

Superstitious Behavior Among American and Japanese Professional Baseball Players

Jerry M. Burger and Amy L. Lynn

Santa Clara University

We examined the use of superstitious behavior by major league baseball players in the United States and Japan. The majority of professional players in both countries reported using superstitious behaviors but expressed little confidence that the behavior actually affected outcomes. Consistent with the uncertainty hypothesis, the more players believed luck affected outcomes during the game, the more they engaged in superstitious behavior. American players tended to be more superstitious than Japanese players. American players were more likely than the Japanese players to believe their superstitions aided their individual performance, whereas Japanese players were more likely than Americans to believe their superstitions helped the team performance.

Much to the lament of many in the scientific community, belief in superstition is widespread in our society (Singer & Benassi, 1981; Vyse, 1997). Superstitious behavior is especially prevalent among certain groups of people, such as gamblers, athletes, and, perhaps surprisingly, college students (Vyse, 1997). Baseball players in particular are often identified as highly superstitious (Gmelch, 1974; Womack, 1992). Players and coaches frequently wear lucky socks and caps, sit in lucky places, eat lucky foods, and engage in various superstitious activities before and during baseball games.

We examined superstitious behavior in major league baseball players. The focus of our investigation was twofold. First, we wanted to use this superstitious population to test predictions about the nature of superstitious behavior. We were particularly interested in predictions derived from the uncertainty hypothesis, which maintains that superstitious behaviors increase when people believe outcomes are determined by uncontrollable forces. Second, we were interested in cultural differences in the use of superstition. In particular, we compared superstitious behavior between American and Japanese baseball players.

THE UNCERTAINTY HYPOTHESIS

Researchers from a variety of disciplines have argued that superstition often grows out of uncertainty (Felson & Gmelch,

1979; Singer & Benassi, 1981; Vyse, 1997). Perhaps the earliest description of this principle was provided by anthropologist Bronislaw Malinowski (1954) while observing fishing behaviors among the Trobriand Islanders in Melanesia in the early part of the 20th century. Malinowski noticed that the islanders engaged in elaborate superstitious behaviors when traveling in unpredictable and dangerous ocean conditions but not when fishing in shallow, calm waters. Malinowski speculated that the islanders used superstition in an effort to exercise some control over the otherwise uncertain consequences associated with open-sea fishing.

According to the uncertainty hypothesis, superstitious people believe the outcome of certain events is determined partly by controllable forces and partly by uncontrollable forces. Controllable forces include those under the individual's own power (e.g., recalling which cards have been played, studying for a test), as well as those under the control of other people or sources of power (e.g., opponent's skills, difficulty of an exam). Uncontrollable forces are those identified by attribution researchers as chance or luck (Weiner, 1995). These uncontrollable forces might include the random selection of winning lottery numbers or unforeseeable changes in the weather. The uncertainty hypothesis maintains that the more people attribute outcomes to chance or luck, the more likely it is that they will turn to superstition. In essence, the superstitious individual is trying to transform some of the uncontrollable forces into controllable forces and thereby increase the likelihood of obtaining the desired outcome.

Consistent with this analysis, researchers find that games of chance provide fertile ground for the development of superstitions (Vyse, 1997). Although gamblers often believe

Requests for reprints should be sent to Jerry M. Burger, Department of Psychology, Santa Clara University, Santa Clara, CA 95053. E-mail: jburger@scu.edu

they have more control over the outcome of these games than reality dictates (i.e., the illusion of control; see Thompson, Armstrong, & Thomas, 1998), most also recognize that, to a large degree, winning or losing is the result of chance or luck. Thus, a superstitious gambler who wears a lucky shirt or who blows on dice is said to be trying to control some of what is otherwise uncontrollable (Henslin, 1967).

