

Exploring Factors Associated with Violence and Antisocial Behavior in Sports Stadiums

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ABSTRACT

The manifestation of violent behaviors in sports stadiums is a social and athletic issue that significantly concerns society and the political authorities of each country. In order to develop strategies to reduce incidents of violence in stadiums, it is essential to first identify and understand the factors that contribute to these behaviors. The aim of this research was to investigate the factors that lead to the manifestation of violent behaviors among fans in stadiums. The research sample consisted of 600 Greek spectators, who were given face-to-face questionnaires outside two stadiums in Thessaloniki prior to the start of a football match. The study's findings revealed that verbal abuse and obscene language are the most common forms of violence in stadiums. Additionally, gender and educational background were found to be statistically significant factors associated with violent behavior. Alcohol consumption and substance use were also positively correlated with violent behavior.

Keywords: Violent Behavior, Stadiums, Gender, Alcohol, Substances.

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INTRODUCTION

The manifestation of violent behavior, both verbal and physical, is a common phenomenon among fans, especially in football matches, affecting most societies worldwide (Razani et al. 2014). Violent behaviors occur both inside and outside stadiums, particularly when there are rivalries between opposing teams or when fans experience significant and disruptive losses for their favorite teams (Card & Dahl 2011).

Violent behavior in stadiums is a social problem with far-reaching implications, which has not been successfully addressed to this day (Newson 2017). Although stadium violence has concerned the global sports community and political authorities for many years, it has not

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been adequately addressed, either because the measures taken are not sufficiently effective or because they have not been properly implemented (Gumusgul & Aset 2016; Pearson & Sale 2011; Razavi et al. 2014; Spaaij 2007).

To design truly effective strategies to combat violence in stadiums, it is necessary to understand the factors that lead to such behavior (Nepomuceno et al. 2022). Many different factors seem to be associated with the manifestation of both verbal and physical violence in stadiums. Some of these factors are related to the social and economic status of fans as well as their political beliefs. It is estimated that fans who belong to lower socioeconomic groups and those with extreme political beliefs are more likely to exhibit violent behavior in stadiums (Razani et al. 2014; Yüzgenç et al. 2022).

According to Dunning (2004 as cited in dos Reis et al. 2015), fans who typically participate in violent incidents and engage in fights are individuals living below the poverty line, unemployed or without stable employment, living in households with strong patriarchal norms, often experiencing domestic violence, and having a low level of education.

Alcohol Use, Substance Use and Violent Behavior in Stadiums

Several studies in the literature have attempted to link the use of alcohol and substances (before or during a match) to the formation of aggressive behavior of spectators in a stadium (Ostrowsky 2016). According to these studies, alcohol consumption and substance use blur the judgment of spectators and enhance feelings of support, resulting in them exhibiting violent behaviors (either verbal or physical) (Elkhatir et al 2023; Nepomuceno et al. 2017). In addition, alcohol consumption and substance use reduce the self-control levels of spectators, increase the feeling of anger and intensify negative emotions. As a result, spectators under the influence of alcohol or substances engage in violent behaviors (Da Silva Dantas et al. 2023; Menaker et al 2018).

In Greece, Skliamis and Chatzinakos (2023) study on drug normalization processes in Greek football reveals the complex interplay between social attitudes, empirical data and spectator/fan behavior. The study presents a nuanced picture of drug normalization in Greecefootball stadiums, highlighting the differences between theory and practice. As Greece continues to demonstrate punitive drug policies and limited normalization, the study raises questions about the motivations behind drug-related stadium chants and how they relate to fan violence (Skliamis & Chatzinakos 2023). More generally, the literature converges on the conclusion that violent behavior in stadiums can be caused by many socio-economic factors

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(Dinani et al. 2023) but two risk factors are alcohol and substance use (Gumusgul & Acet 2016).

Demographic and Behavioral Determinants of Violent Behavior in Stadiums

Gender and race are some of the demographic characteristics of spectators attending games in stadiums that correlate with the occurrence of violent behavior. Male and white fans tend to exhibit higher levels of aggression, both verbal and physical, during matches, compared to women and fans of other racial backgrounds (Spaaij 2007). Gender and age are also highlighted by de Hollanda (2021) as demographic traits linked to stadium violence, with younger men being more frequently involved in violent incidents. Moreover, violent incidents among young men tend to be more intense on match days and outside stadium premises (Marc & Helmut 2021).

Fanaticism is another factor associated with aggressive behavior in stadiums. Individuals who strongly identify with their team are more likely to display high levels of fanaticism and resort to violent behavior in an effort to defend their team (Harte & Romano 2021). What is more, fanaticism can lead to an exaggerated sense of loyalty, where individuals perceive any criticism or opposition as a personal attack on their identity. This intense identification with a team often results in reduced self-control, making fans more prone to engaging in confrontational or even violent acts, especially in highly charged environments like stadiums (Harte & Romano 2021).

Additionally, the consumption of alcoholic beverages before and during a match can act as a determinant of violent behavior in stadiums. Current research data suggests that alcohol consumption is positively related to violent behavior during matches, which can be either verbal or physical in nature (Brandao et al. 2020; Nepomuceno et al. 2017). Alcohol consumption appears to stimulate fans, inciting them to seek tension (Ostrowsky 2014), while also reducing their concern about the consequences of aggressive behavior (Graham et al. 2000).

