# Practical Methods For Detecting Mendacity: A Case Study

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This study demonstrates the concurrence of the use of objective verbal and nonverbal signs and lying. President Clinton's Grand Jury Testimony of August 17, 1998, was examined for the presence of 23 clinically practical signs of dissimulation selected from 64 peer-reviewed articles and 20 books on mendacity. A segment of his testimony that was subsequently found to be false was compared with a control period during the same testimony (internal control). A fund-raising speech to a sympathetic crowd served as a second control (external control). The frequencies of the 23 signs in the mendacious speech were compared with their frequencies during the control periods, and the differences were analyzed for statistical significance. No clinical examination was performed nor diagnosis assigned. During the mendacious speech, the subject markedly increased the frequency of 20 out of 23 signs compared with their frequency during the fund-raising control speech (p < .0005). He increased the frequency of 19 signs compared with their frequency of videotaped and scripted testimony. If these findings are confirmed through further testing, they could, with practice, be used by psychiatrists conducting interviews.

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He that has eyes to see and ears to hear may convince himself that no mortal can keep a secret. If his lips are silent, he chatters with his fingertips; betrayal oozes out of him at every pore— Sigmund Freud (Ref. 1, p 94).

In forensic psychiatry, mental health professionals routinely have the need to assess the truth or falsity of subjects' histories and to weigh their candor or disingenuousness during the physical examination.<sup>2</sup> Yet, psychiatrists are only 57 percent accurate in recognizing deception.<sup>3</sup> Moreover, they lack insight into their poor lie-detecting ability, and their confidence is inversely proportional to their accuracy.<sup>4</sup> "Mental health professionals who claim they cannot be fooled may have been fooled already" (Ref. 5, p 68).

The more the liar can believe in the lie, the more difficult it is to detect the truth. Successful liars and psychiatric patients, first of all, deceive themselves. With complete self-deception, "liars are undetectable" (Ref. 6, p 140). It is interesting to note that both psychotherapy patients and successful liars tend to have a higher level of education than the general population.<sup>7,8</sup> However, this is not to suggest that all

psychotherapy patients are highly educated and successful liars.

In addition, the current consultation-liaison process in our academic health-care system enables liars to rehearse their histories. By the time prevaricators see the psychiatrist, they may have already seen a multitude of physicians, residents, and medical students, providing practice opportunities and thus improving their deceptive presentation (Ref. 6, p 292).

In the usual classic psychiatric dyad in which issues of dangerousness are not considered, the psychiatrist does not attempt to determine a patient's veracity. This deficiency has been attributed to the belief that in the course of therapy the truth will eventually be revealed.<sup>3</sup> In those who are not consciously lying, such as self-deceived or delusional individuals, false beliefs resolve with the illness. Even if the patient is intentionally dishonest, the psychotherapist assumes that, with treatment, the dishonesty will eventually be unmasked. In a therapeutic relationship, the assumption is that a patient is honest and forthright. Psychiatric training includes the possibility that negative feelings toward patients and accusatory thoughts of dishonesty may be a form of countertransference, which represents problems with the therapist rather than the patient. Therapists are encouraged to explore their own deficiencies, rather than the possibility that the feelings are based on real

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cues of the patient's deceit. Furthermore, the psychiatrist's paradigm of unconditional empathy requires him or her to inhibit suspicion and doubt rather than to attend to signs of deception.<sup>9</sup>

A central tenet in psychiatry is the sanctity of the therapeutic relationship. Confronting the patient about perceived dishonesty may disrupt this relationship. It may also be in the psychiatrist's self interest not to expose any fraud, because such exposure may terminate the treatment along with the associated financial remuneration. It could also put the psychiatrist at risk for retaliation from the disenchanted, disingenuous patient. These reasons for hesitancy in confronting the patient may explain the discrepancy between the estimated incidence of malingering in nonforensic patients  $(7.4\%)^2$  and the actual frequency of this diagnosis of far less than one percent among practicing psychiatrists.<sup>10</sup>

Despite the need for clinical skills to detect lying in psychiatric interviews, psychiatric residents are not provided with structured training to develop such proficiency. To aid psychiatrists in recognizing lying, we present the following diagnostic signs that may be useful as indicators, and we demonstrate their utility by examining the widely disseminated presentations of a prominent political figure, President Clinton.

