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Incorporating Socio-Cultural Variables Into Calculations of Home Advantage in Women's Sport: A New Framework

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Home advantage (HA) is heavily researched in sports science, but the vast majority of prior studies have analyzed HA in men's sports. Very few have analyzed women's sports competitions or compared HA results between men's and women's sports. Our aim in this paper was to show the importance of socio-cultural variables (set of values, norms and behaviours that characterize a society) in calculating HA for women's sports. The HA gender gap (HAGG) may be linked in part to such socio-cultural predictors as gender equality, cultural globalization, among others. The inclusion of socio-cultural predictors make clear that to analyse HA rates in women's sport and especially in comparing HA between men's and women's sport, there are socio-cultural differences present in each society that can modulate different results across for both genders. In this sense, to calculate for the specific case of calculating HA in women's sports, it is recommended to include socio-cultural factors (e.g., historical prejudices/restrictions, ethnic-geographical particularities, cultural traditions, and less media coverage/sponsors).

INTRODUCTION

Athletes and sport teams usually gain a competitive advantage when playing at home.[1,2] This important phenomenon is known in the sports literature as home advantage (HA).[3] HA is one of the best-established phenomena in sports science, and it has been consistently associated with superior home game performances by sport teams and athletes, regardless of the type of sport, whether the sport is individual or team based, or the skill level of the athlete/team.[4-6]

According to past research, the causes of HA are multiple and complex. They can be summarized as crowd effects, travel effects, familiarity with local conditions, territoriality, referee bias, special tactics, rules factors, local derbies (same city), team composition, and psychosocial factors.[7-9] In addition, the consensus of existing literature is that HA is not driven by a single variable, but by multiple interrelated and reciprocally influential factors.[8,10,11]

Systematic studies on HA in women's sport began in the late 1980s when Gayton et al. analyzed the effect of HA in three different women's collegiate sports.[12] Although more than thirty years have passed since this initial study, little further attention has been given to HA in women's sport.[7] The vast majority of HA studies have focused on men's leagues/sports, while only very few analyze women's competitions or compare HA results between men's and women's sports.[13] Accordingly, Leite et al. found only 28 studies on HA in women's sports, with only 12 of these devoted exclusively to analyzing women's sport, and the remaining 16 comparing HA results between both genders.[7] Thus, research related to the HA effect in women's sport is still scarce and, consequently, less conclusive.

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In addition, factors that influence HA in women's sport are not fully known. Investigators have presumed that the same factors that influence the magnitude of HA in men's sport also influence HA in women's sports, albeit in different ways and intensities.[7] The studies that compared HA-related performance between genders have usually shown that the HA effect was greater in men's than in women's sports.[3,9,13] This finding was mainly attributed to differences in physical characteristics between men and women.[14] Thus, most studies have focused on biological differences between men and women, such as hormones and territoriality.[15-17] Other studies have also referred to psychological differences between genders, such as reactions to crowd support and psychological state.[7,18,19] However, these factors alone may not be sufficient to explain the different findings in HA rates between men and women, known as the HA gender gap (HAGG). Rather, it is necessary to analyze women's sport in a holistic, integrated manner if we are to understand the particular ways these, and other, factors may be relevant to the HAGG phenomenon.

Existing frameworks for calculating HA in women's sports generally mirror those used to calculate HA in men's sports. There have been no conceptual distinctions in this research when analyzing HA between men and women. This is not to say that previous frameworks are inappropriate to understanding HA, but when specifically analyzing women's sport within a given country or region, specific geo-socio-cultural variables (e.g., gender equality, human development, etc.) are important to include for consideration.[4] For instance, gender equality is a complex, multidimensional phenomenon that is deeply embedded in the social fabric.[20] So, a comparative look at women's sport should consider contextual human development and the extent of gender inequality specific to the countries under investigation.[21]