Substance use is also mentioned as a factor related to violent behavior in stadiums, although there is insufficient research to confirm this. Nevertheless, because substance use has effects similar to alcohol in terms of increasing the desire for excitement and reducing awareness of the consequences of personal behavior, it is considered a potential factor leading to violence (Strang et al. 2018).

Purpose and Research Questions

The purpose of this research is to investigate the factors that lead to the manifestation of violent behavior among spectators in stadiums.

The research questions guiding this study are as follows:

1. What is the behavior of Greek spectators in stadiums in terms of violent behavior, alcohol consumption, and substance use?
2. How are the demographic characteristics of Greek spectators related to violent behavior?
3. How is alcohol consumption related to the occurrence of violent behavior by Greek spectators?
4. How is substance use related to the occurrence of violent behavior by Greek spectators?

Originality and Significance of the Study

Investigating the factors leading to the manifestation of violent behavior in Greek sports stadiums among Greek spectators is an unexplored field to date. Despite being an important academic and social issue, there is a significant research gap in this area. This study is unique in its focus on Greek football fans, specifically those attending matches for PAOK and Aris in Thessaloniki, which provides a contextualized understanding of violence in a specific cultural setting.

Moreover, this research uses a combination of targeted sampling with random selection, an approach that enhances participants' diversity while still focusing on a particular group of fans, which is not commonly employed in similar studies. The use of a structured questionnaire, which assesses various factors—such as demographic characteristics, attitudes toward games, and behavior in the stadium—adds depth to the research by allowing for a comprehensive analysis of the variables contributing to violent behavior.

Lastly, by focusing on alcohol and substance use, fanaticism, and other socio-cultural factors, this study provides novel insights into the underlying drivers of stadium violence that have not been fully explored in the Greek context. The findings offer significant potential for informing both social policies and institutional strategies aimed at reducing such incidents, making it an essential contribution to the academic and social discourse surrounding sports violence.

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Methodology

To achieve the purpose of this study, a quantitative cross-sectional survey was conducted in Thessaloniki, the second-largest city in Greece. A total of 600 participants were approached using a targeted sampling method and were randomly selected outside two football stadiums—PAOK's and Aris' home grounds—prior to the start of matches. The survey was conducted between December 10, 2023, and January 14, 2024, with data collected through a structured questionnaire administered face-to-face. The use of this specific research methodology is appropriate when the purpose of a study is to highlight patterns in a population group (e.g. use of alcohol or substances in stadiums, frequency of use of violent behaviors in stadiums) as well as to highlight correlations between variables (e.g. correlation between use of alcohol and use of violent behaviors in stadiums). Furthermore, the specific research methodology has been used in similar types of research (Kingsland et al. 2013; Purves et al. 2021).

The timing of the survey, conducted before the matches started, was carefully chosen to ensure that participants were not distracted by the ongoing game, which could influence their responses or limit their willingness to participate. Participants were approached with sufficient time before entering the stadium to complete the questionnaire, which typically required no more than 10 minutes to fill out. This time frame was deemed appropriate, as it allowed participants to engage thoughtfully without feeling rushed.

Ethical considerations related to this timing were also addressed. Participants were fully informed about the purpose of the study and were assured that their participation was entirely voluntary and anonymous. They had the option to decline participation without any consequence. Furthermore, the brief nature of the questionnaire ensured that it did not disrupt their pre-match activities or cause inconvenience. All efforts were made to maintain an ethical and respectful approach during the data collection process.

The questionnaire consists of 11 questions, with the first four addressing the demographic characteristics of the participants and the following four concerning their attitudes toward attending games. The ninth question comprises 10 statements regarding participants' behavior in the stadium, and the tenth consists of three statements focusing on their conduct in the stadium. The eleventh question contains six statements that explore participants' reactions during the matches they attend. Responses to questions 9, 10, and 11 use a five-point Likert scale, where 1 represents “never” or “not at all,” and 5 represents

“always” or “very much.” From the answers to the questionnaire questions, four variables emerged (1) violent behavior, (2) violent behavior (as a reaction to the outcome), (3) before and during the match i drink alcohol and (4) before and during the match i use forbidden substances (e.g. drugs).

Data analysis was performed using SPSS version 27 software. Initially, reliability and validity analysis were performed on the survey questionnaire using Cronbach's coefficient of reliability and exploratory factor analysis. To answer the first research question (behavior of Greek spectators in stadiums in terms of violent behavior, alcohol consumption, and substance use), descriptive indicators such as the mean (M) and standard deviation (SD) were calculated. To answer the second research question (violent behavior regarding demographics), the non-parametric Mann Whitney and Kruskal Wallis tests were used. The choice of non-parametric tests was made because all the variables of the survey deviate significantly from the normal distribution. To answer the third research question (violent behavior correlation with alcohol consumption), the non-parametric Spearman correlation coefficient was used. To answer the fourth research question (violent behavior correlation with substance use), the non-parametric Spearman correlation coefficient was used. All analyses were performed at a significance level of 5%.

Results

Demographic Characteristics

Table 1 presents the demographic characteristics of the 600 individuals who participated in the study. The majority of the sample consisted of men (n=427, 71%). The age distribution of the sample was as follows: 31% (n=186) were aged 18-29 years, 40.5% (n=243) were aged 30-44 years, 19.5% (n=117) were aged 45-59 years, and 9% (n=54) were over 60 years of age. In terms of educational background, it was found that 28.5% (n=171) had completed primary or secondary education, 19.5% (n=117) were graduates of vocational training institutes or technical schools, 32.5% (n=195) had a university degree, and 19.5% (n=117) held a master's or doctoral degree.