Although intuitively appealing, to date evidence for the uncertainty hypothesis has been largely indirect and anecdotal. For example, some investigators have found increases in superstitious behavior during times of uncertainty. Israeli citizens living in areas susceptible to SCUD missile attacks during the Gulf War reported higher beliefs in superstitions than those living in areas not vulnerable to attack (Keinan, 1994). Another study found an increased interest in superstition, as indicated by the number of articles in popular periodicals, following periods of economic threat in Germany between 1918 and 1940 (Padgett & Jorgenson, 1982). Investigators explained these increases in superstition as efforts to regain a sense of control over events with uncertain outcomes. Similarly, Keinan (2002) found people with a high desire for control were more likely than those with a low desire for control to engage in superstitious behavior, presumably because the superstition aided them in controlling uncertain outcomes.

Examining superstitious behavior among professional baseball players provides an opportunity to test the uncertainty principle. Observers have pointed to baseball as a sport in which outcomes are largely affected by chance or luck, and thus it is a particularly likely breeding ground for superstition (Gmelch, 1978, Vyse, 1997). A batter can hit the ball well, only to see a line drive caught by an infielder. On other occasions, a poorly hit ball can fall for a hit. Would-be home runs can be thwarted by a strong wind, pop ups can be lost in the sun, and a ball hit down the line can be fair or foul by the smallest of margins. Although over the course of a season, good and bad breaks theoretically even out, superstitious ballplayers want to tilt the probabilities so that they experience more good outcomes and fewer bad outcomes during that day's game as well as for the entire season.

In addition to the uncertainty of personal outcomes for players, a team's success over the course of a season can be affected by uncontrollable sources. The difference between success and failure is not great in major league baseball. The best teams typically win no more than 60% of their games, and the worst teams typically win approximately 40%. The winner of a division championship after a 162-game season is often determined by one or two games. In fact, luck or chance plays such a large role in the sport that some baseball statisticians have argued the best team in the league will finish the season in first place only approximately 50% of the time (Wood, 2000).

Consistent with these observations about the sport, we expected to find high rates of superstitious behavior among major league baseball players. Beyond this, we made two pre-

dictions derived from the uncertainty hypothesis. First, we expected that the more players believed that chance or luck has an effect on what happens during a baseball game, the more they would engage in superstitious behavior. By definition, events determined by chance or luck are uncontrollable and thus more uncertain. Thus, players who believe luck affects a large number of individual and team outcomes should turn to superstition more often than those who attribute fewer outcomes to luck. Second, we anticipated that players would believe their superstitious behavior has a greater effect on batting and pitching than on fielding. This latter prediction is based on the observation of many professional players that the outcome of batting or pitching is less certain than the outcome of a fielding play (Gmelch, 1974). That is, major league baseball players are more certain that they will catch a ball hit to them than that they will hit a ball thrown to them. Hitting therefore should evoke more superstitious behavior than fielding.

CULTURAL DIFFERENCES

Since evolving into its modern form in the United States sometime in the middle of the 19th century, baseball has expanded to many other nations. Most noteworthy of these is Japan, where baseball has been adopted as the national team sport for nearly a century (Whiting, 1989). The popularity of baseball in Japan allowed us to compare the use of superstition among baseball players across two distinctively different cultures. In particular, the United States and Japan often have been used as prototypic examples of an *individualistic* and a *collectivist* culture (Heine, 2001; Kitayama & Markus, 1994). That is, whereas Americans typically emphasize personal achievements and uniqueness, Japanese are more concerned with cooperation, belonging to a larger group, and fitting in.

We predicted that Japanese baseball players would be less superstitious than their American counterparts. We based this prediction on studies that find athletes typically engage in personal superstitions rather than socially shared superstitions (Vyse, 1997). That is, athletes tend to develop idiosyncratic superstitions that evolve from their own experiences. If a player eats licorice before a game and then collects four hits, the player may start eating licorice before every game. In almost all cases, the intent of these idiosyncratic superstitious behaviors is to aid the player's own performance rather than the performance of the entire team.

