another factor that can influence evaluations; in fact, witnesses are evaluated based on their own "gender" as well as that of the jurors. Another essential factor is self-confidence. Also, the age of both of the judge and of the witness can be a factor that influences decisions in court. Other factors such as communication effectiveness, degree of accuracy of reported information and non-verbal behaviour were also found to be important.*

Research limitations/implications – *Among the limitations of this research, the authors have to consider the low number of available research and that the most of these derive from a specific cultural context – the American one. There may also be limits to the way in which certain concepts are used in different parts of the world, particularly through a very broad construct, such as the credibility of witness.*

Practical implications – *This study highlights which inferences and biases can characterise decision-making processes and, above all, highlights the need for specific training courses aimed at managing the many processes involved in influencing human decisions.*

Social implications – *The authors believe that this work can raise awareness about the series of unconscious reasoning that may happen in the legal field, which has a major impact on people's lives and on the general perception of justice.*

Originality/value – *In this research, the authors have considered some of the criteria that may intervene in the evaluation of witnesses, those present in the current scientific literature. From the research, it seems appropriate and necessary to provide judges with adequate training aimed at the recognition of their cognitive processes and bias. In fact, when they were made aware of them, they were less affected by bias, resulting in more objective and limiting improper inferences.*

Keywords *Credibility, Assessment, Juridical, Stereotype, Bias, Literature review*

Paper type *Literature review*

(Information about the authors can be found at the end of this article.)

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Compliance with ethical standards.

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Introduction

The evaluation of witness credibility relates to the moment in which they are called to depose and report to the court the facts that they have been witness to (Brodsky, 2004; Brodsky *et al.*, 2010). Judges and jury evaluate the credibility of a witness in different ways; however, various factors have an impact on these appraisals. If they are not revealed, these can interfere with the achievement of an equal verdict. Studies support the fact that in their witness credibility evaluation jurors, can frequently be influenced even by peripheral factors. For example, impression control (Chaiken, 1980) is a conscious or subconscious process through which people try to influence the perceptions of other people about a person, object or event by regulating and controlling information in social interaction. Petty and Cacioppo (1986) defined persuasion process as an intentional process that aims to change an individual's attitude or behaviours without using force or deception and that can take place in two ways: by peripheral and central roads. Central processing occurs when the receiver is motivated and capable of listening to and processing the message. Peripheral processing occurs if one of the two conditions is missing (motivation or capacity). In this case, only a peripheral processing of pleasant entertainment is achieved, but with fewer lasting effects. Chaiken (1980) suggested that, through control of some heuristics [1], individuals can process messages in two ways: heuristically or systematically. Systematic processing involves careful and deliberative processing of a message, whereas heuristic processing uses simplified or "heuristic" decision-making rules to quickly evaluate the content of the message. The guiding belief of this model is that individuals are more inclined to minimise their use of cognitive resources (i.e. to rely on heuristics), which influences their assumption and processing of messages.

As regard the use of cognitive inferences (Brodsky *et al.*, 2010; Chaiken and Maheswaran, 1994; Cooper *et al.*, 1996; Heesacker *et al.*, 1983; Petty and Cacioppo, 1986), inference is logical reasoning by which the process of knowledge is exercised; it consists in producing a conclusion from a series of premises. Inference uses language and is used for both scientific knowledge and commonplace reasoning. Other processes are the effect of non-verbal behaviour (Petty and Cacioppo, 1986), the complexity of the subjects provided (Cooper *et al.*, 1996), expression of low motivation (Chaiken, 1980) and inferential errors (Iudici *et al.*, 2015), with the last named involving the use of those cognitive strategies that can beget the construction of false nexuses of causality (like the heuristic of availability).

Various authors have proved a connection between gender and credibility evaluation; for example, according to Briton and Hall (1995), women are educated to be more expressive and socially available. Consequently, they are expected to smile more than men, whereas men learn to inhibit emotional expression and be neutral (Brody, 1985). From this premise derives a frequent bias, whereby the witness is evaluated as more or less credible depending upon how much that individual's non-verbal behaviour reflects the gender stereotype.

Other authors have shown that sometimes, the factors used by judges fluctuate between behavioural and verbal aspects, wherein their mix could generate low coherence in the choice made (Lecci and Myers, 2008). If attention is focused more on the witness's behaviour, the impact of verbal proof could be reduced. When jurors make inferences about the witness's credibility, they might be more biased, regarding verbal arguments, by non-verbal behaviours (LeVan, 1984; DePaulo *et al.*, 2003; Frank and Ekman, 1997; Hancock *et al.*, 2010; Porter *et al.*, 2000; Vrij, 2000).

