

Violent Spectators: Enhanced Security as a Deterrent Against Extreme Stadium Violence

Brian Harte y Robert Romano

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Brian Harte¹ y Robert Romano²

Abstract

In the post-911 era, the threat of extreme violence has resulted in more security at stadiums both within the U.S. and abroad. Intuitively, the use of enhanced surveillance and searches should decrease incidents of sports stadium violence. However, within a historical context, it is unclear as to whether or not enhanced technological security measures have made stadiums safer over time. Thus, this article provides a historical analysis of extreme violence at stadiums by location, type, cause and impacts through three distinct time periods 1960-1980, 1981-2000 and 2001-2019, respectively. The reportings through these periods represent deaths and injuries resulting from human (but not self-inflicted) causes at sports stadiums globally. Results indicate that of the three time periods examined, the period of 1960-1980 was the most violent timeframe for reported deaths. The time period of 2001-2019 was found to be the most dangerous period for possible spectator injury. Additionally, spectators were found to be three times more likely to be injured in the period of 2001-2019, as compared with the period of 1981-2000.

Keywords: fan violence, stadium security, sports violence, stadium technology, stadium deaths.

¹ St. John's University, New York, US. harte@stjohns.edu

² St. John's University, New York, US. romanor1@stjohns.edu

Introduction

During the 2001 Super Bowl in Tampa, Florida fans entering Raymond James Stadium were subjected to video surveillance with face-recognition scanning technology, and those images had been screened against a database of known criminals and possible terrorists (Elmore, 2001). While signage was present outside the stadium to inform stadium patrons that they were under video surveillance, many were likely not aware that facial recognition was being used as a type of “police line-up” to identify them (Kappstatter, 2001). Similarly, for the Super Bowl in New Orleans, Louisiana, the city used video surveillance and screening procedures with little public resistance since that year’s Super Bowl took place four months after the tragic terrorist attacks of September 11, 2001 (Claussen, 2006). Fear in U.S. citizenry during this time period was evident by the fact that 86% of Americans surveyed reported that they were in favor of using such technology in public places to scan for potential terrorists (Balint, 2003). However, by the 2002 Winter Olympic Games in Salt Lake City, “public fear had subsided and United States Olympic Committee (“USOC”) officials there decided not to use a scanning system that had been installed, although the reason the USOC officials gave was that the manufacturer of the system was not an official corporate sponsor of the Games” (Claussen, 2006, p.1). City officials in San Diego, during the 2003 Super Bowl are believed to have attributed their decision to forego the use of face-scanning technology due to factors such as excessive costs and identified inaccuracies (Balint, 2003). However, new developments emerged in three-dimensional enabled holographic technology that enhanced facial recognition search capabilities by the 2006 Super Bowl (Steinbach, 2006). The use of these technologies throughout sports complexes may prove necessary to reduce violence and provide an additional layer of safety and well-being of all attendees. However, while these technologies may provide an opportunity to identify known external threats to fans, they may prove less effective in identifying unforeseen bad actors within stadiums themselves.

The threat of violence at sport stadiums is not a new phenomenon. However, as security technologies continue to develop and evolve, new opportunities become available to enhance security operations by quickly identifying risks and limiting vulnerabilities. These measures may give the perception of greater safety and a reduced likelihood of a patron being victimized.

However, if these measures actually reduce the number of violent incidents as intended is largely unknown. In order to determine if violence is actually decreasing globally, a review of outcomes related to violence at sport venues is needed to ascertain whether or not sport stadiums have indeed become safer overtime. Perceptions of safety at sports venues will likely influence fan attendance and patronage at many sporting events. Thus, the need for safe and effective security operations at sport events necessitates an examination into outcomes of disruptive and violent fan behavior at stadiums globally. Based on the above considerations, a longitudinal examination of fan violent behavior within global sport stadiums and arena events is needed to delineate the impacts of extreme violence. Thus, the goals of this research are two-fold. First, to examine historical trends regarding fan violent behavior at sport stadiums over a 59 year period. Second, to determine how effective 21st century surveillance technologies are at reducing extreme violence occurrences at sports stadiums world-wide.

Violence at Sport Stadiums

Violence at sporting events continues to be a pressing concern for global fans, franchises, owners and other key stakeholders. Moreover, since violence is not produced within a vacuum, an analysis of extreme stadium violence is needed to better understand if advancements in surveillance and detection technologies have reduced the quantity and type of extremely violent incidents at sports stadiums globally.

Deaths and injuries that result from attendance at sports stadiums can be attributed to a variety of causes, both human and non-human. This study will examine human non self-inflicted causes of death and injury that have occurred in sports stadiums globally for the years spanning 1960-2019.

Since the Munich Summer Olympic Games and more recently, the horrific events that occurred on September 11th in New York City and Washington D.C. in 2001, sporting events have increasingly been viewed as possible terrorist targets, and stadium managers, sports leagues and event organizers have reacted by implementing tougher security policies and more sophisticated

security measures. Specifically, spectators and fans were subjected to several types of searches ranging from bag searches at the 1996 Atlanta Summer Olympic Games, wand searches at the 2002 Salt Lake City Winter Olympic Games, mandatory pat down searches required by the National Football League at all games, and video surveillance at the 2001, 2002, and 2006 Super Bowls (Clausen, 2006). However, little is known regarding whether or not these technologies have actually reduced the number of serious stadium incidents leading to injury and the loss of life globally. Moreover, due to violence within stadiums and the liability it poses, there is much concern regarding the need to prevent extreme violence within global sports stadiums.

