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Article

Match Experience at the Danish Women's Soccer National A-Team Matches: An Explorative Study

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Abstract: Women's soccer is more popular than ever, but match attendance is still relatively low. In order to develop sustainable revenue streams for women's football, and help it grow further, it is necessary to understand what drives spectator's overall demand. We explore factors that affect the overall match experience for spectators (i.e., spectator satisfaction) attending Danish women's national soccer A-team games in the 2016 to 2019 period as a proxy for this. Using survey data gathered by the Danish Football Association (DBU) consisting of 4010 individuals and 13 matches, coupled with other match-specific data, we employ multilevel regression modelling. The results at the individual level suggest that female spectators are significantly more content with the overall match experience, while several additional factors are also important at the match-specific level, such as kick-off time and the result. Furthermore, there are indications that match significance and derby matches affect overall match experience. An important implication of these results is that they can aid national and international federations and other governing bodies in promoting women's soccer in general, and women's national A-team soccer specifically, in order to help the sport to become more financially viable. Although numerous initiatives have been designed to increase the attractiveness of women's soccer, these are yet to materialize into long-term effects.

Keywords: women's soccer; national A-team; match experience; multilevel modelling



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1. Introduction

Women's soccer is more popular than ever, as illustrated by the high number of viewers who watched the FIFA (Fédération Internationale de Football Association) Women's World Cup in France in 2019. (<https://img.fifa.com/image/upload/rvgxekduqpeo1ptbgcng.pdf> (accessed on 30 January 2021)). However, even in Denmark, a nation among the pioneers in women's soccer [1], match attendance is far lower compared to the men's national A-team matches. During the qualification matches for Euro 2021, the number of spectators attending the women's national A-team matches was between 3000 and 4500. In comparison, attendance at popular matches for the Danish National men's A-team is often close to the maximum capacity at the Danish national stadium, Parken—located in the Danish capital Copenhagen—which is around 38,000.

The literature contains only a few demand studies that focus on national A-team games in European soccer e.g., [2,3]. Equally important, knowledge obtained from studies addressing the club level cannot necessarily be used to optimize demand at the national A-team level. Moreover, little attention has been directed towards analyzing the demand for women's soccer [4], and it is not given that the determinants of demand for men's matches are equal to those for women's matches [5]; see also overview in [6]. Thus, understanding what drives the match experience is pivotal in order to make women's soccer more popular [7], because it will inject much needed capital, which, in turn, has the potential to make women's soccer more financially sustainable in the long run [8,9].

From a historical perspective, several initiatives have been undertaken to increase the attractiveness of women's soccer (e.g., free admission, spectator entertainment and music during half time). However, such initiatives have failed to materialize in terms of increasing the long-term market value of women's soccer. Inspired by the Union of European Football Associations (UEFA) Women's football strategy 2019–24 (https://www.uefa.com/MultimediaFiles/Download/uefaorg/Womensfootball/02/60/51/38/2605138_DOWNLOAD.pdf (accessed on 30 January 2021)). Stating that “to increase visibility and commercial value, we will generate fandom around women's football, UEFA competitions and domestic football”, understanding the driving forces behind match experience has the potential to make initiatives more effective. Against this background, the aim of this paper is to bridge this gap in the literature by providing new evidence concerning the determinants of match experience, and thereby to assist national federations in promoting women's soccer more effectively. From a sports policy and finance perspective, this is important because the implications derived from the findings in this study related to understanding match satisfaction issues can potentially assist not only the Danish federation but also other federations in optimizing revenue streams and engage in policies that supports this. As the national women's A-team is a more significant driver of the development of women's soccer than is the parallel case in men's soccer, focusing on female soccer is potentially very potent. Furthermore, the low interest in women's soccer in general, evident by low attendances, implies that understanding what drives match experience is both a promising and natural starting point for generating more interest. This will in turn help policy makers implement initiatives more efficiently and thus help policy makers in the quest for a financially robust and viable women's soccer. Based in this, we present the following research question:

Which factors affect the overall match experience for spectators attending the home matches of the Danish Women's national soccer A-team for the period of 2016–2019?

The factors addressed in our study are largely inspired by the seminal Borland and Macdonald [9] framework, although it should be noted that additional factors are also included. More specifically, we focus our attention on both spectator-specific variables (e.g., gender), and match-specific variables (e.g., match schedule, FIFA-rankings) in order to understand the driving forces behind satisfying match experiences. The data examined are obtained from Dansk Boldspil Union (DBU; The Danish Football Association) and contain survey results on spectators who bought matchday tickets online for the Denmark women's national A-team 13 home matches in the period of 2016–2019.

Our paper is structured as follows: The next part presents the theoretical framework underpinning the study, followed by a rather broad literature review that also introduces aspects beyond those depicted in the Borland and Macdonald [9] approach. Furthermore, a set of hypotheses is developed. In the following Data and Analysis section, the initial focus is on the measurement of variables prior to presenting the results of our regression models. Thereafter, the results are discussed in relation to the hypotheses and, finally, conclusions are drawn where limitations and suggestions for future research are considered.

2. Theoretical Framework and Development of Hypotheses

In general, interest is, according to [9], pivotal in the demand for watching sports and sports consumption. Hence, in a given sport, interest is important for its financial viability. For soccer, interest is essentially important in terms of attracting sufficient financial means from associations, sponsors, spectators, media, national and international competitions, and so forth [10]. At the same time, interest also ensures a focus on healthy finances as different stakeholders, such as creditors, sponsors, and owners, want to ensure that financial means are managed astutely [8,9]. Stadium attendance is a central dimension of interest in soccer. Although revenue derived from spectators has declined in financial magnitude in recent years relative to media revenue [11], the former is still important [12].

First of all, spectators are part of the product, as spectators create a lively stadium atmosphere [9]. In addition, stadium attendance also has implications for the atmosphere and experience shared by TV viewers [13]. As argued earlier, stadium attendance is

contingent on several different factors, of which match experience is of great importance. Hence, understanding the determinants of overall match experience is essential in attracting potential spectators to the stadium.

