

Superstitious Rituals Among College Athletes: A Pilot Study

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Abstract

Superstitions and accompanying rituals are common among athletes and appear to provide an experience of control over performance. Despite anecdotal information suggesting a high prevalence of superstitious practices among athletes, empirical study has been limited. Even less is known about the variables that may influence the adoption of superstition-related rituals, including the type of sport—individual vs. team, athlete gender, and relevant personality dimensions. In the current study, 39 university athletes completed a questionnaire of superstitious rituals in athletes, a questionnaire assessing common superstitions in the general population, and Rotter's Locus of Control Scale. Results indicated that athletically oriented superstitions and practices were reported by over 90% of the sample (N=39). Rituals were most commonly used in immediate pregame preparation. While female athletes reported more superstitions common to the general population, they did not differ from men regarding athletic-specific superstitious rituals. In addition, locus of control did not differ between athletes involved in team versus individual sports. Further research in this area should begin with the development of a psychometrically sound questionnaire.

National Hockey League forward Bruce Gardiner dipped the blade of his hockey stick in the toilet before each game, Yasiel Puig, of the Los Angeles Dodgers, licked his bat believing that the bat gave him energy, Elizabeth Haley of Yale University Women's Basketball Team, precedes each competition by listening to the song, "Panda," and Little League baseball player Trey Hondras believes that talking to girls before a game improves his hitting. While studies are limited, available research suggests that up to 75% of competitive athletes have performance-related superstitious rituals (Bleak & Frederick, 1998; Brevers et al., 2011)

Superstitions are a type of cognitive distortion (Toneatto, 1999). These distortions are typically associated with rituals- specific repetitive behaviors (Hobson et al., 2017). These paired cognitions and behaviors reflect an illusory belief that they control an unpredictable event (Toneatto, 1999). There are suggestions that college and professional athletes may be more superstitious than the general population (Berger & Lynn, 2005; Womack, 1991). However, while common among athletes, superstitions and rituals have been given limited research attention—particularly in the past decade.

One difficulty in investigating the topic is definitional. Superstitions and rituals related to athletic performance are not consistently defined. From the perspective of cognitive psychology, superstitions would be considered beliefs, while rituals would be associated behaviors (Dömötör, Ruiz-Barquin, & Szabo, 2016). However, research on athletes does not always make this distinction. In examining collegiate athletes in multiple sports, Bleak and Frederick (1998) merged the concepts of belief and behavior with superstitions defined as "formal, sequential behavior designed to seek control over a stressful situation." In examining collegiate baseball players, Ciborowski (1997) distinguished between coincidental and causal superstitions. Drawing upon Skinner's operant model, coincidental superstitions are seen as chance temporal connections between specific pre-performance behavior and outcomes of which the athletes are usually unaware (Ciborowski, 1997). For example, when batting, Ciborowski (1997) counted an average of 51 coincidental, yet consistent, movements batters exhibited between pitches.

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Causal superstitions were movements that the players were typically aware of, such as unfastening and refastening a batting glove or tapping the plate with the bat a specified number of times. These collegiate baseball players described these conscious rituals as essential to performance, but the explanation was one of omission—if they did not engage in these behaviors, their performance would suffer; they would "jinx" their game (Ciborowski, 1997).

Another area of ambiguity is whether specific pre-performance behaviors have an established association with subsequent athletic performance. For example, warm-up exercises such as stretching are generally accepted as essential for "loosening" muscles and reducing injuries. However, these exercises may take on a superstitious aura when the athlete believes that they must be done in a prescribed sequence at a specific point before a competition (Ciborowski, 1997) and become anxious if this routine is disrupted. There are also techniques such as pregame visualization of one's performance. While visualization shows a modest impact on basketball free throws (Rahman & Islam, 2021), most research on the technique involves case reports or small samples (Newmark, 2012).

Even when the associations are irrational, many athletic-related rituals and beliefs may successfully reduce performance anxiety. For example, by providing athletes with an attentional focus, pregame routines may reduce inefficient cognitive processes such as catastrophization and dampen physiological arousal (Hobson et al., 2018). As such, the distinction between formal pregame behaviors such as a set of warm-up activities prescribed by a coach and a player's idiosyncratic belief that dressing in the same way before a game improves performance, may impact athletes through a final common pathway of anxiety reduction and higher self-efficacy (Neal, 1980). For example, in a simulation study, participants were classified into two groups—one was told that a professional golfer had used their putter. In contrast, the other group was given a putter without this designation (Lee et al., 2011). Participants using the "professional" golfer's putter reported greater confidence in making putts and performed better. While research suggests that superstitious rituals may mediate performance by reducing anxiety and enhancing self-confidence (Hobson et al., 2018), relatively few studies examine meaningful athletic outcomes. Therefore, the association between superstitious rituals and significant performance indices (e.g., number of home runs in baseball; the number of soccer goals scored), with a few exceptions such as basketball free throws, have not been well documented (Dömötö, Ruiz-Barquin, & Szabo, 2016).