Surveillance and search technologies continue to develop and become more sophisticated based on the need to reduce incidents of violence in stadiums. Additionally, the threat of terrorism continues to raise security concerns as various stakeholders, including stadium security personnel, grapple with the threat of spectator violence. Moreover, global concerns of violence at sports arenas and stadiums give rise to many questions regarding whether or not extreme violence can be mitigated through better crowd management techniques coupled with the latest in surveillance and security technologies. Historically, a multi-faceted approach to security and spectator protection has been utilized to reduce fear and anxiety and increase feelings of spectator safety overall. Stadiums have previously used physical security elements to observe spectators and their behaviors. Since cameras have become cheaper and more available, they are more readily utilized. Generally speaking, they may be viewed as less invasive than physical security, but still promote a strong security posture. Thus, many stadiums are now equipped with the latest surveillance technologies including Closed Circuit Television (CCTV). Additionally, new and evolving technologies such as facial recognition scanners, metal detectors, biometrics and other devices have aided to limit unwanted and unauthorized spectator access into events themselves. While these devices may be seen as less invasive than physical searches, their use still gives rise to questions regarding personal privacy and whether or not these measures actually deter violence at sport stadiums. However, these measures are seen as both warranted and necessary to not only protect stadiums from potential threats, but for the safety and security of all those who dwell and work within the confines of the stadium itself. Moreover, they are believed to help quicken the response to identify potentially violent situations in real time.

Research Question

How effective are 21st century surveillance technologies at reducing extreme violence at sports stadiums globally?

The increased utilization of cameras, security and video surveillance with artificial intelligence (AI) technology within stadiums today is believed to make stadium event spectators safer. Additionally, these technologies intend to make stadium spectators more manageable and less susceptible to engage in violent or criminal acts. Thus, screening methods are believed to reduce the number of violent incidents and stimulate better crowd control and overall safety. However, little is known regarding whether or not data supports a finding that 21st century stadiums have fewer incidents of extreme violence, deaths and injuries based on these technological advancements.

Theoretical Underpinnings

Deterrence Theory

Deterrence Theory draws its theoretical underpinnings from the classical works of Cesare Baccaria, an Italian economist and legal philosopher. In his seminal works entitled *Essay on Crimes and Punishment*, Beccaria (1764) describes the need for criminal justice reform through a focus on adequate and just punishment (Voltaire, 1785). Beccaria's initial concepts were reformed by criminologists and economists to explain not only why individuals choose to commit crimes, but how deterrence may offer a crime solution (Pratt, Cullen, Blevens, Daigle, & Madenson, 2006). Bentham expanded on these early concepts through his work titled *An Introduction to the Principles and Moral and Legislation*. In this work, Bentham describes how individuals seek pleasure and avoid pain in their decision-making (1789).

In the twentieth century, Classical deterrence theorists posited that in order for a deterrent effect to be present, punishments must be certain, severe, and swift. That is, the likelihood of having to

face criminal consequences must be an absolute, the consequences must be harsh enough to deter future like crime occurrences, and the punishment must occur within a short time after the person is sentenced.

Deterrence theory serves as a relevant theory explaining criminal behavior within sports stadiums since this theory provides both micro and macro level explanations of how criminal behavior changes occur based on punishments rendered. Two levels of deterrence are provided to explain the effects of individual and group deterrence as follows: 1.) specific deterrence, and 2.) general deterrence. Specific deterrence states that an individual will be specifically deterred from criminal acts based on the three aforementioned factors of deterrence. General deterrence explains the deterrent effect that the individual's punishment has on other individuals or groups, based on the consequences they observe. This theory proves a pragmatic approach, in that it not only explains individual behavior, but group behavior as well.

Contagion Theory

Contagion Theory was first introduced by Gustave Le Bon (1886) in his book entitled "The Crowd: A study of the Popular Mind in France". In his book, Le Bon (1886) attributed crowd and mob behavior as a 'collective racial unconscious' that overtakes an individual's sense of personality, self, and overall personal responsibility. The notion of contagion could be the result of emotions and stirred feelings within a group that breed anger, resentment, superiority, fear or hatred. Le Bon (1886) posits that people act in certain ways based on a type of hypnotic influence they experience from crowd involvement. Additionally, the anonymity provided by the crowd allows individuals in large groups to express violent tendencies and behaviors without fear of condemnation (Le Bon, 1886). Likewise, Le Bon (1886) believed that when absent of personal accountability, people often reverted back to their primal instincts. These instincts are believed to also include a propensity towards violence which can often be infectious (Le Bon, 1996). Specifically, Le Bon (1996) posits that:

“the disappearance of conscious personality and the turning of feelings and thoughts in a definite direction, which are the primary characteristics of a crowd about to become organised, do not always involve the simultaneous presence of a number of individuals on one spot. Thousands of isolated individuals may acquire at certain moments, and under the influence of certain violent emotions—such, for example, as a great national event— the characteristics of a psychological crowd” (p. 3).

Convergence Theory

Convergence theory offers an alternative perspective to Contagion Theory. Convergence theorists posit that individuals with similar interests group together to form crowds, and that crowd behavior represents these collective interests (Turner & Killian, 1972). Since individuals with a propensity for violence may be drawn to one another, groups comprised of these members may have attitudes favorable towards expressing violent tendencies. Additionally, groups that espouse violence as a means of intimidation may attract followers that enjoy engaging in bullying, aggressive, or superior behavior. Individual actors may escalate their own behavior to meet the needs or expectations of the group they choose to affiliate themselves with.