Borland and Macdonald [9] propose the following five main categories of demand determinants for attendance at sporting events: (i) Consumer preferences; (ii) economic variables; (iii) quality of viewing; (iv) characteristics of the sporting contest; and (v) supply capacity. The latter is, however, not relevant since this study draws on the Danish women's national soccer A-team matches, where there is considerable surplus stadium capacity. More importantly, Dobson and Goddard [14] argue that supply capacity is not a demand variable as such. The use of the Borland and Macdonald framework [9] is appealing from the outset as it is one of the most exhaustive and well-established approaches covering a wide range of determinants. Recent studies have also drawn on the framework [15]. Further, Borland and Macdonald [9], state that "Sports marketing and management scholars have also developed typologies to identify different sources of demand. These typologies build on research that explains the structural relationship between fan interest or 'fandom' and various psychological and sociological factors. The broad conclusions from this research correlate with the approach of the economic literature (p. 480)". This in turn implies that the framework from the outset is also applicable from a marketing perspective and equally important that determinants of demand go beyond those depicted in Borland and Macdonald [9]. It should, however, be noted that our approach to a large extent also draws inspiration from and utilizes determinants within the field of sports economics. That said, unlike the majority of sports economics studies, we focus on match experience rather than determinants of attendance per se. However, these are undoubtedly interrelated issues, an issue evident as studies focusing on demand also draws on consumer interest e.g., [16]. More importantly, our perspective is that match experience is essential in understanding what promotes attendance, in our study—attendance at Denmark women's national soccer A-team. Our reasoning partly builds on the above-mentioned reflections in Borland and Macdonald [9], but also on the reasoning in Clemes et al. [7] arguing that spectator experience is an important predictor of future attendance at sporting events, thus driving demand. In addition, satisfaction also has bandwagon effects, and most prominently related to word-of-mouth effects. As such, satisfied spectators can act as advocates promoting sports events and hence help attract new spectators (increase demand).

In the following subsections, we examine the other categories and describe them in detail. At the same time, we reiterate that the aim of the study is not to test the framework per se, but rather to mobilize it as a theoretical starting point for exploring the overall match experience at Denmark women's national soccer A-team matches. In addition, due to the limited number of matches ($n = 13$), some of the variables promoted by Borland and Macdonald [9] cannot be tested statistically.

2.1. Consumer Preferences

In relation to consumer preferences, Borland and Macdonald [9] suggest that there is a greater degree of complexity related to preferences for attendance at sport events compared to most other goods and services. This is also evident in the debate on team sport being an inferior good [17], a normal good [18], or a luxury good [19]. Although Downward and Dawson [20] claim that "supporters appear to display habit persistence", consumer preferences in the context of sporting events go beyond team loyalty and income by also conveying issues such as conspicuous consumption and bandwagon effects (to mention a few).

To address consumer preferences, we draw on team loyalty (habit). A number of measures have been used to capture this concept, such as lagged attendance related to the corresponding match last season [21] and last season's average attendance [5,14,22]. However, measuring team loyalty is difficult in practice. For example, Downward and Dawson [20] stressed that lagged attendance can be problematic as it is likely to pick up the formation of (ticket) price expectations and spectators' lagged adjustments rather than habit persistence or team loyalty.

This study draws on attendance during the last two years as a proxy for team loyalty. The reasoning is that the more matches that are attended, the stronger the team loyalty is. More importantly, since we focus on overall match experience and not match attendance as such, we argue that the number of previous matches attended is a reflection of the overall match experience. In other words, spectators who have attended many previous matches and continue to attend matches do so, at least partly, because they are satisfied with the overall match experience, consistent with Sumino and Harada's [23] finding that team loyalty is a significant driver for the intention to attend future matches. This forms our first research hypothesis:

Hypothesis 1 (H1). *The more matches that have been previously attended by spectators, the more satisfied spectators are with the overall match experience.*

The theoretical point of departure of the Borland and Macdonald (2003) framework is related to the inclusion of consumer characteristics (socio-demographic variables) alongside consumer preferences. This implies that this study broadens the scope of the framework and, by so doing, also expands the framework. To address consumer characteristics, we introduce gender and age as consumer characteristics.

The issue of gender was carefully addressed in Tainsky, Kerwin, Xu, and Zhou [24]. More specifically, the study was concerned with testing how specific game characteristics influence consumption patterns for each gender. Although that study focused on the consumption of game telecasts, the assumption is nonetheless built on the notion that there are gender-specific differences related to the demand for sports, in which socio-demographic variables provide a useful starting point. Other studies have also challenged the notion of fandom being reserved to male fans e.g., [25,26]. Moreover, the literature suggests that male fans seem to be dominant in terms of sports knowledge, among other things.

Interestingly, Montgomery and Robinson [27] introduce the term sports capital, converted from attendance at performing arts events. To fully enjoy the arts, one must have a certain level of understanding of the art form. We adapt this methodology to explore, in some depth, the impact of what we call "sports capital" on sports attendance. However, considering the research context (dealing with women's soccer), which is characterized by low attendance and lower general interest and attention (e.g., media coverage) compared to men's soccer, it is possible to argue that stadium attendance at women's soccer can be an arena in which female spectators are shielded from the stereotype, and the often-noted view of soccer being reserved primarily for men.

This is highly relevant as attendance at women's soccer matches is far more equally distributed with respect to gender compared to men's soccer matches. Equally, Montgomery and Robinson [27] claim that: "Overall women are less likely to attend sporting events than are men". This also introduces another argument as to why gender can be of importance in terms of attendance and, more importantly, match experience, namely the stadium atmosphere. While men's soccer is often characterized by a hostile atmosphere, envisaged by loud noise, rude language etc., women's soccer matches are somewhat more civilized.

The difference between the genders is also emphasized in [28], with the authors claiming that: "being a sport fan seems to be an important part of male identity, while women identify less strongly with being a sport fan". Against this backdrop, we propose the following hypothesis:

Hypothesis 2 (H2). *Female spectators are more satisfied with the overall match experience at women's national A-team games than male spectators.*

As for age, the (sports) marketing literature has a strong tradition of segmentation, including demographic segmentation, where variables at the individual level such as income, education, and personality traits are examples. Age, however, is perhaps one of the most frequently employed variables in segmentation, partly due to the ease in

obtaining information, but also because age is often considered as a proxy for underlying and unobservable psychological measures [29].

From a theoretical perspective, it is difficult to justify an association between age and overall match experience as such. The management (accounting) literature has provided some interesting perspectives on the association between innovativeness and age. This approach to research used the Upper Echelon literature [30], and justified the negative association between age and innovativeness on the basis of older executives having greater commitment to preserving the status quo and thus resisting change. In addition, Hambrick and Mason [30] claim that older executives are more risk averse compared to younger executives. Others e.g., [31,32] point to lifestyle and the declining effect of age on cognitive capability and energy levels. Nonetheless, it is possible to argue that women's soccer has been reborn, an issue evidenced in numerous initiatives set forth by national and international governing bodies with the aim of promoting women's soccer and focusing on media attention, stadium attendance, and investment. Whereas older spectators have been exposed to the traditional, and somewhat unfavorable image of women's soccer as being inferior to men's soccer, younger spectators have been subject to a more favorable portrayal of women's soccer.

