Homicidal Violence Among National Football League Athletes

Peter Cummings, Allen G. Harbaugh, George Farah

ABSTRACT

Given the concerns regarding chronic traumatic encephalopathy and its potential association with violent behavior in football players, we investigated the rates of deaths and arrests related to homicide among the National Football League (NFL) population.

In order to accomplish this, we performed a retrospective analysis of the 27 155 individuals who had played, or are currently playing, professional football since its inception in 1920. The number of observed homicides in this cohort was compared to the number of expected homicides using the Centers for Disease Control and Prevention annual tables. Information regarding player cause of death was obtained from web-based sources.

We identified 17 (0.27%) homicides among the 6356 NFL player deaths. The average age of individuals dying as the result of homicide was 31.4 years (range 24-50 years). Gunshot wound was the leading cause of death. The standardized mortality ratio for death by homicide was historically below 5%. As compared to the general US population, there were about 70% fewer deaths by homicide in the NFL population than would be expected. Our study also found only 0.04% of the NFL player population has ever been the focus of a homicide investigation, with only 0.02% of the NFL player population having been convicted.

Our findings suggest homicidal violence among NFL players is rare, as NFL players have substantially lower rates of dying and being arrested as a consequence of homicidal violence compared to the general US population. *Acad Forensic Pathol.* 2018 8(3): 708-717

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INTRODUCTION

In the United States, professional athletes are regarded as celebrities. As such, the death or arrest of a National Football League (NFL) player attracts intense media coverage. Due to the high level of negative attention often accompanying NFL player arrests, there has been a great deal of discussion in the public and medical communities centered around the seemingly life-of-violence led by athletes who play professional football. The perception of increased violent behavior among NFL players has been perpetuated by the attention given to chronic traumatic encephalopathy (CTE) (1-5). Individuals suffering from suspected CTE are said to display a diverse set of clinical symptoms, including emotional and behavioral problems such as depression, anxiety, suicidality, aggression, and explosive bouts of anger (6-10). A recent case study describing pathologic findings consistent with CTE in 110 out of 111 donated brains of former NFL players reported associated behavioral, mood, and cognitive symptoms to be common among their study population (11). The authors also reported that subjects with severe CTE pathology had an increased number of lesions in certain regions of the brain relating to impulsivity, depression, anxiety, and explosiveness, postulating that lesions in these key regions of the brain could result in the cognitive and emotional disturbances described in the study. Many of the media reports regarding CTE have described afflicted athletes as frequently displaying violent and aggressive behaviors. This has led to the public perception that NFL athletes are at an increased risk of violent and explosive outbursts than the general male population, and that the behavioral consequences of CTE put all football players at an increased risk of committing, and dying as the result of, acts of violence. As homicide is an extreme expression of violence, the purpose of this study was to evaluate the trends associated with homicidal violence among current and retired NFL players. Due to the perceived high prevalence of violent behavioral ascribed to NFL athletes, it is hypothesized NFL players will be at an increased risk of dying as the result of homicidal violence and more likely to be involved in homicide investigations.

METHODS

Participants

The study sample was comprised of professional football players who were listed on the roster of an NFL team for at least one year since the inaugural season in 1920. Athletes who were retired or active while involved in acts of homicidal violence were included in the study group. Any athlete who was at some point a professional football player was included. One subject was excluded from the study group as he only played three games as part of a publicity stunt in the 1930s. In total, we identified 27 155 individuals who had played, or are currently playing, professional football.

Data Collection

As of September 2017, a literature review was conducted to identify peer-reviewed publications describing mortality rates among NFL athletes. The number of deaths reported as homicide were recorded from these publications. An exhaustive Internet search was also used to identify NFL players dying as the result of homicidal violence utilizing key search terms: "NFL player homicide," "NFL homicides," "professional football homicide," and "football homicide." The Internet search was able to provide name, birthdates, dates of death, and circumstances of death. Internet sources for information included news media outlets, obituary sites, NFL.com, and team press releases. All cases were cross-referenced with another source to assure the accuracy of information. All data were collected from publicly accessible information sources.

In addition, an Internet search was also conducted to identify NFL players who have been arrested, with the website <http://nflarrests.com> as the primary source of this information for players arrested since 2000. This website provides up to date information regarding the arrests of NFL players and includes information such as the nature of the crime, date of crime, team, and position. Four players involved in homicide investigations were identified from this website. Data collected from this website was cross-referenced with another source in order to assure the accuracy of information.

After collecting data from this website, the authors performed an extensive Internet search to identify any additional cases of arrests for homicidal violence utilizing the search terms “NFL arrest,” “NFL player arrested,” “NFL arrested homicide,” “NFL suspect homicide,” and “NFL shooting.” This process yielded eight additional players involved in homicide investigations. All data was collected from publicly accessible information sources.