# **Materials and Methods**

From 64 peer-reviewed articles and 20 books on mendacity, we selected 23 practical, objective signs a psychiatrist could use as evidence of dissimulation. These are described in the following section.

# **Verbal Signs of Lying**

Qualifiers/modifiers: Examples include "not necessarily," "but," "however," "ordinarily," "almost," "most of the time," "generally," "essentially," "basically," "sometimes," "usually," "hardly ever," "possibly," "actually," "rarely," "specifically," "some" (Refs. 11, p 33; 12; 13; 14, p 145; 15, p 151; 16; 17, p 201).

*Expanded contractions*: Liars tend to emphasize the "not" to declare that they were not involved. They use the expanded form of a verb more frequently than the contraction. Examples: "did not" versus "didn't," "could not" versus "couldn't," "would not" versus "wouldn't."<sup>18</sup>

Denials of lying: The liar denies lying and emphasizes the truthfulness of his answers. For example: "I have absolutely no reason to lie," "frankly," "obviously," "to be one hundred percent honest," "to tell the truth," "I am being straightforward," "believe me," "honestly," "to the best of my knowledge," "as far as I know" (Refs. 11, p 32; 12; 14; 16).

Speech errors: changes of thought in midsentence; grammatical errors including tense, person, pronoun; and Freudian slips (Refs. 6, p 286; 11, p 20; 15, p 142; 16; 19).

*Pause fillers*: nonliterate sounds used to fill in time during a period of hesitation, such as "Uh," "Er," "Um," and "Ah" (Refs. 11, p 20; 12; 15, p 151; 20).

Stuttering: The liar becomes tongue-tied, slurs his speech, stammers, and stutters (Refs. 11, p 20; 12; 14, p 145; 16; 19).

*Throat clearing*: throat clearing and various other sounds such as moaning, groaning or grunting (Ref. 11, p 20).

# Nonverbal (Kinesic) Signs of Lying

Less finger pointing: The liar tends to avoid pointing or raising a single finger to illustrate a point (Refs. 11, p 105; 17, p 140).

Liar's lean and postural shifts: Coincident with lying, the liar leans forward, resting elbows on knees or a table and constantly changes posture or position in the chair (Refs. 11, pp 121–2; 12; 21, p 60).

Lip licking: an increased frequency of bringing the tongue to the external lips (Refs. 11, p 84; 12; 21, p 60).

Lip puckering and tightening lips: tightening the mouth as though to let nothing get out (Refs. 6, p 127; 11, p 84; 12; 15, p 120; 21, p 273).

Drinking and swallowing: increased drinking and swallowing (Refs. 6, p 286; 11, p 84; 14, p 145).

Smiling and laughing: increased smiling and insincere smiles, laughing inappropriately (Refs. 3; 6, pp 149-61; 11, p 82; 12; 15, p 126; 16; 20).

*Fewer hand gestures*: Truthful persons often use wide, sweeping hand gestures while talking or illustrating a point. Liars use fewer hand gestures (Refs. 6, p 286; 22; 23).

Hand-to-face grooming (excluding nose): increased touching of the face, ears, or hair (Refs. 3, 12, 20)

Sighs or deep breaths: increased audible or visible sighs or deep breaths (Refs. 11, p 20; 17, p 202).

Hand and shoulder shrugs: flipping the hands over in open fashion and shrugging the shoulders as if uncertain (Refs. 3; 11, p 105; 17, p 140).

Handling objects: increased occupation with such objects as eyeglasses, pen, papers (Ref. 15, p 143).

Averting gaze: looking away, to the side, or down, after having made eye contact (Refs. 11, p 91; 6, pp 141–2; 12; 15, p 100; 15, p 142; 21, p 273; 22).

Less blinking: a deceptive subject blinks less often (Ref. 6).

Crossing arms: folding or crossing the arms as if making a barrier against the one being lied to (Refs. 11, pp 101–2; 14, p 145; 15, p 151; 21, p 273).

*Closing hands and interlocking fingers*: Either hand is closed into a fist, with no fingers shown, or the two hands have their fingers interlocked (Refs. 3; 11, pp 103–11; 15, p 139; 21, p 275).

Touching nose: Scratching, rubbing, or touching the nose (Refs. 11, p 79; 15, pp 117-8; 20; 21, p 60).

## Procedure

A coauthor (C.J.W.) examined a 23-minute segment of a videotape and a verbatim transcript of President Clinton's testimony before a federal grand jury on August 17, 1998, parts of which have subsequently been determined to be false: he denied having had a sexual relationship.<sup>24,25</sup> The frequency of the 23 signs indicative of lying that appeared in this segment was determined.