Athletes themselves differ along multiple demographic and personality dimensions. It is possible that these factors impact the use of superstition. Research on gender, comparing males and female athletes, has yielded mixed results. Kerr and Gross (1997) found that female athletes reported more superstitions and rituals than male athletes. In contrast, Buhrmann, Brown, and Zuag (1982) did not find a quantitative difference in superstitious rituals between male and female athletes. However, the type of ritual used did differ between male and female athletes, with women reporting more pregame clothing rituals. Female athletes were also more likely to endorse the value of collective, team-focused rituals than individually practiced routines (Burke, 2006).

It is understandable that investigators would examine locus of control among personality factors since control over uncertain situations is a critical element of superstitious belief systems (Mariase, 2013). Again, however, findings have been inconsistent. For example, Todd and Brown (2003) found that superstitions and accompanying rituals were associated with locus of control among Division III college track and field athletes. However, this association was not found among the higher-ranked Division I track and field athletes (Todd & Brown, 2003) or among Division I collegiate athletes representing multiple sports (Bleak & Frederick, 2006).

While athletes are diverse, sport itself is not a unitary phenomenon. One potentially relevant dimension is the possible difference in superstitious rituals in team versus individual sports (Domotor et al., 2016). While studies are limited, collegiate gymnasts reported greater reliance on superstitions than team sport athletes (Bleak & Frederick, 2006).

As mentioned earlier, while earlier research established the high prevalence of superstitions and rituals among athletes and shed some light on possible mediating variables, it is possible that with the rise of social media and cellular devices as well as the increased competitiveness in college sports, new athletic-related superstitions and beliefs have developed. Furthermore, pre-performance techniques such as visualization and meditation are becoming "mainstream" among coaches and athletes (Buhlmayer, et al., 2017). Therefore, in addition to using standardized scales of superstitions and rituals in general and those specific to athletic performance, the current study explored the frequency of possible rituals and superstitions not captured by these earlier studies. These items, piloted in the current study, were based on informal conversations and observations of college athletes. Examples included meditation, breathing exercises, and listening to particular songs in a specific sequence.

The current study examines five research questions related to superstitious rituals in athletic performance: a. the overall prevalence of self-reported competition-related superstitions and rituals among a sample of college athletes; b. the temporal prevalence of rituals in the context of competition —game day, immediate pregame, during the contest, and post-game; c. possible gender differences in self-reported rituals and superstitions among athletes; d. a comparison of prevalence of superstitious rituals in team vs. individual sports; and .e. the possible mediating effect of locus of control.

Method

Participants

Approximately 120 collegiate athletes from a small public university in the Midwestern United States were contacted and asked to participate. A total of 38 student-athletes completed the questionnaires. The university from which the sample was drawn reports the following racial/ethnic student composition: Native American, 9%; Asian, 1%; Black/African American, 2%; Hispanic, 2%; White, 80%; Unknown, 6%. By gender, 63.2% were male, and 36.8% were female with a mean age of 21.1 years (SD= 1.69 years). Because the university population is small and to maintain privacy, respondents were not asked to indicate their specific sport but reported whether they were in a team (63%) or individual (37%) sport. Athletes contacted to participate represented the following collegiate sports: men's hockey, women's volleyball, women's basketball, men's basketball, women's cross country, men's cross country, women's golf, men's golf, women's tennis, men's tennis, women's track & field, men's track & field.

Measures and Procedure

Superstitious Rituals Questionnaire: The scale was developed initially by Burhmann, Brown, and Zaugg (1982). Bleak and Frederick (1998) in a subsequent study, revised the scale. The 46 item version used by Bleak and Frederick served as the basis for the current study. This scale was further modified for this study. Some items are classified according to when they are used: game day routine, preparation before the game, during the game/meet, and post-game/meet. A total of 72 superstitions/rituals were presented in a forced-choice format: "Do you do this" (superstition), with "Yes" or "No" as responses. If the participant answers "Yes," They rate the effectiveness of the behavior on a Likert scale from "Not effective" (1) to "Very effective" (5). Examples of items include: "Taping body—even if not injured;" "Change equipment after scoring;" "Mental recap of negative actions during the game." Test-retest reliability has not been established. Previous studies with the scale suggest that sports-related superstitions and rituals are common among college athletes (Burhmann, Brown, & Zaugg, 1982). Tentative validity support is suggested by correlations of specific sports-related practices and locus of control (Bleak & Frederick, 1998)

Superstitious Belief Questionnaire (SBQ; Ciorowski, 1997): The SBQ comprises 13 predominantly "yes-no" items, assessing superstitious beliefs and rituals found in the general population. Examples include: "Do you believe in magic?;" "Do you have a lucky object or charm?;" "Do you believe in an afterlife?;" Test-retest reliability is reported as .92.