Against this backdrop, it can be argued that older spectators are less positive about women's soccer and are more prone to being less content with the overall match experience. Younger spectators, on the other hand, have been exposed to the recent initiatives set forth by governing bodies to promote women's soccer [33,34], and are thus likely to have a more positive view of women's soccer per se. With this in mind, we suggest that age can have a negative effect on overall match experience, following the general conclusions from attendance at sporting events in general by Montgomery and Robinson [27], who also refer to Lera-López et al. [35], who claim that age, in general, is a negative or insignificant determinant of attendance:

Hypothesis 3 (H3). *Age is negatively associated with the overall match experience.*

The literature reviewed provides limited empirical evidence addressing the effects of bringing children to sports events on attendance demand or match experience. However, sporting events at a stadium can be viewed as entertainment, and sporting events can be one way in which to spend quality time with children. This is also highly topical, as attending soccer matches can include family-related activities beyond the soccer match, such as quizzes and crossbar challenges at half time.

Equally importantly, soccer clubs make widespread use of price differentiation. It is also possible to argue that attendance at women's soccer matches is an arena that spectators can make use of in order to combine watching sports and spending time with their children. In regard to bringing children to sports events, Montgomery and Robinson [27] reported that marriage affects sports attendance as married women attend more sports events compared to single women, partly because women prefer the company of their partner and partly because married women obtain second-hand sports capital, that is, by being married to men with sports capital.

These issues, combined with the atmosphere and the surplus capacity at women's soccer matches, suggest that it is reasonable to propose that bringing children to women's soccer matches can contribute positively to the overall match experience. Furthermore, this relates to Meier and Leinwather [28] who claim that "Female fans appear to be socially motivated: they are fans because they enjoy watching sports with friends and family" (p. 369). Thus, we propose the following hypothesis:

Hypothesis 4 (H4). *Bringing children to matches will contribute positively to the overall match experience.*

2.2. Economic Variables

The literature is rich with empirical studies addressing the association between economic variables and attendance demand e.g., [9,14,20,36]. There is, however, limited attention devoted to the impact of economic variables on overall match experience. In some respects, this is understandable since economic variables, from the outset, are more relevant when predicting match attendance, and not match experience.

Prominent examples of economic variables include market size, income, unemployment rates, and ticket prices [19,37,38]. To illustrate this, it is difficult to argue that there is an association between market size and overall match experience. However, ticket prices are highly relevant in relation to match experience. A variety of measures to assess ticket price have been used in previous research, however results are mixed with respect to the negative association between attendance and ticket prices [39].

Reasons for these mixed results can be traced to the argument of Cairns [40], who suggests that ticket price can be a poor reflection of, or proxy for, the true price of attending sports events, as aspects such as transportation costs are not accounted for. Ferreira and Bravo [41] use the term “the total costs of stadium attendance”, while Downward and Dawson [20] introduce the opportunity cost of time, as well as the travel time, in addition to ticket price. In a similar vein, Forrest, Simmons, and Feehan [42] view the cost of attending soccer matches as the sum of the ticket price, the direct cost of travel (e.g., transportation costs), and the time cost of travel (distance to stadium).

The direct cost of travel and the time cost of travel are even more relevant in the context of this study, which focuses on the women’s national team, as travel distances to national games can be substantial, at least compared to club soccer. This is, to some extent, in line with the approach of Meier et al. [5], who use geographical distance as a proxy for travelling costs for the away team’s fans. Against this backdrop, the relevant variations in the total cost of attending Denmark women’s soccer matches are comprised of direct travel costs and the time cost of travel to the stadium (ticket prices are as low as EUR 3). Based on the aforementioned arguments, we present the following hypothesis:

Hypothesis 5 (H5). *Travel and time costs of stadium attendance are negatively associated with the overall match experience.*

2.3. Quality of Viewing

According to García and Rodríguez [39], “attendance at live sporting events may involve costs for fans which condition their attendance at the stadium”. Although these costs are multi-faceted by nature and are affected by various factors from weather conditions to competing events, such as TV broadcasts, we focus on the time of day when the sporting contest takes place. This is consistent with Borland and Macdonald [9], who focus on two main points when it comes to quality of viewing: one relates to the facilities, including the impact of weather conditions; the other concerns the scheduling of the match. Variables related to weather usually concern whether it rained or not, as well as the temperature. The studies from Meier et al. [5] and Valenti et al. [8] on women’s soccer both include such variables. Meier et al. [5] find that both variables affect attendance, while the other study [8] only had temperature as a significant demand driver. These factors form our sixth hypothesis:

Hypothesis 6 (H6). *No rain and higher temperatures are both related to a better overall match experience.*

In general, previous research on men’s soccer has shown that Sundays and holidays favor stadium attendance [43–46]. However, for women’s league games in Germany, Meier et al. [5] find that weekend matches (Saturday and Sunday) are not more visited. This result is confirmed by the attendance of the UEFA Women’s Champions League, as discussed by Valenti et al. [8]. Although the findings regarding the time of the match have been

inconclusive, given the context of Danish National A-team soccer and the fact that the kick-off times in the period of 2016–2019 were 17:00, 18:00, and 19:00, we argue that time of the match is important for two reasons. First, travel distance varies considerably for potential spectators attending matches. Second, sporting events can conflict with work and everyday activities. Consequently, we argue that later match schedules contribute positively to the overall match experience, as later match schedules involve less strain for spectators and also a lower opportunity cost. This, in turn, affects the overall match experience positively. Against this backdrop, we developed the following hypothesis:

Hypothesis 7 (H7). *The later in the day a match is scheduled, the more satisfied spectators are with the overall match experience.*

2.4. Characteristics of the Sporting Contest

The next group of variables in Borland and Macdonald [9] concerns the characteristics of the sporting contest. These are related to the absolute and relative quality of the teams in the contest [47]. More specifically, Borland and Macdonald [9] split this group of variables into four, where one is the recent sporting success of each of the teams, another is related to the (absolute) quality of the match, the next is about the relative sporting differences between the two teams (match uncertainty), while the last is related to what Kringstad and Gerrard [48] refer to as match significance, such as championship and relegation significance [36].