Hooliganism

Hooliganism is defined in the Cambridge Dictionary (2020) as “the behaviour of a violent person who fights or causes damage in public places” (p.1). The term hooliganism within sports settings refers to violent group behavior at footballs and soccer matches, particularly in the United Kingdom and South Africa (Spaaij, 2007). In sports, the fanatical allegiance to one’s team may spark feelings of extreme team loyalty and strong opinions regarding team superiority. This may lead to extreme defensiveness in fans whose viewpoints are challenged. While incidents of

hooligan behavior oftentimes do not lead to death or serious injury - unruly, rowdy and aggressive behavior may be precipitating factors to extreme violence.

Recent Studies

Kabiri, Shhadmanfaat, Smith, and Cochran (2020) utilized structural equation modeling to examine aggression in soccer fans' behavior through the lens of Social Learning Theory as a means of explaining how deviant behavior is influenced by theoretical perspectives including: differential association, differential reinforcement, and imitation. The authors' analyzed survey data from 372 soccer fans at a sport event in Iran to assess attitudes regarding verbal and physical aggression. The authors' concluded that "fans who observe the aggressive behavior of others that they respect are more likely to engage in verbal or physical aggressions" (Kabiriri, Shhadmanfaat, & Smith (2020, p.1).

Hurych and Scholz (2020) utilized a qualitative survey to examine the behaviors of select Czech football fans and their attitudes towards violence and hostility. The authors' surveyed 462 participants, harnessing the experiences of both men and women and the links between experiences and opinions regarding controversial fan behavior (Hurych & Scholz, 2020). The authors' concluded that linkages in behaviors are not linear, and groups were not found to be homogenous in either their thinking or behavior (Hurych & Scholz, 2020).

Brandao, Murad, Belmont, and Roberto Ferreira (2020) performed qualitative-quantitative research of two groups of ten Brazilian male fans over the age of 18 to determine the relationship between alcohol and fan violence at organized football matches. The authors' concluded that while there is no singular causal agent for violence, alcohol consumption can be a violence trigger, and as such, should be addressed further through appropriate policies (Brandao, Murad, Belmont, & Roberto Ferreira, 2020).

Tsoukala (2018) discusses the approach of European Union (EU) counter-hooliganism policies in curbing fan violence at stadiums from the mid-1990s period through 2006. Tsoukala (2018) indicates that the re-founding of the EU in 2007 marks a turning point for countering football crowd violence due to the introduction of sustained preventive policies that include supporters representing a variety of different stakeholder groups.

Block and Lesneski (2017) examined spectator fights at stadiums in North America and the aggravating and mitigating circumstances surrounding violent fan behavior. The authors' utilized a thematic analysis approach and identified several behavioral influencers of fan violent behavior including: "team allegiances, alcohol use, security presence, and bystander behavior" (Block & Lesneski, 2017, p.1140).

Marie (2016) examined the effect of football matches for London teams on local violent and property crime rates based on fan concentration, self-incapacitation and police displacement. The author collected data for nine London football teams spanning from October 1994 to March 1997 and linked crime data by location to estimate the impacts of rival fan behavior crime rates (Marie, 2016). The author's main findings support that home game attendance significantly increases property crime in the area hosting the event and that no significant changes were found in violent behavior during matches (Marie, 2016).

Pikora (2013) performed a qualitative study of soccer fan behavior to examine spectator interpersonal relations over 25 matchdays through the 2012-2013 and 2013-2014 seasons. The author's findings support the notion that in fan-based settings, such as sporting events, socialization occurs rapidly and acquaintances may quickly become friends. Moreover, more formal norms of personal socialization may be abandoned for communication styles including joking or joining in others conversations (Pikora, 2013; Strang, Baker, Pollard & Hofman, 2018).

Ramazanoglu (2012) conducted qualitative interviews with 147 volunteer Turkish police officers on duty at sports matches. Among the research findings, the author purports that aggression and fanaticism of fans is a multidimensional issue that requires cultural understanding, training and

technological solutions (Ramazanoglu, 2012). Moreover, law and technology should work hand in hand to combat the problem of fan intoxication to limit stadium violence (Ramazanoglu, 2012).

Slabbert & Ukpere (2010) performed a qualitative exploratory study to compare rugby and football spectators' attitudes toward violence within four African rugby and six football matches. The authors' examined three event periods to determine if before the game, after the game (side won) and after the game (side lost) affected fans attitudes toward violence (Slabbert & Ukpere, 2010). Results indicated that while there is no conclusive evidence to support findings that fan behaviors are an emotional catharsis through aggression, a symbiotic hypothetical relationship does exist between learned aggression and sport as a phenomenon (Slabbert & Ukpere, 2010). However, within sports, the seduction of winning may prove to be a precipitating factor in confrontational and aggressiveness demonstrated through fan behavior.

Data and Methods

This article provides a historical analysis of extreme violence at stadiums by location, type, cause and impacts through three distinct time periods designated as follows: Period 1 (1960-1980), Period 2 (1981-2000), and Period 3 (2001-2019), respectively. A string search of the key phrases "stadium violence", "stadium injuries", "deaths at sporting events", "fan violence", "stadium deaths", and "stadium disasters" was performed across the world-wide web (www) to gather relevant data. Data utilized in this research were triangulated through multiple reports by global media outlets to determine their authenticity. The data were compiled from press reports from the time the incidents were reported. The recorded incidents through the respective time periods represent deaths and injuries from human causes.

