

## Determinants of Attendance in Women's College Volleyball: An Empirical Analysis

Lily Barker

Alexander Traugutt

*Elon University*

The current study examined attendance at NCAA Division I women's volleyball matches from 2021 to 2023, focusing on key factors influencing fan turnout. Despite record-breaking attendance and increased media visibility, limited research has explored the determinants of volleyball match attendance. The purpose of this study was to analyze how scheduling, team performance, opponent quality, and promotional efforts impact attendance.

The dataset included 15 teams and 712 matches across three seasons, with variables measuring match characteristics (e.g., weekend, evening start times), team performance (e.g., win percentage, past tournament appearances), opponent ranking, and institutional factors (e.g., enrollment, gender composition). Results indicated that evening matches and conference games significantly increased attendance, while promotional events led to moderate gains. However, team win percentage and past success were not significant predictors, suggesting that attendance is more event-driven than performance-based. Matches against unranked opponents were associated with lower attendance, emphasizing the importance of opponent strength.

These findings provide valuable insights for athletic departments, emphasizing the importance of strategic scheduling and targeted promotional initiatives to drive fan engagement and ensure the continued growth of women's collegiate volleyball.

Women's collegiate volleyball has experienced unprecedented growth in recent years, with increasing attendance, record-breaking television viewership, and heightened media visibility (Akabas, 2023; Darvin, 2023). The 2023 season marked a historic milestone, with Nebraska's match against Omaha drawing 92,003 fans, setting the all-time attendance record for a women's sporting event. Additionally, the National Collegiate Athletic Association (NCAA) championship match between Texas and Nebraska, the first ever to be broadcast on ABC, attracted 1.7 million viewers, a 151% increase from the previous year (Darvin, 2023). These trends reflect a broader shift in the sport, with more than 3.6 million fans attending NCAA volleyball matches in 2023, and over 30 Division I schools setting new attendance records (Darvin, 2023).

While women's collegiate volleyball traditionally has not been considered a significant revenue generator for most athletic departments, recent data reveals its growing financial importance, particularly among top programs. Nebraska, which has led NCAA volleyball attendance for nine consecutive seasons, generated \$2.12 million in ticket sales revenue in 2021-22, second only to UConn women's basketball among all women's collegiate sports teams (Akabas, 2023). The Cornhuskers' volleyball program also generated \$565,413 in concessions, parking, programs, and novelties revenue—more than twice the amount of the men's basketball program at the same institution. Though Nebraska represents the highest end of the spec-

trum, other top volleyball programs like Wisconsin (\$713,000 in ticket revenue) demonstrate that women's collegiate volleyball can be a meaningful revenue source for athletic departments (Akabas, 2023).

This surge in popularity coincides with broader trends in participation. Volleyball is now the most popular high school sport for girls in the United States, with over 470,000 participants in 2022-23 and roughly 480,000 in 2023-24, surpassing both basketball and soccer (Olson, 2024; SBLive Sports, 2024). As participation has grown, so too has media coverage, with major networks like ESPN, NBC, and Fox expanding their volleyball programming. The Big Ten alone increased its televised matches from 53 in 2021 to 83 in 2024, and the NCAA continues to explore ways to make early-round tournament matches more accessible (Megaree, 2024). These developments indicate that volleyball has shifted to the mainstream and provides athletic departments with significant opportunities to capitalize on the increased interest.

This mainstream shift and growing media presence underscore the importance of attendance beyond direct revenue generation. Strong attendance yields multiple strategic benefits for volleyball programs. It attracts media coverage, enhances institutional visibility, strengthens recruiting efforts, and serves as a critical performance indicator for athletic directors. While top-tier programs like Nebraska generate substantial revenue, it is important to note that most mid and lower-tier volleyball programs likely earn minimal direct revenue from attendance. Nevertheless,

as women's collegiate volleyball continues to experience attendance growth and increased media attention nationally, understanding the factors that drive spectator engagement has become essential from both financial and strategic perspectives for programs at all competitive levels.

Despite this rising prominence, research examining the key determinants of women's collegiate volleyball attendance remains limited (Mayer & Hungenberg, 2021; Schreyer & Ansari, 2022). To address this gap, this study investigated the impact of various factors on NCAA women's volleyball match attendance using a comprehensive panel dataset spanning 2021-2023 and employing fixed effects regression modeling. By identifying the most significant attendance drivers, the results provide actionable insights for college athletic administrators seeking to capitalize on volleyball's growing popularity. These findings can inform evidence-based strategies to enhance game-day attendance and strengthen the continued marketability and sustainability of women's collegiate volleyball programs.

### **Literature Review**

College sports, particularly football and basketball, generate significant revenue for universities through ticket sales, merchandise, and media rights (Bass et al., 2015; NCAA, 2024b). However, as attendance levels vary across all sports, traditional non-revenue sports often struggle to attract significant crowds (Mayer, 2024; Mayer et al., 2017; Shackelford & Greenwell, 2005; Stensland & Bass, 2017). Understanding the factors influencing attendance at traditionally non-revenue sports,

like volleyball, has become increasingly important for athletic administrators seeking to maximize fan engagement, enhance program visibility, and cultivate stronger community connections (Shackelford & Greenwell, 2005; Trail et al., 2008).

Volleyball presents a unique case in the dynamics of collegiate sports. Unlike most NCAA sports, where men's programs typically receive greater resources, visibility, and attendance, women's volleyball often enjoys higher prominence than men's volleyball at the collegiate level. This anomaly stems from several structural factors, including the significant disparity in program sponsorship: women's volleyball is widely sponsored, with 336 Division I programs, while men's volleyball is relatively scarce, at 28 programs (National Collegiate Athletic Association, 2024a). This inverted representation means women's volleyball serves as the primary volleyball program at most institutions.

This unique positioning of women's volleyball within collegiate athletics creates distinctive challenges for understanding attendance patterns. Research has indicated that attendance at collegiate sporting events is influenced by a range of variables. For traditionally non-revenue sports like women's volleyball, these factors may have a greater impact as teams often have smaller fan bases and less media exposure compared to their football and basketball counterparts. Despite the clear benefits of understanding attendance patterns, much of the existing literature focuses on men's sports, especially football and basketball (Martinson et al., 2015; Ridinger & Funk, 2006; Shackelford & Greenwell, 2005). These results provide a foundation

for exploring attendance in other sports but highlight the need for sport-specific studies, especially in sports like volleyball, where different factors may be at play (Mayer et al., 2017; Mayer, 2024; Shackelford & Greenwell, 2005; Zapalac et al., 2010).

### **Theoretical Frameworks for Understanding Sport Attendance**

The study of sport spectator behavior has evolved significantly over several decades, with multiple theoretical frameworks highlighting the complex psychology behind fan motivation and attendance. The concept of “basking in reflected glory” (BIRGing) established a fundamental psychological mechanism explaining why individuals associate themselves with successful teams to enhance their self-image and social identity (Cialdini et al., 1976). This phenomenon helps explain attendance increases following team success, as fans seek to connect themselves with positive outcomes that reflect favorably on their own identity.

Sport fan motivation expanded beyond this singular concept into a comprehensive framework categorizing fan motives into five major theories: salubrious effects, stress and stimulation seeking, catharsis and aggression, entertainment, and achievement seeking (Sloan, 1989). This theoretical foundation has provided the structure for subsequent research exploring the multidimensional nature of sport attendance behaviors across various contexts.

From these theoretical foundations emerged empirically validated measure-

ment instruments designed to quantify sport consumption motivations. The Sport Fan Motivation Scale (SFMS) identified eight primary motivational factors driving fan behavior: eustress, self-esteem, escape, entertainment, economic, aesthetic, group affiliation, and family (Wann, 1995). This multidimensional approach has proven valuable for understanding spectator behavior across diverse sporting contexts.