Demand studies usually find a strong and positive relationship between sporting success and attendance for the home team e.g., [9,14], implying that sporting success is a driver for attending future matches. As for overall match experience, we argue that sporting success contributes positively to the overall match experience for obvious reasons, including satisfaction with the performance of the team one supports. Hence, the following hypothesis is presented:

Hypothesis 8a (H8a). *A favorable sporting outcome for the home team positively affects the overall match experience.*

Sporting success also includes the away team, though with a weaker relationship with attendance than the home team [9]. From an overall match experience point of view, beating a stronger opponent can hence be expected to be more favorable compared to a weaker opponent. This is further emphasized by the away team playing in the match, as many leagues contain team(s) that are more popular than others based on their history [45]. When it comes to the association between recent (ex-ante) sporting success for the home team and overall match experience, it can also be argued that previous sporting success will make it difficult to maintain a presumably favorable match experience as expectations grow. Thus, previous sporting success can raise the bar and make it more difficult to preserve match experience. At the same time, previous sporting success is likely to attract new spectators. Whether or not these are more positive by nature, or meet the match with high expectations, is open to discussion. Despite somewhat conflicting arguments, we present the following hypothesis:

Hypothesis 8b (H8b). *High (ex-ante) sporting success for both the home and the away teams positively affects the (ex-post) overall match experience.*

The sporting differences between the teams relate to the uncertainty of the outcome hypothesis. This is one of the core concepts in sports economics, going back to Rottenberg [49], who related competitive balance to attendance. However, in the context of this study, where the measurement is conducted ex-post, the uncertainty of match outcome is difficult to include in the model as this is an ex-ante concept and is therefore separated from the ex-post experience, an issue also emphasized by Kringstad and Gerrard [50].

On the other hand, match significance, which is theoretically a part of the uncertainty of outcome concept [51], addresses the importance of a single match with regard to the prospect of winning a prize, such as qualification for the FIFA World Cup. For the purpose of this study, this means that there is a positive relationship between a sporting result that increases the possibility of winning a sporting prize and the overall match experience. Conversely, if a match is of high significance and the team loses this match, we can expect a reduced match experience from the perspective of the spectators.

Hypothesis 8c (H8c). *Positive outcome for matches of high significance further improve the overall match experience beyond H8a (increasing the sensitivity of H8a).*

According to García and Rodrigues [39], some matches are more interesting than others because of rivalries, which can be related to both geography and history. Even though Valenti et al. [9] do not find their derby variable, defined as teams from the same country in the UEFA Women's Champions League, to be significant, this is the usual empirical result for such variable(s) [43,45,52–54]. We argue that the effect of the sporting results of a derby match on spectator experience is similar to that of prize-significant matches. These matches mean more than regular matches for the spectators and, hence, it can be expected that the range of experiences in a derby match is higher than for regular matches. This means that it is even better to win and even worse to lose a derby match than a regular match.

Hypothesis 8d (H8d). *Positive outcome for derby matches further improve the overall match experience beyond H8a (increasing the sensitivity of H8a).*

3. Data and Analysis

To test our hypotheses, we rely on individual-level variables collected by Dansk Boldspil Union, DBU (the Danish Football Association). The DBU has conducted surveys of spectators who bought tickets online for Denmark women's national soccer A-team matches in the period of 2016–2019. This includes data for thirteen matches and our analysis includes replies from more than 4000 spectators. As such, our data are nested into two levels: (1) Spectators and (2) matches. Eleven of these home matches were played in Viborg Stadium in Jutland, and one each in Slagelse (Zealand) and Gladsaxe (Greater Copenhagen). For a description of the geographical location, see Figure 1, and for a list of matches, see Table 1. It is important to mention that the respondents are neither a random sample of the Danish population nor a random sample of the spectators at the matches. The survey was sent to the person in each household or group who bought the tickets. The mean response rate for the 13 included matches was 39% (ranging from 34% to 44%). Please see Table 2 for a detailed response rate for the different matches.

The dependent variable overall experience (1–5) is an ordinal measure where the respondents are asked: "How would you describe your overall experience with regard to this match?".

The data are from a web-survey containing several match-experience related variables. It starts with questions relating to who you went to the match with, if you went to previous matches, and which section of the stadium you were sitting in. Then follows a question about overall experience and several questions (that are highly correlated to the former) about satisfaction with different aspects inside and around the stadium (like parking, transport, shops, entertainment etc.). The next section includes questions about the proudness and effort of the Danish team, whether the respondent recommends friends or co-workers going to a match (also some open-ended questions if you have further comments), and lastly, the demographic variables about gender, age, and region.

Our independent variables are obtained from the DBU dataset and, in order to address the research hypotheses, we have four individual-level explanatory variables, including the following: Prev. match att. (1–4) (H1), denoting how many women's national matches the respondent has attended in the last two years, (The response categories are: (1) "This

match is the first"; (2) "Two home matches"; (3) "Three or more") woman (0–1) (H2), age categories (a dummy set with 0–18 as the reference category) (H3), the variable With Children (0–1) (H4), denoting whether or not the respondent brought children (under 16) to the match, and regional dummy variables (H5) (with Greater Copenhagen [1] in Figure 1 as the reference category) North Jutland [5], East- and Central Jutland [5], South- and West Jutland [5], Funen [3] and the Islands [4], and Zealand [2]. (See Figure 1 for a map of Denmark).

At the match level, we included Time of day (H7) with 19:00 as the reference category, a dummy set for whether it was a Draw or a Win (H8a) with Loss as the reference category, the number of Home goals (H8a), the number of Away goals (H8a), and FIFA DK, which gives the FIFA ranking of the Danish team on the day the match was played (H8b). Note that high values for the latter variable mean a poorer FIFA ranking for Denmark. The descriptive statistics for all variables included in our analysis are presented in Table 3.

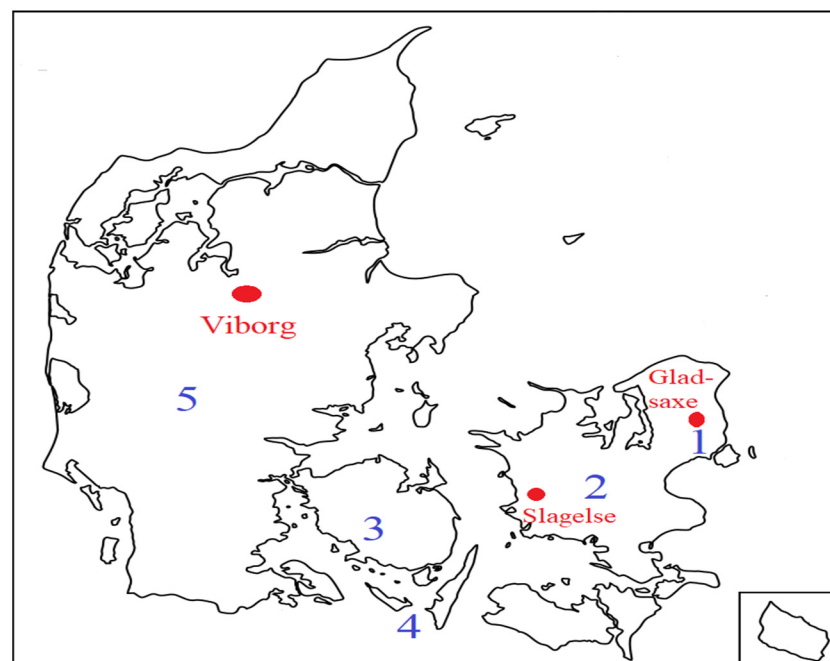


Figure 1. Map of Denmark. 1 = Copenhagen, 2 = Zealand, 3 = Funen, 4 = Islands, 5 = Jutland (Original map from d-maps.com: https://d-maps.com/carte.php?num_car=2181&lang=en (accessed on 30 January 2021)).