Human causes of death and injury are defined as deliberate, intentional and/or negligent actions of a person or group resulting in the death or injury of another person. Non-human causes of death include deaths that result from: unspecified reasons, unexplained circumstances, and/or stadium structural issue deaths not related to human contact. Thus, data in this study do not account for

non-human injury or death causes including: 1.) accidental deaths resulting from structural stadium weaknesses, 2.) deaths that occurred off of stadium property, 3.) unexplained deaths, and 4.) other deaths for unspecified reasons, or 5.) human causes from self-inflicted wounds.

Tables 1, 2a and 2b, 3a and 3b below illustrate extreme stadium violence events globally through three distinct time periods, 1960-1980, 1981-2000, and 2001-2019, respectively.

Table 1: Extremely Violent Incidents Resulting in Death or Serious Injury - Period 1: 1960-1980

Event	Location	Sport	Year	Cause	Impact
Tokyo Olympic Final qualifying match	Lima, Peru	Soccer	1964	Riot	318 deaths - 500 injured
Kayserispor and Sivasspor	Kayseri, Turkey	Soccer	1967	Fighting	44 deaths - 600 injuries
Rangers Game	Glasgow, Scotland	Soccer	1971	Stampede	66 deaths - 140 injured
Unspecified	Salvador, Brazil	Soccer	1971	Fighting	4 deaths - 1500 injured
Summer Olympics	Munich, West Germany	Olympics	1972	Terrorism	12 deaths*
Zamalek SC and Dukla Prague	Cairo, Egypt	Soccer	1974	Crushed	50 deaths- 50 injured
Canada and USSR Youth Team Game	Moscow, USSR	Soccer	1975	Crushed	20 deaths

*Five Black September terrorist member deaths not included in totals

Totals: (Recorded Incidents: n=7) (Deaths: n= 514)(Injuries: n = 2790)

Results

Table 1 above describes incidents of extreme violence for the time period indicated as Period 1: 1960-1980. Causes of death and injury through this period were reported as follows: riot, fighting, stampede, terrorism and crushing.

In this time period, the most common causes of death were from deaths as a result of crushing (n=70), stampede (n=66), and fighting (n=48). Riot accounted for the most single event deaths reported (n=318), while fighting was responsible for the most multiple event injuries (n=2100).

Stampede accounted for the second highest death toll by type (n=66), and riot accounted for the second highest number of single event injuries (n=500). Crushings accounted for the third highest number of deaths (n=70). Lastly, terrorism accounted for the fourth highest number of deaths (n=17).

Figure 1: Period 1: 1960-1980 Deaths by Category

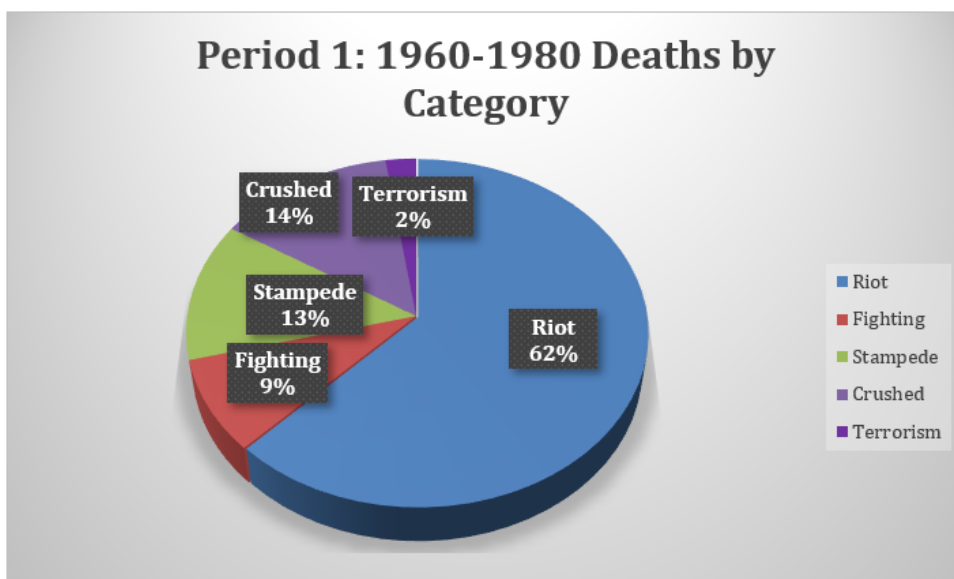


Figure 1 above depicts the percentage of deaths by category through Period 1. Riot represents the highest frequency of reported deaths (62%). Crushed (14%) and stampede (13%) collectively

comprise 27% of all deaths (n=514). The most violent deaths were reported as fighting (9%) and terrorism (2%). These deaths were shown to constitute 11% of all deaths through this period.

