The Psychopath and the Lie Detector

DAVID T. LYKKEN
University of Minnesota

ABSTRACT

The article by Raskin and Hare (1978) asserts or very plainly implies that: 1) the control question lie test is extraordinarily accurate; 2) that this high accuracy can be achieved by objective scoring of the polygraph charts; 3) that the theory of this test is psychologically reasonable and was confirmed by the experiment reported; 4) that subjects give qualitatively different autonomic responses when lying than when they tell the truth; and 5) that the experiment described shows that psychopaths can no more "beat" the lie detector than non-psychopaths. All of these socially important claims or implications are critically examined and all of them are found to be untenable.

DESCRIPTORS: Lie detector, Detection of deception, Polygraph, Psychopathy.

The report by Raskin and Hare (1978) of their laboratory study of the "control-question" lie test with psychopathic and non-psychopathic prisoners is susceptible to serious misinterpretation. By referring to "field evaluations" leading to an accuracy of 96%, the impression is conveyed that this is a field study of lie test validity which supports the extravagant claims that polygraphers have habitually made about the lie detector (e.g., Arther, 1965; Marston, 1938; Reid & Inbau, 1966). By asserting that the examiner "had no knowledge of the guilt or innocence of each subject" (Raskin & Hare, 1978, p. 126), it is suggested that the results were achieved entirely through objective analysis of the polygraph charts uncontaminated by the clinical impressions of the examiner who interviewed and observed each subject at some length before scoring the tests which he administered. It is claimed that my earlier critical analysis of the theory of the lie detector (Lykken, 1974) is invalidated by my alleged misunderstanding of the nature of the test, and it is further claimed that the present data "provided substantial confirmation of predictions generated from the theory of control-question polygraph tests" (Raskin & Hare, 1978, p. 134). Raskin and Hare contend that their data show a qualitative difference, both in respiration and in heart rate, in the responses shown by truthful vs deceptive subjects to the critical questions themselves. This aspect of their paper re-awakens once-abandoned dreams of finding a "specific lie response" (see Lykken, 1974), and there seems little doubt that this aspect of their interpretation will soon be incorporated into the practice of professional polygraphy. Finally, and most centrally, they claim that the reported study is relevant to the question of whether psychopaths are more likely to be able to "beat" the lie detector test in real life situations of criminal investigation and they conclude that their results "appear to indicate that control question tests may be used effectively with psychopaths in the field situation" (Raskin & Hare, 1978, p. 134). It is my belief that all of these important implications, claims and conclusions are unsupported by the evidence at hand, and that citation of these implications and conclusions of the Raskin and Hare study in the trade journals of the polygraphy profession or in testimony in courts of law or before legislative bodies may have adverse and serious social consequences.

The Raskin and Hare Study Grossly Over-Estimates the Accuracy of the Lie Test in Field Applications

We have available three competent studies of lie test validity in actual criminal investigation. Bersh's (1969) examiners used "global" or clinical methods of determining whether their suspects were truthful or lying, employing whatever they knew or observed about the subject and the evidence against

Address requests for reprints to: David T. Lykken, Box 392 Mayo, University of Minnesota, Minneapolis, Minnesota 55455.

0048-5772/78/0300-0137$0.60/0
© 1978 The Society for Psychophysiological Research, Inc.
him in subjective combination with the actual polygraph data in arriving at their judgments. These judgments agreed with the criterion on 92% of one set of cases, on 75% of another set, and on 88% overall. Due to the method of scoring, it is impossible to say what portion of this accuracy derived from the polygraphic information and what portion could have been achieved solely on the basis of clinical judgment. Horvath's (1977) ten polygraphers read previously administered lie test charts independently of each other and “blind” with respect to any knowledge of the suspects or the evidence. In spite of high inter-judge agreement (89%), the average accuracy of these judgments was only 64% and showed a predictable strong bias against the truthful subject. With respect to suspects who subsequently confessed and therefore are known to have been lying on the test, 77% were correctly scored as deceptive. The suspects known to have been truthful, due to subsequent confession of another person, were correctly scored as truthful in only 51% of the cases, yielding a false-positive rate of 49/(49+77)=39%. Finally, Barland and Raskin (Note 1) administered control-question lie tests to 51 criminal suspects of whom 40 (78%) were later determined to be criterion-guilty. The chance rate of correct decisions in this study, achievable by calling all suspects “deceptive,” was thus 78%. Barland administered all tests and Raskin scored the polygraph charts blindly, classifying 45 or 88% of the tests as deceptive. Raskin in fact scored 98% of the criterion-guilty suspects as deceptive (excluding tests scored as inconclusive) but he did this at the expense of classifying 55% of the criterion-innocent suspects also as “deceptive.” If we assume that Raskin’s accuracy would have remained the same if this study had included equal numbers of guilty and innocent subjects (thus making it comparable with the Bersh and the Horvath studies with a chance expectancy of 50% “hits”), then Raskin’s false-positive rate would have been 36% (vs 39% for Horvath) and his overall accuracy would have been 71% (vs 64% for Horvath).