According to Sánchez and García-de-Alcaraz, a comprehensive sociological approach can clarify the complexity of the HA phenomenon within the dynamics of social processes.[22] In this sense, our aim in this study was to suggest a specific framework, including some socio-cultural HA predictors (such as social, cultural, and historical factors) that might affect the phenomenon of HA in women's sport. Thus, in this paper, we outline a new perspective to the current research in which we emphasize how individual gender differences in sport are embedded in the broader societal context.[20]

Home Advantage Frameworks: Revisiting the Existing Models

Multiple frameworks have been developed to structure factors associated with the development of a HA effect.[4,7,11,15,23,24] Generally, these frameworks have been aimed at analyzing HA in men's team sports, with a special emphasis on football (soccer).

Initially, Courneya and Carron proposed a framework for match location research that incorporated five components: (a) game location (home, away); (b) factors related to game location (crowd, learning, travel, rules); (c) critical psychological states (competitors, coaches, officials); (d) critical behaviors (on the part of competitors, coaches, officials); and (e) performance outcomes (primary, secondary, tertiary).[24] Following Carron et al.'s review of this initial framework, the referees' influences were removed, and physiological states were included.[23]

Another framework for this phenomenon developed for football was proposed by Pollard and Pollard who summarized the main causes of the HA effect to be crowd support, travel effects, familiarity with local conditions, territoriality, referee bias, special tactics, and psychological factors.[11] Pollard and Gomez later added rule factors, local derbies, and team composition to these factors.[25] Anderson proposed an exclusive framework for men's football (Football and Venue Effect - FAVE), in which variables from previous literature (physiological factors, familiarity, travel, referee, crowd, and tactics) were combined with the experimental findings.[15]

Most recently, Leite et al. proposed a new expanded model of causal factors of the HA effect containing eight factors and their respective sub-factors: familiarity (local stadium conditions, local climate/altitude, home routine – pre match); physiological factors (hormones, territoriality); tactical factors (home and away matches); psychological factors (self-fulfilling prophecy, home routine – comfort, more confidence, less anxiety); travel effects (duration of travel, time zones crossed, mode of transport, routine disruption); crowd support (support to the home team, motivation – home players, pressure on away team, pressure on referees), referee bias (interference in favour of the home team, more

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penalties (sanctions) against the away team; and others (rules factors, local derbies, team composition, opposition quality). [7]

The Influence of Social-Cultural Factors in Women's Sport

In the past half century, women's sports organizations have proliferated in tandem with the rapid growth of women's participation in sport.[26] Although female participation in sport has increased progressively, many sports still exclude women or treat them differently than men.[7] As such, the sporting realm within society remains intrinsically linked to broader societal structures and cultural norms.[20] The sporting realm is a microcosm of society's gender values, gender prejudices, and general myths.[27] Thus, women with sport interests must challenge the constraints of dominant cultural constructions in sport.[26]

According to Anderson, modern women are well represented as sports participants at the lower levels of sport, but this representation dramatically decreases at the professional level, where women enjoy far less opportunity than they enjoy in recreational or collegiate sport.[26-27] Organized sport is, therefore, an important and influential institutional sphere of contemporary gender relations and gender inequality.[28] Women's sport can reveal much about the level of gender inequality in the countries studied.[21] Only by comparing these different contexts (e.g., collegiate and professional sport) with different levels of societal gender equality (e.g., gender gap index) can we accurately assess the effect of differences in sport, including gender differences in HA rates. [20] Currently, there is ample evidence in sports literature supporting social, cultural and historical factors as important determinants of sports performance. These factors influence the differences found between men's and women's sport and, consequently, they influence differential gender-based HA rates.[3,7]

