

JOURNAL OF
Personality
AND
Social Psychology

Volume 37

May 1979

Number 5

The Popularity of Conspiracy Theories of Presidential
Assassination: A Bayesian Analysis

Clark McCauley and Susan Jacques
Bryn Mawr College

Journalist Tom Bethell has advanced the hypothesis that conspiracy explanations of Presidential assassination are popular because people have an irrational need to explain big and important events with proportionately big and important causes. This is a species of consistency hypothesis and clearly predicts that a shot that kills the President is more likely than a miss to be attributed to a conspiracy. Four studies are reported that support this prediction. Three of the four studies provided a check on whether conspiracy was overly favored, in the case of successful assassination, by comparison with the normative Bayesian formulation. No evidence of this kind of departure from rationality was found. It appears that people associate conspiracy with successful assassination, not because of any kind of special need for proportionality of cause and effect, but because of a belief that conspiracies are more effective and successful than lone assassins.

John F. Kennedy was shot dead in Dallas in 1963, and the Warren Commission reported in 1964 that the assassination was the work of a lone assassin, Lee Harvey Oswald. In 1979, the issue is evidently not yet settled. The House Select Committee on Assassinations has concluded its work, still uncertain about a fourth shot. Polls indicate that the majority of Americans, around 80% in fact, believe that others besides Oswald were involved in the assassination (Gallup, 1976). Books and articles theorizing about the assassination are still appearing regularly. Recent examples of the genre include *They've*

Killed the President by Robert Sam Anson (1975), *Coincidence or Conspiracy?* by Bernard Fensterwald (1977) and the Committee to Investigate Assassinations, and *Legend: The Secret World of Lee Harvey Oswald* by Edward Jay Epstein (1978). Clearly, Americans are not satisfied with the conclusion of the Warren Commission.

Whatever the merits or defects of the Warren Commission report, the continuing popularity of conspiracy theories is itself a remarkable fact. Most events, no matter how traumatic, do not last in the public awareness as the Kennedy assassination has. Most events, no matter how great, quickly drop from headlines to history. Accidents, scandals, great men, and even wars are left behind, forgotten or at least much faded. But

Requests for reprints should be sent to Clark McCauley, Department of Psychology, Bryn Mawr College, Bryn Mawr, Pennsylvania 19010.

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new books about John F. Kennedy's assassination are selling 15 years after the event, selling in supermarkets and in drug stores against competition from pop psychology and sex books. It is the premise of this article that the continued popularity of conspiracy theories of the Kennedy assassination is a surprising social fact that is worthy of investigation.

The studies reported here are aimed at testing one hypothesis about the popularity of conspiracy theories, namely, that people irrationally seek big causes to explain big effects. According to this hypothesis, advanced by journalist Tom Bethell in *The Washington Monthly* (1975), a lone assassin is too small and insignificant a cause to provide a satisfactory explanation for such large effects on policy and people as follow a President's death.

We are expected to believe, according to the official explanation, that the Johnson Administration and all that it entailed, possibly including the debacle of Vietnam, was set in motion by one man who had quarreled with his wife; who had, as it were, gotten out of bed on the wrong side that morning, and found a gun lying there.

The cause doesn't fit the effect. But the fact is, when great power is vested in one man, as in the President of the United States, it is always possible that a small cause (a microbe in his blood, for example, leading to a fatal disease, leading to a new President, leading to a "Vietnam") can trigger a large effect.

In such cases many people will seek a new cause that is commensurate with the effect—seek, in other words, large and global explanations that thereby imbue the event with appropriate meaning. In the case of the Kennedy assassination, of course, this means looking for a conspiracy—preferably a large one. (Bethell, 1975, p. 39)

Bethell's hypothesis is recognizable as a species of consistency hypothesis, of which dissonance theory is the most prominent previous example (Brown, 1965, chapter 11). A need for consistency of cause and effect clearly implies that the need for a big cause should be greater, the greater the effect to be explained. Thus the Bethell hypothesis predicts that the perceived probability of a conspiracy should be much higher when the President is shot at and killed than when he is shot at but missed. Study 1 was designed to test this prediction.