Table 2a: Extremely Violent Incidents Resulting in Death or Serious Injury - Period 1: 1981-2000

Event	Location	Sport	Year	Cause	Impact
AEK Athens Match	Piraeus, Greece	Soccer	1981	Crushed exiting stadium	24 deaths - 54 injured
UEFA Cup*	Russia	Soccer	1982	Crushed - Fan Violence	66 deaths- 340 injured
European Cup final	Brussels, Belgium	Soccer	1985	Fight	39 deaths - 400 injured
Unspecified	Tripoli, Libya	Soccer	1987	Fan Violence Knife attack	2 deaths 16 injured

Table 2b: Extremely Violent Incidents Resulting in Death or Serious Injury - Period 1: 1981-2000

Nepal and Bangladesh Match	Kathmandu, Nepal	Soccer	1988	Stampede - Hailstorm	93 deaths 100 injured
Liverpool vs. Nottingham Forest Match	England	Soccer	1989	Crushed - Poor crowd control	96 deaths 766 injured
Kaizer Chiefs vs. Orlando Pirates Match	South Africa	Soccer	1991	Riot - Trampled	42 deaths - 50 injured
Guatemala vs. Costa Rico Match	Guatemala City, Guatemala	Soccer	1996	Stampede	83 deaths - 140 injured

Totals: (Recorded Incidents: n= 8) (Deaths: n=445)(Injuries: n = 1866)

In Tables 2a and 2b above, extreme violence incidents resulting in death and injury for the time period designated as 1981-2000 are illustrated. Causes of death and injury through this time period were reported as: stampede, crushing, fight, fan violence - knife attack, crushing, and riot.

Crushings accounted for the highest number of deaths by type through this period (n=186) and fight accounted for the highest number of single event injuries (n=400). Stampede accounted for the highest reporting of multiple event injuries (n=386).

Unlike findings in Period 1, Period 2 reported deaths were found to be more often caused by crushings. However, spectators were more likely to be injured than killed at sporting events through this period. Additionally, fights were found to be common occurrence in Period 2, as in Period 1.

Figure 2: Period 2: 1981-2000 Deaths by Category

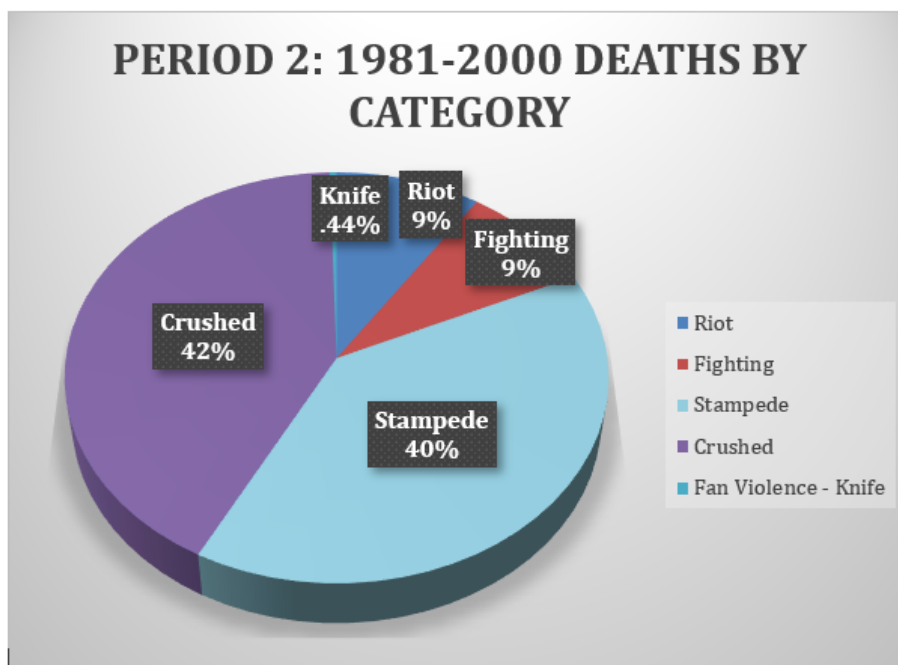


Figure 2 illustrates the percentage of deaths reported by category for Period 2. The highest percentage of deaths through this period were the results of crushings (42%). The second highest

percentage of deaths were for stampedes (40%). These two categories represented 82% of all incident related deaths for this period. The categories of riot (9%), fighting (9%) and fan violence/ knife attack (.44%) represented an additional 18.44% of all reported deaths (n=445). Thus while the death and injury rates remained high in Period 2, fans were less likely to be injured or killed through incidents involving a weapon.

Table 3a: Extremely Violent Stadium Incidents Resulting in Death or Serious Injury - 2001-2010

Event	Location	Sport	Year	Cause	Impact
Unspecified	Morovia, Liberia	Soccer	2000	Stampede	3 deaths 8 injured
World Cup Qual.	Harare, Zimbabwe	Soccer	2000	Stampede	12 deaths 8 injured
Soccer Championship Match	Brazil	Soccer	2000	Crushed	200 injured
Kaizer Chiefs vs. Orlando Pirates	Johannesburg, South Africa	Soccer	2001	Stampede	43 deaths 80 injured
Accra Hearts vs. Asante Kotoko	Ghana, Africa	Soccer	2001	Stampede	127 deaths
Boston Red Sox Game	United States of America	Baseball	2004	Accidental Police Shooting	1 death
Angel's Game - Opening day	United States of America	Baseball	2009	Fight	1 injured- brain injury
Philadelphia Phillies vs. Cardinals Game	United States of America	Baseball	2009	Fight	1 death
Blackburn Rovers Match	England	Soccer	2010	Blunt force trauma	1 death
AFC Leopards v. Gor Mahia	Kenya	Soccer	2010	Stampede	7 deaths 50 injured

Totals: (Incidents: 10)(Deaths: n=195)(Injuries: n =347)

Table 3b: Extremely Violent Stadium Incidents Resulting in Death or Serious Injury - 2011-2019