Further refinement of measurement approaches addressed psychometric limitations of earlier scales through the Motivation Scale for Sport Consumption (MSSC), which measures nine dimensions: achievement, knowledge, aesthetics, drama, escape, family, physical attraction, physical skills of athletes, and social interaction (Trail & James, 2001). This instrument has demonstrated strong reliability and validity across diverse sporting contexts and remains among the most widely used in attendance research.

A meta-analytic synthesis of sport consumption research has confirmed that factors such as team identification, star players, team performance, and facility quality consistently influence attendance decisions across various sporting contexts (Kim et al., 2019). This comprehensive analysis offers valuable insights into the factors that exert the strongest influence on attendance behaviors, providing a solid foundation for future attendance studies.

### **General Factors Influencing Attendance**

Attendance at sporting events is influenced by a complex interplay of fac-

tors, both internal to the fan and external to the environment surrounding the event. Across all levels of sport, from collegiate to professional, variables such as team success, fan loyalty, the quality of the game-day experience, and social influences significantly impact spectator decisions (Hansen & Gauthier, 1989; Trail et al., 2003; Wann et al., 2008). This multifaceted understanding of attendance drivers has evolved from seminal work by researchers like Noll (1974), who established early frameworks examining sporting event consumption, to contemporary studies that have expanded our understanding of the psychological, social, and contextual factors that shape fan behavior. Understanding these general factors helps inform strategies to increase attendance, regardless of the sport or level of competition.

One driver of attendance can be team performance (Ferreira & Armstrong, 2004; Snipes & Ingram, 2007). Studies consistently indicate that teams with better win-loss records or recent postseason success attract more fans to their games. This phenomenon is often referred to as the bandwagon effect, where fans are more likely to attend games when a team is performing well and has a higher chance of success (Munoz et al., 2022). Depken et al. (2011) suggested that both current and recent team quality were significant predictors of attendance for women's collegiate basketball. Shackelford and Greenwell (2005) identified that a team's prior season win percentage was a significant predictor of attendance in four Division I women's sports (basketball, soccer,

softball, and volleyball), with additional studies confirming these findings across intercollegiate athletics (DeSchraver & Jensen, 2002; Wells et al., 2000).

Research by Trail et al. (2017) provides a longitudinal perspective on attendance drivers. Their study examined how team-fan role identity, prior attendance behavior, and attendance intentions interact to predict future attendance. Their findings revealed that these factors combined to explain over 63% of self-reported attendance behavior, with role identity proving to be a significant predictor. Moreover, their research demonstrated that administrators need to consider both cognitive factors and behavioral intentions rather than relying solely on past attendance patterns when predicting future fan behavior. While the current study uses a quantitative design focused on women's collegiate volleyball attendance, Trail et al.'s (2017) longitudinal model highlights the multifaceted psychological dimensions of attendance behavior, particularly the importance of fan identity and behavioral intention.

The game-day experience also plays a crucial role in influencing attendance. Fans often attend games not only to watch the sport but also to engage in the social and communal aspects of the event (Trail & James, 2001; Wann & Wilson, 1999). In addition, existing studies have provided evidence that promotions and theme-based games are associated with increased attendance across various levels of sport (Howell et al., 2015; Martinson et al., 2015; McDonald & Rascher, 2000; Paul et al., 2013; Wells et al., 2000). Overall, the



general factors influencing attendance are multifaceted, with team success, fan loyalty, and the game-day experience all playing important roles. By understanding these elements, organizations can better target their marketing and engagement strategies to boost attendance and support.

### **Constraints and Barriers to Attendance**

While various factors encourage fans to attend sporting events, numerous constraints and barriers can prevent potential spectators from attending (Kim & Trail, 2010; Trail et al., 2008). These constraints are particularly relevant for non-revenue sports, where attracting a consistent fan base can be more challenging. Barriers to attendance can be broadly categorized into economic, social, and logistical factors, each of which can significantly influence the decision-making process for fans.

One of the most prominent barriers to attendance is financial cost (Hansen & Gauthier, 1989; Mayer et al., 2017; Snipes & Ingram, 2007). Ticket prices, parking fees, and other game-day expenses can be prohibitive for many potential attendees, especially students and families. Research indicates that high ticket prices can significantly reduce attendance, even in popular sports such as football and basketball (Hansen & Gauthier, 1989; Mayer & Hungenberg, 2021; Simmons et al., 2018; Simmons et al., 2021; Zhang et al., 1995). These findings are also relevant for collegiate sports, where budget-conscious students and residents may prioritize free

or lower-cost entertainment options over attending paid sporting events.

Competition from alternative entertainment options also serves as a significant barrier. In many cases, potential spectators may choose to stay home and watch the game on television, attend a competing event, or engage in non-sporting activities such as dining out or seeing a movie. Mayer et al. (2017) highlighted this in their study on volleyball attendance, noting that individuals who had previously attended games cited other entertainment opportunities as a primary reason for non-attendance. This issue can be particularly pronounced in urban areas and vibrant college towns, where options are abundant and competing events may draw attention away from collegiate sports.

Logistical constraints, such as game scheduling, can also create barriers to attendance. Fans are more likely to attend games that are conveniently scheduled and easily accessible. For example, games held during weekday evenings may conflict with work or academic obligations, making it difficult for fans to attend (Baecker et al., 2024; Martinson et al., 2015). Lack of knowledge and awareness about sporting events also represents a significant barrier, especially for traditionally non-revenue sports (Kim & Trail, 2010; Mayer, 2021, 2024). Without sufficient media coverage or promotion, potential fans may not be aware of when or where games are taking place. Mayer et al. (2017) identified this as a key constraint in their study on collegiate volleyball attendance, finding that many fans who had never at-

tended a volleyball match cited a lack of awareness as a major reason for their absence.

Finally, social influences can also act as barriers to attendance (Mayer, 2021). Many spectators attend sporting events in groups with friends, family, or classmates, making the social aspect of attending a game an important consideration. When potential attendees perceive that there is no interest from their social circle, they may be less likely to attend alone (Mayer, 2021; Mayer & Hungenberg, 2021; Perreault, 2016). Research has indicated that social engagement and group participation are significant motivators for attending sports events (Trail & James, 2001; Wann et al., 2008; Wann et al., 2001).

### **Women's Collegiate Sport Attendance**

Attendance at women's collegiate sports events has historically been lower than men's revenue sports like football and basketball, reflecting broader societal patterns in gendered sports media coverage and resource allocation (Baecker et al., 2024; Cooky et al., 2015; Fink et al., 2002; Trail & Kim, 2011). Unlike most NCAA sports, however, where men's programs typically receive greater resources and media coverage, women's volleyball draws higher average attendance than men's volleyball at the collegiate level due in part to the significant disparity in program sponsorship.

One of the most significant challenges facing women's collegiate sports is the lack of media coverage and exposure (Cooky et al., 2015; Kiraly & Shewman, 1999; Spencer & McClung, 2001). The dispar-

ity in media attention between men's and women's sports is well-documented, with major sports like football and basketball receiving the majority share of broadcast and promotional resources. Studies have indicated that the lack of consistent media coverage contributes to lower awareness and visibility for women's sports, which, in turn, impacts attendance (Baecker et al., 2024; Martinson et al., 2015; Meier & Leinwather, 2012). Weaver (2019) emphasized how institutional decisions and organizational changes can either enhance or constrain the visibility of non-revenue sports, depending on how priorities are set by athletic administrators. These structural considerations are particularly relevant for understanding how programs like women's volleyball are positioned within the broader college athletics ecosystem.