Additionally, 34% (n=204) of the sample reported having an individual annual income of less than €10,000, and 40% (n=240) reported an individual annual income between €10,000 and €19,999. A smaller proportion of the sample (26%) reported an income greater than €20,000 (n=156).

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From Table 1, it is also evident that 83.5% (n=501) of the participants reported attending stadiums at least once a year. Among them, 62.5% (n=375) attended with friends, 16.5% (n=99) attended with their family, 13.5% (n=81) attended alone, and 7.5% (n=45) attended with their mate. Finally, 72.5% (n=435) reported that they primarily attended football matches, while 13.8% (n=83) stated that they were active members of an organized fan club of their team.

Table: 1. Demographics

		n	%
Gender	Male	427	71.0%
	Female	173	29.0%
Age	18-29 years old	186	31.0%
	30-44 years old	243	40.5%
	45-59 years old	117	19.5%
	60 > years old	54	9.0%
Educational level	Primary/Secondary	171	28.5%
	VTI/Technical Schools	117	19.5%
	University/College	195	32.5%
	Master/ Doctoral	117	19.5%
Annual income	> 9.999€	204	34.0%
	10.000€ - 19.999€	240	40.0%
	20.000€ - 29.999€	99	16.5%
	<30.000€	57	9.5%
How often do you go to the stadium?	Never	99	16.5%
	1-2 in a year	186	31.0%
	1-2 in 6 months	66	11.0%
	1-2 in 3 months	81	13.5%
	1-2 in a month	168	28.0%
Who do you go to the stadium with;	Alone	81	13.5%
	With family	99	16.5%
	With friends	375	62.5%
	With mate	45	7.5%
Which sport do you mostly watch;	Football	435	72.5%
	Basketball	137	22.8%

	Volleyball	3	0.5%
	Other	25	4.2%
I am an active member in an organized fan club	Yes	83	13.8%
	No	517	86.2%

Validity and Reliability of the Questionnaire

To assess the validity of the questionnaire, an exploratory factor analysis was conducted on the questions evaluating violent behavior. The analysis revealed that the questions grouped into two factors (eigenvalue criterion > 1 , KMO = 0.911, Bartlett's test $p < 0.001$). The 10 questions formed the first factor, which pertains to the overall (general) level of violent behavior, while the 6 questions formed the second factor, which pertains to the level of violent behavior as a reaction to the outcome of their team's performance (Table 2).

Table: 2. Exploratory Factor Analysis for the Research Questionnaire

	Factors	
	1	2
1. I shout chants with profanity against the opposing team	.777	
2. I use obscene language to describe the players of the opposing team	.838	
3. I use obscene language to describe the fans of the opposing team	.837	
4. I use obscene language to describe my team's coach and players when they are not playing well	.639	
5. I use obscene language to describe the referees of the match	.877	
6. I make obscene gestures toward the players of the opposing team	.665	
7. I make obscene gestures toward the fans of the opposing team	.655	
8. I make obscene gestures toward the referees of the match	.690	
9. I throw objects onto the field	.911	
10. I get involved in fights with the fans of the opposing team	.895	
11. I feel intense frustration when my team loses		.781
12. I feel intense frustration when my team is treated unfairly		.804
13. I make obscene gestures when my team loses		.637
14. I make obscene gestures when my team is treated unfairly		.751
15. I use obscene language when my team loses		.807

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16. I use obscene language when my team is treated unfairly .852

The reliability analysis showed that the first factor, “Violent behavior (general),” demonstrated a reliability level of $\alpha = 0.940$, while the second factor, “Violent behavior (as a reaction to the outcome),” demonstrated a reliability level of $\alpha = 0.948$. The results indicate that both dimensions exhibit very high levels of reliability (Table 3).

Table: 3. Cronbach’s Alpha Reliability Coefficient for the Dimensions of the Research Questionnaire

	Cronbach's Reliability Coefficient
Violent behavior (general)	0.940
Violent behavior (as a reaction to the outcome)	0.948

Behavior of Greek Spectators in Stadiums in Terms of Violent Behavior, Alcohol Consumption, and Substance

In the next section, the descriptive results for the level of violent behavior, alcohol consumption, and substance use by the participants are presented.

Table 4 provides the results of the descriptive analysis regarding participants' responses about the frequency with which they exhibit various forms of violent behavior. The analysis showed that participants occasionally use obscene language to describe referees during the game ($M = 2.6$, $SD = 1.3$) and shout chants containing profanity against the opposing team ($M = 2.5$, $SD = 1.3$). Less frequently, participants reported using obscene language for the opposing team’s players ($M = 2.3$, $SD = 1.2$) or for the opposing team’s fans ($M = 2.5$, $SD = 1.3$). Similarly, they rarely use obscene language to describe their team’s coach and players when they perform poorly ($M = 1.9$, $SD = 1.0$), and they rarely make obscene gestures toward the opposing team’s players ($M = 1.9$, $SD = 1.2$), the opposing team’s fans ($M = 1.9$, $SD = 1.2$), or the referees officiating the match ($M = 2.0$, $SD = 1.2$). Finally, the results indicate that participants almost never throw objects onto the playing field ($M = 1.2$, $SD = 0.6$) or engage in fights with opposing team fans ($M = 1.2$, $SD = 0.6$).