The several factors listed above are explicit ones which influence consideration of the witness's credibility. However, there are some implicit factors too – very personal and subjective – that jurors can use for their evaluation and may invalidate credibility, such as emotions (Porter *et al.*, 2000; Bielak and Moscovitch, 2013). In fact, the expression of emotions and the immutable aspects of facial physiognomy can guide the creation of impressions of reliability in the observers and boost conviction about who can be considered believable or not. In this regard, Winkel and Koppelaar (1991) found that victims who were more emotional were evaluated as

more cautious and less accountable. However, other authors have highlighted how, when a person is in front of a total stranger, the latter will evaluate the former in the first 38 thousandths of a second. Indeed, intuitive judgements and heuristics are used to make inferences about the current state and characteristic traits of a person (Martelli *et al.*, 2005; Olivola and Todorov, 2010; Rule and Ambady, 2010). Besides, such evaluation remains virtually unchanged over time (Bar *et al.*, 2006; Willis and Todorov, 2006).

The studies cited above confirm the importance of being wary of how an evaluation is made, both respecting the strictly legal aspects of the procedure and the explicit/implicit factors that may influence evaluation of a witness. If, during trials, awareness of and attention to the aforementioned factors were greater and consolidated, this could lead to more equitable and fairer sentences. Alternatively, it risks incorrect evaluations that can cause an increase in social perception of injustice and a consequent delegitimizing of the whole legal system. Although there are several studies concerning this topic, does not exist a review or a state-of-the-art in the literature that tries to sum them up, systematise and discuss them. The current research responds to this need and attempts to overcome this gap. Moreover, it aims to establish a statement review capable of identifying and analysing the main factors that may affect the judicial decision, offering to the legal roles (judges, consultants, lawyers) the occasion to know them better through an available synthesis.

This study uses an interactionist epistemological theory framework (Iudici *et al.*, 2020; Salvini, 1998; Salvini and Dondoni, 2011). From this perspective, thought processes and meanings are shaped by the social interactions surrounding an individual, and discourses form a structural sequence of intentional acts (Blumer, 1969; Harré and Gillett, 1994; Iudici and Fabbri, 2017; Iudici *et al.*, 2018). This theoretical perspective is adopted, especially in the discussion and conclusion, to frame the social interactions between witness and judge.

Method

The present research investigates the factors used by judges to evaluate the credibility of the witness. In particular, we have focused on collegial decisions, that is, articles dealing with verdicts delivered by a jury. In our work, we have considered both real and mock juries.

The research based on mock jury is focused on an analysis of the decision-making process. The studies simulate the distribution of an effective jury's verdict at the moment in which initial votes are conducted. The initial preferences expressed by jurors determine the jury's verdict in 90% of the cases. A recent review by Devine (2001) has proved that, as in a real jury, the effect of biases and of their underlying cognitive processes can also be identified in a mock jury. We reviewed the literature using two databases: "Scopus" and "Psycinfo". The keywords used for the search were: "witness", "trustworthiness", "deception", "credibility", "judges", "likeability", "believability", "confidence", "non-verbal", "theory" and "testifying". Of the results obtained, only those in English were considered.

The articles were selected in two stages (Barnett-Page and Thomas, 2009). In the first stage, keywords were used, and related abstracts were analysed. In the second stage, we selected the articles which were potentially more relevant for the research. After this screening, 47 articles remained. These were analysed more deeply, considering our specific goal. Accordingly, we considered only 34 of 47 articles for the development of this work. We analysed the final results using critical interpretive synthesis (Dixon-Woods *et al.*, 2006; Flemming, 2010) (Table 1 and Figure 1).

Results and discussion

Pleasantness and smile

Nagle *et al.* (2014) found that a witness considered pleasant garnered a higher credibility classification than a less-pleasant witness. Smiling is a specific indicator of pleasantness,