Regarding the social bonding and team-community relationship in sport, Smith asserted that fans were less likely to see a women's team as being representative of the local community than a men's team. [29] Consequently, in the HA context, we can expect to see less crowd support for women's matches and less hostility toward women's opponents and referees. Pollard et al. demonstrated that, of 193 domestic sports leagues worldwide with average attendances of over 1,500 per match in 2015, only three were women's leagues. [13] Beyond team sports, these socio-cultural factors have also affected individual sports. Julio et al. found that there was less public interest in female than in male judo matches, and this difference could also be seen in the form of historical prejudices and restrictions that women faced in practicing judo. [30] As for the causes of HA effects, a lower public interest and crowd support in women's sport can help explain the lower HA effect rate, especially since social support is an important source of confidence for female athletes.[7] This newer literature provides credibility to the idea that differences in HA effects across men and women are at least partly rooted in socio-cultural differences.[31]

Based on social bonding theory, many studies have identified the effects of home crowds on sport players and referees. It is likely that the emotional tone provided by home crowd attendance alters the balance of tension in the match, boosting the home team's performance and hindering the away team's performance.[18,22,32] Furthermore, several studies have shown that referees are also influenced by crowd support, with more disciplinary sanctions assigned to away teams.[1,33,34] To the extent that HA is a social phenomenon, dependent on interactions between the crowd and the players and the officials on the field, we might expect national/regional differences in social behaviors and cultural values to influence the extent of HA, especially when analyzing the players' gender differences. [31] Indeed, Leite et al. demonstrated that players and coaches believed that greater crowd support could increase HA in professional women's sport. [7]

According to Leite and Silva[3], HAGG might also be explained by a greater inequality between athletes' genders in terms of the developmental stages of gender equality in sports in the country studied. Historically, many women's sports/leagues can be considered as in the earlier developmental stages than men's sports/leagues. Consequently, there are also fewer women's athletes/teams, relative to the corresponding numbers in men's sports. In this case, simple comparisons of men's and women's HA rates can mask important differences between these sport systems. For example, women's professional football is a relatively young sport in many countries as it was banned by law in countries with prominent men's football athletes/leagues such as Brazil and England.[35-36] Only since 2011 have the main women's football leagues in England been

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operating without interruption (Women's Super League and WSL Cup). The relative infancy of the English women's league, associated with the factors previously mentioned, certainly contributes to the lower effect of HA in women's versus men's football.[3] Some studies comparing the HA rates between English men's and women's football leagues evidence the presence of a HAGG by demonstrating that HA rates have been reported to be around 10% lower in women's football.[3,9] Other similar problems and challenges have been reported for women's football in countries, such as the United States, France, and some Latin countries.[21,26,37]

In addition to social and historical factors, other factors such as less media coverage and less commercialization of women's sports make women's sports much less attractive to the general public than men's sports.[7] Although women's sports are increasing in economic significance, their study has been relatively neglected by sports economists, pointing to the need to do more research.[21] According to Coulomb-Cabagno et al., very little attention was given to women's sport participation through the media.[37] This could explain why football in France is still perceived as a masculine-type sport. A similar problem has also been reported in England.[36] This leaves women's sport easily relegated to second-class status, given the general devaluation of feminine qualities in the professional sports field.[26] Thus, sport reproduces the gendered nature of the social world with resulting in downstream consequences such as less physical and material structure, fewer sponsors, and less interest in scientific research in women's sport, all of which leaves the HA effect less understood in women's sport.[7, 27] In this context, sport is a social phenomenon that reflects, in its structure, many characteristics of the society in which it is embedded (e.g., gender stereotypes from spectators, media coverage, historical factors, among others).[7] Thus, HA in women's sport is, at least in part, a social phenomenon, with its calculated rates dependent on socio-cultural predictors.[31]

Home Advantage and Socio-Cultural Predictors: A Literature Review

Coakley stated that the study of sports is integrated with education, economics and politics.[38] Thus, sport research should consider, among other factors, the athletes' gender, race, abilities, and social class. The element of social development has become a fundamental predictor of societal activities, including sport. A few HA investigators have analyzed this social class variable and its relationship with other socio-cultural predictors. Below is a summary of findings from these important early studies.