Comparison Statistics

Homicide mortality statistics of our study population were compared to the general population. Centers for Disease Control and Prevention (CDC) life span trend tables by age were used to organize the homicidal deaths by age. Arrest rates were compared to age, sex, and race adjusted controls from the general population. Crime statistics were retrieved from the Federal Bureau of Investigation website (<http://www.fbi.gov>).

RESULTS

Out of the 6356 total NFL deaths, there were only 17 (0.27%) athletes who died as the result of homicidal violence. Only 0.06% of the total 27 155 NFL player population in our study population have died as the result of homicide. Three of the athletes were active in the NFL at the time of their deaths and one former NFL player was active in the Canadian Football League (CFL) at the time of his death.

Gunshot wound was the cause of death in 16 of the 17 cases and sharp force injuries resulted in the other death in the study population. Fifty-nine percent (10/17) of the players dying of homicidal violence had been previously arrested.

The average age of the study population dying as the result of homicide was 31.4 years (range 24-50 years). The average number of years playing in the NFL was 3.4 (range 1-12 years). Ninety-four percent (16/17) of the study population was African-American. Three individuals also played in other leagues, such as the CFL. The average total number of years playing for other leagues was eight (range 2-4 years; **Table 1**).

The number of observed homicides was compared to the number of expected homicides using the CDC annual life tables (reporting number of homicides per 100 000 people). For meaningful comparison, the standardized mortality ratio (SMR) was used (12). In brief, this is the ratio of the number of observed homicides to the number of expected homicides. Thus, a ratio of 0.8 means there were 80% of the number of expected homicides observed (or equivalently, 20% fewer homicides than the expected). Initial data suggests that the number of homicides is below that of the general population, so instead of testing against age- and race-adjusted population statistics (which will be larger in all cases for this sample), the lower homicide rate for the entire population was used for comparison purposes.

The first noted death by homicide from this population was in 1976, and there were 29 years between 1920 and 1976 in which no homicide deaths were observed. Thus, frequencies were aggregated in five-year increments (but for the first observation, which aggregated across six years). Expected values for the number of deaths by homicide were accordingly adjusted by year using a weighted average over the time window (five or six years). To obtain expected values, the number of living NFL players (past and current) for each year was obtained (using the cumulative number of all players since 1920 and the deaths that have occurred since 1923). These values were used in conjunction with the CDC annual reported values to obtain the estimated number of deaths by homicide for this subset of the US population. Confidence intervals for the intervals were also calculated. Ranges of these changing intervals over time are presented in **Figure 1**.

We identified 12 NFL players who were alleged to be involved in the act of committing homicides. The average age of the player at the time of the alleged crime was 30 years (range 23-46 years). The average number of years playing professional football was 5.9 (range 1-16 years). In our study population, 0.04% of all NFL players have been investigated for the crime of homicide. Four players were active at the time of suspected involvement in the crime.

Of these 12 players, seven were alleged to be guilty of the crime of homicide; five were convicted of the crime and two committed suicide before their trials. Although one of these players accepted a plea agreement and had his charge reduced to manslaughter, the act involved the death of an individual at the hands of another, the definition of “homicide” in forensic pathology, so it is included in this data set. Only 0.02% of the total NFL playing population (27 155 players) have ever been convicted of a homicide (**Table 2**).

Five other NFL players were investigated for allegedly committing homicide, but were either acquitted or had charges dropped or reduced to a non-homicide charge.

DISCUSSION

It is a common perception that NFL players have a higher degree of violent behavior than the general male population. However, the scientific evidence to support this notion is lacking. Several studies have demonstrated a low rate of violent behavior and death by violence in NFL player populations (12-18).

In 2009, the University of Michigan Institute for Social Research conducted a study to better understand the challenges faced by retired NFL players (13). One of the parameters the investigators evaluated was the presence of intermittent explosive disorder (IED),

Table 1: Demographics of NFL Players Dying As the Result of Homicide

Player	Cause of Death	Age	Years in NFL	Race
1	Shot	42	3 NFL; 2 CFL	Black
2	Shot	33	2 NFL	Black
3	Shot	42	2 NFL	Black
4	Shot	50	2 NFL; 4 Other	Black
5	Shot	24	1 NFL	Black
6	Shot	28	1 NFL; 1 CFL	Black
7*	Sharp Force Injury	26	3 NFL	Black
8	Shot	29	1 NFL	Black
9	Shot	24	4 NFL	Black
10	Shot	38	4 NFL	Black
11	Shot	36	12 NFL	Black
12	Shot	26	4 NFL	White
13*	Shot	24	4 NFL	Black
14*	Shot	24	2 NFL	Black
15	Shot	26	2 NFL	Black
16	Shot	34	10 NFL	Black
17	Shot	28	3 NFL; 1 CFL	Black