Table 1 Study, methodology and objectives

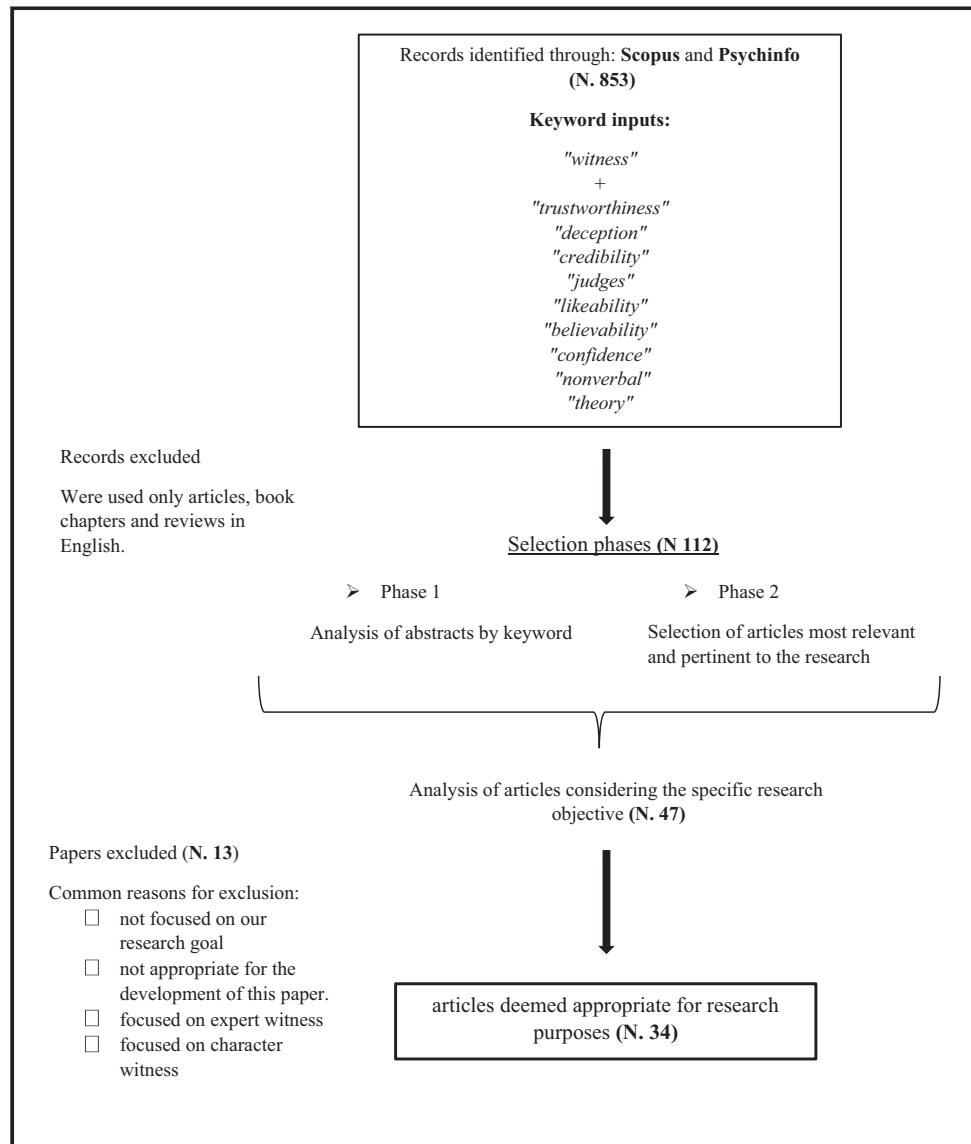
<i>Authors</i>	<i>Research design</i>	<i>Objective of the studies</i>
Baker <i>et al.</i> (2016)	Empirical study; quantitative study	This study examines how much the perception of witness appearance influences the judge's assessment of witness credibility
Bollingmo <i>et al.</i> (2009)	Empirical study; quantitative study	This study confirmed that credibility ratings are strongly affected by the emotional expression but showed that this relationship is modifiable when participants are given non-biased instructions
Bradshaw (2021)	Empirical study; quantitative study	This article outlines the potential scope of lie-detecting technologies in arbitration and their promise to revolutionise tribunals' evaluations of witness credibility. It considers objections to their usage, including reliability, machine bias and privacy and the privilege against self-incrimination, and concludes that considerations of fairness and proportionality favour excluding lie-detector evidence
Brennen and Magnussen (2022)	Empirical study; quantitative study	This paper examines the evidence for the most prominent current methods, critically considers the prevailing research strategy, proposes a taxonomy of lie detection methods and concludes that two common types of approach are unlikely to succeed
Brodsky <i>et al.</i> (2010)	Empirical study; quantitative study	This research studies the relationship between witness pleasantness behaviour and witness credibility in judges' decisions
Brown and Lewis (2013)	Empirical study; quantitative study	This study examines mock jurors' perceptions of a young witness according to whether or not he was described as having an intellectual disability
Brownsell and Bull (2011)	Empirical study; quantitative study	This study examines magistrates' belief about verbal and non-verbal behaviours as indicators of deception/truth-telling and whether their amount of courtroom experience was associated with their beliefs
Chlevickaite and Hola (2016)	Empirical study; quantitative study	This explorative empirical study aims to fill the gap in the scholarship and presents an analysis of credibility and reliability assessments of insider witnesses at the International Criminal Court
Cramer <i>et al.</i> (2013)	Empirical study; quantitative study	This study describes development of the Observed Witness Efficacy Scale (OWES)
Cramer <i>et al.</i> (2014)	Empirical study; quantitative study	This study explores how witness testimony can influence judges' credibility assessment, specifically identifies the main factors
Coyle and Thomson (2014)	Empirical study; quantitative study	In this study, potential jurors were given information such as would be given by way of judicial direction and/or expert testimony on those behavioural indicia that are useful in detecting deception. Major changes in perceptions of what does and does not work were found
Curci <i>et al.</i> (2019)	Empirical study; quantitative study	This experimental study adopted two perspectives of investigation: the first is aimed at assessing the ability of naïve judges to detect lies/truth by watching a videotaped interview; the second takes into account the interviewee's detectability as a liar or as telling the truth by a sample of judges. Additionally, this study is intended to evaluate the criteria adopted to support lie/truth detection and relate them with accuracy and confidence of detection
Deffenbacher (1980a)	Qualitative study	This research examines the connection between the self-confidence expressed by the witness and the assessment of the witness' credibility
Gojkovich <i>et al.</i> (2019)	Empirical study; quantitative study	This study examines the effects of dress and speech style of a co-witness had on the credibility of that witness and the amount of misinformation that was accepted from the witness
Kaminski and Sporer (2018)	Empirical study; quantitative study	This study investigated persuasive effects of behaviour cues on observer judgements of eyewitness identification decisions
Klettke <i>et al.</i> (2016)	Empirical study; quantitative study	This study was examined whether perceptions of credibility of female victims of sexual abuse varied across generation Y, generation X, "baby boomers" and "builders"
Kwong See <i>et al.</i> (2001)	Empirical study; quantitative study	This study was assessed indirectly the effect of age stereotyping on believability using a variant of Loftus' misinformation paradigm
Lynch <i>et al.</i> (2022)	Empirical study; quantitative study	In this article, the authors report on findings from a large-scale mock jury study that tests the impact of implicit bias instructions on judgement in a case where defendant race was varied (Black or White)