This type of individualistic superstitious behavior runs counter to descriptions of Japanese baseball players for two reasons. First, Japanese players place a great emphasis on accepting responsibility for poor performances. Rather than blaming others or attributing bad outcomes to luck, Japanese players are taught success and failure come from *doryoku*, which roughly translates into "effort" (Whiting, 1989). Players learn early in their training that failure is the result of

poor effort and that setbacks can be overcome only through hard work. Thus, attributing failure, or even success, to capricious behaviors such as wearing lucky socks or chewing gum would be counter to the culturally prescribed standard. Consistent with these observations, researchers have found participants in collectivist cultures are more likely than participants from individualistic cultures to take responsibility for failure (Anderson, 1999).

Second, Japanese baseball players are more likely than American players to put the interest of the team ahead of personal accomplishments.¹ A player who engages in a superstitious behavior designed to improve his personal statistics, rather than the team statistics, would be in violation of an important code of conduct. Thus, to the extent that a Japanese player does try to summon the forces of luck, it most likely would be to assist the team effort rather than to bolster his personal performance. These observations are consistent with investigations that find a tendency for self-enhancement among Americans but not among Japanese citizens (Chang & Asakawa, 2003; Heine & Lehman, 1997; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997).

METHOD

Participants

Seventy-seven professional baseball players, 50 from American major league teams and 27 from Japanese major league teams, participated in the study. Participation was voluntary and confidential, and players were not compensated.

Procedure

Through the investigators' personal contacts, employees from five American major league baseball teams and three Japanese major league teams were recruited to distribute questionnaires to players. The questionnaires were distributed in various settings (e.g., locker rooms, buses) where players congregate during the baseball season. Participants were told the questionnaire was part of a psychological study and that their participation was entirely voluntary. The five American teams contacted for the study were the Anaheim Angels, the Boston Red Sox, the Cleveland Indians, the San Francisco Giants, and the Tampa Bay Devil Rays. The Japanese baseball teams were the Chiba Lotte Marines, the Fukuoka Daiei Hawks, and the Nippon Ham Fighters.

To encourage participation, the questionnaire was necessarily brief and fit on two sides of a single sheet of paper. We first defined superstitious behavior for the players as "anything you do that you feel might bring good luck during a

game. Some common examples of superstitions are wearing lucky clothes, sitting in lucky spots, not mentioning certain things, eating certain foods, and entering the field a certain way." We then asked players to list the superstitious behaviors, if any, that they engage in before or during a game. Next, players were asked to indicate among five options how often they engage in superstitious behavior: *every game*, *most games*, *a lot of games*, *only occasionally*, or *never*. We also asked players to indicate among five options "How much impact do you feel superstitious behavior has on your performance or the outcome of the game?" The options were *always*, *often*, *sometimes*, *hardly ever*, or *no impact*. We then provided a list of eight possible outcomes of superstitious behavior and asked players to indicate either *yes* or *no* whether they felt their superstitious behavior could influence the outcome. The eight outcomes were as follows: *make something good happen*, *keep something bad from happening*, *affect your performance*, *affect what happens to the team*, *affect your batting (if applicable)*, *affect your pitching (if applicable)*, *affect your fielding*, *help prevent injuries*. Finally, we asked players to indicate among five options "How much of the time does luck affect what happens in a baseball game?" The options were *most*, *a lot*, *some*, *very little*, or *none*. Participants were told they need not answer any item they did not want to.

The questionnaire items were translated into Japanese for the Japanese baseball players. A back translation procedure was used to ensure that the wording of the items communicated similar concepts in both languages. Written responses from the Japanese players were translated into English.

RESULTS

Superstitious Behaviors

Three measures of superstitious behavior were generated from the questionnaire responses. First, we tallied the number of different behaviors players provided on the open-ended question that asked them to list their superstitious behaviors. Second, we generated a score for frequency by treating the five options on the item asking about how often players engaged in their superstitious behavior as a 5-point scale, with 5 = *every game* and 1 = *never*. Third, we generated a score for confidence in superstitious behavior by treating the five options on the item asking about how often the superstition affects outcomes as a 5-point scale, with 5 = *always* and 1 = *no impact*.