Study 1

Method

Subjects. Subjects were 20 undergraduate students of Bryn Mawr and Haverford Colleges, 10 female and 10 male.

Questionnaire. The questionnaire consisted of two pages. On the top of each page was the following introduction: "News reports of violent events and their causes are sometimes surprising and sometimes not. This study aims to measure your personal feeling about the likelihood of several stories of several events." Below the introduction was typed a headline in capital letters: "A MAN SHOOTS AT THE PRESIDENT AND MISSES" OR "A MAN SHOOTS AT THE PRESIDENT AND KILLS HIM." On each page, after the headline, the same two questions appeared: "What is the probability that this man is acting alone and unaided?" and "What is the probability that this man is acting as a member of a group organized to kill the president?"

Procedure. The order of the two pages was reversed for half the subjects. Two female experimenters each obtained 10 completed questionnaires.

Results

In this and succeeding studies, it is the relative probabilities associated with group and individual explanations of assassination that are of interest. These relative probabilities are naturally expressed as ratios, and we report our data in the form of median ratios. Mean ratios do not properly represent the central tendency of distributions of these ratios, since a few ratios in every distribution are likely to be very extreme values. When most subjects are giving ratios such as 2:1, 5:1, or 1:4, one subject giving a ratio of 100:1 can make the mean ratio totally unrepresentative. Thus, means and parametric statistics are inappropriate with our data, and we use medians and nonparametric statistics instead.

The data of Study 1 did not appear to depend on the order of the pages of the questionnaire or on the experimenter, so the data of all 20 subjects were pooled for analysis.

The first column of Table 1 shows that the median odds for conspiracy were 1:1 when the President had been killed, but were 1:2 when the President had been missed. That is, the likelihood of conspiracy relative to the likelihood of a lone assassin was typically seen as greater when the assassination was

successful. We can use a sign test to test the significance of this tendency. Of the 20 subjects in Study 1, 13 subjects gave odds of conspiracy higher when the President was killed than when he was missed. Six subjects indicated no difference in these odds, and one subject reported the reverse difference in odds. These data indicate ($p < .05$ by one-tailed sign test for correlated samples) that a successful assassination is more likely than a failure to be attributed to a conspiracy.

Discussion

Study 1 supported the prediction that information about success or failure of an assassination attempt makes a big difference in the popularity of a conspiracy explanation. This prediction came from the general hypothesis that people need a big cause to explain a big effect. A special need for consistency in the size of cause and effect is not, however, directly demonstrated by the data of Study 1. For instance, it might well be that the effect of information about success comes rationally from a judgment that groups are more effective and likely to succeed than individuals. In order to demonstrate the hypothetical consistency need, it must be shown that people systematically exaggerate the probability of a conspiracy beyond what the news of a successful assassination rationally calls for. Clearly, this demonstration requires a formulation of the rational impact of information, and Bayes' rule provides just this normative formulation.

In probability form, Bayes' rule requires that

$$\begin{aligned} & p(\text{conspiracy/President killed}) \\ &= p(\text{conspiracy}) \\ & \quad \frac{p(\text{President killed/conspiracy})}{p(\text{President killed})}. \end{aligned}$$

Note that this formulation calls for revision in the prior probability of a conspiracy to the extent that the ratio reflecting the efficacy of a conspiracy— $p(\text{President dead/conspiracy})/p(\text{President dead})$ —is greater than 1.0. More useful for present purposes is Bayes' rule

in odds form:

$$\begin{aligned} & \frac{p(\text{conspiracy/President killed})}{p(\text{individual/President killed})} \\ &= \frac{p(\text{conspiracy})}{p(\text{individual})} \\ & \quad \frac{p(\text{President killed/conspiracy})}{p(\text{President killed/individual})}. \quad (1) \end{aligned}$$

This form indicates that the odds favoring a conspiracy over an individual assassin, given that the President is killed, need to be revised and increased over the prior odds favoring a conspiracy to the extent that a conspiracy is seen as more likely than an individual to succeed in killing the President. If the posterior odds are found to be systematically higher than called for by the prior odds and the efficacy ratio, then the hypothesis of a consistency need to explain the departure from rational prescription would be strongly supported.