Global Gender Gap Index (GGGI)

Some studies that compared the HAGG in sport found it helpful to use a gender equality measure.[3,9] According to Pollard and Gómez, several measures for this purpose are available and previously published by international agencies.[9] One of these is the GGGI, an index that captures the magnitude of gender-based disparities (based on 14 indicators ranging from economic, to educational, health and political status) in a given culture. The GGGI indexes how well a culture may be dividing its resources and opportunities among men and women. The GGGI, developed by the World Economic Forum, yields score ranges from 0 to 100, with higher scores reflecting higher levels of gender-based equity.[39]

According to Pollard and Gómez, the contribution of the GGGI to computing HA rates was highly significant to their study's results.[9] If women see themselves as equal to men and are perceived by others as such, it is reasonable to presume that the psychological explanations for the HA effect would then apply to men and women in a similar way. So, as the GGGI increased (i.e., the status of women became closer to that of men), HA values were more similar across genders. This result was especially evident in Scandinavian countries, where gender equality was greatest and where the HAGG was lowest. Despite the Pollard and Gomez finding that GGGI was very useful in these analyses, Leite and Silva found no significant difference in HA rates across gender, based on this variable.[3,9] These different findings may be due to methodological variance between these studies: while Pollard and Gómez used the midpoint GGGI value over 5-6 seasons sampled for each country, Leite and Silva used year-by-year GGGI values for each country in analyses of nine separate seasons.[3,9] Lagaert and Roose demonstrated gender gaps in sport event attendance (crowd support) that were generally smaller in countries with higher levels of gender equality and larger in countries with lower levels of gender equality.[20] Thus, GGGI is an important factor to consider when analyzing

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women's sports and/or comparing HA differences in performance sport.

KOF Cultural Globalization Index (KOFCuGI)

Cultural globalization is the approximation and exchange of cultural characteristics between societies. According to Leite and Silva, HA analyses should also consider that cultural globalization is changing the collectivist (Individualism–Collectivism is a bipolar dimension of national culture and measures the extent to which group identity and cohesion are practiced and valued in a society) cultures of varied nations and, consequently, their societal gender status. [3,31] Globalized socio-cultural dynamics and their effects are still poorly understood with regard to the HA effect in team/athlete sport performance. Theoretically, due to a certain level of globalization, socio-cultural proximity between nations might reduce the sense of territoriality and thereby reduce gender-related differences in HA. Furthermore, greater cultural proximity between countries may be transforming social structures and gender equity so as to reflect greater gender equality and thereby decrease the HAGG.[3] The KOFCuGI index reflects the exports and imports of cultural goods defined by the United Nations Educational, Scientific and Cultural Organization – UNESCO. Higher scores (ranging from 0 to 100) reflect higher levels of cultural globalization and may indicate global shifts in gender inequity. [40]

Leite and Silva used the trade-based KOFCuGI as a cultural index (Cultural Globalization, de facto) in a regression analysis, and found that 17% of the variance in the difference between men's and women's HA rates could be explained by this cultural globalization index (in association with women's competitive balance score and contrasts in European sub-regions). [3] Gelade also found that the HA was higher in more collectivist countries (although the metric used was different).[31] Although only one researcher used this socio-cultural predictor in relationship to HA, these findings about cultural globalization provide new insights into some of the societal bases for HA results related to the gender gap hypotheses.[3] In short, countries/regions with a lower HA have tended to be more individualistic, while countries/regions featuring an elevated HA have usually presented a higher degree of collectivism.[22]

Human Development Index (HDI)

According to the United Nations, the global development of a nation can be measured by the HDI in three dimensions: income, education, and health. The HDI has been used across more than 170 countries since the 1990s.[41] This index refers to the extent to which people in a country can live long, healthy, educated lives, and it measures their access to resources for a decent standard of living.[42] According to Gomes-Sentone et al., the HDI is divided into five categories, with Category 1 the highest level of human development and Category 5 the lowest level of human development.[43] The index ranges from 0 to 1; and scores closer to 1 indicate a better and higher HDI, while those closer to 0 indicate a worse and lower HDI.

