

Does Gender Moderate the Relationship between Fanaticism and Aggression among Football Supporters?

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Abstract Football is the sport with the largest fan base in the world, but behind its popularity lies the phenomenon of excessive fanaticism that often triggers aggressive behavior among supporters. Fanaticism, born of emotional attachment and social identity among supporters, not only strengthens loyalty but also has the potential to lead to forms of aggression, both verbal and physical, especially when the team loses or is disadvantaged by external decisions. This study aims to analyze the relationship between fanaticism and aggressive behavior tendencies among football fans and to identify differences in their influence based on gender. Using a quantitative approach with a correlational method, this study involved 192 respondents selected through purposive sampling. Data were collected using a Likert scale questionnaire to measure fanaticism and aggressiveness, then analyzed using SmartPLS 4. The results of the analysis showed that fanaticism had a positive and significant effect on aggressiveness ($\beta = 0.214$; $p = 0.003$), although the predictive power of the fanaticism variable on aggressiveness was relatively low ($R^2 = 0.046$). The dominant aspects of fanaticism were interest and love (40.01%) and personal and group attitudes (38.26%), which were closely related to aspects of aggressiveness, including anger (26%) and hostility (25%). Multi-group analysis revealed a significant difference between male and female fans ($p = 0.021$), where men were more likely to express fanaticism through aggressive behavior, while women tended to be more restrained. These findings confirm that emotional and collective fanaticism can

trigger aggressive behavior; therefore, educational strategies for supporters and the strengthening of sportsmanship values are needed to create a healthy culture of support in football.

Keywords Fanaticism, Aggressiveness, Football Supporters, Gender

1. Introduction

Football is one of the most popular sports, with billions of fans worldwide, because it can be played and accessed by all age groups [1, 2]. According to FIFA [3] data, there are approximately 5 billion football fans worldwide, with Latin America, the Middle East, and Africa being the largest fan bases. The popularity of football attracts a large audience from all over the world, especially during prestigious events like the World Cup, which draws a substantial number of people, both in person and online [4].

Football fans play a crucial role in the sustainability of a football club, as they are loyal to the club and make it part of their family [5-7]. The high level of anomalies in football has given rise to both positive [8] and negative actions. Love for their clubs has blinded many fans and eroded the values of support and fair play. According to Amali and Suswantoro [9], the message of peace and brotherhood through football competitions is a testament to

struggle and brotherhood. This meaning demonstrates that football remains a game, and therefore, no matter how much supporters love their favorite team, they must still adhere to the values and ethics of the sport.

Despite the popularity and enthusiasm for the sport of football, a dark side often emerges, such as the spirit of sportsmanship turning into excessive fanaticism, which can lead to aggression [10]. This statement has become a contentious issue in the world of football, where what should be a platform for entertainment and unity can instead become a battleground for conflict. The unrest caused by immaturity among fans has led to negative actions such as fanaticism. According to Hemminger [11], fanaticism is a condition in which an individual or group adheres to an ideology, whether political, religious, cultural, or otherwise, to an excessive degree. Fanaticism is common in sports, including football [12, 13].

The Kanjuruhan tragedy exemplifies the aggression that can occur among football fans. This problem occurred after the match was over. The disappointment of fans who saw their favorite team, having never lost in 23 years of playing on home turf, was palpable. This led to the football fans coming down to the middle of the field and trying to find the players and officials to vent their frustration [14]. As a result, many doors and fences were damaged, walls collapsed, public facilities were damaged, and 135 people were killed and hundreds of others were injured [15, 16].

The supporter's attachment to the team provides a sense of unity and pride in the team they support, thus creating an expectation to win, as the success of a team is part of the fans' success [17]. Studies by Carriedo et al [18] and Sabri et al [19] show that supporters feel they have a responsibility to provide support for their team to win, when the team they support is disadvantaged such as unfair referee decisions, there is cheating in the match or experiencing defeat, which can give rise to an aggressive attitude from the audience or supporters.

Rivalries between teams affect the number of spectators and intensify the competition, thus increasing the expectations of the supporters [20]. This can create excessive euphoria, tension between fan groups, and even provocation, both inside and outside the stadium, often triggering aggressive behavior [21]. If the team they support gains an advantage or wins, supporters will attack the opposing team, both verbally and physically, belittling and demeaning the team and its supporters. The attitude of supporters who suffer losses due to their team's defeat creates an atmosphere of anger and blame on players, referees, or officials for not giving their best performance [22]. This behavior is a form of frustration that can lead to mental health issues for football players. According to Bulut and Yıldırım [23], aggression is another term for tendencies, impulses, or actions that harm others.