Table: 4. Descriptive Results for the Questions Evaluating the Level of General Violent Behavior (1=Never, 5=Always)

	M	SD
1. I shout chants containing profanity against the opposing team.	2.5	1.3
2. I use obscene language toward the players of the opposing team.	2.3	1.2
3. I use obscene language toward the fans of the opposing team.	2.3	1.3
4. I use obscene language toward my team's coach and players when they are not performing well.	1.9	1.0
5. I use obscene language toward the referees of the match.	2.6	1.3
6. I make obscene gestures toward the players of the opposing team.	1.9	1.2
7. I make obscene gestures toward the fans of the opposing team.	1.9	1.2
8. I make obscene gestures toward the referees of the match.	2.0	1.2
9. I throw objects onto the field of play.	1.2	0.6
10. I engage in altercations with the fans of the opposing team	1.2	0.6

Table 5 presents the descriptive analysis results regarding participants' responses on the frequency with which they exhibit various forms of violent behavior as a reaction to their team's performance. The analysis showed that participants occasionally feel intense irritation when their team is treated unfairly ($M = 3.2$, $SD = 1.2$) or when their team loses ($M = 2.7$, $SD = 1.1$). They also occasionally use obscene language when their team is treated unfairly ($M = 2.5$, $SD = 1.2$). In contrast, participants rarely make obscene gestures when their team is treated unfairly ($M = 2.1$, $SD = 1.4$), rarely use obscene language when their team loses ($M = 2.1$, $SD = 1.2$), and rarely make obscene gestures when their team loses ($M = 1.7$, $SD = 1.2$).

Table: 5. Descriptive Results for the Questions Evaluating the Level of Violent Behavior as a Reaction to Team Results (1=Never, 5=Always)

	M	SD
I feel intense frustration when my team loses.	2.7	1.1
I feel intense frustration when my team is treated unfairly.	3.2	1.2
I make obscene gestures when my team loses.	1.7	1.2

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I make obscene gestures when my team is treated unfairly.	2.1	1.4
I use obscene language when my team loses.	2.1	1.2
I use obscene language when my team is treated unfairly.	2.5	1.4

Table 6 presents the summary results of the analysis for the general level of violent behavior, the level of violent behavior as a reaction to team performance, the frequency of alcohol consumption, and the frequency of substance use before and during the match. The analysis revealed that participants rarely reported involvement in incidents of violent behavior ($M = 2.0$, $SD = 0.9$), while they reported rarely to occasionally displaying violent behavior as a reaction to their team's performance ($M = 2.4$, $SD = 1.1$). Additionally, the analysis showed that participants rarely consume alcohol before and during the match ($M = 1.8$, $SD = 1.1$) and reported never using substances before and during the match ($M = 1.1$, $SD = 1.1$). Based on the findings of the Kolmogorov-Smirnov test, all variables significantly deviate from normal distribution ($p < 0.001$). Therefore, non-parametric methods of inferential analysis will be used in the subsequent sections.

Table: 6. Descriptive Results for the Study Variables and Kolmogorov-Smirnov Test for Normality

	M	SD	Min	Max	p
Violent behavior (general)	2.0	0.9	1.0	5.0	<0.001
Violent behavior(as a reaction to the outcome)	2.4	1.1	1.0	5.0	<0.001
Before and during the match I drink alcohol	1.8	1.1	1.0	5.0	<0.001
Before and during the match I use forbidden substances (e.g. drugs)	1.1	0.5	1.0	3.0	<0.001

In conclusion, the results show that participants rarely adopt violent behaviors and rarely engage in violent behavior when their team loses. Furthermore, they rarely use alcohol before and after matches and almost never use forbidden substances. Based on these findings, it appears that Greek spectators in stadiums rarely engage in violent behavior, alcohol consumption, and substance use.

Violent Behavior in Relation to Demographic Characteristics

The next analysis aimed to investigate whether the level of violent behavior significantly differs according to the demographic characteristics of the participants. For this purpose, the non-parametric Mann-Whitney and Kruskal-Wallis tests were used.

Table 7 presents the detailed findings for comparisons regarding whether the general level of violent behavior significantly differs based on the participants' demographic characteristics. The analysis revealed that the general level of violent behavior significantly differs by gender ($U = 1421.5$, $p < 0.001$), educational background ($KW = 9.745$, $p = 0.021$), frequency of attending matches ($KW = 28.374$, $p < 0.001$), who they attend the matches with ($KW = 15.377$, $p = 0.002$), and whether they are active members of an organized fan group ($U = 705.0$, $p < 0.001$). Conversely, the general level of violent behavior does not significantly differ by age group ($KW = 6.160$, $p = 0.104$) or annual individual income ($KW = 2.945$, $p = 0.400$).

The results show that men ($M = 2.1$, $SD = 0.9$) have a higher level of violent behavior compared to women ($M = 1.5$, $SD = 0.7$). Additionally, those with a Master's/PhD degree ($M = 1.6$, $SD = 0.7$) have a lower level of violent behavior compared to primary/secondary education graduates ($M = 2.2$, $SD = 1.2$), vocational school graduates ($M = 1.9$, $SD = 0.7$), and university graduates ($M = 2.0$, $SD = 0.8$). The analysis also showed that those who attend matches 1-2 times a month ($M = 2.4$, $SD = 1.1$) exhibit higher levels of violent behavior compared to those who attend 1-2 times a year ($M = 1.5$, $SD = 0.6$), 1-2 times per semester ($M = 1.9$, $SD = 0.6$), and 1-2 times per quarter ($M = 2.0$, $SD = 0.7$).