The Raskin and Hare study involved a mock crime situation in which volunteer subjects were offered the opportunity of winning $20 by appearing truthful on the polygraph test. The claimed accuracy of 96%, which is much higher than the rates typically reported in laboratory studies (e.g., Ellson, Davis, Saltzman, & Burke, Note 2; Gustafson & Orne, 1963, 1964, 1965; Kubis, 1973, 1974; Thackray & Orne, 1968a, 1968b), provides no basis whatever for estimating the validity of the lie test in real life situations where the evidence cited above indicates that the lie test per se (excluding clinical impressions) has an accuracy of from 64 to 71%.

**The Raskin and Hare Findings May Have Been Grossly Distorted by Clinical Impressions**

Although the examiner (Raskin) was not told in advance which subjects were “guilty” of the mock crime, he had extensive opportunity during the 2-3 hour interview and examination to observe the subject’s behavior and demeanor and to form a clinical impression of whether each subject was lying or truthful. Although Raskin contends that his method of scoring the charts is relatively objective, the only way to test this claim in the instant case would be to have the charts scored “blindly” by another person as was done by Horvath and by Barland and Raskin. Raskin and Hare did have the charts scored “blindly” channel by channel but do not report the accuracy or hit-rate that would be obtained by combining these blind scorings across channels.

Therefore, it is impossible to determine whether the accuracy of 96% claimed by Raskin is a valid exception to the generally lower validities achieved in laboratory studies or whether it was substantially inflated by extra-polygraphic cues. For example, during the course of an extended lie test involving several charts and discussion between examiner and subject between charts, there is considerable opportunity for the subject to infer, validly or not, whether he is “passing” or “failing” and to react to these inferences. If only a few of the 44 subjects made some revealing comment or gesture, then Raskin’s scoring, influenced by those comments or impressions, might be expected to have been considerably facilitated in comparison to what a “blind” scorer might achieve.

Although the impression is given that Raskin’s method of scoring is highly standardized and objective, there is reason to be dubious about this. Polygraph charts are extremely complex and idiosyncratic and there is considerable room for honest disagreement as to which of two responses is the larger, whether a given change is a “response” at all or merely a recovery from some earlier response, and so on. In testifying as an expert witness during a murder trial in 1976, Raskin (Note 3) claimed that deception was indicated in the electrodermal channel even though the skin resistance response to the critical question was manifestly smaller than that elicited by the adjacent controls. This was on a “card test” where the subject’s answer to the critical question, “Was it number 3?”, was known to be false. Raskin’s argument in that instance was that the subject gave a negligible response to No. 4 and a large response to No. 5 and that this pattern is indicative of a false answer to the question about No. 3. This example indicates the latitude that may be used in field interpretation of polygraphic rec-
ords when the examiner, encumbered by his clinical impressions and expectations, does the scoring.

The Raskin and Hare Study Provides Little Support for the Theory of the Lie Test in Real Life Applications