Aggression is behavior that aims to harm others, either physically, psychologically, or emotionally [24, 25]. According to Shakina et al [26], aggressiveness is a form of

emotional outburst by fans that depends on the match outcome. If the outcome aligns with the audience's expectations, it will elicit positive emotions; conversely, if the outcome does not match expectations, it will elicit negative emotions. Witnessing various forms of aggressive behavior displayed by some football fans raises important questions about the factors that influence this behavioral tendency. Commitment to the football club being supported is a prominent characteristic of being a sports fan which of course can impact the psychological development of players. This is in accordance with the statement by Devici-Sirin and Sirin [27] which suggests that the greater a fan's love or devotion to a sports club, the stronger its influence on the players' emotions.

Supporters or fans are tangible evidence of a football club's strength, but excessive behavior can pose a threat to the club [28]. Fanatical fans will support their team under any circumstances, are results-oriented, and consider any win legitimate, regardless of the game's aesthetics, leading to egocentric, aggressive, and violent attitudes and behaviors [29]. The presence of opposing teams creates clear boundaries between one's own group and other groups, which then gives rise to in-group bias and out-group bias [30]. In-group bias refers to a person's tendency to support, defend, and prioritize their own group, whereas out-group bias is the tendency to negatively evaluate or look down on the opposing group [31].

The phenomenon of fanaticism in football has become a complex social issue, where excessive fanaticism often leads to aggressive behavior that is detrimental to players, opposing teams, and even the match atmosphere. Although football embodies the values of sportsmanship and unity, the reality on the field shows that uncontrolled support often exceeds the boundaries of sporting ethics. Unfortunately, discussions on the relationship between gender, fanaticism, and aggressive behavior among football fans, particularly their psychological impact, are still limited. Most previous research focuses on loyalty or consumer behavior, rather than the psychological or psychosocial aspects of the topic. By addressing this gap in previous research, this study aims to provide support for education programs that strengthen sportsmanship values and create a healthier and more ethical environment and culture to support their favorite teams.

2. Materials and Methods

2.1. Type of Research

This study used a quantitative correlational method to determine the relationship between gender, fanaticism and aggression among football fans. Creswell and Creswell [32] state that quantitative research focuses on collecting and analyzing numerical data by testing hypotheses, identifying patterns, and explaining relationships between

variables. The purpose of correlational research is to determine whether a relationship exists and to assess the strength of that relationship between the variables. This is measured quantitatively by assessing the strength of the relationship between the variables under study without manipulating the variables [33, 34].

2.2. Participants

This study used football supporters as subjects. Hasyim et al [35] state that football supporters are individuals or groups who have an emotional attachment, solidarity, and loyalty to the football club they support. They actively attend matches, provide moral and material support, and build community networks to strengthen their support. Sampling was conducted using a purposive sampling technique. According to Campbell et al [36], purposive sampling is a sampling technique in which researchers deliberately select specific participants or groups of participants deemed relevant and possessing the information needed for the research purpose. The sample size in this study refers to the formula number of indicators \times 5-10 [37]. Due to the large number of subjects who were biased in filling out data and statements carelessly, a sample of 192 subjects was selected for use in this study. The sample criteria in this study were active supporters of a football club [38].

2.3. Instruments

This study employed two psychometric instruments to measure the variables of fanaticism and aggressiveness. Fanaticism was assessed using a scale derived from Goddard's [39] theoretical framework and subsequently modified by Prastio [40]. Prastio's version [40] was selected because it had undergone linguistic construction and cultural adaptation into Indonesian, making it more appropriate for use in the context of Indonesian football supporters. Moreover, the instrument has demonstrated strong validity and reliability within the local population, rendering it more representative than the original English-language version. The final version of the scale consists of 19 items, grouped into four formal subscales that reflect the multidimensional structure of fanaticism: the magnitude of interest and love, personal and group attitudes, the length of time an individual engages in a particular type of activity, and family support. All items were rated on a Likert-type scale. The scale showed excellent reliability with a Cronbach's alpha of $\alpha = 0.921$ and an Average Variance Extracted (AVE) value greater than 0.50, exceeding the recommended threshold and indicating adequate convergent and discriminant validity.