It is worth noting that the 2024 volleyball season was the most-watched season in history, with over 1.3 billion minutes consumed across ESPN platforms (Callahan, 2024). In addition, the entire NCAA volleyball tournament was broadcast on ESPN platforms and saw a 41% year-over-year increase in viewership (Callahan, 2024). Despite these advancements, media coverage of women's sports remains significantly lower than that of men's sports, highlighting the continued need for greater visibility.

In addition to structural factors, psychological and social variables also play a key role in driving attendance at women's collegiate sports events. Trail et al. (2017) emphasized the importance of role identity in predicting attendance behavior, noting that fans are more likely to support

teams with whom they feel a strong emotional or cognitive connection. This aligns with findings from Fink et al. (2002) and Ridinger and Funk (2006), who reported that fans of women's sports are often motivated by university pride, athlete support, and a sense of community, rather than solely by competitive outcomes. These motivations have implications for effective marketing and promotional strategies. For instance, Fink et al. (2002) also found that promotional efforts targeting women and emphasizing positive role models in women's sports helped boost attendance at women's basketball games. Collectively, these insights underscore the need for targeted campaigns that prioritize social connection, community building, and a sense of belonging, particularly in traditionally non-revenue sports like women's volleyball, where traditional performance-based marketing may be less effective.

Fan segments also play a crucial role in shaping attendance patterns (Zapalac et al., 2010). Research suggests that women's sports tend to attract different types of fans compared to men's sports. This is particularly true for collegiate women's sports, where fans may be more likely to attend games to support the athletes or to engage in a sense of university pride (Fink et al., 2002). Ridinger & Funk (2006) suggested that women have a stronger identification with university pride as a motivator for attending games, compared to their male counterparts, who are more often motivated by competitive success. This highlights the importance of fostering a strong connection between the athletic programs and the broader university

community to encourage attendance at women's events.

Moreover, social engagement and the game-day experience are particularly important. Many attendees at women's sports events are there not just for the competition but also for the social experience. Studies have indicated that fans of women's sports often attend games in groups, with family and friends, and that the atmosphere at the events plays a significant role in their enjoyment (Gantz & Wenner, 1991; Ridinger & Funk, 2006; Wann, 1995). Creating a welcoming, community-oriented environment can help boost attendance at women's sports events, as fans are more likely to return for future games if they have a positive social experience.

Specific to college sport, research has indicated that institutional characteristics such as enrollment can significantly influence attendance patterns (Depken et al., 2011; DeSchriver & Jensen, 2002; Natke et al., 2024; Shackelford & Greenwell, 2005). When examining women's collegiate volleyball specifically, Shackelford and Greenwell (2005) found that student enrollment was a significant predictor of attendance, along with basketball and softball, suggesting that larger universities may have inherent advantages in developing fan bases for these women's sports. This relationship aligns with broader research on institutional connection and sport attendance, as students' identification with their university often translates to support for athletic programs (Murrell & Dietz, 1992). While the specific attendance-enrollment relationships vary across sports



and competitive divisions, the underlying importance of institutional size remains a consistent factor in predicting attendance outcomes.

Additionally, competitive success plays an important role in driving attendance at women's sports, though its influence can vary (Trail & Kim, 2011; Wann et al., 2008). While team success generally attracts casual fans, particularly during playoff or championship runs (Trail et al., 2003), sustained attendance growth typically depends on broader engagement strategies beyond win-loss records (Fink et al., 2002; Ridinger & Funk, 2006). Empirical investigations into women's collegiate sports have found that prior season success serves as a significant predictor of attendance for women's basketball, soccer, and softball. However, this effect appeared less pronounced for women's volleyball (Shackelford & Greenwell, 2005). This difference suggests that volleyball programs may need to emphasize factors beyond team performance when developing attendance strategies (Mayer et al., 2017; Zapalac et al., 2010).

### **Collegiate Volleyball-Specific Research**

While much of the existing literature on sports attendance focuses on professional sports and revenue-producing sports at the collegiate level, studies specifically examining attendance at women's collegiate volleyball events are limited. Several key studies provide valuable insights into the factors influencing volleyball attendance and the challenges that programs encounter in attracting and retaining fans.

One of the most relevant studies addressing volleyball-specific attendance is Mayer et al. (2017), which examined the constraint factors affecting non-attendance at women's collegiate volleyball matches. This study identified several key barriers that influence whether individuals choose to attend volleyball games. For fans who had never attended a match, factors such as financial costs, lack of awareness about the event, and low interest from their social circles were the primary reasons for non-attendance. The authors note that matches at the institution in their sample offered free attendance, which also signals a general lack of awareness around the sport. Meanwhile, those who had previously attended volleyball games cited competition from other forms of entertainment and the team's lack of recent success as major barriers to returning. These findings highlight that both practical constraints (such as cost and competing entertainment) and emotional factors (such as social interest and team performance) play a significant role in determining volleyball attendance.

In a comprehensive examination of women's collegiate volleyball spectators, Zapalac et al. (2010) identified four key market demand factors influencing attendance: promotion, affiliation, attractiveness, and affordability. Their research revealed that these factors were positively predictive of both attendance frequency and season ticket purchases, providing valuable insights for marketing strategies. Notably, they found that spectator demographics were fairly balanced between genders, with a higher average age than

expected, suggesting volleyball attracts a broader audience beyond the typical college-aged demographic. These findings underscore the importance of understanding spectator motivations and consumption patterns when developing marketing initiatives for women's collegiate volleyball.

Team success is another critical factor influencing volleyball attendance, though its impact may be more nuanced compared to other sports. In a study focused on select women's sports, including basketball, soccer, softball, and volleyball, team success boosted attendance, but to a lesser extent in volleyball (Shackelford & Greenwell, 2005). Volleyball, as a non-revenue sport for most programs, tends to attract smaller, more dedicated fan bases that are less reactive to short-term performance fluctuations. While a winning season can certainly help attract casual fans, sustained attendance growth is more likely to result from long-term community engagement and targeted marketing strategies. This suggests that while winning is important for women's collegiate volleyball programs, it cannot be the sole strategy for increasing attendance.

### **Data & Methodology**

This study examines attendance at NCAA women's college volleyball matches from 2021 to 2023, utilizing a panel dataset of 1,182 regular and postseason matches from 26 Division I programs. All neutral-site contests were excluded to ensure consistency in venue contexts, allowing for a longitudinal analysis of attendance trends.

Given the exploratory nature of this study and the absence of established criteria for school selection in prior research on women's collegiate volleyball attendance, teams were selected based on their competitive performance over the three-year study period from programs within the Power 5 conferences (ACC, Big Ten, Big 12, SEC, and Pac-12) as of the 2023 realignment. Specifically, programs were included if they achieved a minimum of 60 total wins across the 2021-2023 seasons (equivalent to an average of 20 wins per season). Given that NCAA Division I volleyball teams typically play between 25 and 30 matches per season, this criterion represents programs with a winning percentage of approximately 67-80% over the study period.

The absence of established selection criteria in prior research on women's collegiate volleyball attendance necessitated the development of this criterion. The performance-based threshold serves multiple methodological purposes as it ensures attendance dynamics are likely more pronounced and simpler to isolate from confounding factors, it provides an objective, replicable selection methodology, and it addresses a noted gap in sports attendance research, which has historically focused on major men's sports while neglecting women's and niche sports where attendance factors may operate differently (Schreyer & Ansari, 2022). Furthermore, this approach extends the existing volleyball attendance literature, which has typically focused on single institutions (Mayer, 2024; Mayer et al., 2017), thereby limiting cross-institutional comparisons (Zapalac

et al., 2010). The current study represents a substantial expansion of institutional sample size compared to existing research on volleyball attendance.