Event	Location	Sport	Year	Cause	Impact
Southeast Asia Games final	Indonesia	Soccer	2011	Stampede	2 deaths
Al-Masry and Al-Ahly Match	Egypt	Soccer	2012	Fight	79 deaths, 1000 inj.
Santa Cruz v. Parana Match	Brazil	Soccer	2014	Blunt force trauma	1 death
ASVClub vs. Tout Puis. Maze.	Kinshasa, Congo	Soccer	2014	Stampede	15 deaths 20 injured
Zamalek and ENPPI Match	Cyro, Egypt	Soccer	2015	Stampede	28 deaths 25 injured
Santa Rita Cassia FC vs. Rec. do L.	Angola, South Africa	Soccer	2017	Stampede	17 deaths 59 injured
Orlando Pirates and Kaizer Chiefs Match	Johannesburg, South Africa	Soccer	2017	Stampede	2 deaths 17 injured
Unspecified	Dakar	Soccer	2017	Crushed	8 deaths 60 injured
Unspecified	Uige, Angola	Soccer	2017	Stampede	17 deaths 24 injured
Juventus vs. Real Madrid Match	Turin, Italy	Soccer	2017	Stampede	2 deaths - 1600 inj.
African Champions Leag.	Luanda, Angola	Soccer	2018	Stampede	5 deaths
Unspecified	Madagascar, Africa	Soccer	2019	Stampede	16 deaths 101 inj.
Motagua vs. Olympia	Honduras	Soccer	2019	Riot	4 deaths - 10 injured

Totals: (Incidents: 13)(Deaths: n=196)(Injuries: n = 2916)

The interpretation of results of Tables 3a and 3b are combined below proceeding Table 3b.

Tables 3a and 3b above describe incidents of extreme violence for the time period indicated as Period 1: 1960-1980. Causes of death and injury through this period were reported as follows: stampede, fight, riot, crushing, police shooting, and unspecified. Stampede accounted for the highest number of multi-event deaths (n=297) and the highest number of multi-event injuries (n=2002). Fight represents the highest single event deaths by type (n=79) and the most single event injuries (n=1000). Moreover, 69.23% of all reported deaths and injury incidents (N=13) can be attributed to stampedes.

Figure 3: Period 3 – 2001-2019 Incidents by Type

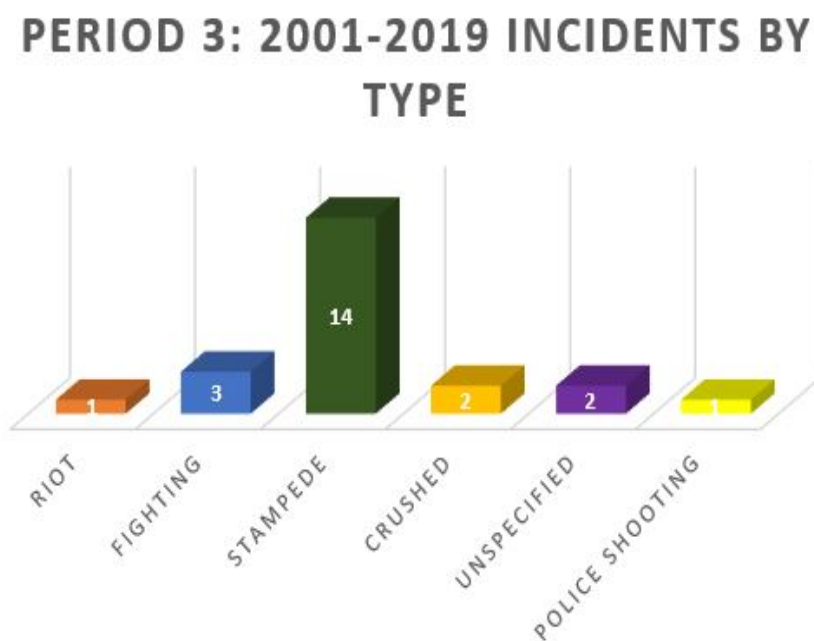


Figure 3 above depicts the frequency of extreme violence events for the Period 3: 2001-2019 by incident type. Stampede (n=14) and fighting (n=3) collectively accounted for the highest number of incident types by category through this period (n=17). Crushing (n=2), unspecified (n=2), riot (n=1) and police shooting (n=1) accounted for the remaining incidents by category through this period (n=15). Table 4 below indicates the percentage of incidents and deaths across the three periods examined respectively.