Furthermore, the results indicate that those who attend matches with friends ($M = 2.2$, $SD = 1.0$) show higher levels of violent behavior compared to those who attend alone ($M = 1.8$, $SD = 0.9$), with family ($M = 1.6$, $SD = 0.7$), or with their partner ($M = 1.5$, $SD = 0.5$). Lastly, the results show that those who are active members of an organized fan group ($M = 2.8$, $SD = 1.1$) exhibit higher levels of general violent behavior compared to those who are not active members ($M = 1.8$, $SD = 0.8$).

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Table: 7. Mann-Whitney and Kruskal-Wallis non-parametric test results for general violent behavior by demographic characteristics

		Violent behavior (general)		Test	p
		M	SD		
Gender	Male	2.1	0.9	U=1421.5	<0.001
	Female	1.5	0.7		
Age	18-29 years old	2.1	0.9	KW=6.160	0.104
	30-44 years old	1.9	0.8		
	45-59 years old	2.0	1.0		
	60> years old	1.7	1.1		
Educational level	Primary/Secondary	2.2	1.2	KW=9.745	0.021
	VIT/Technical School	1.9	0.7		
	University/College	2.0	0.8		
	Master/Doctoral	1.6	0.7		
Annual income	>9.999€	2.0	1.0	KW=2.945	0.400
	10.000€ - 19.999€	1.9	0.8		
	20.000€ - 29.999€	2.2	1.0		
	<30.000€	1.7	0.7		
How often do you go to the stadium?	1-2 in a year	1.5	0.6	KW=28.374	<0.001
	1-2 in 6 moths	1.9	0.6		
	1-2 in 3 months	2.0	0.7		
	1-2 in a month	2.4	1.1		
Who do you go to the stadium with?	Alone	1.8	0.9	KW=15.377	0.002
	With family	1.6	0.7		
	With friends	2.2	1.0		
	With mate	1.5	0.5		
I am an active member in an	Yes	2.8	1.1	U=705.0	<0.001

organized fan club	No	1.8	0.8
U	=	Mann-Whitney	Statistical
KW = Kruskal-Wallis Statistical Test			
Test			

Table 8 provides detailed findings on whether the level of violent behavior as a reaction to the team's performance differs significantly based on the participants' demographic characteristics. The analysis revealed that the level of violent behavior as a reaction to the team's performance significantly differs by gender ($U = 1615$, $p < 0.001$), frequency of attending matches ($KW = 27.134$, $p < 0.001$), who they attend the matches with ($KW = 9.990$, $p = 0.019$), and whether they are active members of an organized fan group ($U = 846.0$, $p < 0.001$). On the other hand, the level of violent behavior as a reaction to the team's performance does not significantly differ by age group ($KW = 4.020$, $p = 0.259$), educational background ($KW = 2.494$, $p = 0.476$), or annual individual income ($KW = 1.851$, $p = 0.604$).

The results show that men ($M = 2.5$, $SD = 1.1$) exhibit higher levels of violent behavior as a reaction to the team's performance compared to women ($M = 1.9$, $SD = 0.9$). The analysis also indicated that those who attend matches 1-2 times a month ($M = 2.9$, $SD = 1.3$) exhibit higher levels of violent behavior as a reaction to the team's performance compared to those who attend 1-2 times a year ($M = 1.9$, $SD = 0.8$), 1-2 times per semester ($M = 2.4$, $SD = 0.9$), and 1-2 times per quarter ($M = 2.5$, $SD = 0.9$).

Moreover, the results indicate that those who attend matches with friends ($M = 2.6$, $SD = 1.1$) show higher levels of violent behavior as a reaction to the team's performance compared to those who attend alone ($M = 2.2$, $SD = 1.2$), with family ($M = 2.0$, $SD = 0.9$), or with their partner ($M = 2.0$, $SD = 1.0$). Finally, the results show that those who are active members of an organized fan group ($M = 3.3$, $SD = 1.3$) exhibit higher levels of violent behavior as a reaction to the team's performance compared to those who are not active members ($M = 2.2$, $SD = 1.0$).

Table: 8. Mann-Whitney and Kruskal-Wallis Non-Parametric Test Results for Violent Behavior as A Reaction to the Team's Performance by Demographic Characteristics

Violent behavior (as a reaction to the outcome)		Test	p
M	SD		

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Gender	Male	2.5	1.1	U=1615.0	<0.001
	Female	1.9	0.9		
Age	18-29 years old	2.5	1.2	KW=4.020	0.259
	30-44 years old	2.3	1.0		
	45-59 years old	2.5	1.2		
	60 > years old	2.0	1.3		
Educational level	Primary/Secondary	2.7	1.4	KW=2.494	0.476
	VTI/Technical school	2.3	1.0		
	University/College	2.4	1.0		
	Master/Doctoral	2.1	0.9		
Annual income	>9.999€	2.4	1.3	KW=1.851	0.604
	10.000€ - 19.999€	2.3	1.0		
	20.000€ - 29.999€	2.6	1.3		
	<30.000€	2.1	1.0		
How often do you go to the stadium?	1-2 in a year	1.9	0.8	KW=27.134	<0.001
	1-2 in 6 months	2.4	0.9		
	1-2 in 3 months	2.5	0.9		
	1-2 in a month	2.9	1.3		
Who do you go to the stadium with?	Alone	2.2	1.2	KW=9.990	0.019
	With family	2.0	0.9		
	With friends	2.6	1.1		
	With mate	2.0	1.0		
I am an active member in an organized fan club	Yes	3.3	1.3	U=846.0	<0.001
	No	2.2	1.0		

