

The Polygraph and Forensic Psychiatry

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The Blue Fairy in *Pinocchio*¹ stated confidently, “Lies can be easily recognized. There are two kinds of them: those with short legs, and those with long noses” (Ref. 1, p 89). While perhaps true for her, the Blue Fairy was wrong when it comes to humans, who are in general poor lie detectors. In experimental settings, the ability of the average person to catch a liar is typically little more than chance and rarely above 60 percent.^{2–4} So-called professional lie catchers do not do much better, at least in laboratory studies: police officers, customs agents, American federal law enforcement officials, and judges are no more accurate than university students in detecting deceit in experimental settings. Secret Service agents appear to perform somewhat better, but even they get it right only two of three times.^{5–7} It is unlikely that forensic psychiatrists differ much from anyone else in having only a limited ability to differentiate truth-telling from deception.

Barring the occasional minimization and exaggeration, most doctors and most psychiatrists believe what their patients tell them, most of the time. Forensic psychiatrists, however, typically maintain a higher degree of skepticism than do other doctors. We do not, of course, call our patients liars, but a lack of honesty can present significant obstacles to assessment and treatment. In some situations, for example in criminal proceedings or compensation claims, patients may attempt to present themselves as much worse than they are; in others, for instance when

seeking release from a forensic institution or avoiding recall to one, they may deny the extent of their symptoms or behavior. Forensic psychiatrists are therefore advised to make use of multiple sources, and if possible extended observation, to detect deception. In addition, scales to identify malingering are sometimes advocated,⁸ and many psychometric tests contain what amounts to a lie scale. Given this mindset, why then is so little consideration given to the use of what is probably the most quintessential approach to detecting lies—the polygraph?

The suggestion that we might use polygraphy to detect deception (or confirm honesty) in patients typically elicits an instinctive and immediate rejection, based on the assumption that it will have a negative impact on the therapeutic relationship or is in some way unethical. After all, who likes to be called a liar, even when he is lying? In addition, polygraphy is associated with a fair amount of controversy, and there is a widespread belief that it can be easily beaten or that it “doesn’t work” and has been “discredited.”⁹

Much of the debate around polygraphy is colored by ideology, with both proponents and antagonists often overstating their cases. With the froth trimmed off and used appropriately, might there be a role for polygraph testing in the assessment and treatment of forensic patients?

What Is Polygraphy?

The polygraph is commonly referred to as a lie detector, but it does not recognize lies. A specific physiological lie response has never been demonstrated and is unlikely to exist. Instead, it records physiological activity associated with arousal in the autonomic nervous system.¹⁰ The responses it mea-

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asures are not unique to deception, nor are they always engendered by it. The aim of the polygraph examiner is to establish a psychological set in the examinee that will increase the likelihood that any observed arousal to specific questions is the result of deceptive responses. Whether this arousal is caused by a fear of being caught out in a lie, a conditioned response to the act of lying, orientation to a matter of emotional salience, the increased cognitive processing required for deception, or some other mechanism is unclear, although theories involving orientation to threat and emotional salience are becoming increasingly popular.^{11–13}

The modern polygraph developed from instruments designed in the United States in the early 1900s by William Marston (who under the pseudonym Charles Moulton was the creator of Wonder Woman and her magic lasso that caused those caught within it to tell the truth), Dr. John Larson (who was a psychiatrist), and Leonarde Keeler, mainly for use in criminal investigation.^{10,14} Keeler's polygraph, patented in 1939, made simultaneous recordings of changes in cardiovascular activity, breathing, and skin conductance (caused by sweating) and is the template on which modern polygraphs are based. The name polygraph comes from the multiple pens writing on moving paper (i.e., many writings) that characterized the original instruments, but data are now digitized and presented on a computer screen.