Locus of Control Scale (Rotter, 1966): The scale is comprised of 29 items in a forced-choice format. Items reflect whether outcomes are considered to be under personal control (Internal; "In the long run, people get the respect they deserve in this world") or result from uncontrollable circumstances (External; "Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries"). Lower scores suggest an internal locus of control. Test-retest reliability was reported as .61. (Lange & Tiggegan, 1981). The scale has been widely used in research. It has shown predicted conceptual associations with other related personality variables. Validity support for the scale is suggested by its two-factor structure (Lange & Tiggegan, 1981).

Participants completed the surveys online using the platform *Prolific*.

Results

Gameday and superstitious pregame rituals were reported by 97% of the sample, while 94% indicated that they engaged in superstitious practices during the game and post-game. (See Table 1) . Figure 1 shows the five most commonly reported superstitious rituals reported by the 38 participants.

On the Superstitious Belief, Questionnaire participants reported a mean of 3.03 (SD= 1.75) general superstitions. The mean score on Rotter's LOC questionnaire was 11.66 (SD = 3.71).

A multivariate analysis of variance (MANOVA) with gender as the independent variable and the two superstitious beliefs questionnaire scores and locus of control scores as dependent variables was not statistically significant: Wilks 0.560, $F(11, 18) = 1.29$, $p = 0.308$

A univariate ANOVA indicated that female athletes ($M = 4.11$; $SD = 2.37$) reported a significantly greater number of general superstitions (SBQ) than male athletes ($M = 2.57$; $SD = 1.21$); $F(1, 28) = 5.65$; $p = .025$

A multivariate analysis of variance (MANOVA) with team vs. individual sport as the independent variable and the two superstitious belief questionnaires and locus of control score as the dependent variables was not statistically significant: Wilks = 0.838, $F(11, 18) = 0.387$, $p = 0.972$.

Discussion

Over 90% of this sample of collegiate athletes reported superstitious beliefs and rituals associated with athletic performance. In addition, we found a similar prevalence of superstitious behavior and practices related to athletic performance as Bleak & Frederick (1998) for their group of collegiate athletes participating in football, gymnastics, and track & field.

Of note, our group of athletes reported using multiple superstitions rituals on game days, immediately before the game, during the game, and post-game. As expected, the number of superstitious practices was highest immediately before the game. However, game day rituals were also relatively common. Among this sample, many superstitions were executed by athletes in different sports. However, the most commonly reported preparation rituals included music during warmup, dressing well before a competitive event, and dressing the same way – starting with the top or bottom. Other pregame rituals included executing a warmup the same way before the competition, visualization (mental imagery), and a post-game stretching exercise or similar deactivating activity.

In contrast to Bleak & Frederick's (1998) finding that superstitious behavior and rituals were more common in individual compared to team sports, the current study found no significant difference based on this dimension. In our sample, the mean locus of control score suggested a moderate degree of internality.

We found no significant differences between male and female athletes on most of the dimensions studied. For example, while others reported more collective team-oriented rituals among female athletes (Burke, 2006), our research did not find these differences. However, it should be noted that female athletes only represented 23% of our already small sample. One exception to this pattern is that female athletes reported endorsing more general superstitious beliefs than men in the Superstitious Belief Questionnaire.

The issue of whether superstitious beliefs and accompanying behavior provide an illusion of control over performance is not clear-cut. It is possible that while not exerting a direct effect on performance, these beliefs and accompanying activities provide a focused way for controlling cognitions that may escalate anxiety and, in conjunction with the ritualistic activity, reduces pre-performance physiological arousal. Czech, Ploszay, and Burke's (2004) study of basketball free throws provides some indirect support for this perspective.

Further research in this field should begin with establishing a psychometrically sound scale. As the athletic superstitious ritual scale used in this study was approximately 30 years old, a revision of content may be an initial step in this process. In the current study, we did add items to the version of the questionnaire developed by Bleak and Frederick (1998) by including items believed to be relevant to our population. In addition, this scale has been used in research despite the absence of reliability data. As consistency in measurement is a precursor to validity, reliability studies are essential.

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Table 1 Mean Number of Superstitious Rituals in Course of an Athletic Event (N=39)

	Participants Reporting	Minimum	Maximum	Mean	.SD
Game Day	38	0	23	6.21	3.99
Pre-Game	38	1	27	13.68	6.32
During Game	34	0	11	4.41	2.91
Post-Game	34	1	12	5.85	2.30

Figure 1 (N =38)

