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Stacey A. Hall

University of Southern Mississippi, stacey.a.hall@usm.edu

Joslyn Zale

University of Southern Mississippi, joslyn.zale@eagles.usm.edu

Ryan Kavanaugh

University of Southern Mississippi, ryan.kavanaugh@usm.edu

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Spectator Awareness and Support of Safety and Security Practices and Technologies During COVID-19

Stacey A. Hall

Joslyn Zale

Ryan Kavanaugh

University of Southern Mississippi

Abstract

This study examined spectators' awareness of safety and security policies, procedures, and measures at events they attended in the US and their support of safety and security measures, including COVID-19-specific policies, as they returned to live events in the spring and summer of 2021. Understanding spectators' sense of safety and their support of safety and security measures and related technologies while attending events can help venue and event directors plan accordingly to ensure the optimal spectator experience.

Keywords: *COVID-19, safety and security policies and procedures, spectator experience, return to play, fan perceptions*

Please send correspondence to: Stacey Hall, Stacey.A.Hall@usm.edu

Because sports are susceptible to various risks and threats, policies, procedures, and measures relative to safety and security are vital components to the planning, organization, and execution of a sporting event (USA PATRIOT Act, 2001). Although spectators' willingness to attend live sporting events is based on several factors, their overall experience and sense of personal safety will significantly determine whether they return (Kaplanidou et al., 2021). The COVID-19 pandemic had devastating consequences on the sports and entertainment industries, causing cancellations and postponements of activities. Live events slowly returned with limited capacities and the added assurances of recommended public health and safety precautions in 2021.

Attendance at professional sporting events in the US steadily increased until the COVID-19 pandemic (Gough, 2021a). In 2020, the National Women's Soccer League (NWSL) played a shortened season in a bubble, and one team did not participate due to a coronavirus outbreak (Gaydos, 2020). The National Association for Stock Car Auto Racing (NASCAR) held virtual races with drivers using simulation software at their homes (Weston, 2020). Similarly, the National Football League's (NFL) draft, practices, and training camps were conducted virtually. In addition, NFL preseason events and Hall of Fame induction ceremonies were canceled, and many venue capacities were limited per local and state regulations and conditions (diFiori et al., 2021; Gaydos, 2020). Major League Baseball (MLB) played a shortened season with a largely regional schedule and neutral league championship and World Series locations, and several games were moved or canceled (Gaydos, 2020). The National Basketball Association (NBA) and Women's National Basketball Association (WNBA) paused their seasons and played in a bubble in Florida, and the National Hockey League (NHL) played in a bubble in Canada (Gaydos, 2020). The Major League Soccer (MLS) season was interrupted and resumed in a bubble in Florida, and two teams did not play due to outbreaks (Gaydos, 2020). The North American professional sports industry (including the MLB, MLS, NBA, NFL, and NHL) was worth \$71.06 billion in 2018 and, as a whole, continued to increase despite the COVID-19 pandemic due to media revenue (Gough, 2021b; Ozanian, 2021). Its forecasted 2022 value is USD 80.5 billion (Gough, 2021b).

The National Collegiate Athletic Association (NCAA) revenues increased steadily in the last decade, peaking at \$121.6 million in 2019 and decreasing to \$114.4 million in 2020, during which they operated at a median loss of \$7.76 million, primarily due to the COVID-19 pandemic (NCAA, 2022). NCAA basketball was canceled shortly after its season began, and, similar to the NFL, NCAA football was played with varying numbers of fans at the venues according to state regulations (Cooper & Alderman, 2020; Gaydos, 2020). The Big Ten and Pac-12 played shortened seasons against conference teams only. The Power Five canceled their spring seasons and championships, and the Ivy League did not hold any sports championships (Gaydos, 2020; Yang, 2020).

Because many professional and collegiate sporting events did not allow spectators at games, alternate fan engagement methods became important (Cooper & Alderman, 2020; Gaydos, 2020; Mastromartino et al., 2020; Yang, 2020). Fan communities, built on social media by team ambassadors, existed before COVID-19 and became the primary way for fans to engage with their favorite teams during the pandemic; fans could participate in contests and receive team news and updates (Pegoraro et al., 2017; Mastromartino et al., 2020).

Sporting events gradually resumed in 2021, often with limited numbers of fans in venues and coronavirus-related safety and security measures in place. Many venues that permitted fans implemented COVID-19-specific policies, such as limited maximum venue capacity, touchless and cashless concessions, additional venue cleaning, and social distancing, mask, and digital health pass requirements, which varied by location (diFiori et al., 2021). Over time, these regulations changed and often relaxed as more people received vaccinations (diFiori et al., 2021).