Despite the performance-based selection criterion, the sample maintains diversity across geographical regions (with multiple regions represented), conference affiliation, institutional type (including public flagships and private institutions), religious affiliation (BYU), and market size (ranging from urban centers like Pittsburgh to smaller markets like Lincoln, Nebraska). The complete list of teams included in the sample, along with their average win total across the study period, is provided in Table 1.

Data were compiled from multiple sources to construct the complete dataset used in this analysis. Match-level attendance and contextual variables were extracted from box scores, team schedules, and athletic department records. Team-level performance indicators (e.g., national rankings, win percentages, tournament participation, and Massey Rank) were gathered from AVCA polls, team schedules, and [masseyratings.com](http://masseyratings.com). Institutional characteristics, such as undergraduate enrollment and the proportion of female students, were obtained from the Integrated Postsecondary Education Data System (IPEDS). Marketing and promotional activities were coded based on information from team schedules. For each variable category, we carefully considered both measurement approaches and theoretical justifications as described below.

## **Dependent Variable**

The natural logarithm of total match attendance was used as the dependent variable. This transformation was necessary due to the right-skewed distribution of attendance figures. The log transformation allows for percentage-based interpretations of coefficients, where a one-unit change in an independent variable is associated with a  $(\text{coefficient} \times 100)\%$  change in attendance (Cameron & Trivedi, 2005). Actual attendance was used rather than the percentage of venue capacity, as reported attendance exceeded venue capacity in roughly 20% of cases, suggesting that stated capacities do not always accurately reflect actual attendance limits. This approach is consistent with previous attendance studies in collegiate sports that employ similar transformations to account for skewed attendance distributions (Depken et al., 2011; DeSchriver & Jensen, 2002; Kim et al., 2019).

## **Match Characteristics**

Season (2021, 2022, 2023): Included to capture year-to-year growth trends in volleyball attendance.

Weekend: Matches played Friday through Sunday were coded as weekend matches (1) (Baecker et al., 2024; Martinson et al., 2015; Price & Sen, 2003).

Evening: Matches starting at 5PM or later were coded as evening matches (1) (Martinson et al., 2015).

Competing Football: Indicates whether a volleyball match was played on the same day as a home football game (1) (Depken et al., 2011; Rottenberg, 1956).

Table 1  
*In-Sample Teams*

Conference	Team	Average Win Total
Atlantic Coast Conference	Boston College	20
	Florida State	21
	Georgia Tech	24
	Louisville	30
	Miami (FL)	22
Big Ten	Pittsburgh	30
	Minnesota	21
	Nebraska	28
	Ohio State	20
	Penn State	23
Big XII	Purdue	23
	Wisconsin	30
	Baylor	24
	Brigham Young (2023)	26
	Central Florida (2023)	24
Southeastern Conference	Houston (2023)	25
	Kansas	20
	Texas	28
	Arkansas	23
	Florida	22
Pacific 12	Kentucky	23
	Tennessee	21
	Oregon	26
	Stanford	25
	Washington	21
American Athletic Conference	Washington State	23
	Central Florida (2021, 2022)	24
	Houston (2021, 2022)	25
West Coast Conference	Brigham Young (2021, 2022)	26

Regular Season: Distinguishes between regular season (1) and postseason (0) matches.

Conference Game: Indicates whether a match was against a conference opponent (1).

### **Team Performance Metrics**

Top 25 Rank Categories (home team and opponent): Team rankings were measured using the AVCA poll from the week prior to each match. Rankings were categorized into ranges (1-5, 6-10, 11-15, 16-20, 21-25, Unranked) rather than using continuous rankings to capture potential threshold effects (Natke et al., 2024).

Lagged Win Percentage (home team and opponent [t-1]): Current season winning percentage was included to measure the effect of team success on attendance, reflecting potential carryover effects in fan interest (DeSchraver & Jensen, 2002; Shackelford & Greenwell, 2005).

Win Percentage Previous Season (t-1): Team's winning percentage from the previous season (s-1) as a measure of historical team performance (Shackelford & Greenwell, 2005).

Made Tournament Previous Season (s-1): Binary variable indicating whether the team qualified for the NCAA tournament in the previous season (1).

Massey Rank (home team and opponent): The Massey Rating system is a computer-generated ranking algorithm developed by Kenneth Massey that uses statistical models based primarily on game outcomes and strength of schedule to rank teams (Natke et al., 2024).

### **Institutional Factors**

Enrollment: Total institutional enrollment was included to control for the potential fan base size, collected from the U.S. Department of Education's Integrated Postsecondary Education Data System (DeSchraver & Jensen, 2002; Shackelford & Greenwell, 2005).

Percentage of Women Students: The percentage of students who are women was included to test whether the gender composition of the student body influences attendance at women's sporting events (Depken et al., 2011).

### **Marketing & Promotions**

Promotion/Theme: Information on promotional events was gathered from team schedules, press releases, and game notes. Events were coded as promotions (1) if they featured special themes or giveaways (Cebula, 2013; McDonald & Rascher, 2000; Snipes & Ingram, 2007; Zapalac et al., 2010).

A complete list of variable categories, their associated variables, and sources are provided in Table 2.

A fixed effects (FE) regression model with robust standard errors was utilized to estimate the relationship between the predictors and attendance. The FE approach eliminates time-invariant differences across teams, ensuring that observed effects are driven by within-team variations rather than underlying characteristics unique to each program (Wooldridge, 2013). The model equation is specified below, where  $\beta_k$  are the coefficients for the  $k$  independent variable,  $X_{it}$  is the



Table 2

*Variable Categories, Variables, Scales, and Sources*

Variable Category	Variables	Source
Dependent Variable	(log)Attendance	Box Score
Match Characteristics	Season (2021 reference)	Box Score
	Weekend: Friday – Sunday*	Box Score
	Evening: 5PM or later*	Box Score
	Competing Football*	Team Schedules
	Regular Season*	Team Schedule
	Conference Game*	Team Schedule
Home Team Quality	Top 25 Rank Categories (1-5 reference)	AVCA Polls
	Lagged Win% ( $t - 1$ )	Box Score
	Win% Previous Season ( $s - 1$ )	Team Schedule
	Made Tournament Previous Season ( $s - 1$ )*	Team Schedule
	Massey Rank	massyratings.com
Opponent Quality	Top 25 Rank Categories (1-5 reference)	AVCA Polls
	Massey Rank	masseyratings.com
	Lagged Win% ( $t - 1$ )	Box Score
Institutional Factors	Enrollment (Scaled by 1,000)	IPEDS
	Percentage of Women Students	IPEDS
Marketing & Promotions	Promotion/Theme*	Team Schedule

\*Indicates binary variable

$k^{\text{th}}$  variable for the team  $i$  in a match  $t$ ,  $\alpha_i$  are the team-specific fixed effects (base-line attendance), and  $\epsilon_{it}$  is the error term.

$$\log(\text{Attendance}_{it}) = \sum_{k=1}^{25} \beta_k X_{it} + \alpha_i + \epsilon_{it}$$

Robust standard errors, specifically the HC1 (heteroskedasticity-consis-

tent covariance matrix estimator, Type 1) heteroskedasticity-consistent standard errors, are used to address violations of homoskedasticity and serial correlation in the panel dataset. The HC1 correction is particularly useful in panel data settings where standard errors may be underestimated due to within-cluster dependence.