As expected, we found a large amount of superstitious behavior among professional baseball players. The vast majority of players (74.3%) listed at least one superstition they sometimes engage in before or during a game. When asked how often they engaged in superstitious behavior, 53.3% of the players (74.1% of those who listed at least one superstition) indicated every game. The superstitions listed were

¹The authors thank Len Sakata, who has played and coached professional baseball in both the United States and Japan, for suggesting this analysis and prediction.

quite varied and often quite unique. A few examples include using a lucky toothbrush before each game, eating chicken before each game, using the same shower before each game, chewing three pieces of gum at the start of the game, drawing four lines in the dirt before getting in the batter's box, retying shoes during the sixth inning, taking hat off with the right hand only, and leaving glove in the same lucky spot on the bench. Wearing the same articles of clothing game after game (or until a bad game) was quite common. These superstitions included shirts, socks, batting gloves, hats, underwear, cups, and athletic supporters (one player reported "going on four years" with the same athletic supporter).

Although superstitious behavior was common among baseball players, the players were not as confident in the power of their superstitions as their behavior might suggest. The mean score on the item asking how much effect the superstitious behavior has on their performance or the outcome of the game was 2.37. This score places the average response somewhere between *sometimes has an impact* and *hardly ever has an impact*. Only 27.3% of the players (36.5% of those who listed at least one superstition) said superstitious behavior *always* or *often* has an impact.

On the basis of the uncertainty hypothesis, we anticipated that the more players believed that luck affected what happens in a baseball game, the more they would turn to superstition. We correlated the response to the item asking about the extent luck affects outcomes with each of the three measures of superstitious behavior. As shown in Table 1, the extent to which players believed in the power of luck was significantly related to how often they engaged in superstitious behavior as well as to the extent to which they felt superstitious behavior had an impact. Belief in luck was not related to the number of superstitious behaviors listed by the player.

We also predicted that players would believe that superstition affected batting and pitching more often than it affected fielding. However, players did not report that superstition affected batting more than fielding (Table 2), $\chi^2(1, N = 57) = 0.54$. Although players tended to say superstition affected

TABLE 1
Correlations With Perceived Impact of Luck on Outcomes

	<i>r</i>	<i>p</i>	<i>n</i>
Number of superstitious behaviors listed			
Combined	.06	.59	72
American	.13	.35	47
Japanese	.26	.20	25
How often engage in superstitious behavior			
Combined	.33	.004	73
American	.37	.01	47
Japanese	.44	.02	26
Impact of behavior on performance or outcome			
Combined	.31	.008	71
American	.36	.02	46
Japanese	.33	.11	25

TABLE 2
Percentage Agreeing That Superstitious Behavior Affects Outcomes

	<i>Combined</i>	<i>American</i>	<i>Japanese</i>
Affects batting	22.8 (13/57)	22.5 (9/40)	23.5 (4/17)
Affects pitching	31.7 (13/41)	30.3 (10/33)	37.5 (3/8)
Affects fielding	15.9 (10/63)	14.6 (6/41)	18.2 (4/22)

pitching more than fielding, this difference fell short of statistical significance, $\chi^2(1, N = 41) = 2.75, p = .10$.

Comparing American and Japanese Players

As shown in Table 3, American players listed a larger number of superstitious behaviors than the Japanese players, $t(72) = 3.86, p < .001$. The Americans also reported that they engaged in superstitious behavior more often than the Japanese players, $t(73) = 2.43, p = .02$. Thus, both in terms of number and frequency, the American players were more superstitious than their counterparts in Japan. However, American players were not significantly more likely than the Japanese players to believe their superstitious behavior had an impact, $t(71) = 1.42, p = .16$.