* Active player at time of death
NFL - National Football League
CFL - Canadian Football League

which is defined as episodes of unpremeditated uncontrollable anger. They found that retired NFL players were much less likely to report episodes of angry outbursts than men in the general population with 30.7% of 30-49-year-old retired NFL players admitting to violent outburst compared to 54.8% of 30-49-year-old men in general population. In the older age grouping, the authors reported 29.3% of 50+-year-old retired NFL players admitted to violent outbursts compared to 47.2% of 50+-year-old men in general population.

It is well established individuals who commit acts of violence are more likely to become victims of violence themselves. Several epidemiological studies have demonstrated that victims of homicide and homicidal offenders often share many characteristics (14-

16). As such, death due to acts of violence, such as homicide, can be considered a marker for exposure to violence during life. Overall, the epidemiological data evaluating NFL player rates of involvement in homicidal violence is not well established.

In 1994, the National Institute for Occupational Safety and Health (NIOSH) conducted a mortality study investigating the rates and cases of death among NFL players (17). Although the overall conclusion of the study was that NFL players had a 46% lower overall mortality rate than the general population of the US, the authors also looked at the rates of death by cause, including death as the result of violence. The study population was divided into players with five or more credited seasons and those with four or fewer credited

Figure 1: Standardized mortality ratios (SMR) with 95% confidence intervals (CI) for NFL homicides since 1976.

seasons. There were 103 total deaths in the group of retired NFL players with five or more credited seasons, six of these deaths were due to acts of violence. Self-harm was included as an act of violence. The investigators found the SMR for violent deaths in this cohort was 0.21 (95% CI, 0.07-0.56), which was significantly lower than the general population.

In this same publication, there were 36 total deaths in the retired NFL player cohort with four or fewer credited seasons (17). Eleven of the deaths were due to acts of violence (deaths due to self-harm were included as an act of violence). The SMR for this cohort was 0.45 (95% CI, 0.23-0.81), which again, was far below that of the general population in the study.

A subsequent study in 2011 investigated the cardiovascular mortality rate in a cohort of retired NFL players (18). The authors of this study evaluated death rates for all causes of death and separated violent

deaths into intentional self-harm and homicide. Out of the 334 total deaths in the retired NFL population studied, four were the result of homicidal violence. The calculated number of expected homicides in this population was 26.4 and the SMR was 0.15 (95% CI, 0.04-0.39), which is significantly lower than that of the general population.

In a 2016 peer-reviewed publication, the same cohort of retired NFL player deaths was expanded by 203 to include a total number of 537 deaths (2). Although the overall conclusion of this study was that NFL players die at a significantly lower rate of suicide than the general population, the authors also reported a reduced number of deaths due to homicidal violence. The number of homicides seen in the study population was also far below the number of expected homicides (homicides: 4; expected: 27.6) and the death rate due to homicide was significantly lower than the rate in the general public (SMR: 0.14, 95% CI: 0.04-0.37).

Table 2: NFL Players Investigated For Homicide

Player	Year of Murder	Age at Time of Arrest (in years)	Type of Violence	Years in NFL	Result of Investigation
1*	2013	23	Shooting	3 NFL	Charged, found guilty of one homicide, acquitted of double homicide
2*	2012	25	Shooting	4 NFL	Died before trial
3	1994	28	Shooting	3 NFL; 2 Other	Guilty
4	1985 Multiple	30	Shooting; Stabbing	1 NFL; 2 Other	Guilty
5	1999 Double, 2011	32 (First crime)	Shooting; Stabbing	6 NFL	Guilty
6	2003	39	Stabbing	5 NFL; 1 Other	Guilty, manslaughter plea
7	2015	39	Strangulation	3 NFL; 4 Other	Died before trial
8*	2000	25	Stabbing	16 NFL	Charges dropped
9	1994 Double	46	Stabbing	10 NFL	Acquitted
10	2001	25	Possible child abuse	1 NFL	Acquitted of manslaughter, guilty of child endangerment
11*	1951	26	Unspecified	4 NFL	Acquitted
12	1999	25	Shooting	3 NFL	Convicted of conspiracy to commit murder

* Active player at time of alleged crime
NFL - National Football League

Our study included 17 homicidal deaths among the approximately 27 155 athletes who played in the NFL since its inception in 1920 through 2016 and increased the currently known number of published homicides in the NFL population by 13 deaths. We included active and retired players with any level of professional experience in our cohort to better characterize the risks to all NFL players.