Table 4: Extreme Violence at Stadiums Across Identified Periods

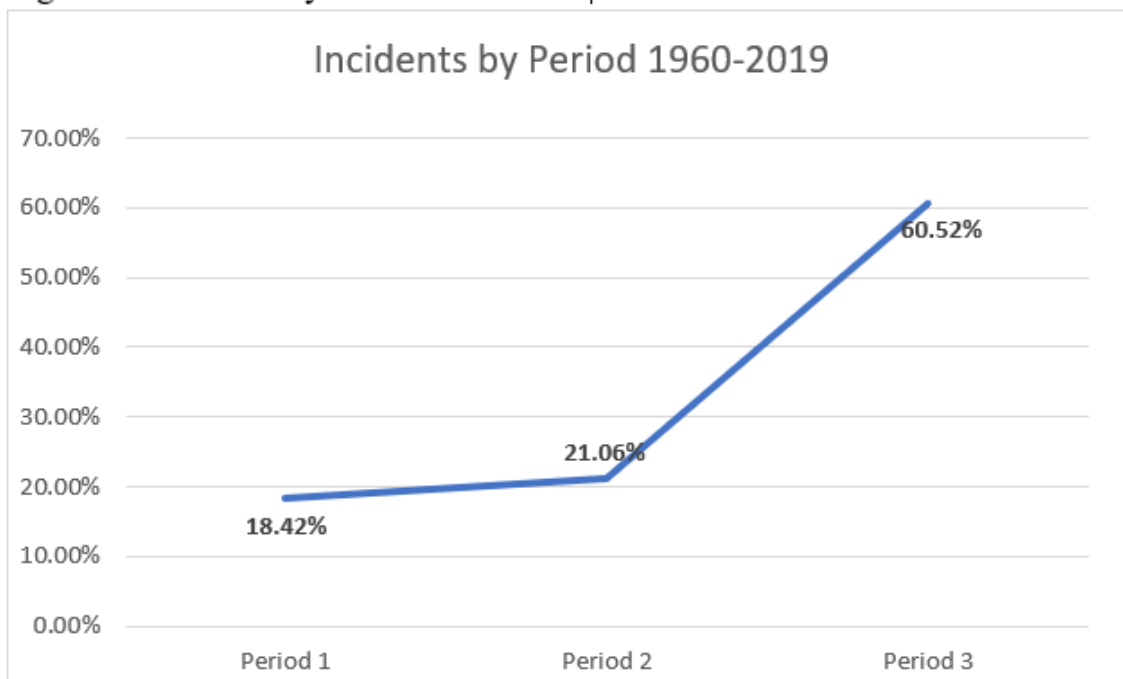
	Period 1: 1960-1980	Period 2: 1981-2000	Period 3 2001-2019
Percentage of Incidents	18.42%	21.06%	60.52%
Percentage of Deaths	38.07%	32.96%	28.97%
Percentage of Injuries	24.95%	16.69%	58.36%

N = 100%

Total = (Incidents: N=38)(Deaths: N=1,350)(Injuries: N=11,182)

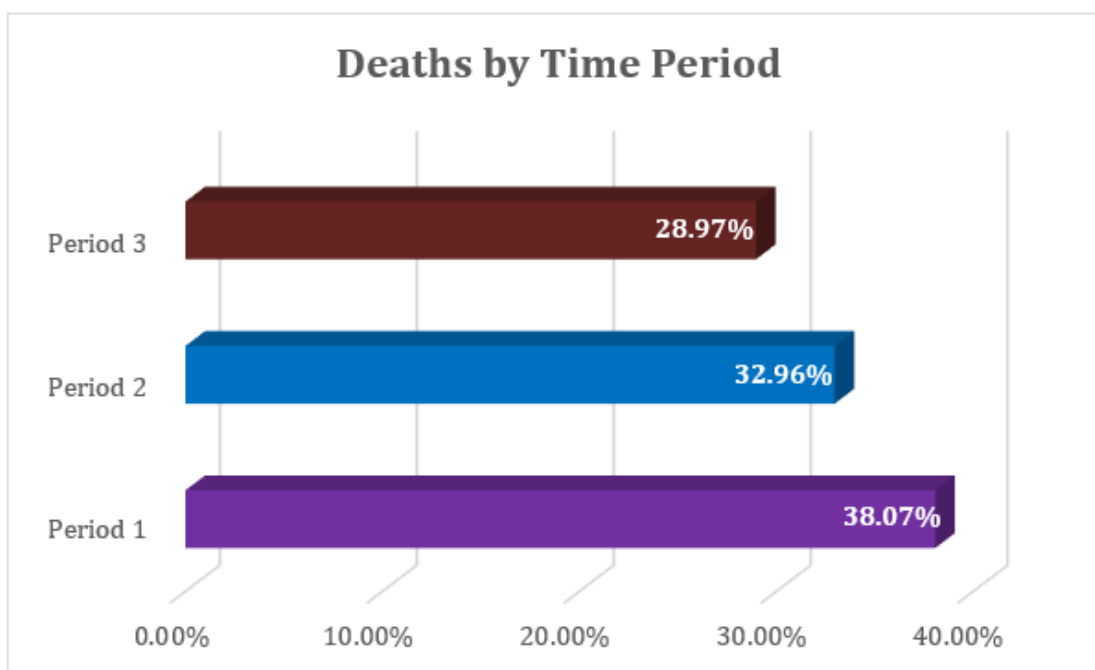
Figure 4 below illustrates the number of extreme violence incidents reported across the three respective aforementioned time periods.

Figure 4: Incidents by Period 1960-2019



Of the three periods examined, Period 3 represented 60.52% of the injury events reported across all time periods. Period 2 represented the second highest reporting period with 21.06% of serious injury events reported overall. Period 1 had the lowest number of reported incidents resulting in injury or death occurrences (18.42%) across all periods examined.

Figure 5: Deaths by Time Period



In Figure 5, deaths within the three time periods examined are reported above for comparative purposes. The largest percentage of deaths occurred in Period 1 (38.07%). The second largest number of deaths occurred in Period 2 (32.96%). Lastly, Period 3 had the least reported deaths as compared with all periods examined (28.97%). These overall results show that spectators were more likely to be killed by extreme stadium violence in the years spanning 1960-1980 than in any other time period examined.