The purpose of this study was to gauge spectators' awareness of general safety and security measures, their level of support for such measures, and more specifically, their willingness to embrace COVID-19-specific policies and procedures as they returned to live sporting events in the spring and summer of 2021. Venue and event managers want fans to have a good experience at their facilities and events, as well as ensure they provide safe environments. Understanding spectators' general feelings about safety and security measures they encounter, and the impact on their experience, will help managers plan for future events. Furthermore, some public health safety measures that were implemented during the COVID-19 pandemic will likely remain part of the event safety and security plan and facility operations (i.e., cashless venues).

Methodology

To ensure that participants were familiar with safety and security practices at sporting events as of the spring and summer of 2021 when many venues returned to play, participants included individuals 18 years or older who had attended a live professional or intercollegiate sporting event within the past 3 years ($N = 609$). Since the U.S. population is approximately 332 million (United States Census Bureau, 2022), this sample size was selected because it is sufficiently large to be statistically reliable and valid with a 95% confidence level (Qualtrics, 2022).

The survey consisted of three parts and contained 63 items: Part I: demographics and attendance habits, Part II: support of general safety and security practices, and Part III: support of COVID-19-related safety and security practices. Parts II and III consisted primarily of Likert-scale items. Part II examined levels of agreement with general safety and security practices at venues spectators had attended. As the number of fans permitted to attend sporting events increased in the months before the data collection for this study (i.e., the spring of 2021), and previous research indicated that spectators' sense of personal safety was important when choosing to attend events in-person, the Likert-scale items in Part III focused on how important participants thought the use of various COVID-19-specific practices were when deciding to attend in person (Kaplanidou et al., 2021).

The survey instrument was sent to a panel of experts ($N = 8$) for content validity. The panel consisted of sport security professionals with at least 10 years of experience working in a professional or collegiate sports management role. The panel evaluated survey item relevance and clarity and agreed to retain all items with slight item wording changes. Upon Institutional Review Board approval, the survey was distributed anonymously via a Qualtrics panel in July 2021. Frequency analysis, measures of central tendency, and crosstabulation between demographic and perceptive items were used to examine baseline

trends in the 2021 data (Field, 2018).

Results

Participant Demographics and Attendance Habits

A total of 609 participants completed the survey, representing 528 ZIP codes across the continental US. The majority were female (58.5%). Respondents ranged in age from 18 to 75+ years old, with most between 25 and 44 years of age (43.7%). Most participants indicated White ethnicity/race (71.9%), followed by Black or African American (15.3%). Income levels ranged from less than \$25K to more than \$200K, with most (60%) indicating the income range of \$25–\$99K. Respondents also shared their highest level of education; 39.9% attained a bachelor's degree or higher.

Approximately 30% of respondents attended two sporting events per year, followed closely by five or more events (20.4%). The most popular sporting events attended included MLB (49.9%), NFL (37.1%), and college football (31.9%). On average, most participants paid a ticket price of \$46–\$55, with 62.4% typically paying in the \$56–\$65 range or less. Forty percent of respondents traveled more than 30 miles to attend a sporting event. Most participants attended sporting events in groups of two to four (81.1%). Most respondents (42.5%) arrived at their event 30 minutes before it started. This coincided with the indicated acceptable amount of time to wait in line before entry to a sporting event, to which most participants (89.3%) selected 10–30 minutes.

General Safety and Security Policies, Procedures, and Measures

Participants indicated their level of agreement with various safety and security practices using a five-point Likert scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*). Most respondents considered safety and security measures when choosing to attend a sporting event (73.2% agreed/strongly agreed). Similarly, most participants agreed or strongly agreed (77.6%) that they felt safe and secure when attending a sporting event. Although 38% indicated that security measures when entering the event inhibited their experience, respondents preferred to have visible security measures at sporting events (77% agreed/strongly agreed). Law enforcement presence ($M = 4.19$), venue personnel presence ($M = 4.21$), screening detection technologies ($M = 4.23$), bag searches ($M = 4.01$), security cameras ($M = 4.30$), security wands ($M = 4.21$), the ability to report an incident ($M = 4.11$), and the use of K9 units ($M = 3.94$) were highly supported. Furthermore, support for these measures increased as participant age increased. Support for facial recognition (biometrics), social media monitoring, and a no-bag policy was not as favorable as other measures; however, many participants indicated higher levels of neutrality (i.e., neither agreed nor disagreed) disagreement, as shown in Table 1.

The no-bag policy, in particular, had a mixed response. Because women tend to carry bags more often than men, the opinions of women and men were examined separately. More men (55.4%) than women (44.1%) indicated agreement or strong agreement. The use of social media monitoring was examined by age group. Participants aged 65 years and older tended to exhibit stronger disagreement than those aged 64 years or younger.