Based on the findings, the gender of the spectators, their educational level, the frequency of going to the stadium, the way they go to the stadium (alone or with friends) and whether they belong to an organized fan group are associated with the level of violence (either

general or as a reaction to the outcome). The findings show that men, those who go to the stadium frequently (1-2 times a month), those who go to the stadium with friends and those who belong to an organized fan group display significantly more frequent general violent behaviors and adopt more frequent violent behaviors when their team loses. Finally, it emerged that higher education graduates (master/PhD) adopt less frequent general violent behaviors.

Violent Behavior and Alcohol Consumption

Table 9 presents the findings of the non-parametric Spearman correlation coefficient, aiming to assess the significance of the relationship between alcohol consumption and violent behavior. The analysis revealed that alcohol consumption before and during the match is positively correlated with the overall level of violent behavior ($r = 0.424$, $p < 0.001$) and with the level of violent behavior specifically triggered by the outcome of the team's performance ($r = 0.418$, $p < 0.001$). These results confirm that alcohol consumption before and during matches is a significant factor associated with elevated levels of violent behavior in stadiums.

Table: 9. Results of the Non-Parametric Spearman Correlation Coefficient Between Alcohol Consumption and Violent Behavior

		Before and during the match I drink alcohol	Violent behavior (general)	Violent behavior(as a result to the outcome)
Before and during the match I drink alcohol	r	1.000	.424**	.418**
	p	.	.000	.000
	N	501	501	501
Violent behavior (general)	r	.424**	1.000	.814**
	p	.000	.	.000
	N	501	501	501
Violent behavior (as a result to the outcome)	r	.418**	.814**	1.000
	p	.000	.000	.
	N	501	501	501

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Based on the findings of the study, it was confirmed that alcohol use before or during a match is associated with higher levels of general violence and with higher levels of violence as a result of their team's defeat. This indicates that alcohol use is a risk factor for the occurrence of violence in stadiums in Greece.

Violent Behavior and Substance Use

Table 10 presents the results of the analysis based on the non-parametric Spearman correlation coefficient, investigating the relationship between substance (e.g. drugs) use and violent behavior. The analysis demonstrated that substance use before and during the match is positively correlated with the overall level of violent behavior ($r = 0.382$, $p < 0.001$) and with the level of violent behavior specifically triggered by the outcome of the team's performance ($r = 0.371$, $p < 0.001$). These findings confirm that substance use before and during matches is a significant factor associated with increased levels of violent behavior in stadiums.

Table: 10. Results of the non-parametric Spearman correlation coefficient between substance use and violent behavior

		Before and during the match I consume forbidden substances	Violent behavior (general)	Violent behavior (as a result to the outcome)
Before and during the match I consume forbidden substances	r	1.000	.382**	.371**
	p	.	.000	.000
	N	501	501	501
Violent behavior (general)	r	.382**	1.000	.814**
	p	.000	.	.000
	N	501	501	501
Violent behavior(as a result to the outcome)	r	.371**	.814**	1.000
	p	.000	.000	.
	N	501	501	501

According to the findings of this study, it was confirmed that forbidden substances use before or during a match is associated with higher levels of general violence and with higher

levels of violence as a result of their team's defeat. This indicates that forbidden substances use is a risk factor for the occurrence of violence in stadiums in Greece.

Discussion of Results

The results of the study indicate that the most common violent behaviors exhibited by participants, although not particularly frequent, involve chants containing profanity directed at the opposing team and offensive remarks about the referees of the match. Participants appear to exhibit more violent behavior in response to the match outcome, although these behaviors are also not particularly frequent. More specifically, respondents reported feeling intense frustration when they perceive their team to be unfairly treated and when their team loses. These findings suggest that violence in stadiums remains a social and sports-related problem, despite the measures that have been implemented by the relevant authorities. Similar findings have been recorded from research efforts that have been made in the literature. For example, Gumusgul and Aset (2016) reported that spectators of football matches and especially the most ardent supporters of the teams are sometimes carried away and involved in violent behaviors (usually verbal). Similarly, in the research of Pearson and Sale (2011) it emerged that fans of football teams have a tendency for violent behavior, mainly when their team loses or when they feel that they are being wronged. In the research of Razavi et al. (2014) and Spaaij (2007) it was found that stadiums are a place that can favor violence, especially in football.

In terms of demographic characteristics, gender and educational background are statistically significantly associated with the display of violent behavior in general. These findings are consistent with previous studies, which also highlight that men are more likely to engage in violent behavior, mainly because they are more emotionally involved with the team or because they are more likely to be influenced by others. In contrast, women exhibit less fanatical behavior and have milder reactions even when their team loses (Cleland & Cashmore 2015; Marc & Helmut 2021; Spaaij 2007). Additionally, the research found that fans with a lower educational background are more likely to exhibit violent behavior in stadiums. According to research by Dunning (2004), de Hollanda (2021) and Tian et al. (2022), fans with a lower educational level are usually more involved in sporting events, are more fanatical and ultimately are more likely to be involved in violent behavior or violent events.