The percentages of American and Japanese participants who indicated that superstitious behavior could affect each of five additional aspects of the game that we asked about are shown in Table 4. Although Japanese players were less likely than Americans to engage in superstitious behavior, they were more likely than American players to believe that the behavior could make something good happen, $\chi^2(1, N = 70) = 4.38, p = .04, \phi = .25$. Interestingly, the Japanese players also were more likely to believe superstitious behavior could prevent something bad from happening, $\chi^2(1, N = 72) = 4.20, p = .04, \phi = .24$.

A clear difference between the American and Japanese players emerged on the items asking about the perceived impact of superstitious behavior on individual versus team performance. As seen in the table, the American players were significantly more likely than the Japanese players to say that superstitious behavior could affect their personal performance, $\chi^2(1, N = 70) = 3.82, p = .05, \phi = .23$. By contrast, the Japanese players were more likely than the Americans to believe their superstitious behavior had an impact on what happened to the team, $\chi^2(1, N = 69) = 5.21, p = .02, \phi = .27$.

DISCUSSION

The findings confirm the widely held belief that superstition is common among major league baseball players. The majority of players not only identified at least one superstitious behavior they engage in but also practiced their superstitious behavior every game. This widespread use of superstition in

TABLE 3
Number, Frequency, and Confidence in Superstitious Behavior

	<i>Combined</i>	<i>Americans</i>	<i>Japanese</i>
Number of superstitious behaviors listed	1.59 (1.51)	2.04 (1.61)	0.72 (0.79)
How often engage in superstitious behavior	3.63 (1.68)	3.96 (1.55)	3.00 (1.77)
Impact of behavior on performance or outcome	2.37 (1.62)	2.56 (1.70)	2.00 (1.41)

Note. *N* = 74, 75, and 74, respectively, for the combined sample; 49 for the American sample; and 25, 26, and 25, respectively, for the Japanese sample. For the “how often” item, 5 = *every game*, 1 = *never*. For the “impact” item, 5 = *always has an impact*, 1 = *has no impact*. Standard deviations are shown in parentheses.

TABLE 4
Percentage Agreeing With Perceived Impact of Superstitious Behavior

	<i>Combined</i>	<i>American</i>	<i>Japanese</i>
Makes something good happen	55.7 (39/70)	45.6 (21/46)	75.0 (18/24)
Keeps something bad from happening	41.7 (30/72)	31.9 (15/47)	60.0 (15/25)
Affects player’s performance	37.1 (26/70)	46.6 (21/45)	20.0 (5/25)
Affects what happens to the team	20.3 (14/69)	11.1 (5/45)	37.5 (9/24)
Helps prevent injuries	29.0 (20/69)	22.7 (10/44)	40.0 (10/25)

baseball is consistent with the uncertainty hypothesis. Because outcomes in baseball are determined to a large extent by uncontrollable forces (i.e., luck or chance), players appear to be doing what they can to lure some of those uncontrollable forces to their side. More direct evidence supporting the uncertainty hypothesis was found by asking players the extent to which they believed luck played a role in what happens during a baseball game. The more players believed luck affected the game, the more likely they were to engage in superstitious behavior.

Contrary to expectation, players did not believe that batting and pitching, with highly uncertain outcomes, were affected by superstition more than fielding, which has a fairly certain outcome. In hindsight, we may have overlooked the fact that major league baseball players typically believe they can make a fielding play virtually every time a ball is hit at or thrown to them. If that is the case, players are likely to attribute errors to uncontrollable causes (e.g., bad hops, sun in the eyes) rather than to controllable sources (ability). Using this analysis, our prediction that players are less superstitious about fielding outcomes than batting and pitching outcomes does not follow from the uncertainty hypothesis.