The survey included questions about safety and security policy communications and messaging, specifically participants' awareness of safety and security policies, communication methods, and their

preferred method of communication before attending an event. Most respondents were aware of their event's safety and security measures before attendance, and 76.8% knew how to seek emergency help at a sporting event. Participants received event safety and security information primarily through websites (56.7%), signage inside the venue (41.5%), venue entry point signage (41.4%), and venue announcements (33.3%). Preferred safety and security information communication methods before an event included websites (51.1%), email (43.5%), and tickets (38.3%).

COVID-19-Related Safety and Security Policies, Procedures, and Measures

Most participants (87.0%) desired to attend a sporting event in 2021; however, 75.4% actually planned to attend. Individuals who did not plan to attend an event in 2021 selected COVID-19 as the primary reason (74.7%), followed by ticket cost (56.7%). Respondents who selected "Other" indicated reasons such as accessibility, current health, compromised immune system, time constraints, work commitments, personal mobility issues, sickness, the team is not good, and absence of a local venue.

Approximately 68% of participants received the maximum number of available COVID-19 vaccines, and two-thirds of those not vaccinated did not plan to get vaccinated. Additionally, 28.2% of the respondents attended a sporting event without a vaccination. Unvaccinated attendance at a sporting event was highest for those 35-44 years of age (40%).

Participants indicated how important COVID-19-related safety and security practices factored into their decisions to attend future events. Most respondents indicated that a venue's use of temperature checks, digital health passes (i.e., proof of vaccination or negative test), and enhanced cleaning and sanitizing services were somewhat important or definitely important. More than half of the participants (58.7%) indicated that the use of cashless/touchless payment options within the venue was somewhat important or very important, although a high level of neutrality was also present.

Table 2 shows participants' indications of the importance levels of a venue's implementation of COVID-19-related policies and procedures when deciding to attend sporting events. Means ranged from $M=3.12$ to $M=3.79$. The most important policy was that venues had a facility certificate of hygiene/disinfectant compliance ($M=3.79$); 62.3% of respondents indicated that it was somewhat important or very important. This was followed closely by the use of social distancing requirements ($M=3.59$); 60.4% of participants selected somewhat important or very important. Notably, most respondents indicated neutrality, somewhat important, or very important on all the items.

Further analysis determined that 18 to 24-year-olds trended more towards the importance of contactless/cashless operations, designated areas for eating/drinking, and mask requirements when deciding to attend an event than other age groups. The likelihood of attending an event based on venue capacity was also evaluated. While likelihood trended towards attending for all capacities, participants indicated that they were slightly more likely to attend when venue capacities were restricted. Participants were asked if they would be interested in paying a minimal ticket fee for safety and security measures. Approximately 70% of respondents would be willing to pay such a fee, ranging from \$0.50 to \$5.00.

Table 1

General Safety and Security Policies, Procedures, and Measures: Means, Standard Deviations, and Frequencies

General Safety and Security Policy, Procedure, or Measure	<i>M</i>	<i>SD</i>	1-Strongly Disagree %	2-Disagree %	3-Neither Agree nor Disagree %	4-Agree %	5-Strongly Agree %
Security cameras	4.3	0.9	5.4	21.8	24.0	43.8	45.3
Law enforcement presence	4.2	0.8	1.6	1.1	13.3	44.3	39.6
Security wand metal detection	4.2	0.9	1.1	2.1	11.0	45.6	40.1
Venue security personnel presence	4.2	0.8	0.8	1.5	12.0	47.8	37.9
Walk-through screening detection technologies	4.2	0.8	0.7	2.5	11.8	43.2	41.9
Ability to report an incident inside the facility	4.1	0.8	1.0	1.6	15.4	49.3	32.7
Bag searches	4.0	1.2	1.5	5.9	15.3	44.7	32.7
K9 units	3.9	1.0	2.5	6.9	16.4	42.7	31.5
Facial recognition	3.5	1.2	7.1	14.0	26.4	31.2	21.3
No bag policy	3.3	1.2	5.4	21.8	24.0	30.9	17.9
Social media monitoring	3.1	1.3	15.4	14.4	26.9	27.3	15.9

Table 2

COVID-19-Related Safety and Security Policies, Procedures, and Measures: Means, Standard Deviations, and Frequencies