Regarding fanaticism, the frequency of attending matches at the stadium, attending matches with friends, and membership in a fan club are positively associated with the general

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display of violent behavior. These findings corroborate the conclusions of Harte and Romano (2021), who argue that fanaticism is linked to violent behaviors in stadiums. Also, Andres et al. (2023) report that greater involvement and more frequent watching of games may increase the risk of involvement in events that are violent (such as participation in verbal violence and slogans containing profanity).

Furthermore, the analysis revealed that alcohol consumption before and during the match is positively correlated with the overall level of violent behavior and with the level of violent behavior specifically triggered by the outcome of the team's performance. Additionally, substance use before and during the match is positively correlated with the overall level of violent behavior and with the level of violent behavior in reaction to the team's result. These findings are consistent with other studies that emphasize how alcohol and substance use make fans more vulnerable to exhibiting aggressive behaviors in stadiums. For example, Brandao et al. (2020) and Nepomuceno et al. (2017) report that alcohol use reduces the self-control of sports fans and this can make them engage in violent behavior more easily. Similarly, Strang et al. (2018) reported that alcohol use is associated with antisocial or delinquent behaviors as high alcohol consumption reduces the conscience of sports fans and makes them more vulnerable to violence, especially verbal violence. Also, Skliamis and Chatzinakos (2023) in their research in Greece reported that drug use leads to violent and uncontrolled behaviors. Correspondingly, Da Silva Dantas et al. (2023), Elkhatir et al. (2023) have confirmed that either alcohol use or drug use are factors that enhance violent behaviors, especially among the most fanatical fans.

CONCLUSIONS

The findings from this study are highly significant, as they can inform the development of strategies aimed at reducing violence in stadiums. Institutional bodies must ensure that, through education and youth development programs, it is made explicitly clear that alcohol and substance use negatively impact behavior, potentially leading to involvement in violent incidents. Such behaviors not only have immediate detrimental effects on personal and social development but also disrupt the experiences of other fans and undermine social cohesion at large.

While this study provides valuable insights, several limitations should be noted. First, the targeted sampling method, combined with random selection, limits the generalizability of the findings. The study was conducted outside two specific football stadiums in Thessaloniki,

focusing on fans attending matches for PAOK and Aris. As a result, the sample may not represent fans from other teams, cities, or contexts. Additionally, the timing of the survey, conducted before matches, may have influenced participants' responses due to pre-match excitement or expectations.

These limitations highlight the need for future research to adopt more comprehensive random sampling techniques across diverse geographical locations, teams, and fan demographics. Furthermore, longitudinal studies could provide deeper insights into how violent behaviors evolve over time and in different match-day contexts. Exploring additional variables, such as the role of social and cultural factors or the influence of specific interventions aimed at reducing violence, could further enhance our understanding of this complex issue.

In addition to addressing alcohol and substance use, future interventions should also focus on fostering a culture of sportsmanship and respect. Encouraging fan engagement that is centered on positive team support, rather than antagonism toward opposing teams and officials, can reduce the likelihood of conflict. Moreover, policies that limit the availability of alcohol in and around stadiums during matches should be considered, as they have proven effective in other contexts.

It is crucial for stakeholders, including clubs, authorities, and educational institutions, to collaborate in addressing the root causes of fan violence. A holistic approach that combines strict enforcement of regulations, educational campaigns, and the promotion of positive fan culture will be key to reducing violent incidents and ensuring a safer, more inclusive environment for all fans.