Studies 2 and 3

Method

Subjects. The subjects of Study 2 were six males and six females recruited individually by a female experimenter in the environs of the Bryn Mawr train station. The 12 subjects ranged in (estimated) age from early 20s to late 50s. Subjects of Study 3 were 15 males and 9 females recruited by a different female experimenter in a restaurant and bar near Bryn Mawr College. These subjects appeared to be in their 20s and 30s and were generally approached as same-sex groups (though subjects filled out the questionnaire without discussion with their friends).

Questionnaire. The questionnaire for Studies 2 and 3 was composed of four pages, two of which asked questions much like the two questions used in Study 1. At the top of these two pages was the instruction: "Imagine the following news headline": There followed, on one page, "MAN SHOOTS, KILLS PRESIDENT," and on the other page, "MAN SHOOTS AT PRESIDENT, MISSES." On both pages the succeeding question was the same: "Which is more likely? (A) The man is acting alone and unaided or (B) the man is acting as a member of an organized group." The question continued with a quantification: "If you checked A, how much more likely is A? (Twice as likely as B? Three times as likely? Five times? Ten times?)." The parallel alternative was also given: "If you checked B . . ." etc.

The prior odds favoring conspiracy were assessed on a third page: "The next person to try to kill the President will likely be . . . (check one)." There fol-

lowed the same A versus B choice and the same quantification of that choice as just described for the first two pages.

The likelihood ratio reflecting the relative efficacy of a conspiracy was assessed on a fourth page, as follows: "Suppose that a man acting alone and unaided is trying to kill the President. Suppose also that a man acting as a member of an organized group or conspiracy is trying to kill the President. Which is more likely to succeed in killing the President?" There followed the same A versus B choice and quantification of that choice as already described.

Procedure. In Study 2, the prior-odds question was always on the last page, and the 6 possible orders of the other three pages appeared twice each to form the 12 questionnaires. In Study 3, all 24 possible orders of the four pages appeared once to make up the 24 questionnaires.

Results

Columns 2 and 3 in Table 1 show that, as in Study 1, the conspiracy explanation was typically more popular when the President was killed than when he was missed (median odds of 2:1 vs. 1:3 for Study 2, and median odds of 2.5:1 vs. 1:3 for Study 3). This result is confirmed ($p < .05$ by one-tailed sign test for correlated samples) by noting that 7 subjects in Study 2 judged conspiracy odds higher when the President was killed than when he was missed, whereas only 1 judged the reverse. For Study 3, the corresponding numbers were 13 and 2, respectively (also $p < .05$ by sign test).

The two additional questions and the odds format of all the questions permit assessment of the degree to which subjects exaggerate the chance of conspiracy. For each subject, the posterior odds of conspiracy given that the President was killed were compared with the product of the prior odds for conspiracy and the efficacy ratio. In Study 2, 5 subjects gave posterior odds of conspiracy higher than required by Bayes' rule, and 6 subjects gave posterior odds too low. In Study 3, 8 subjects gave posterior odds too high, and 13 gave posterior odds too low. Clearly, there is no evidence here of systematic departure from rationality; conspiracy is not overly favored when the President is killed.

Earlier we supposed that higher odds for conspiracy, given successful assassination, might be rational if people believe that groups are more effective than lone assassins. That

supposition received some support in Studies 2 and 3, since the median efficacy ratios (third row in Table 1) of 2.5:1 and 2:1 indicate that groups are typically seen as more likely than individuals to succeed in an attempt to kill the President. In Study 2, 9 subjects thought groups were more likely to succeed, 2 subjects thought individuals were more likely to succeed, and 1 subject thought there was no difference ($p < .05$, one-tailed binomial test). In Study 3, 14 subjects thought groups were more effective, and 10 subjects thought the reverse ($p < .27$, one-tailed binomial test, *ns*). Thus, Study 2, but not Study 3, shows significantly more than half the subjects judging groups as more likely than individuals to succeed in an attempt to kill the President.