The same rater also examined two other videotape and transcript speech segments: (1) 11 minutes of the same grand jury testimony in which he answered basic questions—for example, his name and his attorneys' names (internal control); and (2) 5 minutes of a fund-raising speech to a sympathetic crowd on behalf of a candidate in Chicago on September 25, 1998 (external control). Because these videotapes were widely disseminated and in the public domain, it was deemed that the subject's consent was not required. This process did not involve any examination, clinical assessment, or diagnosis.

## **Statistical Evaluations**

The frequencies of the 23 signs in these three segments, defined as rate per minute, were compared and analyzed for statistical significance of the differences. We used the sign test exact method to determine the proportion of signs that changed in the direction indicating deception and the normal-theory test to compare incidence rates. The sign test is a test of evidence against the null hypothesis that if there is a change, change in one direction (suggesting deception) is equally as likely as change in the other direction (suggesting no deception). Our p values then, reflect the probability of arriving at our results

Table 1	Frequency	of Signs Indicative of Deception in the	9
Mendacio	ous Speech	Versus the External Control	

	Times		
	External Control	Mendacious Speech	% Change
Verbal signs			
Qualifiers and modifiers	1.4	2.26	+61
Expanded contractions	0.2	0.39	+95
Denials of lying	0.0	1.34	>100
Speech errors	0.4	1.65	+313
Pause fillers	1.0	1.78	+78
Stuttering	0.4	1.39	+248
Throat clearing	0.0	0.74	>100
Nonverbal signs			
Less finger pointing	1.6	0.52	-52
Lean or postural shift	0.0	0.87	>100
Lip licking	1.4	1.4	No Change
Lip tightening	0.4	0.43	+7.5
Drinking and swallowing	0.2	0.91	+355
Smiling	0.8	0.52	-35*
Fewer hand gestures	7.8	3.4	-56
Hand to face	0.2	0.70	+250
Sighs	0.0	0.22	>100
Shrugs	0.0	0.22	>100
Handling objects	0.0	0.57	>100
Averting gaze	1.2	3.83	+219
Less blinking	11.8	43.4	+268*
Crossing arms	0.0	0.04	>100
Closing hands	0.6	1.9	+217
Touching nose	0.0	0.26	>100

• The changed frequency of the sign is not in the direction suggestive of deception.

if either direction of change is equally possible (i.e., if both directions have a probability of 1/2). The test uses the direction of change only, rather than the amount of change. However, we examined amount of change by using different degrees for our determination of whether there was a change. The use of an exact test to compute probabilities means that we did not use a normal distribution approximation but instead used the binomial distribution directly. Owing to the multitude of comparisons, the Bonferroni adjustment was used, setting statistical significance at  $p < .002.^{26}$ 

## Results

The signs were markedly more frequent during the mendacious segment than during either of the two control periods. Tables 1 and 2 show the frequencies with which each of the signs occurred in the mendacious speech compared with their frequencies in the external and internal control periods.

	Times		
	Internal Control	Mendacious Speech	% Change
Verbal signs			
Qualifiers and modifiers	0.45	2.26	+402
Expanded contractions	0.18	0.39	+117
Denials of lying	0.82	1.34	+63
Speech errors	0.09	1.65	+1733
Pause fillers	0.55	1.78	+224
Stuttering	0.09	1.39	+1444
Throat clearing	0.18	0.74	+311
Nonverbal signs			
Less finger pointing	0.00	0.52	>100*
Lean/postural shift	0.18	0.87	+383
Lip licking	0.91	1.4	+54
Lip tightening	0.55	0.43	-22*
Drinking/swallowing	0.64	0.91	+42
Smiling	0.27	0.52	+93
Fewer hand gestures	0.36	3.4	+844*
Hand to Face	0.09	0.70	+678
Sighs	0.36	0.22	-39*
Shrugs	0.18	0.22	+22
Handling objects	0.27	0.57	+111
Averting gaze	2.91	3.83	+32
Less blinking	50.5	43.4	-14
Crossing arms	0.00	0.04	>100
Closing hands	0.64	1.9	+197
Touching nose	0.00	0.26	>100

Table 2	Frequency	of Signs	Indicative	of Deception	in the
Mendacio	ous Speech	Versus t	he Internal	Control	

 The changed frequency of the sign is not in the direction suggestive of deception.