The most common type of polygraph examination involves a pre-test interview, a small number of questions with "yes" or "no" answers that are asked while the examinee is attached to the polygraph, and a post-test debriefing interview that takes place after the charts have been evaluated. The whole process usually takes between one and three hours. It is not always appreciated that there are two important outputs from the polygraph examination. Predominance is often given to the test result itself: deception indicated, no deception indicated, or inconclusive (or variants of these terms). Just as important, especially in clinical settings, is information disclosed during the examination. For reasons that are unclear, but are worthy of further research, the polygraph appears to facilitate disclosure during the testing session. It is possible that polygraphy provides a face-saving mechanism for reporting information that has been withheld or that individuals may disclose because of a perceived need to explain a deceptive result. In our studies with sex offenders, we found that

polygraph testing increased the likelihood of the disclosure of relevant information by a factor of 14, with over 40 percent of the disclosures rated as being of medium (i.e., indicative of increased risk) or high (actual breaches or offenses) severity.¹⁵

Critics argue, however, that polygraphy has a low level of accuracy, and that increases in disclosure are the result of an examinee's belief in the polygraph as a lie detector^{3,16,17} demonstrating the so-called bogus pipeline to the truth effect, a well-known and oft-repeated research finding that occurs when subjects disclose information because they believe they are attached to a device that can accurately detect lies.¹⁸ In other words, it is a con.¹⁹ Regardless of why people disclose, this criticism loses its force if the polygraph does in fact detect deception with a reasonable level of accuracy. Does it?

Polygraph Accuracy

There have been numerous studies of polygraph accuracy, some based on laboratory designs such as mock crimes, others on reviews of its use in field settings. Reports of accuracy range from around chance to near 100 percent.¹⁰ However, a thorough and definitive review of the research literature carried out by a committee of the National Research Council concluded that polygraph accuracy is in the region of 81 to 91 percent, which the reviewers described as "well above chance, though well below perfection" (Ref. 10, p 4). There thus appears to be a meaningful association between what the polygraph records and deception.

The National Research Council review was triggered by a major security breach at the Los Alamos Laboratories and was focused on the use of polygraphy for the purposes of security vetting—in other words, to detect security lapses (intentional or otherwise) and to catch spies. It concluded that a 10 to 20 percent error rate was too high for polygraphy to be useful in this context. The large population that would have to be tested and the anticipated low rate of deception (one would expect there to be very few spies in such establishments) would result in too many false-positive tests. The reviewers also pointed out that spies are likely to have training in how to beat the polygraph. They added, however, that once levels of deception in a target population rise to over 10 percent, polygraphy becomes viable, an observation that tends to be overlooked by critics of polygraphy. Whatever the situation in security contexts,

few would argue that levels of deception in forensic populations are below 10 percent.

Complicating matters is that there are different types of polygraph examination, with differing levels of accuracy. Best are single-issue tests, where all of the relevant questions relate to the same topic, and so-called concealed-information tests, in which it is recognition of relevant items rather than lying that is measured. Less accurate are multi-issue tests, which are common in screening contexts.¹⁰

There is the additional aspect of countermeasures—that is, techniques employed by the examinee to beat the polygraph. Such methods exist, and there are web sites on the internet that offer advice of uneven quality about them. To succeed, however, an individual needs more than theory. He must also have feedback on his responses when attached to the polygraph,²⁰ something that is not readily available to most examinees.

Polygraph Applications

Polygraphy is used in several settings, some more contentious than others. Many of the controversies regarding polygraph testing are the result of a failure to differentiate these contexts.

One area that has attracted particular criticism is employment screening. Starting in the 1930s, private businesses began to use polygraphy to monitor the honesty of their employees; in the 1960s, pre-employment screening of job applicants was introduced.¹⁴ Questions were asked about theft from previous employers, drug use, and the like, but then increasingly inquiries were also made about life-style factors such as sexual orientation and marital fidelity.²¹ Employment screening became a multimillion dollar industry, but its unregulated nature led to serious abuse and left a bad taste about polygraphy in the mouths of many.