Study 4

It appears that Studies 2 and 3 have shown that the odds for conspiracy are not exaggerated, compared to the perception of the prior odds of conspiracy and the diagnosticity of the news that the President has been killed. Before accepting this conclusion, however, there is a flaw to be considered in the questionnaire used in Studies 2 and 3. That is, the aim was to ask about prior and posterior odds of conspiracy that differ only in giving the information that the President was killed in the posterior assessment. Unfortunately, the difference between our prior ("The next person to try to kill the President . . .") and our posterior ("Man shoots, kills President") question is two pieces of information: that the attempt got as far as getting a shot off and that the shot was successful. Our efficacy ratio, on the other hand, assessed only the information value of success and not the information value of getting a shot off. In order to be sure that this confounding is not important to our results, we revised the questionnaire and used it in a new study.

Method

Subjects. Subjects were 15 males and 9 females recruited at a shopping center near Bryn Mawr College by the same female experimenter who ran Study 3. The subjects ranged in (estimated) age from early 20s to late 50s.

Table 1

Median Probability Ratio Associated With Conspiracy (Group) Versus Lone Assassin (Individual) Explanations of Presidential Assassination

Probability	Study 1 (n = 20)	Study 2 (n = 12)	Study 3 (n = 24)	Study 4 (n = 24)
$\frac{p(\text{group/President killed})^a}{p(\text{individual/President killed})}$	1:1	2:1	2.5:1	2:1
$\frac{p(\text{group/President missed})^a}{p(\text{individual/President missed})}$	1:2	1:3	1:3	1:2
$\frac{p(\text{President killed/group try})^b}{p(\text{President killed/individual try})}$		2.5:1	2:1	3:1
$\frac{p(\text{group try})}{p(\text{individual try})}$		1:2	2:1	1:1

^a In each of the four studies, a conspiracy was judged more likely when the President was killed than when the President was missed ($p < .05$ by one-tailed sign test for correlated samples).

^b In Studies 2 and 4, but not in Study 3, more than half the subjects judged a group more likely to succeed than an individual ($p < .05$ by one-tailed binomial test).

Questionnaire. The questionnaire was identical to that used in Studies 2 and 3 except for the wording of the prior-odds question and the relative efficacy question. Whereas the previous questionnaire asked about "The next person to try to kill the President . . .," the revision asked, "The next person to shoot at the President will likely be. . . ." And whereas the previous form asked about the success expected of an individual or group "trying to kill the President," the revision went as follows: "Suppose that a man acting alone and unaided gets a shot at the President. Suppose also that a man acting as a member of an organized group gets a shot at the President. Which is more likely to succeed in shooting and killing the President?"

Procedure. The procedure was the same as in Studies 2 and 3.

Results

Column 4 of Table 1 shows that, as in Studies 1-3, the conspiracy explanation was more favored when the President was killed than when he was missed (median odds of 2:1 vs. 1:2). This result is confirmed by noting that 13 subjects judged conspiracy more likely when the President was killed than when he was missed, whereas only 4 subjects judged the reverse ($p < .05$ by one-tailed sign test for correlated samples).

As in Studies 2 and 3, an analysis at the level of the individual compared the posterior odds of conspiracy with the product of the prior odds for conspiracy and the likelihood ratio giving the relative efficacy of conspiracy. Nine subjects gave posterior odds of con-

spiracy higher than required by Bayes' rule, and 15 subjects gave posterior odds too low. In short, the results of Study 4 are like those obtained with the flawed questionnaire in Studies 2 and 3. Studies 2-4 are consistent in finding no systematic exaggeration, compared to the Bayesian prescription, of the probability of a conspiracy when the President is killed.

Likewise, the tendency to see groups as more effective than individuals is confirmed in Study 4. The efficacy ratios judged by subjects in Study 4 were for the case of an assassin who had gotten as far as a shot at the President: the relative probability of killing the President for a member of an organized group versus an individual acting alone and unaided. The median efficacy ratio (third row in Table 1) of 3:1 indicates that group members are typically seen as better shots. In Study 4, 19 subjects thought group members were more effective, and 5 subjects thought the reverse ($p < .05$, one-tailed binomial test). Thus, Study 4 shows significantly more than half the subjects judging groups as more likely than individuals to succeed in killing the President, once having gotten off a shot.