Table 1. List of Denmark Women's National soccer A-team matches.

Year	Date	Opponent	Result	Attendance	City	Mean Y	Type
2016	2/6	Slovakia	4–0	3412	Viborg	4.636	Euro17Q
2016	7/6	Poland	6–0	4611	Viborg	4.719	Euro17Q
2016	20/9	Sweden	2–0	7432	Viborg	4.698	Euro17Q
2017	11/4	Finland	5–0	3312	Slagelse	4.462	Friendly
2017	1/7	England	1–2	2964	Gladsaxe	4.471	Friendly
2018	9/4	Ukraine	1–0	5475	Viborg	4.506	WC19Q
2018	12/6	Hungary	5–1	7028	Viborg	4.696	WC19Q
2018	30/8	Croatia	1–1	7045	Viborg	4.468	WC19Q
2018	4/9	Sweden	0–1	8182	Viborg	4.432	WC19Q
2018	9/10	Netherlands	1–2	5374	Viborg	4.345	WC19PO
2019	29/8	Malta	8–0	3890	Viborg	4.599	Euro22Q
2019	4/10	Bosnia	2–0	4552	Viborg	4.478	Euro22Q
2019	12/11	Georgia	14–0	3085	Viborg	4.593	Euro22Q

Note: Mean Y refers to the mean score on overall experience for the matches. Euro17Q is a qualification match for the 2017 UEFA Women's Championship. WC19Q is a qualification match for the 2019 FIFA Women's World Cup.

Table 2. Response rate.

Year	Opponent	Spectators	Unique Purchases	Mean Tickets Per Purchase	Responses	Response in %	Responses as % of Spectators
2016	Slovakia	3412	443	7.7	181	41%	5%
2016	Poland	4611	494	9.3	217	44%	5%
2016	Sweden	7432	932	8.0	379	41%	5%
2017	Finland	3312	1171	2.8	435	37%	13%
2017	England	2964	677	4.4	281	42%	9%
2018	Ukraine	5475	926	5.9	425	46%	8%
2018	Hungary	7028	1255	5.6	420	33%	6%
2018	Croatia	7045	1586	4.4	612	39%	9%
2018	Sweden	8182	1578	5.2	526	33%	6%
2018	Netherl.	5374	1152	4.7	414	36%	8%
2019	Malta	3890	682	5.7	270	40%	7%
2019	Bosnia	4552	837	5.4	309	37%	7%
2019	Georgia	3085	544	5.7	183	34%	6%
Total		66,362	12,277	5.8	4652	39%	7%

Table 3. Descriptive statistics.

Variable	N	Mean	Std. Dev.	Min.	Max.
Overall experience	4010	4.535	0.601	1	5
Woman	4010	0.525	0.499	0	1
Region	4010			1	6
North Jutland	(359)	0.090	0.286		
East-and Central Jutland	(2356)	0.588	0.492		
South-and West Jutland	(377)	0.094	0.292		
Funen and the Islands	(144)	0.036	0.186		
Zealand	(463)	0.115	0.320		
Greater Copenhagen	(311)	0.078	0.268		
Age categories	4010			1	5
0–18	(135)	0.034	0.181		
19–30	(397)	0.099	0.299		
31–45	(1617)	0.403	0.491		
46–60	(1371)	0.342	0.474		
61+	(489)	0.122	0.327		
With children	4010	0.473	0.499	0	1
Previous matches	4010	1.850	0.874	1	3
Result	13			1	3
Loss	3	0.231	0.439		
Draw	1	0.077	0.277		
Win	9	0.692	0.480		
Home goals	13	3.846	3.891	0	14
Away goals	13	0.538	0.776	0	2
FIFA ranking Denmark	13	15.692	2.562	13	20
Time of day	13			1	3
17:00	2	0.154	0.376		
18:00	5	0.385	0.506		
19:00	6	0.462	0.519		

Note: The categories of the dependent variable are 1 “Very poor”, 2 “Poor”, 3 “Neither good or poor”, 4 “Good”, and 5 “Very good”.

It should be noted that the following available match-level variables were tested but had no effect on the dependent variable (and we therefore present no hypotheses related to these): Number of spectators, weekend (one match was played Friday, one on Saturday: These were coded as a single category), temperature (H6), temperature together with temperature squared, precipitation (H6), FIFA ranking of opponent (H8b), and played in Viborg. For the variables weekend, precipitation, and played in Viborg, there was little variation in our data, implying that we cannot infer too much from these non-findings.

The objective of a multilevel analysis is to account for variance in a dependent variable measured at the lowest level, using information from all levels (in this case two) of analysis. If the Level-1 dependent variable (overall experience) is influenced by match-level variables, the observations at the lowest level are not independent. If one violates the assumption that the residuals should be independent, it will cause the standard errors to be too low [55].

According to Stegmueller [56], having less than 15 Level-2 units decreases the reliability of the confidence intervals. We would have liked to have a larger Level-2 N . To be sure of the results, we ran several sensitivity models altering the model specifications, all of which yielding similar substantive results as our main analysis. In Table 4, we present one of these, an ordered logit regression using robust standard errors. The results of these models are similar, though somewhat less conservative significance levels for the match-level variables. There is a tradeoff, where we put weight on getting more conservative (and correct) significance values for the match-level variables. In multilevel regression, the standard errors of Level-2 variables are estimated based on the N for Level-2 (13 in our case). In ordinary regression (including when using clustering), these would be calculated based on the Level-1 N (which is 4010), resulting in much too small standard errors and risking a type I error for the match-level variables. Hox [57] also warns about making inferences about individuals deduced from the group they belong to (ecological fallacy). The reason for choosing to include only one substantive variable in each model is the limited number of degrees of freedom at this level, as the standard errors of the match-level explanatory variables need to be calculated based on the match-level N .

Table 4. Ologit model with clustered (matches) standard errors, on overall experience.