Raskin and Hare (1978) dismiss my earlier criticisms (Lykken, 1974) of the theory of the control question lie test because I had said the control questions were meant to be answered truthfully whereas, in the method used by Raskin and others, it is claimed that the control questions are devised in such a way that all subjects, whether innocent or guilty of the crime for which the test is given, will answer deceptively. When this same point was made earlier by Abrams (1975), I replied that this claim, "seems to me to illustrate very well the naiveté to be expected when a profession composed mainly of policemen undertakes to give one of the most subtle of psychological tests" (Lykken, 1975, p. 711). In a real life test administered to a defendant accused of homicide, Raskin (Note 3) used the following control questions: 1) "During the first 18 years of your life, did you ever hurt someone?"; 2) "Before 1974, did you ever try to seriously hurt someone?"; and 3) "Before age 19, did you ever lie to get out of trouble?" All three were answered in the negative by the defendant. In my judgment, most people have at some time lied to get out of trouble and have tried to hurt someone but not to hurt them "seriously." Therefore, I might hazard a guess that this defendant's answers to Questions 1 and 3 were deceptive and that his "No" to Question 2 was truthful. But it is surely obvious that neither I nor Raskin really "knows" which, if any, of these answers were actually lies. It is quite possible, in the context, that this defendant interpreted "hurt" to mean something serious like homicide by stabbing and "trouble" to mean something comparable to being charged with murder and, therefore, that he believed all his answers to these "control" questions to be essentially truthful. If lie detector operators are going to base the theory of their test on the claim that the replies to the control questions are "known lies," then I would argue that their theory is incredible on its face and hardly warrants serious consideration. One can reasonably assume that such control questions might "... elicit an emotional reaction from the subject" (Lykken, 1974), or that subjects might be "... very concerned about them" (Podlesny & Raskin, 1977). Even then, however, it seems naive to suppose, e.g., that Raskin's murder suspect would be more "concerned" about Question 2 above than he would be about the associated critical question, "Did you stab _____ on January 23, 1976?" (Raskin, Note 3), even if he was innocent of the murder.

A unique feature of the mock crime experiment reported by Raskin and Hare is that one might have expected many of these prison inmate subjects actually to have been more concerned about the control questions than they were about the questions referring to the $20 involved in the mock crime. These control questions (e.g., "Did you ever steal anything else from someone who trusted you?" or "Have you ever taken anything of value from an employer?") might sound to an incarcerated felon like invitations to confession. Prison inmates are notoriously suspicious and eager to present a favorable image to the authorities who will decide the speediness of their paroles. Whereas, in real life criminal investigation, the lie test discriminates against the truthful subject because he will tend not to be as "concerned" about the controls as he is about the critical questions, in the Raskin and Hare study this bias might have been adventitiously overcome. But Raskin and Hare (1978) use the results from this certainly atypical laboratory experiment to refute my earlier analysis which had suggested that lie tests administered in real life situations should be biased against the truthful subject if the tests are scored "blindly" rather than clinically or "globally." As we have seen, this inference from my analysis has been subsequently confirmed in two field studies with blind scoring. Horvath (1977) found 49% of his innocent subjects were classified as "deceptive" and Barland and Raskin (Note 1) found that 55% of their innocent subjects similarly were scored as "deceptive." Neither of these directly relevant studies is cited by Raskin and Hare while much is made of a unique set of laboratory findings that are not relevant at all. This is what a lawyer would call special pleading. The conclusion that my critical analysis of lie detector theory has been refuted and that on the contrary, the "results provided substantial confirmation of predictions generated from the theory of control-question polygraph tests" (Raskin & Hare, 1978, p. 134) is misleading.

Raskin and Hare Have Not Demonstrated the Existence of Qualitatively Specific Responses Indicative Either of Truthfulness or of Deception

Raskin and Hare claim that "... 'guilty' subjects showed a larger rise in abdominal respiration baseline in response to relevant as compared to control questions, whereas the 'innocent' subjects showed a greater reaction to the control questions" (p. 132). They claim further that, after an initial acceleration following the critical questions, "... the HR of 'innocent' subjects then returned to prestimulus
level whereas the ‘guilty’ subjects showed a mean deceleration of 3.7 bpm" (p. 133). Both findings will undoubtedly be cited by polygraphers wishing to justify their interpretations of specific lie test reactions or to claim that deceptive and truthful subjects produce qualitatively different patterns of response on the lie detector. It should therefore be recorded first that the statistical basis for these claims is somewhat questionable. The finding with respect to respiration involves a three-way interaction yielding an $F$ of 3.49 which is found to be statistically significant using 4/128 degrees of freedom. Since one wishes to generalize from the subjects tested to the population at large, conservative practice would avoid using more degrees of freedom (e.g., 128) than the N (=44) of the sample studied. A total of five respiration measures were obtained in this study; the fact that this third-order interaction was obtained for only one of them should perhaps mitigate one’s confidence that this finding could be replicated. The heart rate findings were based only on a sub-sample of 19 subjects yielding a similar three-way interaction which this time is interpreted with 19/570 degrees of freedom. Thus, one is entitled to withhold judgment as to whether any probably-replicable “findings” have been obtained here at all. However, even if Dr. Raskin’s next experiment should produce identical results, we should not be able to reach any conclusions useful in the interpretation of actual lie detector tests. If all subjects who show the pattern of respiratory or HR response alleged to be qualitatively characteristic of deception are classified as liars and the rest as truthful, what level of accuracy would have been achieved?—we are not given this essential information. How often did these two specific indicators disagree with one another?—again we are not told. We are dealing here with a psychometric issue where merely significant differences (if they are significant) are of negligible interest. There are any number of test items to which schizophrenics tend to make qualitatively different responses (e.g., “True” rather than “False”) than do normals. Yet no specific indicator of this sort has yet been found that is of practical utility for identifying schizophrenics. Raskin and Hare seem to be claiming that the lie test is already more than 95% accurate, at least in Raskin’s hands, and that these new ‘discoveries’ promise an improvement even upon that. These promises are illusory.