"Pure" Data From Studies 1-4

The within-subjects design of the present studies, where each subject answered two

(Study 1) or four (Studies 2–4) questions, raises the possibility of sensitization effects. Perhaps subjects answer a question differently because of biases or hypotheses engendered by having already answered previous questions. In order to be sure that our results do not suffer from sensitization problems, we brought together “pure” data corresponding to the first three rows of Table 1, that is, for the ratios about which we have made claims by statistical test. The “pure” data are from only the first pages of questionnaires, that is, are responses to questions by subjects who had not previously answered other questions. These data cannot therefore be prejudiced by any kind of sensitization effect.

Putting together “pure” data from Studies 1–4, we had 26 judgments of the odds for conspiracy given success (first row in Table 1) and 26 judgments of the odds for conspiracy given failure (second row in Table 1). The median odds for conspiracy when the President was killed were 2:1; they were 1:2 when the President was missed. These two “pure” medians are numerically quite close to the medians for all data in rows 1 and 2 (respectively) of Table 1, indicating that sensitization effects were not a problem for these data. Further, these two “pure” medians are significantly different ($p < .05$ by one-tailed median test) and clearly indicate that in a cross-groups design, we still find that the odds for conspiracy are higher when assassination is successful than when it fails.

Similarly, we put together data from Studies 2–4 to get a total of 15 “pure” judgments of the efficacy ratio (row 3 in Table 1). The median of these 15 efficacy ratios was 2:1, which is numerically close to the medians for all data in row 3 of Table 1. Unfortunately, it is not true that significantly more than half our 15 “pure” subjects saw groups as more effective than individuals (in fact, only 8 of 15 did). Still, we believe that with only 15 judgments, the failure to obtain statistical support cannot be too surprising and that the numerical value of the “pure” median offers some indication that the efficacy ratio data do not suffer from serious sensitization problems.

General Discussion

We began with Tom Bethell’s (1975) hypothesis that conspiracy theories of Presidential assassination are popular because of an irrational need for big causes to explain big events. From this hypothesis we predicted that the success or failure of an assassination attempt should make a big difference in the perceived likelihood of conspiracy. Studies 1–4 confirmed this prediction: People are much more likely to entertain a conspiracy explanation when the President is shot and killed than when he is shot at and missed.

This effect is all the more striking given that our manipulation of the information of success and failure was only a few words in an imaginary newspaper headline. We provided none of the richness of detail and description that one might suppose necessary for compounding a conspiracy theory. The cold and abstract nature of our manipulation was intentional, since Bethell’s consistency hypothesis depends only on an abstract proportionality of cause and effect, and since we wanted to avoid the possibility of introducing some general cognitive bias in our description. It is clear from our results that the greater popularity of conspiracy explanations when the President is dead is an effect that does not depend on the specifics of a particular assassination story.

Studies 2–4 were aimed at discovering whether the effect of success versus failure is irrational, that is, whether the posterior odds for conspiracy are exaggerated compared to the prior odds for conspiracy and the diagnosticity of the information that the President has been killed. No evidence of such exaggeration was found.

Here it should be noted that the difference between the odds for success when the President is killed and the odds for success when the President is missed—the difference suggested by Bethell’s hypothesis and found by us in each of the four studies reported here—might still be irrational in a fashion not tested for in our studies. That is, it might be that the posterior odds for conspiracy are systematically underestimated compared to the prior odds for conspiracy and the diag-

nosticity of the information that the President has been missed.

What we know from all four studies is that

$$\frac{p(\text{group/President killed})}{p(\text{individual/President killed})} > \frac{p(\text{group/President missed})}{p(\text{individual/President missed})} \quad (2)$$

Bethell's consistency hypothesis suggests that people have an irrational need to see big causes for big effects, which implies an inequality in place of the normative Bayesian equality:

$$\frac{p(\text{group/President killed})}{p(\text{individual/President killed})} > \frac{p(\text{group try})}{p(\text{individual try})} \cdot \frac{p(\text{President killed/group try})}{p(\text{President killed/individual try})} \quad (3)$$

We tested for this systematic exaggeration and found no evidence of it, that is, no evidence that the left side of Equation 2 is typically too large. But it might yet be true that Equation 2 is irrational to the extent that the right side of it is too small:

$$\frac{p(\text{group/President missed})}{p(\text{individual/President missed})} < \frac{p(\text{group try})}{p(\text{individual try})} \cdot \frac{p(\text{President missed/group try})}{p(\text{President missed/individual try})} \quad (4)$$

This amounts to the hypothesis that people have an irrational need to see small causes for small effects. Although Equation 4 is also a species of consistency hypothesis, it is different from and less intuitive than Bethell's hypothesis. We did not test for Equation 4, which requires an odds judgment—

$$\frac{p(\text{President missed/group try})}{p(\text{President missed/individual try})}$$

—that we did not ask of our subjects.