Variables	Odds Ratios	Rob. Std.er.	<i>p</i> -Value
Woman	1.535	0.063	0.000
North Jutland	1.588	0.229	0.043
E & C Jutland	1.495	0.168	0.016
S & W Jutland	1.640	0.166	0.003
Funen & Islands	1.847	0.203	0.003
Zealand	0.856	0.145	0.285
19–30	0.792	0.188	0.217
31–45	0.846	0.190	0.379
46–60	0.857	0.160	0.335
61+	1.092	0.191	0.646
With children	1.067	0.093	0.484
Prev. match att.	0.983	0.054	0.743
Level-2			
Draw	0.944	0.356	0.872
Win	2.415	0.439	0.045
Home goals	1.037	0.011	0.001
Away goals	1.380	0.238	0.176
FIFA DK	1.011	0.047	0.811
17:00	0.719	0.352	0.349
18:00	0.600	0.226	0.024
Cut points			
τ_1	−5.100	1.094	
τ_2	−3.645	1.062	
τ_3	−2.250	1.080	
τ_4	0.875	1.022	
N		4010	
Clusters		13	
LL		−3203.507	

Note: The dependent variable ranges from 1 to 5, where high values indicate that the person had a very good experience. Logit coefficients are presented with standard errors in parentheses. The probability values are calculated using a two-tailed test. Copenhagen is the reference category for regions; 0–18 is the reference category for age; Loss is the reference category for the result; and 19:00 is the reference category for Time. Standard errors and cut points are not reported in the table.

As our dependent variable is an ordinal question, we chose to run two level-ordered logit models. Hierarchical modelling enables us to investigate the data structure, where the sample data can be viewed as being nested within higher-level units [58]. From Equation (1) (which applies to all our models), we included one match-level variable (X_{13j}) in each model, while the 12 other explanatory variables, as well as the dependent variable, are situated at the respondent level, τ_m represents the four intercepts or cut points (one for each response category of the dependent variable, minus the baseline group), while e_{ij} and u_{0j} represent the Level-1 and Level-2 residuals.

$$\ln\{pr(Y_{ij} \leq m)\} = \tau_m + \beta_1 X_{1ij} + \beta_2 X_{2ij} + \beta_3 X_{3ij} + \beta_4 X_{4ij} + \beta_5 X_{5ij} + \beta_6 X_{6ij} + \beta_7 X_{7ij} + \beta_8 X_{8ij} + \beta_9 X_{9ij} + \beta_{10} X_{10ij} + \beta_{11} X_{11ij} + \beta_{12} X_{12ij} + \beta_{13} X_{13j} + e_{ij} + u_{0j} \quad (1)$$

4. Results

In Figure 2, we present an overview of the matches using overall experience as a function of one of our independent variables, that is, home goals, including the match results. From this, we observe a tendency whereby the better Denmark performs, the greater the overall match experience is. Of the five games with the lowest satisfaction score, four were either a loss or a draw. The fifth match (a 5–0 win against Finland) was one of two matches played outside Viborg (played in Slagelse, Zealand) [2]. As spectators from Zealand, especially Greater Copenhagen (which is in Zealand), generally score lower for the dependent variable than those from other parts of Denmark, this could play a part in this particular match, since it took place in Zealand, thus increasing the percentage of spectators from these two regions.

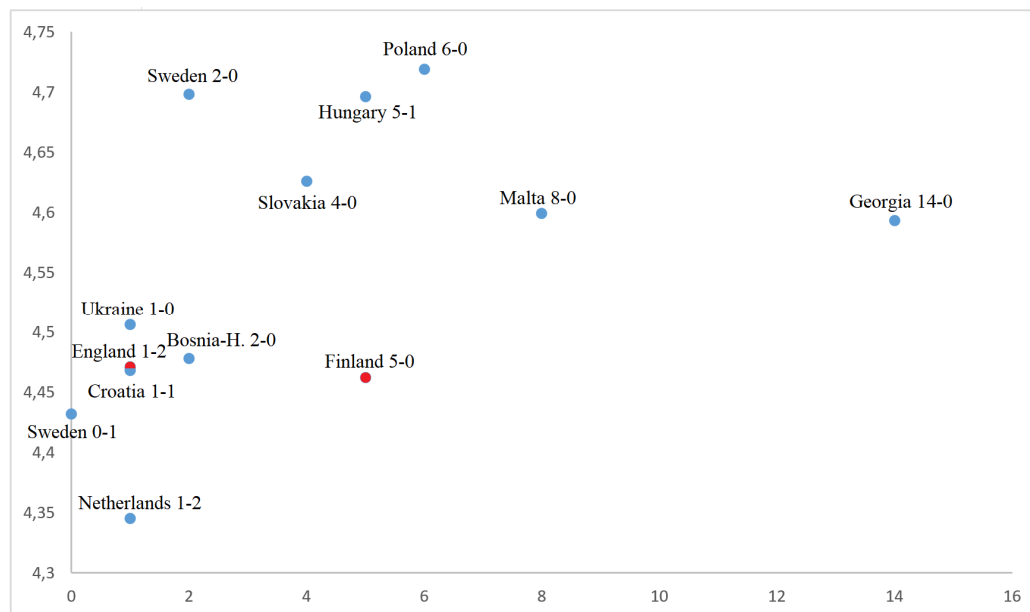


Figure 2. Overall experience (1–5) as a function of home goals. Matches played outside Viborg are marked in red (these were also the only “friendly matches”, while the Netherlands match was a play-off match for WC2019). The others were qualification matches for Euro 2017, WC2019, or Euro2022.

The results from our five regression models are presented in Table 5. The effect of the spectator-level variables is the same for all five models, though there is some variation with regard to statistical significance for two of these. First, women score significantly higher (at the 1% level) than men for the dependent variable (H2), which is both consistent and the strongest effect in all our models. This variable (unlike men’s matches) has an almost 50/50 distribution (52.47% of the respondents are women).

Table 5. Two-level ordered logistic models for match day overall experience, OR presented.

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Woman	1.498 ***	1.496 ***	1.495 ***	1.497 ***	1.496 ***
North Jutland	1.238	1.297	1.257	1.391	1.378
E and C Jutland	1.172	1.232	1.189	1.312	1.300
S and W Jutland	1.282	1.348	1.303	1.438 *	1.425 *
Funen and Islands	1.494 *	1.563 *	1.515 *	1.661 **	1.643 **
Zealand	1.035	1.085	1.061	1.131	1.100
19–30	0.797	0.797	0.797	0.794	0.795
31–45	0.834	0.836	0.835	0.835	0.835
46–60	0.845	0.844	0.845	0.842	0.843
61+	1.082	1.082	1.083	1.082	1.083
With children	1.074	1.073	1.075	1.074	1.074
Prev. match att.	0.975	0.970	0.974	1.081	0.977
Level-2					
Draw	1.086	—	—	—	—
Win	1.857 ***	—	—	—	—
Home goals	—	1.058 **	—	—	—
Away goals	—	—	0.764 *	—	—
FIFA DK	—	—	—	1.081 *	—
17:00	—	—	—	—	0.565 *
18:00	—	—	—	—	0.822
Variance					
Level-2	0.083	0.116	0.121	0.123	0.121
Level-1 N	4010	4010	4010	4010	4010
Level-2 N	13	13	13	13	13
Log Likelihood	−3203.427	−3205.303	−3205.483	−3205.648	−3205.566
McKelvey R ²					
Full model	0.058	0.057	0.058	0.058	0.058
Fixed slopes	0.039	0.025	0.027	0.023	0.024

Note: The dependent variable ranges from 1 to 5, where high values indicate that the person had a very good experience. Logit coefficients are presented with standard errors in parentheses. Levels of statistical significance are indicated by asterisks: * significant at 10%, ** significant at 5%, *** significant at 1%. The probability values are calculated using a two-tailed test. Copenhagen is the reference category for regions; 0–18 is the reference category for age; Loss is the reference category for the result; and 19:00 is the reference category for Time. Standard errors and cut points are not reported in the table.