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REFERENCES

- Andres, L. Fabel, M. & Rainer, H. (2023). How much violence does football hooliganism cause?, *Journal of Public Economics*, 225, 104970. Doi: <https://doi.org/10.1016/j.jpubeco.2023.104970>
- Brandao, T. Murad, M., Belmond, R. et al. (2020). Alcohol and violence: Brazilian Organized Football Fans, *Movimento*, 26. Doi: <https://doi.org/10.22456/1982-8918.90431>
- Card, D., Dahl, G. (2011). Family Violence and Football: The Effect of Unexpected Emotional Cues on Violent Behavior. *Q J Econ*, 126(1), 103-143. Doi: <https://doi.org/10.1093/qje/qjr001>
- Cleland, J., Cashmore, E. (2015). Football fans' views of violence in British football, *Journal of Sport and Social Issues*, 40(2), 124-142. Doi: <https://doi.org/10.1177/0193723515615177>
- Da Silva Dantas, M. G. Sampaio, L. M. B. & Gasparetto, T. (2023). Antisocial behavior in football matches: Do changes in alcohol sales policy increase violent acts?, *International Journal of Drug Policy*, 123, 104273. Doi: <https://doi.org/10.1016/j.drugpo.2023.104273>
- de Hollanda, B. B. B. (2021). Spectator Violence in Stadiums: Why do the Hooligans Fight? *An Essay in Honor of Eric Dunning*, *FuLiA/UFMG*, 6(2), 1-21. Doi: <https://doi.org/10.35699/2526-4494.2021.20274>
- Dinani, M. M., Pandari, A. R., Divjan, Z et al. (2023). Prevention and control of violence and aggression in football fans: Implications for sport psychologists, fans, and policymakers, *Journal of Ethnicity in Substance Abuse*, 1-21. Doi: <https://doi.org/10.1080/15332640.2023.2258487>
- dos Reis, H. H. B., Lopes, F. T. P. & Martins, M. Z. (2015). Eric Dunning's Explanations About Hooliganism in Brazil: A Critical Reflection, *Movimento*, 21(3), 617-632.
- Elkhatir, A., Chakit, M. & Ahami, A. (2023). Factors influencing violent behavior in football stadiums in Kenitra city (Morocco). *Central European Management Journal*. Doi: <https://doi.org/10.57030/23364890.cemj.31.2.85>
- Graham, K., West, P. & Wells, S. (2000). Evaluating theories of alcohol-related aggression using observation of young adults in bars, *Addiction*, 95, 847-863. Doi: <https://doi.org/10.1046/j.1360-0443.2000.9568473.x>
- Gumusgul, O., Acet, M. (2016). The Open Sore of Football: Aggressive Violent Behavior and Hooliganism, *Physical Culture and Sport Studies and Research*, 121, 30-37. Doi: 10.1515/pccsr-2016-0015
- Harte, B., Romano, R. (2021). Violent Spectators: Enhanced Security as a Deterrent Against Extreme Stadium Violence. Ανακτήθηκε από: https://www.palermo.edu/Archivos_content/2021/negocios/ijsssth/06-Brian-Harte.pdf
- Kingsland, M., Wolfenden, L., Rowland, B. C. et al. (2013). Alcohol consumption and sport: a cross-sectional study of alcohol management practices associated with at-risk alcohol consumption at community football clubs, *BMC Public Health*, 13(1). Doi: <https://doi.org/10.1186/1471-2458-13-762>

- Marc, F., Helmut, R. (2021). *How Much Violence Does Football Hooliganism Cause?*, Munich: Center for Economic Studies and ifo Institute (CESifo). <https://hdl.handle.net/10419/248976>
- Menaker, B. E., Barry, A. E. & Howell, S. M. (2018). Identifying the influence of opponent ranking and game characteristics on Alcohol-Related stadium ejections, *The Journal of Primary Prevention*, 39(2), 117-128. Doi: <https://doi.org/10.1007/s10935-018-0504-0>
- Nepomuceno, T. C. C., de Carvalho, V. D. H., Silva, L. C. E. et al.(2022). Exploring the Bedouin Syndrome in the Football Fan Culture: Addressing the Hooliganism Phenomena through Networks of Violent Behavior, *Int. J. Environ. Res. Public Health*, 19. Doi: <https://doi.org/10.3390/ijerph19159711>
- Nepomuceno, T. C. C., De Moura, J. A., Silva, L. C. E et al. (2017). Alcohol and violent behavior among football spectators: An empirical assessment of Brazilian's criminalization, *International Journal of Law, Crime and Justice*, 51, 34-44. Doi: <https://doi.org/10.1016/j.ijlcrj.2017.05.001>
- Newson, M. (2017). Football, Fan Violence and Identity Fusion, *International Review for the Sociology of Sport*, 54(4). Doi: 10.1177/1012690217731293
- Ostrowsky, M. K. (2014). The social psychology of alcohol use and violent behavior among sport spectators, *Agress. Violent Behav.*, 19, 303-310. Doi: <https://doi.org/10.1016/j.avb.2014.05.001>
- Ostrowsky, M. K. (2016). Sports Fans, Alcohol use, and Violent Behavior: A Sociological review, *Trauma Violence & Abuse*, 19(4), 406-419. Doi: <https://doi.org/10.1177/1524838016663937>
- Pearson, G., Sale, A. (2011). On the Lash-revisiting the effectiveness of alcohol controls at football matches, *Policing & Society*, 1-17. Doi: <https://doi.org/10.1080/10439463.2010.540660>
- Purves, R. I., Critchlow, N., Giulianotti, R. et al. (2021). Sport Fan Attitudes on Alcohol: Insights from a Survey of Football Supporters in Scotland and England, *Journal of Sport and Social Issues*, 46(2), 199-218. Doi: <https://doi.org/10.1177/01937235211067192>
- Razavi, S. M., Alavi, S. H. & Zabihi, E. (2014). The study of spectator's violence and aggression in stadiums, *Journal of Novel Applied Sciences*, 3(9), 971-974.
- Skliamis, K., Chatzinakos, G. (2023). 'It's a magical weed' : an exploration of drug-themed chants in Greek football fandom, *Sport in Society*, 26(10), 1627-1646. Doi: <https://doi.org/10.1080/17430437.2023.2173068>
- Spaaij, R. (2007). Football Hooliganism as a Transnational Phenomenon: Past and Present Analysis: A Critique – More Specificity and Less Generality, *The International Journal of the History of Sport*, 24(4), 411-431. Doi: <https://doi.org/10.1080/09523360601157156>
- Strang, L., Baker, G., Pollard, J. et al. (2018). *Violent and Antisocial Behaviours at Football Events and Factors Associated with these Behaviours*, Santa Monica: Rand Corporation.
- Tian, Y., Ma, C. & Shi, Z. (2022). Chinese football violence: An extended theory of planned behavior model to predict fans' violent behavioral intentions, *Frontiers in Psychology*, 13. Doi: <https://doi.org/10.3389/fpsyg.2022.977497>

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