As stated by Lagaert and Roose, societies with higher levels of human development also tend to demonstrate more gender equality. [20] Some studies have identified higher probabilities for better performance by athletes in high HDI countries.[43-45] Gomes-Sentone et al. found a positive correlation between the general HDI and sport performance for athletes of both genders. [43] As demonstrated in Lagaert and Roose, HDI has also been also associated with higher sport event attendance (crowd support) across both male and female sports. [20] Although few studies have related HDI to sports performance, HDI could be a relevant social factor consideration for HA in sports performance. [43]

Regional Division

Several studies have shown that HA rates can vary when comparing countries, regions and/or continents.[2,25,32,46] According to these socio-cultural findings, Leite and Pollard state that HA rate differences are especially likely for locations in remote areas with distinct local, cultural and ethnic traditions, as well as in countries with a history of internal conflict and outside aggressors. [32]

Analyzing only sociological factors, several football studies highlighted high rates of HA in the Balkan region, where the mountainous terrain has created isolated communities with distinct ethnic and religious cultures as well as a history of conflict.[2,3,25,32] According to Leite and Silva, territoriality can effect or co-regulate women's status in these societies. [3] The Southern European region (three Balkan countries in the sample) showed the largest HAGG and was the region with the highest gender inequality score (i.e., lowest

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GGGI). This region has demarcated ethnic-cultural issues that are more deeply rooted and shielded from globalization advances. Pollard and Gómez showed an increased HA effect in football teams from the islands of Corsica (France) and Sicily (Italy), each of which is isolated and ethnically distinct from the surrounding countries. [46] The highest HA effect in Turkey was for football teams that were based in remote locations and ethnically distinct communities.[47] Armatas and Pollard analyzed the Greek football league and found that a team from Xanthi, a city with a large ethnically distinct population and in a relatively distant part of Greece, had a higher HA effect than elsewhere. [48] Analysis of HA in 35 men's national basketball leagues in Europe also found high values for nations in the Balkans.[49] Balkan countries also possess high HA rates in men's handball in Bosnia and Herzegovina (73.4%), Croatia (67.2%) and Serbia (65.6%); and in women's handball in Romania (66.1%).[13] These data support an impression that regions with strong local and cultural traditions are less influenced by other cultures, have a greater sense of territoriality, and show higher rates of HA. Meanwhile, regions with high cultural globalization (multiple cultures coexisting) have a lower sense of territoriality and, consequently, show lower HA rates.

A New Proposed Framework for Home Advantage Research in Women's Sport

As seen above, analyzing HA in women's sport requires a targeted analysis of socio-cultural variables specific to women in each society. A comprehensive HA framework to inform present and future HA researchers must rely on indices of the factors and inter-relationships existing within this complex sport environment.[15] Thus, the new framework proposed here for calculating HA in women's sport (Figure 1) has nine factors and respective sub-factors: crowd support, familiarity, travel effects, psychological factors, physiological factors, referee bias, tactical factors, socio-cultural factors, and other important factors.