Certain signs were particularly noteworthy, being present during the mendacious speech and absent during the external control: denials of lying, throat clearing, liar's lean, sighs, shrugs, handling objects, crossing arms, and touching the nose (Table 1). Two of these signs were also absent from the internal control: crossing arms and touching the nose (Table 2).

The difference is more marked between the mendacious speech and the external control in which baseline anxiety was less, but it is also substantial in comparison with the internal control (Table 3).

Comparing the mendacious speech with the external control in which the subject showed a high comfort level, 20 of the 23 signs (87%) were more prevalent in the mendacious speech (p < .0005; Table 3). Comparing the mendacious speech with the internal control in which greater stress could be assumed, 19 of the 23 signs (83%) were more prevalent in the mendacious speech (p < .003; Table 3).

Taken individually, only two signs met the criterion for statistical significance (p < .002), as concomitant with prevarication: fewer hand gestures when compared with the external control and more speech errors when compared with the internal control.

#### Discussion

Objective signs in this exercise demonstrate indicators concurrent with dissimulation. A few caveats must be noted. The greater the number of these signs, the greater the likelihood of mendacity. As with any symptom complex, a cluster of signs or symptoms defines the disease; a single sign does not a liar make. The body language in nasal trichotillomania, vocal tic in Tourette's syndrome, and orbicularis oculi spasm in Meige's syndrome or hesitant speech in stutterers, do not, per se, indicate a liar. In any single speech, the presence of the 23 signs proves nothing. Their frequency in the speech must be compared with a truthful control period (Ref. 11, p 33). Preferably, the truthful control period should occur in the same environment as the mendacious period to eliminate such confounding factors as a stressful environment. Furthermore, the communication type should be the same, because the means of communication alone may affect the frequency of these signs. For example, pauses may occur more frequently in

Table 3 Increase in Numbers of Signs of Deception in the Mendacious Speech Over the Numbers of Signs in the Control Speeches

	Mendacious Speech Versus External Control			Mendacious Speech Versus Internal Control		
	Signs (N)	%	p	Signs (N)	%	р
Any increase	20	87	<0.0005	19	83	<0.003
>10% increase	19	83	<0.003	19	83	<0.003
>25% increase	19	83	< 0.003	17	74	<0.04
>50% increase	19	83	< 0.003	15	65	>0.10
≥100% increase	14	61	>0.10	12	52	>0.10

Total signs: N = 23.

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interrogatory than in prepared speech. Thus, interrogatory truthful periods should be compared with interrogatory deceptive periods. In a clinical setting, the truthful epoch would be selected within the same psychiatric interview in which the material in question is contained. In our study, we had control speech both from the same environment and communication type (interrogatory, internal control) and from a different environment and communication type (prepared speech, external control).

Potential methodological problems require discussion. There was a disparity in the duration of analyzed segments of truthful and mendacious speech: 16 and 23 minutes, respectively. This occurred because we were able to delineate only 16 minutes of established truthfulness. An argument could be raised that the longer segment of deception allowed more opportunity for the sign to be presented. This appears unlikely, because the mendacity signs were essentially equally distributed throughout the dishonest period.

An author's bias can influence the results. In the current study, bias is unlikely to have had substantial impact because the signs are all or none (e.g., blink, nose touch, denial), and the rater had only to count these easily recognized signs. Hence, the investigator's perceived impression of the public figure would be expected to have minimal effect. If anything, the subject's public remarks would tend to engender a favorable impression by the rater, skewing the results toward a falsely reduced number of signs.

Overall, our results may err on the conservative side. The truthful internal control period occurred at the start of the testimony, when anticipatory anxiety would induce a high level of stress in our subject, even during periods of honesty. Thus, the baseline level of stress during this control period may have been elevated, so that the difference in stress compared with that of the mendacious period would be less, and the difference in the signs of lying would also be less. If the control period had been chosen toward the end of the testimony, when anticipatory anxiety would have subsided, the signs of mendaciousness might have been greater. Another methodologic difficulty was the lack of verification of veracity of the presumed truthful periods. We assumed President Clinton was telling the truth during the fund-raising speech, as well as during the internal control in the deposition (when he was answering routine factual questions from which a lie would be

easily detected—e.g., name of attorney). If, in fact, he was not being truthful during these periods, our results actually underestimated the changes associated with lying.