(continued)

Table 1

<i>Authors</i>	<i>Research design</i>	<i>Objective of the studies</i>
McKimmie <i>et al.</i> (2014)	Empirical study; quantitative study	Check how much the deception behaviour of witnesses affects the assessment of witness credibility
Maras <i>et al.</i> (2019)	Empirical study; quantitative study	The current study aimed to examine whether autistic witnesses were perceived as less credible than typically developing witnesses, irrespective of the number of correct details they reported; and determine whether mock jurors' credibility ratings of autistic witnesses improved if they were aware of their autism diagnoses and were provided with information about autism
Melinder <i>et al.</i> (2004)	Empirical study; quantitative study	This research addressed how professionals involved with the legal system evaluate children, primarily between four and eight years old, as witnesses. In particular, the authors focused on professionals' beliefs and opinions regarding children's memory, suggestibility and behaviours as they relate to witness credibility. In addition, the authors surveyed professionals' evaluations of investigative methods related to reliability
Nagle (2015)	Empirical study; quantitative study	This study examines the link between witness perception and smile behaviour and tests the influence of gender stereotypes on witness credibility
Nagle <i>et al.</i> (2014)	Empirical study; quantitative study	This study aims to the relation between the credibility of witness and pleasantness
Porter and Ten Brinke (2009)	Qualitative study	This study explores the relationship between the emotional expression and appearance of witness and the assessment of their credibility and also the influence between credibility and the first impression derived from the face of the witness
Pozzulo <i>et al.</i> (2011)	Empirical study; quantitative study	This study investigates the influence of different factors (age of witness, type of crime, type of identification) on jurors' perceptions of reliability, credibility and verdict ratings
Ruva and Bryant (2004)	Empirical study; quantitative study	The study examined the effects that witness age, witness speech style and prosecuting attorney's questioning style have on perceived witness credibility and trial outcome
Şen <i>et al.</i> (2020)	Empirical study; quantitative study	In this study, the authors explore the use of verbal and non-verbal modalities to build a multimodal deception detection system that aims to discriminate between truthful and deceptive statements provided by defendants and witnesses
Slovenko (1999)	Qualitative study	This research examines the connection between the self-determination expressed by the witness and the assessment of witness credibility, specifically the effectiveness of argumentation
Tenney <i>et al.</i> (2007)	Empirical study; quantitative study	This research examines the relationship between the self-confidence and accuracy of the argument expressed by the witness and the credibility of the witness
Tetterton and Warren (2005)	Empirical study; quantitative study	This study tests whether judges used self-confidence as an index of credibility
Vrij and Hartwig (2021)	Empirical study; quantitative study	In this article, the authors discuss how deviations from normal procedures (wear medical face masks or virtual courtrooms proceedings) may affect jurors' lie detection ability and decision-making
Wessel <i>et al.</i> (2006)	Empirical study; quantitative study	This study examines the relationship between emotion expressed by witness during deposition and evaluation of their credibility
Yarmey (1984)	Empirical study; quantitative study	This study presents a review of the accuracy of the elderly eyewitness in recall and identification of a criminal suspect relative to that of young adults and give the results of a study testing the perceptions of the legal community and the general public towards the elderly witness
Zenker <i>et al.</i> (2018)	Empirical study; quantitative study	This study reports on experimentally deploying the technique "giving reasons pro et contra" with professional and lay judges at Swedish municipal court