We found a significantly reduced rate of deaths due to homicide in our study population. In our study population, only 0.06% of NFL players have been murdered and homicide accounts for only 0.26% of all NFL player deaths. Interestingly, 59% (10/17) of the NFL players in our study who were the victims of homicide had previously been arrested or had complaints filed against them to law enforcement agencies.

The SMR for death by homicide was historically below 5% (meaning there were 95% fewer deaths by homicide than expected when comparing to the general US population). In the past decade, this value jumped to about 15%, with a reasonable upper bound estimate of about 32%. Thus, compared to the general US population, there are about 70% fewer deaths by homicide in the NFL population than would be expected. When one also considers the fact that the age- and race-specific statistics for deaths by homicide are much larger (some by orders of magnitude) than for the general population, it is evident that the number of deaths related to homicide in the NFL population is substantially lower than expected. As such, the suggestion that there is a higher tendency toward violence is not borne out by the number of deaths by homicide.

Although dying of homicide can be seen as a surrogate for exposure to life-violence, the ultimate expression of violence is the commission of homicide. To better understand this, we also recorded the number of NFL players who were the focus of homicide investigations. Though this process, we identified 12 players who were suspected of committing homicide. Our study found only 0.04% of the NFL player population have been the focus of a homicide investigation and only 0.02% of the NFL player population have been convicted of the crime of homicide.

The arrest rates for other forms of violent crime among active NFL players are also substantially lower than that of the general male population (aged 25-29 years) (19). The arrest rate for non-domestic assaults among active NFL players is approximately 250 per 100 000, compared to 1500 per 100 000 in the general male population comprised of a similar age group. Similarly, the arrest rate of active NFL players for domestic violence is approximately 250 per 100 000, compared to approximately 400 per 100 000 in the general male population (aged 25-29). Drug-related arrests are also substantially lower for active NFL players, with approximately 250 per 100 000 arrests in the NFL population compared to over 2000 per 100 000 in the general male population aged 25-29 years.

Behavioral issues, such as violent outburst or explosiveness, are reported to occur frequently in CTE study sample populations comprised of NFL players (6-10). The presence of CTE has been theorized to explain the criminal behavior of some NFL players (1-5); however, elevated levels of violence have not been identified in numerous other studies involving the general NFL player population (12, 17, 18), including ours. If the prevalence of CTE among NFL players is as high as some have suggest it to be (1-5, 6-10), one might expect there to be an increased rate of violence indicators among the NFL playing population. However, this postulated correlation between football and acts of violence has not been supported by an abundance of scientific evidence. Our findings that NFL players have a lower rate of being the victims of homicide or committing homicidal acts than the general male population argues against the perceived notion that NFL players are more prone to violence than non-football playing males. Because a causative link has not been established between violent behavior and participation in professional football in our and other studies, we caution against extrapolating the clinical findings of CTE cases to the general football playing population.

It is interesting to note that two of the 12 individuals involved in homicide investigations are known to have confirmed CTE changes in their brains (20, 21). While some might consider this to be a high percent-

age (17%), the number of cases is too small to reach any conclusion regarding the potential role CTE may have played in the athlete committing these crimes. There are numerous and complex risk factors that increase one's likelihood of committing a violent crime including exposure to violence in life, access to guns, drug and alcohol use, and socioeconomic status (14-16). Identifying a single causative factor for violent crime is not possible. Given the limited level of scientific knowledge regarding the relationship between the pathology of CTE and associated clinical symptoms, it is unknown how much consideration should be given to this condition as a causative factor for violent behavior.

There are limitations to our study. Though our search was exhaustive and cases were cross referenced with multiple sources, any research done via the Internet is prone to issues with accuracy and completeness. It is possible that cases were missed in our search, despite our attempts at cross-referencing and comparison with previously published scientific papers. Additionally, analysis of data by gender and race potentially could affect the homicide rates; however, it is uncertain how patterns would change when also accounting for socioeconomic status or income. As the NFL population would generally fall into a higher socioeconomic status/income classification, this is a possible avenue for further research. In addition, we were not able to find information regarding steroid use for several NFL players. As steroid use has been associated with violent behavior in some individuals, this would be an important variable for future research.

CONCLUSION

In summary, NFL players have a lower rate of death due to homicide and a lower arrest rate for the crime of homicide than the general male population. The belief that NFL players are more prone to violence than the general population has not been confirmed by several scientific studies. The rates of violent and explosive behaviors reported in CTE cases should not be extrapolated to the general football playing population and identifying CTE as a causative factor of criminal behavior is premature.

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