Aggressiveness was measured using the Aggression Questionnaire (AQ) originally developed by Buss and Perry [41] and later adapted for Indonesian respondents by Akbar [42]. Akbar's adaptation [42] was chosen because it

had undergone translation, cultural adaptation, and psychometric validation in Indonesian, thus providing a more accurate representation of aggressive tendencies within the local context. The instrument consists of 15 items, organized into four formal subscales consistent with the original structure: physical aggression, verbal aggression, hostility, and anger. All items were assessed using a Likert scale. This instrument also demonstrated excellent reliability, with a Cronbach's alpha of $\alpha = 0.948$, and showed strong convergent validity (AVE > 0.50).

For both instruments, the four subscales were treated as formal dimensions based on their theoretical foundations, and the aggregated scores of these dimensions were used as indicators in the PLS-SEM analysis

2.4. Data Collection Techniques

Data were collected through online questionnaires using Google Forms (G-Form). This method was selected because it saves time. It was easy for people to get the questionnaire and it was shared widely. Before starting the questionnaire, respondents were given details about the purpose of the research and a statement explaining their right to agree or disagree to take part. This helped make sure they joined willingly and that their information would be kept private. The data was gathered using a questionnaire. Bryman [43] states that, a questionnaire is a method of collecting information through a series of questions or statements that help determine people's opinions, feelings, experiences, or certain traits. In this study, the questionnaire used a Likert Scale. A Likert Scale is a type of response scale used in surveys to find out how much people agree or disagree with a statement [44]. The scale has five options, ranging from "Strongly Disagree" to "Strongly Agree", which aims to measure the level of fanaticism and aggressiveness among football supporters. The questionnaire was distributed through social media, supporter groups, and online communities that matched the study's requirements.

2.5. Data Analysis Techniques

In this study, data analysis was done using the SmartPLS 4 software. SmartPLS, which stands for Smart Partial Least Squares, is a type of statistical tool used to examine the relationships between different variables. Chidambaram et al [45] mention that Partial Least Squares doesn't need many strict conditions, and it doesn't require the data to follow a normal distribution. This means that variables measured on different scales like normal, ordinal, interval or ratio, can all be used in the same model, and the sample size doesn't need to be large. Because of this, PLS is considered a strong method for analysis [46]. Both descriptive and inferential statistical methods were used to gain a comprehensive understanding of how the data is distributed and to examine the relationships between the

variables studied. Nachmias and Nachmias [47] explain that descriptive statistics help summarize the main features of the data using measures such as the average, standard deviation, minimum, and maximum. This step is important because it provides a basic, early look at the raw data before proceeding to more detailed testing [48]. To verify the theories, a hypothesis test is conducted. This utilizes statistical methods to determine if there is a genuine relationship between the variables in the entire groups, thereby helping to support or challenge the original idea based on the collected data [49, 50]. The overall analysis is tested by considering internal validity and inferential accuracy to produce results that can be scientifically accounted for.

3. Result

3.1. Result Descriptive Test

Based on a descriptive test conducted on 192 football supporters, the fanaticism variable has a mean of -0.000 and a median of 0.095, indicating that the relative scores are evenly distributed. However, the distribution is quite skewed to the left, with a skewness value of -1.019, indicating that many respondents have high fanaticism scores, while few have very low ones. The data is sharply distributed, with more extreme values (outliers), as indicated by a kurtosis value of 1.721. The aggressiveness variable has a mean of -0.000 and a median of -0.127, indicating that the respondents' scores are very close to zero, but slightly lower than the median. The distribution is slightly skewed to the right. The skewness test found a value of 0.309, indicating a small proportion of respondents had higher-than-average aggressiveness scores. The data distribution is also relatively flat and not too extreme, resulting in a more evenly distributed data distribution with a kurtosis value of -0.658 [51]. The distribution of the data for both variables is moderate, as evidenced by a standard deviation value of 1.000, as shown in Table 1.