To verify the appropriateness of this approach, a Breusch-Pagan test was conducted on the initial FE model to assess heteroskedasticity, and the results confirmed its presence, justifying the use of robust standard errors.

A correlation matrix of the variables was examined to identify any potential multicollinearity issues that would impact coefficient stability, with particular attention paid to relationships that exceeded a conservative threshold of  $|r| > .6$  (Dormann et al., 2013). The matrix revealed several notable relationships among the Massey Rankings, previous season win percentage, and previous tournament appearance variables. Correlations exceeding  $|r| > .5$  are included in Table 3 for brevity.

These correlations indicate substantial overlap between Massey Rankings and historical performance measures, suggesting these variables reflect similar underlying constructs of team quality. To address this multicollinearity, both home and opponent Massey Rank variables were excluded from the final specification, along with the Made Tournament Previous indicator. The Win% Previous Season ( $s - 1$ ) variable was retained as it provides a more direct and interpretable measure of recent team performance. This variable selection strategy effectively removed problematic

correlations while maintaining the model's ability to control for team quality. These procedures, combined with robust standard error corrections for heteroskedasticity and potential autocorrelation, ensure the reliability of subsequent coefficient estimates and statistical inferences.

## Results

The results for this exploratory study indicate that several factors significantly influence attendance at women's college volleyball matches (see Table 4 for complete model results). The model explains 60% of the variance in attendance ( $\text{Pseudo-R}^2 = .603$ ) and accounts for team-specific fixed effects, ensuring that time-invariant characteristics unique to each team are controlled for. To improve interpretability, the beta coefficients in the regression model were derived from a log-transformed dependent variable. As a result, coefficient estimates can be interpreted as approximate percentage changes in attendance for a one-unit change in the corresponding independent variable ( $\text{Exp}(\beta)\%$ ). For small coefficients, multiplying by 100 provides a reasonable estimate of the percentage change. However, for larger estimates, the transformation follows the formula:  $(e^{\beta} - 1) \times 100$  to yield a more precise percentage effect.

Table 3  
*Key Variable Correlations*

Variable Pair	Correlation (r)
Home Massey Rank – Home Unranked	0.68
Opponent Massey Rank – Opponent Lagged Win%	-0.57
Win% Previous Season ( $s - 1$ ) - Made Tournament Previous	0.56
Opponent Massey Rank - Opponent Unranked	0.53
Home Massey Rank – Made Tournament Previous	-0.52
Massey Rank – Win% Previous Season ( $s - 1$ )	-0.51

Table 4

*Fixed Effects Model Results*

Variable	$\beta$	Exp( $\beta$ )%	p-value
Match Characteristics			
Season – 2022	.140	15.02	.026**
Season – 2023	.337	40.13	<.001***
Weekend	.026	2.68	.51
Evening	.154	16.67	.009**
Competing Football	.038	3.84	.64
Regular Season	-.369	-30.84	<.001***
Conference Game	.262	29.93	<.001***
Home Team Quality			
Lagged Win% (t – 1)	.076	7.86	.62
Top 25: 6-10	.055	5.64	.42
Top 25: 11-15	-.043	-4.18	.53
Top 25: 16-20	-.268	-23.48	.03**
Top 25: 21-25	-.038	-3.71	.72
Unranked	-.203	-18.34	.14
Win% Previous Season (s – 1)	.478	61.28	.03**
Opponent Quality			
Opponent Lagged Win% (t – 1)	-.072	-6.94	.58
Opponent Top 25: 6-10	-.112	-10.64	.40
Opponent Top 25: 11-15	-.261	-22.95	.04**
Opponent Top 25: 16-20	-.274	-23.97	.03**
Opponent Top 25: 21-25	-.291	-25.27	.04**
Opponent Unranked	-.472	-37.63	<.001***
Institutional Factors			
Enrollment	.007	.72	.65
Percentage of Women Students	-.048	-4.75	<.001***
Marketing & Promotions			
Promotion/Theme	.141	15.19	<.001***

Pseudo-R<sup>2</sup> = .603. \*p < 0.10; \*\*p < 0.05; \*\*\*p < 0.001.

Note: s = season; t = game.

Figure 1  
*Average Attendance by Season*



### Attendance

The results demonstrate a substantial increase in attendance over time. Compared to the 2021 season, attendance rose by 15% in 2022 ( $p = .03$ ) and 40% in 2023 ( $p < .001$ ), suggesting a significant increase in women's volleyball match attendance. Figure 1 provides a visual representation of the average increases in attendance from the teams in the sample.

### Match Characteristics

Evening matches experienced a 17% increase in attendance ( $p = .009$ ) compared to daytime matches. Conference games saw significantly higher attendance than non-conference matchups, with a 30% increase in attendance ( $p < .001$ ). Conversely, regular season matches had a 31% lower attendance rate ( $p < .001$ ) compared to postseason games. Weekend matches did not indicate a significant effect on attendance ( $p = 0.51$ ), challenging conventional scheduling expectations.

### Home Team Quality

Most of the home team-specific factors showed limited impact, however, two

notable exceptions emerged. Win% Previous Season ( $s - 1$ ) was a significant positive predictor ( $p = .03$ ), such that a team improving from a 60% to 80% winning percentage in the previous season would be expected to experience approximately a 10% increase in attendance. Teams ranked 16-20 in the current season showed significantly lower attendance compared to the top-ranked teams (1-5), with a 24% decrease in attendance ( $p = .03$ ). Current season performance, as measured by Lagged Win% ( $t - 1$ ), was not a significant predictor, nor were most other ranking categories ( $p > .05$ ).

### Opponent Quality

The quality of the opposing team played a significant role in driving attendance. Specifically, matches against teams ranked 6 – 10 saw a 11% decline ( $p = .4$ ), while those against teams ranked 11 – 15, 16 – 20, and 21 – 25 experienced attendance drops of 23%, 24%, and 25% respectively ( $p < .05$ ). The largest decline was observed when facing unranked opponents, resulting in a 38% drop in attendance ( $p < .001$ ).

## **Institutional Factors**

The percentage of women students was a significant negative predictor of attendance, with each additional percentage point associated with a 4.8% decrease in volleyball attendance ( $p < .001$ ).

## **Marketing & Promotions**

Marketing efforts proved to be highly effective at increasing attendance, as matches featuring a promotional event or theme experienced a 15% increase in attendance ( $p < .001$ ).

## **Discussion**

The results of this exploratory study reveal several important insights into the factors that drive attendance at women's collegiate volleyball home matches, particularly for established programs at major universities. The focus of this section will be on presenting insights for athletic administrators, emphasizing findings related to factors within their direct control.

## **Attendance**

The substantial year-over-year increase in attendance, particularly the 40% jump from 2021 to 2023, aligns with recent trends in women's collegiate volleyball viewership (Callahan, 2024). This growth trajectory likely reflects the broader cultural shift toward increased investment and interest in women's sports and volleyball specifically, particularly as media exposure continues to expand (Akabas, 2023; Callahan, 2024; Martinson et al., 2015; Megargee, 2024). The significant increase also suggests that women's collegiate volleyball may be at a critical inflec-

tion point in terms of popularity and fan engagement, a trend that athletic departments should be prepared to capitalize on through strategic marketing and promotional efforts.

## **Match Characteristics**

The positive effect of evening matches on attendance supports previous research on logistical constraints, where Martinson et al. (2015) found that game scheduling significantly impacts fans' ability to attend, particularly when matches conflict with work or academic obligations. Evening matches likely minimize these conflicts, making games more accessible to a broader audience of potential attendees. While administrators do not have complete control over scheduling, prioritizing evening start times when possible could help mitigate attendance barriers related to work and academic conflicts.