When it comes to the regional effects (H5; Price of attending), we see that spectators from Funen [3] and the Islands [4] are more satisfied with the match experience than those from Greater Copenhagen [1] (significant at the 10% level in Models 1–3, and at the 5% level in Models 4 and 5). Spectators from South and West Jutland [5] score significantly higher (10% level) than the reference category in Models 4 and 5. There is a curvilinear effect (U-shaped) of age (H3). However, this is not significant for any age group, and both with children (H4) and Previous match attendance (H1) are not statistically significant.

From the match-level independent variables, we see that there is a positive and significant effect (at the 1% level) of Win (compared to Loss), a positive effect of the number of Home goals (significant at the 5% level), and a negative (and significant at the 10% level) effect of the number of Away goals (H8a). Somewhat surprising is the positive (and significant at the 10% level) effect of Denmark's FIFA ranking (H8b), that is, the poorer the ranking, the more satisfied the spectators are. Finally, spectators have a poorer overall match experience the earlier the match starts (as 19:00 is the reference category). However, only 17:00 is significant (at the 10% level) (H7).

It is important to stress that we only have 13 units (matches) at level 2, and that the standard errors of the match-level variables are calculated based on their level 2 N. As such, it takes a stronger effect to produce significant results when juxtaposed with the level 1 variables. We therefore also chose to discuss results that are significant at the 10% level.

As mentioned earlier, Figure 2 shows the match results and the overall match experience, and Table 5 shows that home wins and goals scored by the home team (Denmark) are both positive significant drivers of match experience, while goals scored by the opponent have a negative influence on match experience. Eleven of the games in the sample are qualification matches for either the European Championship or the World Championship, while two games are “friendlies”.

On the basis of a descriptive analysis of the standings prior to each home game, all qualification matches can be treated as matches with relatively high match significance, except for the 2–0 win against Sweden. However, the high match experience after the 2–0 victory against Sweden is not a surprise as this was a derby match. This may also be affected by what Jennett [36] describes as a “glory effect” of winning a prize (originally the league, but, in this study, this can be interpreted as winning qualification for Euro 2017 before the match—as qualification was practically already won before the match).

The 1–1 draw against Croatia led to a lower match experience than the loss against England (note that the England match was played at a stadium where the national team do not often play). However, the England match was not important (it was a friendly), while the draw against Croatia was a disappointment since a win would have secured at least a play-off place and a solid win could even have put Denmark in the lead in the qualifier group. Moreover, it was a negative surprise based on the FIFA rankings of Denmark (13) and Croatia (53). (For literature related to suspense and surprise, see Ely et al. [59], Pawlowski et al. [60] and Buraimo et al. [61]). The 0–1 loss against Sweden was a disappointment because a victory would have resulted in winning the group stage for Denmark (giving the team automatic qualification for the 2019 FIFA Women’s World Cup), while the loss against the Netherlands meant that Denmark did not qualify for the 2019 FIFA Women’s World Cup.

In summary, in regard to the sporting variables, winning important games after scoring many goals drives match experience positively, as well as winning derby matches against Sweden. A loss or draw in significant matches that have to be won drives match experience in a negative direction. The data sample is too small to be able to measure separate effects, but a subjective analysis of the joint sporting variables indicates acceptance at the aggregate level of the relevant hypothesis among the sporting variables related to the match results, match significance (H8c), and derby matches (H8d). All results related to our hypotheses are summarized in Table 6 and, in the following section, we discuss the findings in more detail. (We also tested whether there were gender differences in the effects of the explanatory variables, and found that women had a more negative effect than men of having attended several previous matches, and a more positive effect than men of the match starting at 17:00. When testing a model including all the match-level variables using clustering 18:00 became significant while 17:00 became not significant. We also tested multilevel binary logistic models using the highest category as the value 1 and all others as value 0. The results were similar to those of the main analysis. Further, we tested the models excluding the two matches not played in Viborg. The substantive results were similar to our main analysis, however, some of the effects were marginally stronger.)

Table 6. Hypotheses: Summarizing expectations and results.

Hypothesis	Expected Sign	Actual Sign	Significance
Spectator-Level			
H1: Previous Matches	+	–	Not significant
H2: Women	+	+	<0.01
H3: Age	–	–(except for 61+)	Not significant
H4: Bringing children	+	+	Not significant

Table 6. Cont.

Hypothesis	Expected Sign	Actual Sign	Significance
H5: Price of attending	–	–	Significant for Funen & Islands at the 10% level (models 1–3) and at the 5% level (models 4 and 5)
Match-level			
H6: Weather conditions			No effect, not included in final models.
H7: Time of day	–	–(only for 17.00, not 18.00)	<0.10
H8a: Sporting success	+	+	<0.01 (Win) <0.05 (Home goals) <0.10 (Away goals)
H8b: Sporting quality (ex-ante)	–	+	<0.10 (FIFA DK)
H8c: Match significance	+	+	Strong indications of a positive effect
H8d: Derby	+	+	Strong indications of a positive effect

5. Discussion

Our findings suggest that several issues are important for overall match experience, both at the spectator level and the match level. At the spectator level, we primarily find support for the hypothesis suggesting that women are more satisfied than men with the overall match experience (H2). This finding is also consistent throughout the different models, and equally importantly, consistently significant at the 1% level. To some extent, this is in line with the reasoning of Meier et al. [5], a study in which the authors draw parallels to controversies related to women's soccer in Germany, where soccer is portrayed in a feminist light, subsequently reducing its attractiveness to male supporters.

It is debatable whether this indicates that female supporters at women's soccer matches are different from supporters of men's soccer. This raises the question of whether female supporters are more satisfied due to their underlying desire to promote women's soccer, thus acting as good advocates for women's soccer. This issue is even more valid as attendance at the Danish women's soccer matches are equally distributed in terms of gender. At the same time, this equality in distribution between the genders conflicts somewhat with our reasoning in so far as women's soccer is an arena where female supporters are not faced with the stereotypical view of soccer being reserved for male supporters and their dominance in terms of what Montgomery and Robinson [27] refer to as sports capital.