Table 1. Statistics Descriptive

Statistics Descriptive	Fanaticism	Aggressiveness
Mean	-0.000	-0.000
Median	0.095	-0.127
Observed min	-3.697	-1.669
Observed max	1.389	2.118
Standard deviation	1.000	1.000
Excess kurtosis	1.721	-0.658
Skewness	-1.019	0.309
Number of observations used	192.000	192.000
Cram é-von Mises test statistic	0.223	0.140

3.2. Heterotrait-Monotrait Ratio (HTMT) Test Result

Table 2 shows that the Heterotrait-Monotrait Ratio (HTMT) is <0.9 , indicating that each statement item in each variable can be declared valid. Therefore, it can be concluded that the fanaticism and aggressiveness variables have good discriminant validity. The statements (indicators) used to measure fanaticism only measure fanaticism, not aggressiveness. Likewise, aggressiveness indicators should indeed measure aggressiveness. This means that each construct is unique and stands alone according to the concept being measured.

Table 2. Result Heterotrait-monotrait ratio (HTMT)

	Heterotrait-monotrait ratio (HTMT)
Fanaticism <-> Aggressiveness	0.187

3.3. Percentage Distribution of Fanaticism and Aggressiveness Aspects among Supporters

In this study, the aspects presented in Tables 3 and 4 are formal subscales of the fanaticism and aggressiveness instruments, each of which is based on the original theoretical framework. These subscales were maintained according to the structure of the validated instrument and used to analyze the distribution of respondents' scores across dimensions.

Table 3. Percentage Distribution of Fanaticism Aspects

Aspect Of Fanaticism	
The magnitude of interest and love	40,01%
Personal and group attitudes	38,26%
The length of time an individual engages in a particular type of activity	11,92%
Family support	9,81%

Table 4. Percentage Distribution of Aggressiveness Aspects

Aspect of Aggressiveness	
Physical Aggression	24%
Verbal Aggression	25%
Hostility	25%
Anger	26%

The tabulation results for the fanaticism variable show that the most dominant aspect is interest and affection (40.01%), followed by personal and group attitudes (38.26%), the length of time an individual engages in a particular type of activity (11.92%), and family support (9.81%). These findings indicate that supporters with high levels of interest and affection toward their team exhibit the core characteristics of fanaticism, as this aspect reflects a strong emotional attachment and a sense of belonging to

the club. The nearly equivalent proportion of personal and group attitudes further demonstrates that social identity and closeness to the supporter community play an important role in shaping fanatical behavior. Meanwhile, the duration of involvement and family support contribute to a lesser degree, but remain relevant in strengthening long-term commitment to the club. Overall, the dominance of emotional and social aspects suggests that supporter fanaticism is not solely built through the length of engagement with the club's activities, but rather through the depth of emotional attachment and the strength of group identification that supporters develop.

The tabulation results show that the most dominant aspect of aggressiveness is anger (26%), followed by hostility (25%), verbal aggression (25%), and physical aggression (24%). The prominence of anger indicates that aggressive tendencies among supporters often originate from internal emotional reactions such as frustration, irritation, or dissatisfaction with match outcomes or decisions perceived as unfair. The relatively high proportions of hostility and verbal aggression suggest that aggressiveness is more frequently expressed through non-physical forms, including taunts, verbal provocation, and negative attitudes toward opposing teams or supporters. Meanwhile, although physical aggression constitutes the smallest proportion, it remains a critical aspect due to its potential to escalate into harmful or violent incidents. Overall, these findings emphasize that supporter aggression is largely driven by emotional dynamics and perceived threats to group identity, which can subsequently manifest in both verbal and physical forms of aggressive behavior.

3.4. R - Square Test Results

R-Square (R²), also known as in-sample predictive power, is a measure of a model's explanatory power, reflecting the variance explained by each endogenous component. Cohen [52] classifies R-Square into three categories: 0.02 (weak), 0.13 (moderate), and 0.26 (substantial). The following R-Square values are used in this study:

Table 5. R-Square Result

	R-square	R-square adjusted
Aggressiveness	0.046	0.041

Based on the table above, aggressiveness has an R-square value of 0.046 (weak). This value indicates that 4.6% of the variance in the aggressiveness variable can be explained by fanaticism. The remaining 95.4% is influenced by other variables not examined in this study.