The lack of a significant effect for weekend matches challenges conventional wisdom on scheduling. However, it may be explained by Mayer et al.'s (2017) observation that competing entertainment options, which are more prevalent on weekends, can serve as significant barriers to attendance. It should be noted that 65% of matches in the sample occurred on weekend dates, so limited variability may also be a contributing factor to this non-significant finding. Future studies might benefit from a more balanced distribution of weekday and weekend matches to further explore this relationship.

The strong positive effect of conference games suggests that league standings and championship implications create ad-



ditional fan interest. At the same time, the higher attendance for postseason matches aligns with the heightened stakes and elimination format that characterizes tournament play. These findings are consistent with motivational theories of sport consumption that emphasize achievement and drama as key attendance drivers (Trail & James, 2001; Wann, 1995).

### **Home Team Quality**

The effects for home team performance metrics reveal a nuanced relationship between team success and attendance in women's collegiate volleyball. While current season performance (Lagged Win%) was not a significant predictor, previous season success (Win% Previous Season ( $s - 1$ )) emerged as a significant positive factor ( $p = .03$ ), suggesting that fans may be influenced more by established expectations than immediate performance. Additionally, the finding that teams ranked 16-20 experience significantly lower attendance compared to top-ranked teams (1-5) indicates that competitive success does matter, but perhaps in a threshold manner where mid-tier performance fails to generate the same enthusiasm as elite rankings.

These results partially align with previous studies that found team success to be a significant predictor of attendance (Depken et al., 2011; DeSchriver & Jensen, 2002), while also supporting Shackelford and Greenwell's (2005) observation that the effect of team success on attendance may operate differently for volleyball than for other sports. The importance of previous season performance over current

season metrics suggests that volleyball attendance may be driven more by sustained program reputation and fan expectations built over time, rather than immediate game-to-game performance fluctuations.

### **Opponent Quality Considerations**

Perhaps the most noteworthy finding is the pattern of results related to opponent quality. The data indicate that fans are drawn primarily to matches against the highest-ranked teams (Top 1 – 5) but are less interested in games against mid-tier opponents. This pattern suggests that the perception of an elite matchup is particularly important for volleyball fans, who may prioritize attending prominent contests. This finding carries important implications for scheduling strategies, suggesting that programs should emphasize and promote their matches against top-ranked opponents while developing targeted marketing efforts for games against lower-ranked teams.

### **Institutional Factors**

The significant negative effect of the percentage of women students on attendance is somewhat counterintuitive and warrants further investigation. This finding contrasts with some previous research suggesting that female students might be more likely to attend women's sporting events (Ridinger & Funk, 2006). One potential explanation is that other factors associated with institutions having higher percentages of women (such as program emphasis, institutional culture, or student engagement patterns) may be influencing this relationship. Further research with a

more diverse sample of institutions could help clarify this unexpected finding.

### **Marketing & Promotions**

The strong positive effect of promotional events on attendance underscores the crucial role of strategic marketing in building a fan base for women's collegiate volleyball. This substantial effect aligns with findings from multiple studies (Howell et al., 2015; McDonald & Rascher, 2000; Paul et al., 2013; Wells et al., 2000) that have demonstrated the positive impact of promotions on attendance across various sporting contexts. The significant effect size for promotional events suggests that strategic marketing may be particularly important for women's collegiate volleyball programs seeking to build their fan base. This finding supports Fink et al.'s (2002) recommendation for tailored marketing campaigns that appeal to specific demographic segments to increase attendance at women's sporting events.

### **Practical Implications**

This study's findings offer several practical implications for athletic administrators seeking to enhance attendance at women's collegiate volleyball matches. First, the significant upward trend in volleyball attendance across the study period (2021-2023) suggests a growing opportunity for athletic departments to invest in volleyball promotion and capitalize on increasing public interest in the sport. This growth trajectory aligns with broader media trends, which show an increase in viewership for women's volleyball (Callahan, 2024), indicating a potential inflection point in the sport's popularity.

Second, scheduling considerations merit attention when facilities and institutional constraints permit. When feasible within the constraints of scheduling and travel considerations, administrators should prioritize evening start times to accommodate the work and academic schedules of potential attendees (Trail et al., 2008; Mayer et al., 2017). Additionally, conference games should be emphasized in promotional efforts, as they consistently draw larger crowds than non-conference matchups. As such, when possible, scheduling conference matchups in the evening may yield higher attendance figures.

Third, the findings on opponent quality offer insights for non-conference scheduling strategies. The substantial attendance increase for matches against top-5 ranked opponents, coupled with decreased attendance for mid-tier opponents, suggests potential benefits to securing elite non-conference opponents. While conference schedules are predetermined, non-conference scheduling decisions could strategically incorporate highly-ranked opponents to generate early-season fan enthusiasm (Trail & James, 2001; Cialdini et al., 1976). For matches against mid-tier or unranked opponents, heightened marketing efforts may be necessary to boost attendance.

Fourth, the strong positive effect of promotional events (15% attendance increase) highlights the importance of targeted marketing initiatives. Volleyball programs may benefit from developing a structured promotional calendar that strategically distributes themed events, giveaways, and recognition nights throughout

the season. This finding supports previous research suggesting that sport marketing strategies may be particularly influential in Olympic sports contexts where baseline attendance tends to be lower (Zapalac et al., 2010; McDonald & Rascher, 2000). Athletic departments could consider allocating marketing resources toward developing volleyball-specific promotional strategies rather than applying generic approaches across all sports.

### **Limitations/Future Directions**

While this exploratory study provides valuable insights, several important limitations should be acknowledged that affect the generalizability of these findings and their practical applications for college athletic administrators.

First, the sample focused on 26 programs from Power Five conferences and major volleyball programs with historically strong attendance. College athletic administrators at institutions with substantially different characteristics, such as those at mid-major conferences, smaller institutions, or programs with developing volleyball programs, should exercise caution when applying these findings to their specific contexts. The attendance dynamics at these institutions may follow different patterns than those observed in our sample of high-profile programs. Future research should explicitly examine attendance patterns across a more diverse range of institutional profiles, particularly including programs outside the Power Five conferences.

Second, while the analysis included postseason matches, we recognize that

athletic administrators have limited control over postseason scheduling. Though our findings indicate significantly higher attendance for these contests, administrators cannot directly schedule them. However, the data suggests that when postseason opportunities do arise, they present valuable opportunities for enhanced marketing and promotions that can further capitalize on the already heightened fan interest. What administrators can control is how they leverage these occasions when they occur.

Third, the analysis relies on attendance figures as the primary measure of fan engagement, which does not account for other forms of support, such as viewership via streaming services or social media interactions. As digital engagement continues to grow in importance, future research should incorporate these alternative engagement metrics to provide a more comprehensive understanding of fan behavior patterns.

Fourth, while the study did account for competing football events, there may be other simultaneous campus or community activities that impact attendance. Future studies could incorporate these variables to further refine attendance models.

Despite these limitations, this exploratory study makes a meaningful contribution to the literature on women's sport attendance by providing empirical evidence of the factors driving volleyball attendance in a context where such research has been notably scarce. The findings provide evidence-based guidance for volleyball programs, while acknowledging the need for context-specific application

tailored to institutional characteristics. Future research can build on these initial findings by exploring attendance dynamics across more diverse institutional contexts and incorporating additional metrics of fan engagement.