Some noteworthy cultural differences emerged in our comparison of American and Japanese baseball players. In particular, the Japanese players were less likely to engage in superstitious behavior than the American players. This finding is consistent with the observation that individual responsibility for failure is emphasized to a much greater degree in Japan than in the United States. In particular, Japanese players are more likely to embrace the notion that their performance is the result of effort, not luck. The finding also is consistent with the Japanese emphasis of putting the team’s interest ahead of personal accomplishments. In support of

this last observation, we found that Japanese players were more likely than American players to say that their superstition had an impact on the team’s performance. By contrast, the American players were more likely than the Japanese players to indicate that their superstition had an impact on their personal performance. These differing views appear to reflect larger cultural differences between a collectivist culture (Japan) and an individualistic culture (United States).

Although most players practiced their particular superstitions every game, they expressed relatively little confidence that the behavior actually had an effect on their performance or the outcome of the game. This is a curious inconsistency, yet ours is not the first investigation to find that people who engage in superstitious behavior also acknowledge that their actions probably have little effect (Felson & Gmelch, 1979). We can only speculate about some of the reasons for this gap between what baseball players do and what they believe. One explanation may be simply that although the players believe in the power of superstition, they were embarrassed to acknowledge this belief. Arguing against this possibility is the fact that the questionnaire responses were confidential. It also would appear more embarrassing to admit engaging in a superstition one does not believe in than to admit to believing in the superstition. Another possibility is that players engage in superstitious behavior for reasons other than trying to affect outcomes. For example, players may seek the comfort that comes from the superstitious ritual. Players also might engage in superstition because it is normative behavior in a baseball locker room. We learned anecdotally during data collection that most baseball players are quite open about their superstitious behavior and that it is understood that no one challenges or ridicules another player’s superstition. Finally, it may be that many baseball players simply take an

“it can’t hurt” approach to superstition. Players may not completely believe that superstitious behavior will make a difference, but they are willing to “give it a try,” just in case.

A few strengths and limitations of our study should be noted. One strength is the use of major league baseball players as participants. Past investigations of superstition in sports have relied on nonprofessional athletes or nonathletes placed in sporting situations. In contrast to some of these other populations, performance during the game is extremely important to major league baseball players. Moreover, because these players have been playing baseball virtually all of their lives, their superstitions probably are well rehearsed and enduring. Thus, for this population, superstitious behavior is far from trivial or fleeting.

Nonetheless, using major league baseball players also necessarily limited the type and number of questions we believed we could ask. To encourage voluntary participation, we limited the size of the questionnaire to both sides of a single page. We also wanted to present questions in a manner that would not be confusing to participants who might not be familiar with, for example, the use of 5-point scales. As a result of these restrictions, we often were forced to rely on less precise wording than we wanted and on single-item measures. These limitations could account for the failure to find support for some of our hypotheses. In addition, because we relied on volunteers from teams with whom we had personal contacts, we were able to include only a limited number of players in our study and have no way to determine how representative our sample is of all major league baseball players. Thus, we urge caution in making statements from these data about, for example, the percentage of players who are superstitious.

One concern sometimes raised by researchers is the distinction between superstitious behavior and ritual (Womack, 1992). Although superstitious behaviors are intended to rally the forces of luck onto one’s side, the purpose of rituals is to calm the individual and to provide a predictable routine that allows the person to perform as he or she has practiced and without distractions. This distinction between rituals and superstition can become blurred when superstitious behavior takes on the calming and predictable characteristics of rituals. To make sure our participants reported on superstitious behavior and not rituals, we provided a definition and examples of what we meant by superstitious behavior at the top of the questionnaire. That definition emphasized that the purpose of superstitious behavior was to bring good luck.

In summary, our findings suggest widespread superstitious behavior among baseball players can be attributed in part to the perception that outcomes in the sport are often the result of uncontrollable forces. Although the nature of our investigation did not allow us to manipulate perceptions of control and thus limited our ability to make statements about causality, we found support for the uncertainty hypothesis among people for whom superstitious behavior and the out-

come of the event in question, although a game, are taken quite seriously.

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