**Raskin and Hare Have Not Shown that Psychopaths Are Unable to Beat the Lie Detector**

It should be mentioned first that the specific lie test method advocated by Raskin and his colleagues ought to be relatively easy even for non-psychopaths to “beat.” While it is assuredly difficult for most people to inhibit autonomic reactions to threatening stimuli, there are any number of ways in which one can covertly augment one’s autonomic reaction, e.g., to a control question. By clenching one’s toes, tensing the abdominal muscles, biting one’s tongue, or by secreting a tack in one’s sock and pressing on it at the appropriate time, polygraphic perturbations can be easily produced. Any literate person could be taught to identify the three control questions in Raskin’s standard question list and to use some such technique to enhance his response to just these questions. If the augmented control responses are about equal to the responses that these (guilty) subjects give to the critical questions, Raskin must score them as inconclusive; if the control responses are systematically larger, these tests must be scored as truthful. It should be emphasized that no such experiment has as yet been reported. Before allowing the lie test to play an increasingly important role in the criminal justice system, however, so that criminals and their advisors would find it expedient to make a study of the topic, it would seem prudent for this possibility to be carefully explored.

There is no reason to suppose that any of Raskin and Hare’s subjects were trying to “beat” the lie test by any such sophisticated means. Instead, the psychopaths and non-psychopaths assigned to the “guilty” condition were presumably merely attempting to lie about the $20 while remaining “poker-faced,” cool and relaxed. The reason why it had been previously speculated that psychopaths might be relatively adept at “beating” the lie detector has to do with the fact that psychopaths are habitual or practiced liars and seem to feel relatively little guilt or fear about these actions or their consequences. In a real life context of criminal investigation, as we have seen, a normal subject will usually tend to be frightened and apprehensive in response to the critical or “Did you do it?” questions, perhaps especially so if he is guilty and his answer is deceptive. Thus, guilty or innocent, the normal subject is likely to “fail” the control question lie test, as the evidence confirms. Because he is less disposed toward anxious apprehension, the psychopath might be expected to respond relatively less to the critical questions whether he is innocent or guilty of the real criminal act of which he is suspected. His responses to the “control” questions, too, ought to be relatively attenuated, however, so that the most plausible expectation might be that the psychopath would produce relatively more “inconclusive” outcomes and fewer “deceptive” verdicts than would a normal subject. (If trained to artificially augment his “control” responses, of course, the psychopath should be especially successful in “beating” the lie test.)
any case, the only reason for expecting the psychopath to be better able to avoid failing the lie test, even though deceptive, is that he might be expected to be less frightened or guilty in response to the critical questions than will be the normal subject.

But the mock crime experiment reported by Raskin and Hare would not seem to have had anything to do with genuine fear or guilt. If I had been one of their "guilty" subjects (hopefully assigned to the non-psychopathic group), I cannot imagine that I would have found the experience frightening or guilt-provoking in any way. On the contrary, I should think it would have seemed like an interesting game in which I stood a chance of winning a $20 prize plus the admiration of my colleagues if I were able to beat the lie test. The critical questions would have been expected to produce orienting responses strong in proportion to the strength of my interest in the game and in the $20. Moreover, I know of no theory of psychopathy which would suggest that the psychopathic subjects in this experiment should have reacted any differently! What is different about the psychopath is his attenuated capacity for fearful or guilty apprehension; no psychopath of my acquaintance is deficient in his interest in games, in opportunities to 'show off' or in winning money prizes. As the poet has so wisely observed, "When the felon's not engaged in his employment or maturing his felonious little plans, his capacity for innocent enjoyment is just as great as any honest man's."