### Conclusion

This exploratory study contributes to the understanding of women's collegiate volleyball attendance by identifying several key factors that influence attendance at Division I programs with established volleyball programs. Findings indicated that attendance is significantly influenced by scheduling parameters (evening matches, conference games), opponent quality (with elite opponents generating the highest attendance), institutional factors (percentage of women students), and marketing initiatives (promotional events). Contrary to findings in some other sports contexts, home team performance metrics revealed minimal influence on attendance patterns.

These results highlight the multifaceted nature of attendance dynamics in women's collegiate volleyball, an increasingly popular but still understudied sport. The substantial attendance growth observed across the study period (2021-2023) suggests women's volleyball is gaining popularity and may be at an inflection point in terms of fan interest and engagement. For athletic administrators and marketers in college athletic departments, these findings offer evidence-based insights that can inform strategic decision-making.

As women's collegiate volleyball continues to evolve and attract greater media attention and fan support, further

research across more diverse institutional settings will be valuable in understanding how attendance drivers may vary across different competitive levels, geographic regions, and institutional types. This study provides an initial foundation for such investigations while offering practical insights for programs seeking to build and sustain robust attendance in this growing sport.

### References

- Akabas, L. (2023, August 30). *Nebraska's Volleyball Juggernaut is a Financial Outlier*. Sportico. <https://www.sportico.com/leagues/college-sports/2023/nebraska-womens-volleyball-finances-1234735648/>
- Baecker, N., Chan, H. F., Schmidt, S. L., Schreyer, D., & Torgler, B. (2024). Women's volleyball demand across different distribution channels. *European Sport Management Quarterly*, 24(5), 1090-1110. doi.org/10.1080/16184742.2023.2255609
- Bass, J. R., Schaeperkoetter, C. C., & Bunds, K. S. (2015). The "front porch": Examining the increasing interconnection of university and athletic department funding. *ASHE Higher Education Report*, 41(5), 1-103. doi/10.1002/aache.20023
- Callahan, K. (2024, December 30). *Aced it! ESPN scores stellar viewership during 2024 NCAA women's college volleyball season*. ESPN Press Room. <https://espnpressroom.com/us/press-releases/2024/12/aced-it-espn-scores-stellar-viewership-during-2024-ncaa-womens-college-volleyball-season/>



- Cameron, A. C., & Trivedi, P. K. (2005). *Microeconometrics: Methods and applications*. Cambridge University Press.
- Cebula, R. J. (2013). A panel data analysis of the impacts of regional economic factors, marketing and promotions, and team performance on minor league baseball attendance. *The Annals of Regional Science*, 51, 695-710. doi.org/10.1007/s00168-013-0558-0
- Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M. R., Freeman, S., & Sloan, L. R. (1976). Basking in reflected glory: Three (football) field studies. *Journal of Personality and Social Psychology*, 34(3), 366-375. doi.org/10.1037/0022-3514.34.3.366
- Cooky, C., Messner, M. A., & Musto, M. (2015). "It's dude time!": A quarter century of excluding women's sports in televised news and highlight shows. *Communication & Sport*, 3(3), 261-287. doi.org/10.1177/2167479515588761
- Darvin, L. (2023, December 22). *NCAA women's volleyball is still waiting for the glass to shatter*. Forbes. <https://www.forbes.com/sites/lindseyedarvin/2023/12/22/ncaa-womens-volleyball-is-still-waiting-for-the-glass-to-shatter/>
- Depken, C. A., Williams, C., & Wilson, D. P. (2011). From the hardwood to the gridiron to the dorm: Influences on attendance to women's collegiate basketball. *International Journal of Sport Finance*, 6(1), 3-22.
- DeSchraver, T. D., & Jensen, P. E. (2002). Determinants of spectator attendance at NCAA Division II football contests. *Journal of Sport Management*, 16(4), 311-330. doi.org/10.1123/jism.16.4.311
- Dormann, C. F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carré, G., García Marquéz, J. R., Gruber, B., Lafourcade, B., Leitão, P. J., Münkemüller, T., McClean, C., Osborne, P. E., Reineking, B., Schröder, B., Skidmore, A. K., Zurell, D., & Lautenbach, S. (2013). Collinearity: A review of methods to deal with it and a simulation study evaluating their performance. *Ecography*, 36(1), 27-46. doi.org/10.1111/j.1600-0587.2012.07348.x
- Ferreira, M., & Armstrong, K. L. (2004). An exploratory examination of attributes influencing students' decisions to attend college sport events. *Sport Marketing Quarterly*, 13(4), 194-208.
- Fink, J. S., Trail, G. T., & Anderson, D. F. (2002). Environmental factors associated with spectator attendance and sport consumption behavior: Gender and team differences. *Sport Marketing Quarterly*, 11(1), 8-19.
- Gantz, W., & Wenner, L. A. (1991). Men, women, and sports: Audience experiences and effects. *Journal of Broadcasting & Electronic Media*, 35(2), 233-243. doi.org/10.1080/08838159109364120
- Hansen, H., & Gauthier, R. (1989). Factors affecting attendance at professional sport events. *Journal of Sport Management*, 3(1), 15-32. doi.org/10.1123/jism.3.1.15
- Howell, S. M., Klenosky, D. B., & McEvoy, C. D. (2015). Weather, timing, and promotions in Minor League Baseball: An examination of attendance in the



- International League. *Journal of Applied Sport Management*, 7(2).
- Kim, Y. K., & Trail, G. (2010). Constraints and motivators: A new model to explain sport consumer behavior. *Journal of Sport Management*, 24(2), 190-210.
- Kim, Y., Magnusen, M., Kim, M., & Lee, H. W. (2019). Meta-analytic review of sport consumption: Factors affecting attendance to sporting events. *Sport Marketing Quarterly*, 28(3), 117-134. doi.org/10.32731/SMQ.283.092019.01
- Kiraly, K., & Shewman, B. (1999). *Beach volleyball*. Human Kinetics.
- Martinson, D., Schneider, R., & McCullough, B. (2015). An analysis of the factors and marketing techniques affecting attendance at NCAA Division I women's basketball games. *The Journal of SPORT*, 4(2), 42-59.
- Mayer, K. C. (2021). Motivators and constraints of FCS spectators: Examining past-attendee and non-attendee behavior. *Journal of Sport Behavior*, 44(3), 339-356.
- Mayer, K. C. (2024). Attendance motivators and constraints: A Division III fall sports inquiry. *Journal for the Study of Sport and Athletes in Education*, 18(1), 1-22. <https://doi.org/10.1080/19357397.2021.1916306>
- Mayer, K. C., & Hungenberg, E. (2021). Sport attendance behavior spectrum: Motivators, constraints and context. *International Journal of Sports Marketing and Sponsorship*, 22(3), 566-587. doi.org/10.1108/IJSMS-04-2020-0070
- Mayer, K. C., Morse, A. L., Eddy, T. W., & Love, A. (2017). Constraint factors affecting non-attendance in collegiate volleyball. *International Journal of Sport Management and Marketing*, 17(3), 182-199. doi.org/10.1504/IJSMM.2017.085519
- McDonald, M., & Rascher, D. (2000). Does bat day make cents? The effect of promotions on demand for Major League Baseball. *Journal of Sport Management*, 14, 8-27.
- Megaree, S. (2024, September 5). *More TV opportunities are helping fuel the rapid growth of women's college volleyball*. Associated Press. <https://apnews.com/article/volleyball-72846bfa850be04c984d109ae47d1359>
- Meier, H. E., & Leinwather, M. (2012). Women as 'armchair audience'? Evidence from German national team football. *Sociology of Sport Journal*, 29(3), 365-384. doi.org/10.1123/ssj.29.3.365
- Munoz, E., Chen, J., & Thomas, M. (2022). Jumping on the bandwagon? Attendance response to recent victories in the NBA. *Journal of Quantitative Analysis in Sports*, 18(3), 161-170. doi.org/10.1515/jqas-2020-0092
- Murrell, A. J., & Dietz, B. (1992). Fan support of sports teams: The effect of a common group identity. *Journal of Sport and Exercise Psychology*, 14(1), 28-39. doi.org/10.1123/jsep.14.1.28
- National Collegiate Athletic Association. (2021). *Women's volleyball attendance records*. [https://www.ncaa.com/\\_flysystem/public-s3/files/2022-09/college-volleyball-attendance-records-2021.pdf](https://www.ncaa.com/_flysystem/public-s3/files/2022-09/college-volleyball-attendance-records-2021.pdf)
- National Collegiate Athletic Association. (2024a). *Composition and sport sponsorship*