Figure 1 PRISMA flow diagram illustrating the processes of literature searches and screening



and its presence and frequency can influence the credibility evaluation. In particular, it has been noted that the appropriate and pertinent use of smiling can generate a greater perception of pleasantness, safety and credibility, with a significant impact on the efficacy of the provided deposition; specifically, women who smiled were deemed more pleasant than women who did not (Nagle, 2015). Referring to the importance given to smiling, some studies have shown that male witnesses are considered more pleasant than female witnesses, whether they smile or not (Nagle *et al.*, 2014). The same authors have supported the idea that pleasantness fosters the judge's trust in the witnesses.

Self-confidence

Self-confidence is another really important factor. It seems to be used unknowingly by judges. It leads to associating a confident deposition with an honest and truthful one, and

holding a deposition made with little security to be a misleading one (Cramer *et al.*, 2009, 2013). Because of that, witnesses who seem very sure are considered more honest (Tetterton and Warren, 2005). Different studies have shown the powerful persuasive effect of confidence exhibited by a testifier. They have examined case studies in which innocent defendants have been condemned after the testimony of very self-confident individuals (Curci *et al.*, 2019; Wells and Leippe, 1981; Thorley, 2015).

Gender

Another element that influences judges is the gender of the witness. In fact, it was found that men are often considered significantly more credible than women (Nagle *et al.*, 2014). Moreover, the evaluation of credibility for women varies in relation to their pleasantness; it follows that more pleasant female witnesses are considered more credible. The gender and age of jurors affect the outcome of the process as well. Older male judges reveal more restricted expectations than younger male judges with regard to the behaviour of a witness, in particular of female witnesses. The women are considered less credible if they do not exhibit strong emotiveness and/or visible signs of anguish (Kaufmann *et al.*, 2003; Wessel *et al.*, 2006; Klettke *et al.*, 2016). Furthermore, although older women are seen as more honest than younger ones, they are considered less reliable because of their age, and therefore, their testimony is regarded as less accurate and trustworthy (Kwong See *et al.*, 2001).

Age

The age of a witness can affect their credibility or the value of their testimony. Children and teenagers are considered more credible than older witnesses when they show a fluent narration and less hesitation when responding to close questioning.

However, children's testimonies are frequently regarded as not reliable and therefore do not influence the judge's decision (Ruva and Bryant, 2004; Melinder *et al.*, 2004). The above-mentioned situation occurs especially when children/teenagers testify as eyewitnesses to a crime. Nevertheless, they are considered as credible as an adult when testifying as the victims of a crime because many judges are convinced that a traumatic event involves greater stress and cognitive arousal, which is more likely to improve the victim's memory, leading to a more accurate narrative (Pozzulo *et al.*, 2011). In the judicial system, elderly witnesses are perceived honest and valuable. However, their testimonies are not always taken into account, in particular, when they have to report something they have seen. Compared to a younger witness, an elderly one can be considered more prone to raising false alarms, less confident in recalling episodes and less precise in descriptions (Yarmey, 1984).

Communicative effectiveness

One of the factors that influence judges' assessment of credibility is communicative effectiveness. The efficacy concerns the ability to testify with an efficient interpersonal presence (e.g. proper eye contact, perception of agreeableness and informal language) and the identification of the most effective arguments (Brodsky *et al.*, 2010; Brodsky *et al.*, 2009; Cramer *et al.*, 2014; Chlevickaite and Hala, 2016). It was established that self-confident witnesses, in most cases, seem to report information very clearly, and for this reason, jurors can be influenced by the communicative effectiveness (Tetterton and Warren, 2005). In addition to the accuracy of reported information, jurors can commonly focus attention on the witness's tone, response latency and speech errors. Indeed, these elements are often positively related with deception (Sporer and Schwandt, 2006). The use of communicative effectiveness as a parameter to assess credibility can be critical in some specific situations. Sometimes a witness may be not educated enough or could be

illiterate or be from a foreign country and, consequently, they might make several language errors or use a different pattern of speech. Furthermore, when the witnesses do not know the language of the place (because they are foreign), an interpreter is used in court. In this case, the judge is completely dependent on the translator both for the content of the testimony and for the evaluation of communicative patterns. For this reason, it can be very difficult to correctly evaluate the witness's testimony and credibility. Cultural differences, in particular, it was revealed, cause misunderstanding, especially during trials in international courts ([Chlevickaite and Hola, 2016](#)).