Matters came to a head in the 1980s when President Ronald Reagan, having famously complained about being “up to my keister in leaks,”¹⁴ sought to introduce random testing of all federal employees and subcontractors who had access to classified information, including members of his cabinet. Strong opposition prevented the program from commencing, but it triggered congressional interest and the passing of the 1988 Employee Polygraph Protection Act which in effect banned the use of polygraphy for employment screening in the private sector with certain exceptions, although ironically the ban does not

apply to public service employees. Many federal agencies, most large police forces, and the military remain major users of polygraphy as a vetting tool.²²

The other arena where there is much confusion regarding the role of polygraph testing is in its use by the police and in the criminal justice system generally. In 1921, James Frye was charged with murder, having confessed to the crime after his arrest on an unconnected robbery charge. He subsequently withdrew his confession, claiming it was made because of police inducements. He passed a “lie test” administered by William Marston, but the trial judge did not allow Marston to give evidence. Frye was convicted, but appealed on the grounds that Marston’s testimony should not have been excluded. The appeals court upheld the initial decision. In what has become known as the *Frye* standard, the court stated that Marston’s lie detector test had not gained sufficient acceptance within the scientific community to be considered as scientific evidence.^{10,14,23} Ironically, Frye was later exonerated and set free.

The *Frye* standard became the test for the admissibility of scientific evidence in U.S. courts, meaning that polygraph evidence was largely inadmissible in American courtrooms for the next 70 years. The 1993 Supreme Court decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, however, broadened the test for admissibility of expert evidence. It gave judges the freedom to make decisions about whether to admit the evidence of experts, including polygraph examiners, on a case-by-case basis, depending on its relevance, reliability, and the extent to which it meets scientific standards.²⁴ Although jurisdictions vary in their use of the *Daubert* principles, polygraph evidence has been allowed in over 20 states and in 9 of the 12 federal circuits.

Regardless of its standing in court, however, many police forces use polygraphy in their investigation of crime. Sometimes the aim is to eliminate individuals from suspicion, sometimes it is to encourage a confession, and sometimes it is to provide new lines of inquiry.²² There are many anecdotal reports of significant breakthroughs when polygraphy is used in this way,¹⁴ but hard data are lacking.

Postconviction Testing

There have been occasional examples dating back to the 1960s of judges using polygraph testing to assist in the management of offenders on probation,^{25,26} but its application in postconviction set-

tings became widespread in the late 1990s in relation to the monitoring and treatment of sex offenders. By the early 2000s, it was estimated that polygraphy was incorporated in the supervision of sex offenders by probation and parole agencies in up to 35 states,²⁷ while a 2009 survey reported that nearly 80 percent of adult community treatment programs in the United States and over half of institutionally based ones incorporated polygraphy into treatment.²⁸

Evaluations of postconviction sex offender testing (PCSOT) programs consistently describe fuller and more accurate information about offenders' histories and increased disclosure regarding previous victims, types of offenses, age of onset of sexually deviant behavior, continued masturbation to deviant fantasies, and engagement in so called high-risk behavior. There is also evidence to show that it can act as a deterrent to reoffending.^{15,29–32} Sex offenders have tried unsuccessfully to challenge the principles and practice of PCSOT on several occasions. The Supreme Court has stated that it is “a sensible approach allowing prison administrators to provide to those repeat sex offenders who need treatment the incentive to seek it. . . . [It does not] amount to compelled self-incrimination.”³³

Potential for Use of Polygraphy in Forensic Psychiatry

Much of the controversy regarding polygraphy is based on its use in criminal investigations, employee screening, and security vetting where the emphasis is on whether or not the individual has passed the test. Because of this, the question of accuracy is paramount, as are the error rates of individual examiners (which are typically unknown). Postconviction use of polygraphy with sex offenders, however, is perhaps a better model for how the polygraph could be used in forensic psychiatry.

In PCSOT, the focus is not on passing or failing the polygraph test, but on facilitating disclosures that assist in gaining an understanding of the individual and enhancing treatment and supervision.³⁴ The polygraph result itself, while not immaterial, is less important than the information provided by the offender, which can be useful regardless of test outcome. Because no action should be taken simply on the basis of a passed or failed polygraph test, accuracy rates in the region of 80 to 90 percent are sufficient to inform treatment and management without dominating it. A wrong result does not have the impact it

can have in an investigative setting. A failed test in the absence of disclosures or other concerns may indicate that further scrutiny is required, while a passed one may offer reassurance, but in neither case should a wrong outcome on its own lead to definitive, but mistaken, decisions.