Figure 6: Percentage of Injuries Across Identified Periods

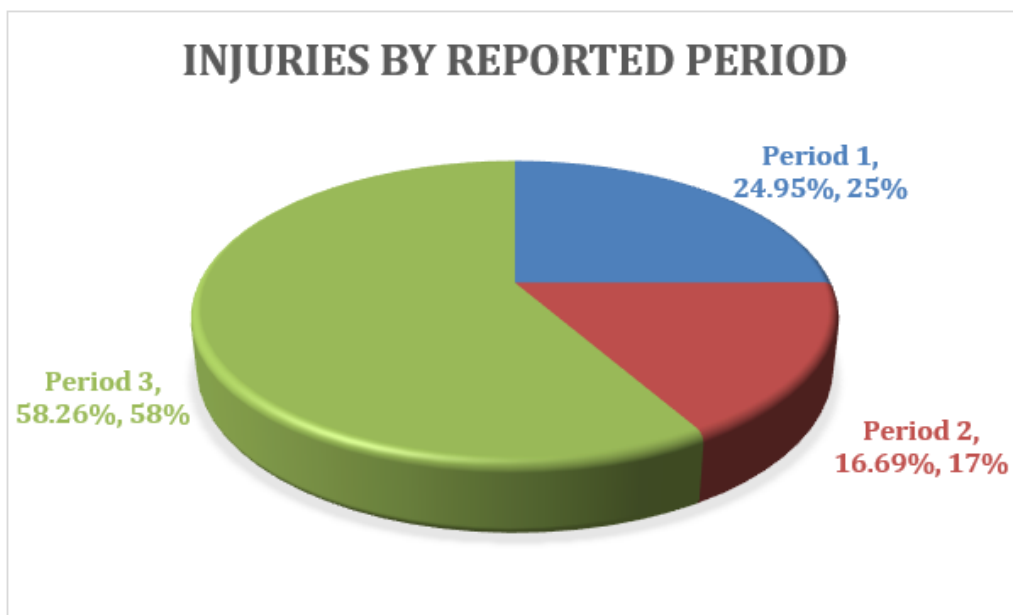


Figure 6 above shows that the number of reported injuries across all three periods examined. Period 1 had the least amount of reported injuries as compared with other time periods. The second highest number of injuries occurred in Period 2 (16.69%). Lastly, Period 3 showed the highest number of reported injuries (58.26%) when compared with the other described periods examined (N=100%).

Discussion

Stadium security mechanisms including metal detectors, facial recognition live scans, cameras and physical security will likely dissuade some spectators from entering into sport stadiums with weapons. Likewise, these measures should better fortify these events against potential unlawful actors since perpetrators of criminal and violent acts will quickly be identified, apprehended, and brought to justice. Thus, there is likely a deterrent effect from the use of these tools that may

enhance spectators' feelings of safety overall. However, whether or not non-weapon carrying spectators enter into sport arenas with the intention of committing acts of violence is largely unknown.

Aggression demonstrated through hooligan behaviors continues to be a problem faced by many sport stadiums today. Certainly, individuals or groups that espouse verbally abusive speech or aggressive behavior could be prone to violence. Unruly behaviors of spectators and fans such as teasing, harassing and antagonizing behaviors may quickly escalate to violent behaviors when tensions flare. Likewise, the intoxicating effect of alcohol may prove to lower inhibitions and promote behaviors and activities that precipitate violence. Also, the allure of fanaticism in supporting one's team may entice some spectators to engage in behaviors that they may not otherwise participate in on their own. The psychological and sociological reasons why otherwise law abiding people would engage in unacceptable behaviors that promote and encourage violence have yet to be thoroughly explained. However, the main goal of this research was to explore outcomes of violence perpetrated at stadiums to determine if violent acts are consistent overtime and if stadiums have become safer with the advent of new technologies. The triggering and causal events that lead to violence at sport stadiums and the phenomenon of hooliganism were not examined, but do warrant further exploration.

Findings of this study support that while incidents resulting in spectator injury have increased over the past 19 year period observed, deaths resulting from spectator violence decreased as compared with the previous 40 year period. Similarities were observed in the causes of death and injuries categorically, across all periods examined. From 1960-2019, the most common reasons for death and injury were crushing, stampedes and fights. Riots showed to be a more common occurrence at sporting events prior to the year 2001.

The highest number of reported deaths from a singular incident was the 1964 Tokyo Olympic Final Match (N=318). The event with the highest number of reported injuries was the 2017 Juventus vs. Real Madrid Match (N=1600). A comparison of all three time periods also revealed that extreme violence at stadiums was more prevalent in the years spanning 2000-2019. The

number of reported incidents remained fairly consistent from 1960-2000. However, the number of event incidents in the years 2001-2019 showed a three-fold increase from Period 2.

While 21st century technology is believed to greatly reduce extreme stadium violence, Period 3 has shown, overall, to be the most violent historical period in stadium sport history. In terms of both number of violent spectator events and injuries sustained, Period 3 proved to be more violent than Periods 2, and Period 1. However, it should be noted that more deaths were recorded at sports stadiums in Period 1 than in any other time period. Moreover, through this study single and multi-event analysis helped to delineate types of event occurrences, their historical significance, and overall outcomes.

This research should be viewed within a historical context to ascertain what types of violent and criminal acts are prevalent at global sport stadiums and their outcomes. Certainly the use of security, detection and surveillance methods have decreased the number of weapons and other unauthorized items entering sports stadiums. However, the general and specific deterrence impacts of these seizures on violent acts prevented is largely unknown. Since this study did not examine the inebriating effects of alcohol and its impacts on sports fan behavior. In light of this study's findings, more research is needed to determine how alcohol consumption and fan behavior contributes to extreme violence at sport events. Additionally, regional, national and global cultural study comparisons should be conducted to identify extreme spectator violence extraneous variables not previously researched. Future studies of this kind should further examine the contagion effect of crowd and fan behavior on individuals and groups and the relationship between this behavior and extreme spectator violence.

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