Ultimately, a significant interaction between witnesses' style of speech and their attire was found in connection to credibility. Witnesses dressing casually are considered more credible if their manner of speaking is fluent and without hesitation. Conversely, if their manner of speaking is non-fluent and full of pauses and hesitation, they are considered less credible. However, the way of speaking does not influence witnesses' credibility when they dress formally ([Gojkovich et al., 2019](#)).

First impression

A decisive factor influencing the credibility evaluation concerns first impression management, often involving the witness's aspect and face. The first impression may have durable effects that can be strengthened over time, with potential consequences on verdicts, like undue absolution or conviction. It has been found that first impressions could really have an impact on witnesses' honesty evaluation, sometimes resulting in judicial mistakes in the courtroom ([Wilson and Rule, 2015](#); [Baker et al., 2016](#)). The persistence of this phenomenon over time is problematic and can be seen especially in cases where the witness shows clear signs of deceptive behaviour but is still considered reliable due to the effects of the first impression ([Hartwig and Bond, 2011](#); [Ten Brinke and Porter, 2012](#)). Another significant effect in the scientific literature concerns the issue of perceived deception. Some studies have researched how witnesses' behaviour could impact the way their deposition is judged; [McKimmie et al. \(2014\)](#) found that strongly evidentiary elements provided by the witness in examination were considered less determinant if they assumed attitudes stereotypically classified as misleading.

Non-verbal behaviour

Evaluation in the legal field is based on both objective and accurate indices (verbal behaviour) and on inaccurate indices (non-verbal behaviour). Some experts state that judges are more affected by what the witnesses demonstrate non-verbally rather than verbally, as mentioned in the introduction. Therefore, when judges have to use verbal and non-verbal language as proof, they may indulge in a less accurate assessment in case of misleading conduct ([McKimmie et al., 2014](#)). This can depend on a pancultural belief that non-verbal behaviour reveals deception ([Vrij and Hartwig, 2021](#); [Global Deception Research Team, 2006](#); [Vrij, 2008](#)).

People are convinced that signals of deception can be found more easily in body and face movements than in speech content. [Hartwig and Granhag \(2015\)](#) have renamed this belief as "the demeanour bias". According to the authors, the bias is sustained by the idea that non-verbal behaviour is very important in information exchange, is difficult to control and can be used to judge lots of social situations. We are not sure about the origins of this belief, but we suppose that the theory of Mehrabian must have had an impact on people's concepts about deception. This author published an article in the 1960s, in which he stated that non-verbal communication influences the interaction at 55%, paraverbal communication at 38% and words only 7%. However, the same author and others have also spoken out about the misinterpretation of this data; nevertheless, this work has been used

to prop up the widespread myth that non-verbal behaviour is informative about deception (Vrij and Hartwig, 2021).

It was found that the judge's level of experience turns out to be a relevant factor regarding the influence of non-verbal behaviour. Judges with experience are more prone to this bias, believing that faltering speech, biting lips, auto manipulation, manipulation of objects, tense posture and an unfriendly facial expression can be signs of deception. However, there are also experienced and non-expert magistrates who believe that non-verbal behaviour is not necessarily an indicator of trustworthiness or deceit (Brownsell and Bull, 2011).

The role of emotion

Another association was found between credibility and emotional control (Digman, 1997). Although emotional expression depends on the individuality of subjects and on the situation in which they are, common people (who can constitute popular juries) tend to consider "normal" only the behaviours covered by social stereotypes (Kaufmann *et al.*, 2003). Thus, the exhibition of emotions becomes a crucial factor that determines witnesses' credibility or their sentence. When the witness is also the victim of the crime, this factor can become problematic. The judges usually expect that the victim will show great emotional transport when recalling the facts, but often these expectations are belied because the victims' depositions seem detached and cold. The importance attributed to emotions and their influence in credibility evaluation can be traced to two possible causes. The first one is explained by "Ekman's Neurocultural Theory of Emotions" (Ekman, 1972), which states that the expression of emotion is a signal system of communication between conspecifics in the presence of a predator. This signalling system includes physiological reactions and behavioural indices, many of which are conveyed by facial expressions (Ekman, 2009; Curci *et al.*, 2019). The identification of emotional signals is important in nature to preserve and guarantee the survival of species, so individuals learn to decode them during interactions. However, individuals can also learn to manage emotions in the social context and may consequently intensify, de-intensify or even dissimulate an expressive pattern. Therefrom could derive the confidence among people of considering themselves sufficiently expert in correctly detecting emotional signals and using them to recognise deception. Nevertheless, "people's ability to discriminate lies from truth based upon non-verbal signals is only slightly above chance" (Curci *et al.*, 2019; DePaulo *et al.*, 2003; Bond and DePaulo, 2006). The second cause can be attributed to specific neural circuits. Neuropsychological studies have found that the amygdala and anterior cingulate cortex are activated during the decoding of emotional signals in certain interpersonal interactions, modifying the focus of the listener's attention (Sip *et al.*, 2010; Wu *et al.*, 2011; Damasio, 1996; Quarto *et al.*, 2016). Thus, when individuals recognise in the speaker emotional signals of deception (e.g. forced crying), they are distracted from normal cognitive processing of the verbal messages (Frank and Feeley, 2003). It follows that the evaluation of controlled analysis of cognitive features of verbal accounts is preferred, while on the contrary lie detection is based more on decoding emotional indices. Curci *et al.* (2019) state that "even judges can possess a sort of implicit knowledge of this differential processing of lies and truthful reports, and this supposed knowledge is reflected in the legal criteria suggested across different jurisdictions to evaluate witnesses' truthfulness when deciding on witness credibility".