COVID-19-Related Safety and Security Policy, Procedure, or Measure	<i>M</i>	<i>SD</i>	1-Definitely Not Important %	2-Somewhat Not Important %	3-Neutral %	4-Somewhat Important %	5-Very Important %
Facility certificate of hygiene/disinfectant compliance	3.7	1.2	6.7	7.4	23.6	30.9	31.4
Social distancing requirements	3.6	1.3	10.0	10.0	19.5	32.2	28.2
Mask requirements	3.5	1.3	12.2	11.8	21.3	28.1	26.6
Contactless/cashless operations	3.4	1.1	7.4	12.6	28.7	32.3	18.9
Designated entry time	3.4	1.0	4.9	7.4	41.7	31.0	14.9
Vaccinated seating areas	3.4	1.3	12.5	10.2	24.8	27.4	25.1
Designated areas for eating and/or drinking	3.3	1.2	9.5	12.5	31.5	29.7	16.7
Tailgating opportunities	3.1	1.3	17.1	12.5	28.1	25.8	16.6

Discussion and Implications

Spectators tend to consider safety and security measures when attending sporting events and generally favored COVID-specific policies when deciding to return to live sporting events in the spring and summer of 2021. The majority of participants indicated that they prefer security measures to be visible; therefore, venue owners/operators and event organizers should consider using protective security and screening measures that spectators encounter or observe (e.g., walk-through screening detection technologies and uniformed law enforcement officers) to enhance their sense of safety.

Support for security measures, particularly those that are visible, increased as participant age increased, while facial recognition (biometrics), social media monitoring, and a no-bag policy primarily received neutral levels of support. Thus, venue and event directors should be aware of the ages of their spectators and consider enhancing their messaging so that younger spectators know what they can do to expedite interactions with security measures (e.g., during patron screening). Neutrality around facial recognition (biometrics) and social media monitoring support could occur if spectators are unfamiliar with these technologies. In particular, respondents aged 65 years or older indicated stronger disagreement with social media monitoring than those 64 years or younger. Educating spectators on how these technologies are used to increase their safety and security and enhance their overall experience may result in more support.

No-bag policy neutrality occurred because the sample size was split almost evenly between male and female participants. Most of the support for this policy came from male respondents, while the absence of support came largely from female participants, who often carry bags. Venues that do not allow bags should consider a clear bag policy or self-operating storage lockers on-site where spectators can temporarily store bags or items that are not permitted in the venue. Policy awareness can expedite patron entry and result in less disgruntled fans, as expectations are made clear before, during, and after events. Therefore, effective safety and security communications can ensure spectator awareness of policies, procedures, and measures before they attend an event. This study highlighted participants' preferred communication channels, including the venue/event website, email, tickets, venue signage, and venue announcements.

Spectators' decisions to return to live events in 2021 primarily rested on the venues' use of enhanced cleaning and sanitizing services. Regardless of whether the sports industry is facing a global pandemic, venue owners/operators should consider obtaining GBAC-STAR™ Facility Accreditation from the Global Biorisk Advisory Council. GBAC STAR™ is the cleaning industry's only outbreak prevention, response, and recovery accreditation for facilities and is an overall good public health safety measure for future operations.

Venue owners and operators should consider implementing cashless/touchless operations, such as installing motion sensors in restrooms and digital ticketing, concessions, and merchandise ordering. Respondents 18–24 years of age indicated higher levels of importance for contactless/cashless operations when deciding to attend an event than the other age groups. Although generally supported by all age groups, venue and event directors should especially consider implementing this if they often host events primarily attended by 18–24-year-olds. To facilitate use for spectators of all ages, venues should consider

installing reverse automated teller machines (ATMs).

The COVID-19 crisis prompted venue operators and event organizers to implement new procedures and innovative technology solutions, which usually come with a cost. Budget constraints may not be an issue for major sports venues and events to cover new expenses associated with public health safety measures needed for spectators to return. However, smaller venues and events may not have adequate resources and thus seek additional revenue streams to support enhanced measures. Charging a nominal security ticket fee for some organizations/associations could generate funds dedicated to their security efforts. Most participants indicated that they would be willing to pay a \$0.50–\$5.00 security ticket fee to offset costs associated with safety and security measures. Venue management may consider adding this fee to their ticket prices after discussions with internal stakeholders and conducting market research with external stakeholders.

Conclusion

Spectator attendance at sporting events steadily increased through 2019 and suddenly decreased in 2020 due to COVID-19. Many sporting events were canceled or held in bubbles or with limited spectators. Venues began allowing more spectators at their events in the spring and summer of 2021 as vaccination levels increased. Although the sporting event attendance decrease occurred partly due to local health regulations in some locations, it was also caused by how safe spectators felt at events. Venue and event security directors can use the results of this research to modify their safety and security policies, procedures, and measures to help spectators feel safe at their venues and thus more likely to attend events, which may increase operational revenue. Future studies can examine changes in spectators' feelings and general perceptions of safety and security over time and can focus on other specific issues relevant to the industry at the time of survey administration.

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