Some have raised the question of potential false admissions made by offenders, for example to explain a failed examination when the offender has not been deceptive (that is, a false positive test) or to obscure the actual reason for a failed test that the offender does not want to disclose.^{17,35} Although there has been only limited research into false confessions, two surveys have reported similar results, with less than 10 percent of sex offenders claiming to have made a false admission at some point in their testing careers.^{36,37} The problem is real, but it does not seem to be a major one.

When considering the use of polygraphy in a forensic setting, the question of psychopathy is often raised, in particular whether through their skill at lying or because of their generally low levels of arousal psychopaths can ‘beat’ the polygraph. What evidence there is, however, indicates that psychopaths respond to polygraph testing in a similar manner to other individuals.^{38,39}

What about assessments for the civil or criminal courts? As in postconviction settings, the forensic psychiatrist should not rely on the polygraph to provide a definitive answer. Instead, apart from any disclosures, the test result should not be considered in isolation, but should be interpreted in the context of a range of other information that is known about the individual. In other words, the polygraph examination is just one of several sources of data that can be incorporated into the forensic psychiatrist's report, open to challenge like any other test or investigation.

For the forensic patient, polygraphy offers the opportunity to demonstrate that he is low risk, and it can encourage him to cooperate with treatment and management plans by making it explicit when he is not. It also allows intervention to prevent an increase in risk or relapse in symptoms. Although some may be worried that it will affect the therapeutic relationship with the patient, there is no evidence to suggest such an effect.¹⁵ After all, the aim is to encourage truth-telling rather than to catch the patient out in a lie.

Ethics

Notwithstanding any potential benefits associated with polygraph testing, there are several questions of ethics that should be addressed. Some relate to examiner performance, such as providing misinformation to examinees, for example by telling them that the technique is error free^{17,35} or asking questions in such a way as to obtain desired outcomes. These types of behavior, while reflecting poorly on the ethics of the examiner, say nothing about the ethics of the procedure overall and can be picked up by good quality-assurance mechanisms.

In its report on polygraphy,³⁵ the British Psychological Society (BPS) argued that postconviction testing may be perceived as coercive, making informed consent illusory. By virtue of their status as forensic patients, however, individuals are required to accept a range of measures that they might otherwise resist, including restrictions on where they live and limitations on employment; indeed, treatment itself may be perceived as coercive. Provided that polygraph testing is directly relevant to treatment or supervision, it is difficult to see how it is any different from other measures we require of patients. In a court setting, the individual is at liberty to refuse the test, just like any other investigation sought by the forensic psychiatrist; in such circumstances, as the BPS report quite rightly comments, it would be wrong to assume that this is because there is something to hide.

Finally, there is the tricky problem of what to do if a patient discloses information about past offenses that had been unknown, which may occur in the context of polygraph examinations designed to obtain a more accurate offending history. Programs have dealt with this in different ways, for example by asking only about general information such as victim and offense type, stopping short of the specifics that would allow victims to be identified and charges pursued (although exceptions are made when it appears that victims may still be at risk). In reality, however, the problem is no different from what happens when patients disclose this type of information in any treatment setting, whatever protocols are already in place can be similarly applied to polygraphy.

Conclusions

The use of polygraphy as a gimmick on daytime television and in a range of populist applications such as testing the fidelity of spouses should not obscure

its potential benefits in forensic settings. It is employed widely and with success in the United States and in a large number of other countries in criminal justice and national security settings. So long as it is not seen as the equivalent of Wonder Woman's magic lasso¹⁷ and is always included as part of a larger package of information, its application to forensic psychiatry should be welcomed. Indeed, given what we know about the efficacy of polygraph testing with sex offenders, one might argue that it is no longer a question of why we should use it in forensic psychiatry, but why we don't.

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