In another place (Lykken, 1976) I have described a recent case in which a psychopathic prisoner falsely accused a guard of accepting a bribe to smuggle a weapon into the jail. We know now that the prisoner's motive was to have himself transferred to a less secure facility from which he subsequently escaped. Before this matter was conclusively investigated by conventional police methods, both accusor and accused were given standard control-question lie detector tests. The prisoner "passed" and the guard "failed." The guard later described to me his anxiety during the test, how his heart pounded and the sweat dripped, because he knew that his job, his reputation, perhaps even his own freedom might depend upon the outcome. The prisoner, a professional bank robber, had reason for "concern" also since his escape plans hung in the balance, not to mention the possibility of an extension to his sentence. Here is the kind of real life situation in which the psychopath's relative lack of fearful apprehension may give him an advantage in coping with the lie detector. The game-like situation in which Raskin and Hare's subjects participated was not like this at all. As we have seen, there was perhaps more reason for their subjects to be "concerned" about the control questions than would normally be the case, therefore a greater likelihood that the non-psychopaths would be classified as truthful. But the responses of all subjects, "guilty" or "innocent," psychopathic or not, to the critical questions about the $20, should not have been associated with the kind of fear or apprehension that the lie test elicits in real life. The critical responses should rather have been interpreted as orienting responses which the psychopath shows like anyone else in a situation which captures his interest. Schmauk (1970) showed that psychopaths are as interested as non-psychopathic prisoners in retaining money prizes and will take care not to lose them in an avoidance learning task. However, when the event to be avoided is a painful shock, which the normal subject fears and does avoid, the psychopath shows relatively little "concern" and correspondingly little avoidance (Lykken, 1957; Schachter & Laténé, 1964; Schmauk, 1970).

If Peter Psychopath and Paul Normal both make a $20 poker bet on a "bluff"—hoping to deceive their opponents into thinking that they hold strong cards—then they should both show autonomic responses indicative of their similar interest in and enjoyment of the proceedings. If the bet instead involves the family homestead or some other possibility of serious harm, then Paul Normal should be worried and show autonomic reactions indicative of real emotional arousal which ought to differentiate him from Peter. Raskin and Hare, finding no difference between Peter and Paul in the first type of situation, wish to generalize this finding to the second, to the important real life situation where the stakes are high.

Summary and Conclusions

The lie detector, in any of its variations, shows only modest validity in real life applications, 64 to 71% accuracy against 50% chance expectancy, together with a disturbing bias against the truthful subject, 49 to 55% of whom are incorrectly classified as "deceptive." Raskin's remarkably high accuracy in the mock crime experiment described by Raskin and Hare was not confirmed by "blind" analysis of the polygraph charts and therefore might have been inflated by the examiner's prior knowledge of the subjects' "guilt" or "innocence," obtained from behavioral cues observed during the testing, which may have influenced the scoring of the charts. The theory of the control-question lie test becomes less, rather than more, credible when modified to include the claim that answers to the control questions are "known lies." Neither Raskin and Hare nor anyone else has provided evidence that most individuals show qualitatively different autonomic responses when lying than when telling the truth under the stress of real life polygraphic
interrogation. There is no reason to have expected psychopaths to perform differently from normals on the game-like laboratory task used by Raskin and Hare. There is a theoretical basis for supposing that psychopaths might be more likely to deceive without detection in lie tests administered under real life conditions, especially if trained to artificially augment their responses to the control questions. This question has not yet been investigated empirically, certainly not by Raskin and Hare.

Referring to the Raskin and Hare experiment, Dr. Raskin has already stated publicly, “Even psychopathic criminals who have no ingrained sense of guilt cannot beat a properly administered lie detector test. Our tests show that the accuracy rate of lie detectors on hardened criminals behind bars is 95.5 percent” (Raskin, Note 4). These claims, which have important social implications, appear to be inaccurate and misleading.

REFERENCES


Thackray, R. I., & Orne, M. T. Effects of the type of stimulus employed and the level of subject awareness on the detection of deception. *Journal of Applied Psychology*, 1968, 52, 234–239. (b)

REFERENCE NOTES


(Manuscript received November 16, 1977; accepted for publication November 22, 1977)
This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.