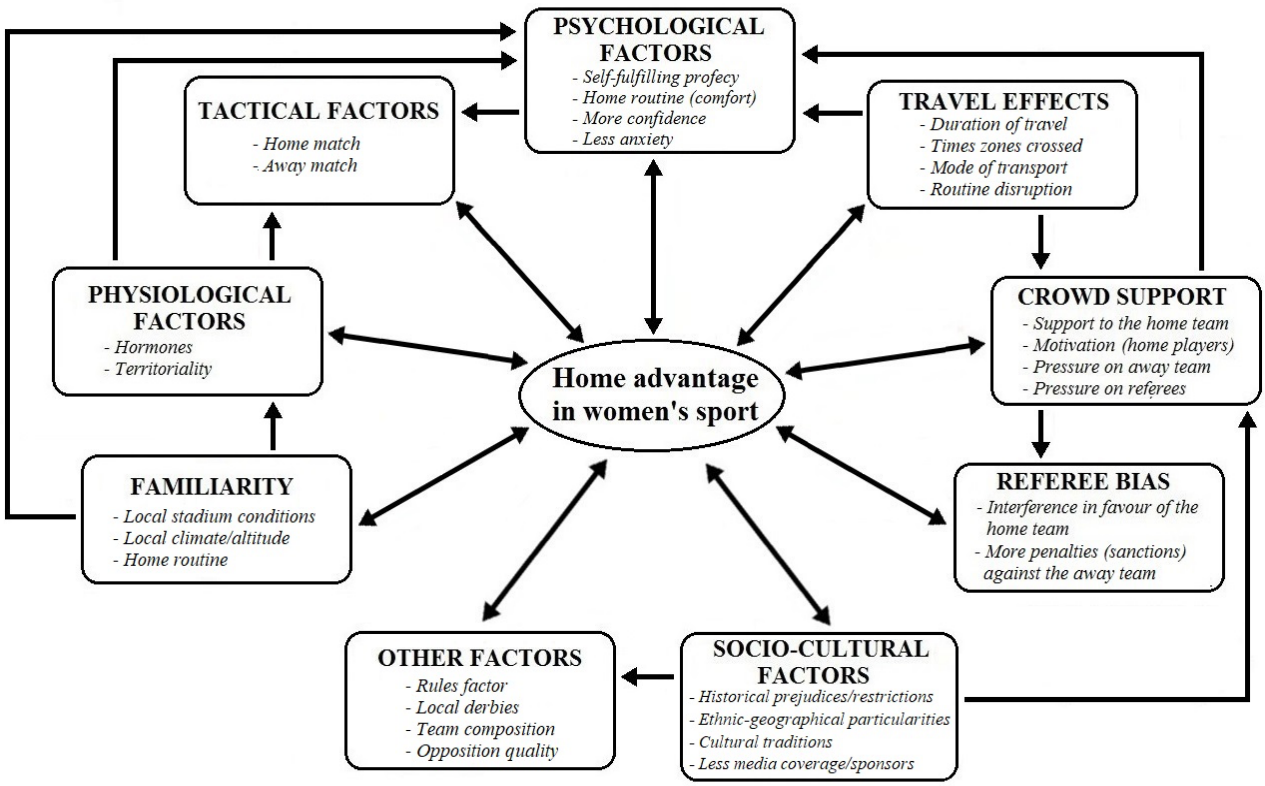

Figure 1. A new proposed framework for home advantage in women's sport

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This new proposed framework is an advancement of the framework proposed by Leite et al.[7] The inclusion of socio-cultural predictors make clear that analyses of HA rates in women's sport and comparative analyses, especially in comparing HA between men's and women's sport, require consideration of socio-cultural differences present in each society that can modulate different results for both genders. As such, calculation of HA in women's sports necessitates the inclusion of socio-cultural factors (e.g., historical prejudices/restrictions, ethnic-geographical particularities, cultural traditions, and less media coverage/sponsors). As described, these factors help explain differing HA rates for men and women, making it important to highlight them according to which socio-cultural metrics may be most related to the aim of each study.

CONCLUSION

Observed gender disparities in HA within each country/region are linked to social, cultural, and historical factors. These factors (e.g., lesser crowd support, ethnic-geographical particularities, individualist-collectivist societies, historical prejudices/restrictions, among others) modulate competitive behaviour in women's sports and can change the HA rates observed in men and women's sports. Thus, in outlining the importance of socio-cultural predictors for women's sports and to advance this field of study, this study presents a new proposed framework for calculating HA in women's sport and/or in the comparison with men's sports.

Conflict of Interest Statement

The author reports no conflict of interest with the contents of this manuscript.

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