Disability

Testimony could be provided by a witness with disability, during the legal process. In particular, it was highlighted how the disclosure of an autism diagnosis can pave the way for positive prejudice in relation to the witness's perceived credibility. These witnesses are considered more credible than others with normal development (Maras *et al.*, 2019). However, it has also been shown that, in the event, the witness has intellectual disabilities,

the judges may entertain a prejudice that these kinds of witnesses are less capable of remembering events and less accurate in recounting them; and this has repercussions on the perceived reliability of these testimonies. Furthermore, it was revealed how young children with intellectual disabilities are regarded as more reliable and credible than older children sharing the same disability ([Brown and Lewis, 2013](#)).

Conclusion

The results analysed above show that judges are guided by certain factors in their evaluation process, and these can have an impact on the final verdict. In this research, we have considered some of the criteria reported by the current scientific literature that may interfere with an objective evaluation of witnesses. However, it is necessary to pursue additional research to enable obtaining more adequate and error-free judicial rulings.

The evidence reported by this review shows how difficult working as a judge is and proves that frequently judges can be unconsciously influenced by inferences, deductions and biases. Court judges are trained and qualified to analyse legal materials, and for this reason, we consider them experts on the matter. However, legal competence is not sufficient in evaluations that involve other aspects of the human being. In fact, the findings of some of the examined studies suggest that judges do not possess an appropriate strategy for the evaluation of credibility ([Mann *et al.*, 2002](#); [Mann *et al.*, 2004](#); [Baker *et al.*, 2016](#); [Kaufmann *et al.*, 2003](#); [Porter and Ten Brinke, 2009](#); [Vrij, 2008](#); [Tetterton and Warren, 2005](#); [Vrij, 2004a, 2004b](#)). On the contrary, they display biases regarding specific signals of behaviour and descriptive qualities, which influence their perception of people and result in their overestimating the discriminatory value of these signals ([Kaminski and Sporer, 2018](#)).

From these studies, it can be assumed that different personal aspects – smiling, pleasantness and the witness's physical characteristics – can be positively associated with each other, and these could compromise the ongoing evaluation. Men are deemed absolutely more credible because they are perceived as generally pleasant, whereas the credibility of women increases or decreases in connection with their pleasantness. Women are generally considered inadequate in the role of a witness, and this may explain their being perceived as less pleasant than men.

Gender is another factor that can influence evaluations; in fact, witnesses are evaluated based on their “gender”, and the evaluation can be different depending on whether it is made by a male or a female juror. This aspect is probably in line with gender prejudices present within our society. These results suggest that a deposition provided by a female witness is considered meaningful only in case her way of communicating respects the social rules of gender ([Briton and Hall, 1995](#); [Neal *et al.*, 2012a, 2012b](#); [Lecci and Myers, 2008](#); [LaFrance and Carmen, 1980](#); [Reis *et al.*, 1990](#); [Ekman and Friesen, 1969](#)).

Another essential factor is self-confidence. Studies have found how testimony given without hesitation helps the deponent to be perceived as more honest, and, therefore, credible. It is thought that a testimony given with self-confidence would be able to mask and hide the eventual signals of falsehood or reticence, especially if one were to consider the low or non-existent level of jurors' awareness regarding the influence of this factor on their decision. For this reason, a deposition made with confidence is often considered more honest and sincere than a deposition performed with less confidence, although this factor cannot be considered a reliable index of veracity ([Deffenbacher, 1980a, 1980b](#)).

The age both of the judge and of the witness can be a factor that influences decisions in court. Judges from the baby-boomer generation entertain more restricted expectations from witnesses, showing greater inclination to use emotional bias as a parameter of credibility of witnesses, in particular regarding women. Children and teenagers are considered credible, but often they are not considered totally accountable because many judges are convinced that such witnesses are not completely able to tell or remember facts in an accurate and

specific way. As to the topic of a witness's reliability, it was also shown how often, in case a witness had intellectual disabilities, they were considered less trustworthy than other witnesses with normal development, despite the testimony being considered somehow credible.