3.5. Differences in the Influence of Fanaticism on Aggressiveness Based on Supporters' Gender

The analysis of gender-based differences in the

relationship between fanaticism and aggressive behavioral tendencies revealed a significant distinction between male and female football supporters. Of the 192 respondents, the majority were male (155 individuals; 80.73%), while only 37 respondents (19.27%) were female, indicating a substantial gender imbalance in the sample. The coefficient of the effect of fanaticism on aggressiveness was 0.338 for the male group and 0.236 for the female group (Table 6). This difference was tested using a multi-group analysis, which produced a p-value of 0.021, falling below the significance threshold (<0.05). Thus, it can be concluded that male football supporters with higher levels of fanaticism are more likely to exhibit aggressive behavior compared to their female counterparts.

Table 6. Differences Based on Gender

	MALE	FEMALE	p-value
Fanaticism =>Aggressiveness	0.338	0.236	0.021

3.6. Hypothesis Testing

The results of the hypothesis test in Table 7 indicate a significant relationship between fanaticism and the tendency for aggressive behavior among football fans. Based on the path analysis, the original sample coefficient (O) was 0.214 with a p-value of 0.003, which is less than the 0.05 significance level. The t-statistic of 3.009 also indicates that this relationship is statistically significant, as it exceeds the critical t-value (>1.96 at $\alpha = 0.05$). Thus, the hypothesis that fanaticism has a positive effect on aggressiveness among football fans is accepted.

Table 7. Results of the hypothesis test on the relationship between fanaticism and aggressiveness in football supporters

	FANATICISM -> AGGRESSIVENESS
Original sample (O)	0.214
Sample mean (M)	0.246
Standard deviation (STDEV)	0.071
T statistics ((O/STDEV))	3.009
P values	0.003

The positive direction of the relationship ($r = 0.214$) indicates that the higher a fan's level of fanaticism, the greater their tendency to exhibit aggressive behavior. This suggests that emotional attachment and excessive loyalty to a football team can lead to negative expressions of anger, hostility, verbal, and physical aggression, particularly when the team they support is in a stressful situation or experiencing a loss. This finding supports previous theories which state that fanaticism, especially of an extreme nature, has the potential to trigger deviant or aggressive behavior, especially in the context of competition and rivalry between supporter groups.

4. Discussion

This study provides a comprehensive overview of the relationship between fanaticism and aggressive behavior among football fans, as well as the differences in gender dynamics in the expression of this behavior. The results indicate that fanaticism has a positive and significant relationship with aggressiveness, such that the higher a person's level of fanaticism, the greater their tendency to exhibit aggressive behavior. This finding is consistent with the results of Zeferino et al [53], who reported a positive correlation between the intensity of fanaticism and aggressiveness, strengthening the argument that emotional attachment to a club can trigger deviant behavior, especially in competitive and rivalrous contexts.

In this study, fanaticism appears to be strongly rooted in individual emotional attachment to their team. This emotional attachment, as explained by Zamorano et al [54], can shape a solid social identity within supporter groups. Such identity strengthens the sense of belonging, which in turn creates a distinction between the in-group and the out-group. When the group identity is perceived as being threatened such as through provocation from opposing supporters, unfavorable referee decisions, or losses that contradict expectations defensive or even offensive reactions are more likely to emerge [55]. This explanation aligns with the distribution of fanaticism levels in the present study, which shows a tendency toward high fanaticism. However, it also demonstrates that strong fanaticism does not yield a high predictive power for aggression, thereby reinforcing the notion that emotional attachment is not the primary determinant of aggressive behavior. Although Anggraini and Putri [56] indicate that fanaticism may act as a trigger for aggression, the findings of this study suggest that such a contribution is empirically very small, as reflected in the low R^2 value.

Aggressive behavior among supporters in this study was also shown to emerge through a combination of psychological and situational factors. The two most prominent dimensions of fanaticism are interest and affection, as well as personal and group attitudes, which demonstrated associations with dominant aspects of aggression such as anger and hostility. However, these associations were not strong enough to contribute substantially to the overall variance in aggressiveness. The low R^2 value clarifies that although fanaticism may trigger negative emotions, the primary sources of aggression stem from competitive contexts, group pressure, and situations that affect collective self-esteem. Studies conducted by Newman et al [57] indicate that extreme group attachment is not the primary factor driving supporters' aggressive behavior. This means that fanaticism plays a role in shaping emotional readiness, but it is the context that actualizes the aggression.