Stress alone may generate the 23 signs. For example, stress alone increases articulatory errors, midsentence changes, and other such signs (Refs. 6, p 286; 11, pp 20, 32–33; 15, pp 142, 151). The moral ambivalence associated with lying generates internal conflict and induces a stress reaction. Failure to differentiate between a pure stress response and mendacity is known as the Othello error (Ref. 6, p 172). If what we observed had been merely a stress response (and not lying), we would still find more of the signs during the testimony period than during the other low-stress speech. However, we would not find more signs during the truthful period of the same high-stress testimony.

Objective signs are not reliable indicators when evaluating pathologic liars (Ref. 6, p 292). Persons with a moral lacuna for lying do not display the signs. Similarly, those who can convince themselves that their lies are truthful do not display the signs. Psychotic patients who believe their delusions do not display these signs.<sup>17</sup> Actors and politicians who have trained themselves to lie can hide many of the associated signs and even display misleading feelings through the Stanislavski technique of evoking emotional memories (Ref. 6, p 117).

As for the underlying psychological and physiological mechanisms for displaying the signs of dissimulation, the perceived immorality of lying triggers internal or unconscious conflict that the subject expresses in actions symbolic of preventing the lying (i.e., covering the mouth, crossing the legs, crossing the arms, and Freudian slips). Manipulation of objects such as eyeglasses may symbolize manipulation of the person or persons being lied to. Untruthful responses are more hesitant than truthful ones, and this hesitancy may be manifested by delay, stammering, stalling maneuvers, empty words, modifiers, and qualifiers(Ref. 17, p 202; 27). Cognitive demand can cause delays, but lying requires greater cognitive effort than telling the truth (Refs. 16; 17, p 202; 28).

The limbic lobe and facial muscles of expression may be connected in a predetermined pattern that only a concentrated effort can override,<sup>29</sup> so that although verbal content may be controlled, facial expression manifests the true affect. A sidelong smile may express the incongruity of speech and affect.

The autonomic overflow associated with lying induces excess discharge of catecholamines, including noradrenaline (Ref. 6, p 229), which may affect the frequency of eye blinking and adventitious movements of the hands and feet. Hyperautonomic discharge associated with lying causes engorgement of nasal erectile tissue (Refs. 11, p 79; 30; 31), which we term the Pinocchio phenomenon. Stretching of the nasal tissue could possibly lead to mast cell degranulation, resulting in small sensory nerve fiber discharge, causing pain, irritation, or itching. The liar may react by digitally manipulating the proboscis. Other manifestations of hyperautonomic discharge during lying include reduction of salivation, dry mouth, hoarseness, and tongue protrusion-hence, a frequent need to drink (Ref. 11, p 84).

Although in our example, 21 positive signs occurred concomitantly with lying, it remains unclear how many positive signs would be required to value this determination or the extent of the concurrence of the various indicators. Also, it is unknown what degree of increase in each sign is necessary to classify it as a positive marker for lying. Ongoing research from other examples of mendacious speech, including minute-to-minute analysis of each of the indicators, may help resolve these problems so that these techniques can be applied as a standardized assessment scale. Although these 23 individual signs are routinely used and widely published in the psychiatric and law enforcement literature, collectively they have never been formally assessed as a single measure of an indication of mendacity and have yet to be verified beyond this case example. Before acceptance as a reliable and valid clinical tool, this method should undergo retrospective blinded and prospective testing.

#### Conclusions

This exercise demonstrates the potential utility of objective signs as indicators of the veracity of videotaped, scripted testimony. For instance, it may be possible to systematize the analysis of public behavior for individual use. If further validated, these signs may be helpful to forensic psychiatrists and other mental health professionals who conduct interviews.

When psychiatrists are asked for prognoses, any inaccuracies could pose life-threatening risks. Thus,

an improvement in ability to detect psychiatric patients' truthfulness may not only help to diagnose malingering, but also to predict behavior that may be dangerous to the patient or to others. For instance, addiction specialists routinely are required to assess the veracity of statements of compliance.

Unlike the polygraph or other technologies that require extensive equipment, the 23 signs described herein can be assessed with clinical observation alone. Attention to these signs may initially be distracting to the clinician, but with practice they could become second nature, as have assessments of affect, mood state, and thought processes. If more rigorous experimental studies validate this method, these and similar signs could be taught during forensic psychiatry training to be used in conjunction with existing diagnostic interview approaches.

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