Other notable aspects are non-verbal behaviour and expression of emotions. The features of the witness's face and their non-verbal expressions are unconsciously used by jurors for inferences on the reliability, sincerity and, therefore, credibility of the witness. Witnesses perceived as reliable due to the above-mentioned characteristics will, therefore, be considered more credible for the mechanism of crystallisation of the judgement. This leads jurors to form a first opinion of the witness that will then be carried forward until the formulation of the judgement (which frequently is consistent with the first impression), even if there are reliable signs of misleading behaviour. Other studies have argued that in case of strong evidence non-verbal aspects were less relevant for the purpose of the evaluation. Therefore, because of the lack of clarity and uniqueness of the results, the research seems to suggest, in this case, a reduction of the emphasis placed on non-verbal indexes.

Future implications

From our research, it seems appropriate and necessary to provide judges with adequate training or specific support aimed at recognising their cognitive processes and biases. In fact, when they were made aware of them, they were less influenced by bias, being more objective and limiting improper inferences (Bollingmo *et al.*, 2009).

Thus, it is important to emphasise the need to help judges to be aware of their implicit biases, which are attitudes or stereotypes that influence our understanding, decision-making and behaviour without our being aware of them, as already found by Kang *et al.* (2011).

Understanding and managing these implicit biases could certainly help juries to be impartial. This need noted in our research is also confirmed in studies by Lynch *et al.* (2022) and Zenker *et al.* (2016) regarding the importance of facilitating judges in monitoring their own cognitive processes. For example, there are many studies on “debiasing techniques” in the literature. These techniques aim to increase awareness of the nonconscious use of bias (cognition) to improve the ability to avoid biased considerations (motivation). In essence, these techniques aim to make judges more impartial and cautious (Zenker *et al.*, 2016). From the biases noted in our study, it is also possible to explore those tools that judges can use to monitor their own performance and avoid improper inferences. For example, one technique is the devil's advocate technique, which reminds judges of the hypothetical possibility of the opposing viewpoint (Lord *et al.*, 1984; Mussweiler *et al.*, 2000); reducing discretion: formulating legal rules that reduce judges' opportunities to make inferences (e.g. explicit checklists or a predetermined amount of damages) (Zenker *et al.*, 2018); providing rationale, providing incentives and extra time for reflection, which can be helpful in ignoring intuitive responses (Hodgkinson *et al.*, 1999; Larrick, 2004; Paxton *et al.*, 2012); accountability: legal decisions being reviewed by higher courts (Arkes, 1991); censorship: avoiding the use of inadmissible evidence so as to not trigger bias related to it (Zenker *et al.*, 2018). Very important are other studies that deal with stimulating witnesses to argue their ideas more precisely, with the aim of catching improprieties in discourse, such as the “Strategic Use of Evidence” by Hartwig *et al.* (2014). Finally, some studies are appearing in the legal aid landscape, for example, those on artificial intelligence by Brennen and Magnussen (2022) or Pérez-Rosas *et al.* (2015), aimed at detecting lying from text or non-verbal behaviour.

Limitations

Among the limitations of this work, we have to consider the low number of available studies and that most of these derive from a specific cultural context – the American one. For this

reason, we have studied the construct of witness credibility based primarily on American culture. In future, it would be very interesting to know how the credibility of a witness is evaluated in other parts of the world. Some of the studies in this regard were conducted on mock juries in an experimental environment. Although these studies are reliable, it may be useful for future research to have more data on real trials. In addition, we have had the opportunity to analyse only how certain biases manifest themselves, but we have not been able to explain their origin. This happened because currently, the extant scientific literature has no studies focused on the source of certain beliefs. Ultimately, we propose the use in future of new technologies as support for the judges. Nevertheless, although these could be very useful, they are not tested enough for use in court proceedings, so more studies are needed, especially regarding ethical issues related to the use of such technologies in court.

In any case, we believe that this work can raise awareness about the unconscious reasoning that happens in the legal field, which has a major impact on people's lives and on the general perceptions regarding justice.

Implications for practice

- More often than that, it can be imagined, the decisions of the judges are guided by cognitive biases and, consequently, this can lead to an unfair verdict.
- Non-verbal behaviour, communicative effectiveness and expression of emotions are the main factors that generally and wrongly are used by judges to infer the credibility of the witnesses. Moreover, the pleasantness, gender and age of the witness can have an impact on the judge's decision-making process.
- A great number of judges are not able to recognise that bias and avoid them.
- It is necessary to develop and implement training courses to make judges more aware about their cognitive biases and about the several factors that can influence their decisions for the purpose of control and avoid them.
- In the future new technologies, properly tested and ethically operated, can be used as support by judges during their decision-making process.

Note

1. Heuristic: mental tricks that lead to quick conclusions with minimal cognitive effort.

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