Thus, people do associate successful assassination with conspiracy, but not because of an irrational need to find big causes for big effects. Rather, our data indicate that

people believe conspiracies are more efficient and effective than lone assassins. Whether conspiracies are in fact more dangerous than lone assassins is unknown, save perhaps to the Federal Bureau of Investigation, but the belief in group efficiency does make sense of the substantial probabilities people attach to conspiracy explanations of Presidential assassination.

The association of successful assassination with conspiracy and the belief in group efficacy make sense in another way. They are an interesting example of support for Kelley's (1967, 1972) analysis of variance model of subjective causality. According to this model, "the more extreme the effect to be attributed, the more likely the attributor is to assume that it entails multiple necessary causes" (Kelley, 1972, p. 6). With the relatively easy assumption that the members of a conspiracy are thought of as multiple necessary causes, it follows from Kelley's model that a conspiracy is seen as more likely when the President is dead—an extreme effect—than when he has been missed.

At this point we must recognize that we have not entirely answered the question with which we began. We set out to understand the popularity of conspiracy explanations of the John F. Kennedy assassination. In one sense we have done that, since the belief that conspiracies are more effective than lone assassinations makes understandable the substantial likelihood of conspiracy that people perceive when the President is killed. But the level of public interest in conspiracy explanations of the Kennedy assassination, as distinct from the level of confidence in these explanations, is yet to be understood. The strength and duration of public interest in conspiracy explanations suggests a strong motive at work, but the Bayesian analysis—a static, cognitive analysis—cannot by itself reveal the motive we seek. If the Bayesian analysis had given us evidence of systematic exaggeration in the probability of conspiracy, we would have inferred the kind of consistency motivation we hypothesized at the beginning of this research. In the absence of this kind of exaggeration, however, we must look elsewhere for the motivation that makes the con-

spiracy explanation of the Kennedy assassination so interesting.

One interesting possibility is that Americans are experiencing a gigantic Zeigarnik effect. Zeigarnik (1927) found that interrupted tasks are remembered better than tasks that are completed. Although this effect dissipated within a day or two for the laboratory tasks Zeigarnik used, stronger effects of the same kind may occur with more involving tasks. It seems likely, for instance, that the same lack of closure Zeigarnik was studying can make a fisherman dwell on the one fish that got away long after he has forgotten the many he boated. Perhaps as long as the official explanation conflicts with a common belief linking successful assassination with conspiracy, Americans will see the John F. Kennedy assassination as the kind of unresolved problem that continues in memory and attention.

References

- Anson, R. S. *They've killed the president!* New York: Bantam Books, 1975.
- Bethell, Tom. The quote circuit. *Washington Monthly*, December 1975, pp. 34-39.
- Brown, R. *Social psychology*. New York: Free Press, 1965.
- Epstein, E. J. *Legend: The secret world of Lee Harvey Oswald*. New York: McGraw-Hill, 1978.
- Fensterwald, B. *Coincidence or conspiracy?* New York: Zebra Books, 1977.
- Gallup, G. 80% see a conspiracy in JFK assassination. In *The Baltimore Sun*, Monday, December 27, 1976, p. 11.
- Kelley, H. H. Attribution theory in social psychology. In David Levine (Ed.), *Nebraska Symposium on Motivation* (Vol. 15). Lincoln: University of Nebraska Press, 1967.
- Kelley, H. H. *Causal schemata and the attribution process*. New York: General Learning Press, 1972.
- Zeigarnik, B. Das behalten erledigter und unerleigter handlungen. [The memory of completed and uncompleted actions.] *Psychologische Forschung*, 1927, 9, 1-85.

Received June 29, 1978 ■