The very low R^2 value (0.046) indicates that fanaticism accounts for only a small portion of the variance in aggressive behavior among football supporters, despite

being a statistically significant predictor of aggression. This finding suggests that aggression within supporter culture is a highly complex and multidimensional phenomenon that a single psychological construct cannot fully explain. While fanaticism reflects emotional attachment and loyalty to a team, the results align with Dunning [58] and Stott and Pearson [59], who emphasize that football supporter aggression is far more strongly influenced by situational, social, and emotional factors than by individual psychological characteristics. These results suggest that aggressive behavior in football matches often arises from intergroup dynamics, perceptions of injustice, frustration, and collective emotional arousal, rather than solely from a person's level of fanaticism toward their team [60-62].

This explanation is also consistent with several theoretical frameworks widely used in the literature. The Frustration Aggression Theory [63] emphasizes that aggression is often triggered by situations that generate frustration, such as referee decisions perceived as unfair, unexpected defeats, or provocation from opposing supporters. Social Identity Theory [64, 65] likewise demonstrates that supporter aggression is primarily influenced by conflicts between the in-group and the out-group. In addition, studies on hooliganism reveal that aggressive behavior typically arises from group norms, social pressure, deindividuation, emotional contagion, and crowd density within the stadium [66, 67]. Prior literature similarly shows that supporter aggression is more powerfully driven by contextual and social factors such as group norms, provocation by rival supporters, frustration over match outcomes, perceived injustice in referee decisions, spectator density, and emotional contagion within large supporter groups [68, 69]. These influences underscore that aggressive acts in large crowds often emerge from situational pressures and group-based identities [70]. Therefore, the weak predictive power found in this study reflects the dominant role of environmental and social determinants in shaping aggression. This indicates that these social situational factors are far more influential in explaining the remaining 95.4% of the variance in aggressiveness, positioning fanaticism as a minor element within the broader dynamics of supporter aggression.

From the perspective of Collective Behavior Theory and contemporary crowd psychology models, aggressive behavior within supporter groups is shaped through social interactions occurring in the crowd, including shared emotions, perceptions of legitimacy toward other groups (e.g., security personnel or rival supporters), and collective goals aligned with group identity [71-73]. This is supported by findings from Newson et al [74] as well as Var and Cihan [75], which show that when supporters encounter frustrating situations such as sudden defeats, referee decisions perceived as unfair, or provocative actions from opposing supporters, aggressive reactions tend to increase. These theoretical frameworks suggest that individual

factors, such as fanaticism, typically play a minor role compared to the stronger social influences operating within crowd contexts. Thus, the low R^2 value should not be viewed as a methodological weakness; instead, it reinforces the understanding that supporter aggressiveness is a complex social phenomenon driven mainly by situational conditions and group dynamics, with fanaticism serving only as a modest predictor.

This study also found a positive and significant relationship between gender, fanaticism, and aggressiveness among football supporters. In particular, empirical evidence shows that the violence dimension of fanaticism is the strongest predictor of aggressive and deviant behaviours, including cyberbullying, indicating that heightened fan identification often manifests through hostile and confrontational actions toward rival groups [76]. Elevated fanaticism tends to intensify emotional and psychological dispositions, which in turn contribute to aggressive tendencies [77]. This aligns with the present study, which demonstrates that the higher an individual's level of fanaticism, the greater their tendency to exhibit aggressive behavior. Collectively, these results reinforce empirical evidence that fanaticism and aggressiveness among football supporters are positively and significantly related.

The gender imbalance observed in this study, in which males accounted for 80.73% of the sample, can be explained by the cultural characteristics of football fandom, which has historically been dominated by masculine norms. Within this culture, behaviors such as toughness, competitiveness, and overt displays of aggression are often considered acceptable even expected forms of expression [78]. Male supporters tend to express their fanaticism through more intense physical and verbal behaviors, whereas female supporters, despite also being committed fans, typically express their attachment through more symbolic or emotional forms of support. As described by Jakubowska [79] in *Female Fans, Gender Relations and Football Fandom*, women involved in football fandom often face stereotypes suggesting that they are less knowledgeable or less serious as supporters, which shapes how their expressions of fanaticism are perceived and framed in comparison to men. These cultural dynamics also influence the forms of aggressiveness that emerge. Among male supporters, group norms often encourage direct behaviors such as offensive chants, physical intimidation, or confrontation, while female supporters tend to express their fanaticism through community engagement, social media interaction, or more controlled verbal support.