- of the NCAA membership. <https://www.ncaa.org/sports/2013/11/20/composition-and-sport-sponsorship-of-the-ncaa-membership.aspx>
- National Collegiate Athletic Association. (2024b). *NCAA Membership Financial Database* [Data visualization dashboard]. <https://www.ncaa.org/about/resources/research/finances-intercollegiate-athletics-database>
- Natke, P. A., Falls, G. A., & Xiao, L. (2024). A long run look at FBS football attendance. *International Journal of Sport Finance*, 19(1). doi.org/10.32731/IJSF/191.022024.04
- Noll, R. G. (1974). Attendance and price setting. In R. G. Noll (Ed.), *Government and the sports business* (pp. 114-157). Brookings Institution.
- Olson, E. (2024, September 4). Volleyball popularity at all-time high for girls amid US Olympic success and college game's exposure. *Associated Press*. <https://www.ksl.com/article/51118390/volleyball-popularity-at-all-time-high-for-girls-amid-us-olympic-success-and-college-games-exposure#:~:text=The%20number%20of%20girls%20high,with%20clubs%20as%20of%20July>.
- Paul, R. J., Weinbach, A. P., & Robbins, D. (2013). American Hockey League attendance: A study of fan preferences for fighting, team performance, and promotions. *International Journal of Sport Finance*, 8(1), 21-38.
- Perrault, E. K. (2016). Attitudes and motivations of students toward athletic event attendance at a midsize Division III university: Recommendations for communicators. *International Journal of Sport Communication*, 9(3), 321-339. doi.org/10.1123/ijsc.2016-0011
- Price, D. I., & Sen, K. C. (2003). The demand for game day attendance in college football: An analysis for the 1998 Division 1-A season. *Managerial and Decision Economics*, 24(1), 35-46. doi.org/10.1002/mde.1100
- Ridinger, L. L., & Funk, D. C. (2006). Looking at gender differences through the lens of sport spectators. *Sport Marketing Quarterly*, 15(3), 155-166.
- Rottenberg, S. (1956). The baseball players' labor market. *Journal of Political Economy*, 64(3), 242-258.
- SBLive Sports. (2024, August 20). *A record 8 million athletes competed in high school sports in 2023-24*. High School on SI. <https://www.si.com/high-school/news/a-record-8-million-athletes-competed-in-high-school-sports-in-2023-24-01j5rde1pyas>
- Schreyer, D., & Ansari, P. (2022). Stadium attendance demand research: A scoping review. *Journal of Sports Economics*, 23(6), 749-788. doi.org/10.1177/15270025211000404
- Shackelford, D. E., & Greenwell, T. C. (2005). Predicting women's Division I sports attendance: An analysis of institutional characteristics. *Sport Marketing Quarterly*, 14(3), 139-147.
- Simmons, J., Popp, N., & Greenwell, T. C. (2021). Declining student attendance at college sporting events: Testing the relative influence of constraints. *Sport Marketing Quarterly*, 30(2), 122-134. doi.org/10.32731/SMQ.302.062021.04

- Simmons, J., Popp, N. K., McEvoy, C. D., & Howell, S. M. (2018). Using fan passion to investigate constraints to student attendance at college football games. *Journal of Intercollegiate Sport*, 11(2), 193-213. doi.org/10.1123/jis.2018-0019
- Sloan, L. R. (1989). *The motives of sports fans*. In J. H. Goldstein (Ed.), *Sports, games, and play: Social and psychological viewpoints* (2nd ed., pp. 175-240). Psychology Press.
- Snipes, R. L., & Ingram, R. (2007). Motivators of collegiate sport attendance: a comparison across demographic groups. *Innovative Marketing*, 3(2), 65-74.
- Spencer N. E. & McClung, L. R. (2001). Women and sport in the 1990s: Reflections on “embracing stars, ignoring players.” *Journal of Sport Management*, 15(4), 318-349. doi.org/10.1123/jsm.15.4.318
- Stensland, P., & Bass, J. (2017). To charge or not to charge: Examining stakeholder perceptions of nonrevenue sports ticketing policies. *Journal of Applied Sport Management*, 9(3). doi.org/10.18666/JASM-2017-V9-I3-8173
- Trail, G. T., Anderson, D. F., & Lee, D. (2017). A longitudinal study of team-fan role identity on self-reported attendance behavior and future intentions. *Journal of Amateur Sport*, 3(1), 27-49.
- Trail, G. T., Fink, J. S., & Anderson, D. F. (2003). Sport spectator consumption behavior. *Sport Marketing Quarterly*, 12(1), 8-17.
- Trail, G. T., & James, J. D. (2001). The motivation scale for sport consumption: Assessment of the scale’s psychometric properties. *Journal of Sport Behavior*, 24(1), 108-127.
- Trail, G. T., & Kim, Y. K. (2011). Factors influencing spectator sports consumption: NCAA women’s college basketball. *International Journal of Sports Marketing and Sponsorship*, 13(1), 60-82. doi.org/10.1108/IJSMS-13-01-2011-B006
- Trail, G. T., Robinson, M. J., & Kim, Y. K. (2008). Sport consumer behavior: A test for group differences on structural constraints. *Sport Marketing Quarterly*, 17(4), 190-200.
- Wann, D. L. (1995). Preliminary validation of the sport fan motivation scale. *Journal of Sport and Social Issues*, 19(4), 377-396. doi.org/10.1177/019372395019004004
- Wann, D. L., Brame, E., Clarkson, M., Brooks, D., & Waddill, P. J. (2008). College student attendance at sporting events and the relationship between sport team identification and social psychological health. *Journal of Intercollegiate Sports*, 1, 242-254. doi.org/10.1123/jis.1.2.242
- Wann, D. L., Melnick, M.J., Russell, G.W., & Pease, D.G. (2001). *Sport fans: The psychology and social impact of spectators*. Routledge.
- Wann, D. L., & Wilson, A. M. (1999). Variables associated with sport fans’ enjoyment of athletic events. *Perpetual and Motor Skills*, 89(2), 419-422. doi.org/10.2466/pms.1999.89.2.419
- Weaver, A. (2019). Declining the Big East: A case study of the College of the Holy Cross. *Journal of Amateur Sport*, 5(2), 80-114.

- Wells, D. E., Southall, R. M., & Peng, H. H. (2000). An analysis of market factors related to attendance at Division II football games. *Sport Marketing Quarterly*, 9(4), 203-210.
- Wooldridge, J. M. (2013). *Introductory econometrics: A modern approach* (5th ed.). Cengage.
- Zapalac, R. K., Zhang, J. J., & Pease, D. G. (2010). Understanding women's collegiate volleyball spectators from the perspectives of sociodemographics, market demand and consumption level. *International Journal of Sports Marketing and Sponsorship*, 11(4), 50-73. doi.org/10.1108/IJSMS-11-04-2010-B005