Consistent with the findings of Pope et al [80], the difference in coefficient values between male and female supporters in this study can be understood as the result of an interaction between the masculine culture embedded within football fandom and the ways in which women position themselves within that environment. While

fanaticism remains a significant predictor of aggressiveness for both genders, the male-dominated culture of football fandom creates a more permissive environment for male supporters to express fanaticism through aggressive behaviors. In contrast, female supporters tend to restrain their aggressive expressions in order to avoid stigma or social exclusion [81], which explains why the influence of fanaticism on aggressiveness is lower among women in this study. This dynamic also contributes to the predominance of male supporters in the sample, as the cultural norms of football fandom continue to align more closely with traditionally masculine forms of expression.

Overall, the findings of this study indicate that fanaticism plays a measurable yet limited role in predicting aggressive behavior among football supporters, with a weak overall effect and varying levels of influence across male and female groups. The stronger effect observed among male supporters aligns with existing literature on masculine norms within football fandom, while the weaker effect among female supporters suggests differences in behavioral expression and socially reinforced norms. Taken together, these results highlight the importance of considering both psychological factors and gender-based social contexts when examining supporter aggressiveness. Although fanaticism remains a relevant factor, the complexity of supporter behavior necessitates broader theoretical and empirical approaches that account for situational influences, environmental conditions, and group dynamics.

5. Limitations

This study has several limitations that should be considered when interpreting the findings. The most significant limitation is the very low R^2 value of 4.6%. This indicates that fanaticism explains only a small portion of the variance in aggressiveness, suggesting that the majority of factors influencing supporter aggression were not captured in the model. While this is an important finding that offers new insight, specifically, that supporter aggression is more strongly shaped by social and situational dynamics, it also underscores the need to incorporate additional variables in future research. Factors such as group pressure, emotion regulation, masculine norms, rivalry intensity, prior exposure to violence, stadium design, security force behavior, and social media provocation may exert a much stronger influence on aggressive behavior.

Another notable limitation is the unequal gender distribution within the sample. Of the 192 respondents, 155 were male (80.73%) and 37 were female (19.27%). This imbalance reflects the empirical reality of football supporter culture, which is historically and statistically dominated by men. In practice, male supporters are more frequently and visibly involved in match attendance and

supporter activities, making them more accessible as research participants. Additionally, the underrepresentation of women in football fandom is influenced by social norms, gender stereotypes, and the persistent association between fandom culture. Consequently, this imbalance limits the generalizability of gender-based comparisons regarding aggressiveness. Future studies should aim for a more balanced sample or apply stratified sampling techniques to ensure proportional representation across gender groups. Using multi-group analysis with more balanced subsamples may also yield more accurate insights into gender differences in aggressive behavior.

Overall, these limitations do not merely highlight areas for improvement but also reveal opportunities for further research to develop a far more comprehensive model of supporter aggression. Given the complexity of supporter behavior, future studies are encouraged to integrate psychological, social, situational, and structural variables to achieve a more holistic understanding of the dynamics underlying aggression among football supporters.

6. Conclusions

This study demonstrates a positive and significant relationship between fanaticism and aggressive behavior among football supporters. Higher levels of fanaticism, particularly when individuals exhibit strong interest and affection toward their team, as well as a personalized or group-based attachment, are closely associated with heightened anger and hostility, which represent key forms of aggressive tendencies. Although this influence is statistically significant, the low R^2 value indicates that fanaticism explains only a small portion of the variance in aggressiveness, suggesting that most aggressive behaviors are driven by factors outside the current model. These findings highlight that supporter aggression is a complex phenomenon that cannot be accounted for solely by emotional attachment to a team.

Furthermore, the gender-based analysis reveals that the effect of fanaticism on aggressiveness is stronger among male supporters than among female supporters. This difference aligns with existing evidence that social and cultural factors, particularly masculine norms embedded within football fandom, shape distinct patterns of aggressive expression across genders. From a practical standpoint, these results underscore the need for preventive efforts that extend beyond managing fanaticism alone. Interventions should also address situational regulation, supporter education, and the reinforcement of sportsmanship values to reduce the likelihood of aggressive incidents. Future research is encouraged to incorporate additional variables, such as group norms, rivalry intensity, match conditions, and emotional factors, to develop a more comprehensive understanding of the dynamics underlying supporter aggression.

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