In a protraction of this, Meier et al. [5] go as far as to suggest that habit persistence and loyalty are the key drivers of the demand for women's soccer, strongly implying that factors such as opportunity costs and sporting quality are less important. There are some interesting findings in this study. First, gender (H2) is the only significant variable in all our models for the spectator-level variables included. Second, and intriguingly, we find no support for habit persistence (H1). One way to interpret this is that female supporters at the Danish women's soccer team matches are "die-hard" supporters who, by nature, are very satisfied with the overall match experience regardless of other factors. However, if this were the case, we could possibly expect an even higher number of previous matches attended than those reported in this study. Lastly, it is possible to argue that women's increased satisfaction with the overall match may also be attributable to the stadium atmosphere, as it is fair to say that the atmosphere at women's matches contrasts that of men's soccer matches.

By using regions as a proxy for the cost of stadium attendance, there is evidence suggesting that spectators from Funen [3] and the Islands [4] are more satisfied than those from Greater Copenhagen. In relation to our research hypothesis (H5), however, this finding does not confirm our expectations, as this would entail that spectators coming from

Jutland [5] would be the most satisfied. It is difficult to say why this is not the case, but maybe there is a dedicated group of Funen [3] spectators. Future research is necessary in order to examine this more closely.

As for the match-level variables (H6–H8a,b,c,d), several important observations are made against the backdrop of the confirmed hypotheses. For one, we find evidence of positive and statistically significant effects of wins, as well as the number of goals scored by the Danish women's soccer team, on the overall match experience (H8a). This is as expected, as spectators are naturally more satisfied when the team is performing well by winning matches and by scoring goals. Indeed, this confirms the relationship between sporting success and demand, as summarized in Dobson and Goddard [14].

The positive effect of Denmark's FIFA ranking is, however, surprising, as this suggests that the poorer the FIFA ranking of the Denmark women's national A-team is, the more satisfied spectators are with the overall match experience. All else being equal, the FIFA ranking should reflect the quality of the team. Thus, the poorer the ranking, the worse the team's sporting performance is, presumably leading to spectators being less satisfied with the overall match experience. On the other hand, this finding is difficult to relate to the literature review in Dobson and Goddard [14] because this literature focuses on the numbers of spectators at the stadium, who have made a decision to attend prior to the game. Hence, the FIFA ranking in this analysis should be interpreted in an ex-post (after match) context. Therefore, a plausible explanation is that a poorer FIFA ranking will lead automatically to lower (ex-ante) expectations in advance of the soccer match, thus favoring the (ex-post) overall match experience. Likewise, a high FIFA ranking would signal expectations of superior performances, which are difficult to obtain in practice. It is nevertheless difficult to be specific in terms of whether this is also the case in women's national team soccer.

Our hypothesis concerning time of day at which the match takes place (H7) is partly supported as spectators have a poorer overall match experience the earlier the match starts. This is, to some extent, in line with Meier et al. [5], as their findings suggest that afternoon matches attract more spectators. It should, however, be noted that by using 19:00 as a reference, only 17:00 is significant. Our main argument here is that later match schedules are preferred as they induce less stress on behalf of spectators because national team matches introduce the potential of significant travel distances and (therefore) opportunity costs. This fits with the conclusions of Trail, Robinson, and Kim [62].

Another sporting factor is the rivalry against Sweden (derby matches), where a win in a match with low match significance, but with a glory effect related to practically qualifying for Euro 2017 before the match [36], results in a very high overall match experience. The opposite effect was found after the team lost the other derby match against Sweden, a match with high match significance, where the overall match experience was low. Even if this study is not able to statistically distinguish between sporting results, derby matches, and match significance as drivers of match experience, this indicates that the results of derby matches (H8d) are important in relation to match experience, which is consistent with the literature on match attendance; see, for example, Forrest and Simmons [44].

An interesting observation in this study, though not statistically tested, is that match significance (H8c) seems to be important, consistent with, for example, Jennett [36] and Valenti et al. [4] and the competitive intensity in the analysis of the UEFA Women's Champions League in Valenti et al. [8]. From the outset, this may come as no surprise as all matches, except that against Sweden, as mentioned above, have a relevant match significance prior to each home game (as analyzed from the ex-ante standing, where the Netherlands match was a post seasonal play-off for the 2019 FIFA Women's World Cup).

6. Conclusions, Limitations, and Future Research

The findings of this study contribute to the scarce empirical literature regarding (women's) national A-teams by unveiling factors that help explain how spectators perceive their overall match experience. Using an established theoretical framework [9], we focus on

overall match experience, and add new elements to the framework. In this respect, we have shown that consumer characteristics, more specifically, gender, are of great importance to the overall match experience. In addition, although we find only limited empirical evidence related to the association between spectator-level variables and overall match experience, several match-level variables seem to be important to understand the driving forces behind overall match experience. This includes the outcome (win) and goals scored, as well as the significance of matches.

6.1. Implications

An important implication of this study is that it can aid national and international federations and other governing bodies in promoting women's soccer in general, and women's national team soccer specifically, in order to help the sport to become more financially sustainable and implement policies that aim to foster this. Although numerous initiatives e.g., [33] are designed to increase the attractiveness of women's soccer, these are yet to materialize into long-term effects and the information attained from this study can assist this. More specifically, policy makers have some discretion in terms of where matches are hosted, when matches are played, and what the product consists of, including a diverse set of stadium events in addition to the sporting event. Furthermore, and in line with the reasoning in Caruso et al. [15], satisfaction is considered an important predictor for future match attendance in addition to contributing positively through word-of-mouth. Thus, constructing a sporting event tailored by the wishes of the desired attendances is one possibility for policy makers and federations. In a similar vein, findings clearly show that women are more satisfied with the overall match compared to men. This introduces an intriguing question related to what market segments women's soccer should be aimed at. In this respect, the findings suggest that targeting women seems to be promising to increase interest in women's soccer and thereby contributing to making women's soccer more viable. This does not, however, suggest that women's soccer should be reserved for, or aimed only at, female spectators.

Although UEFA's strategy is a multi-faceted task by nature, understanding what contributes positively to overall match experience is pivotal, as satisfied spectators are more likely to attend future matches while also attracting potential new spectators. The latter is particularly relevant as this study provides indications of female spectators acting as advocates for national women's soccer.

Another implication for the governing bodies (FIFA and UEFA) is that all of the qualification matches at home for the Danish women's national soccer team, except for one (the derby win against Sweden), were significant in regard to qualification for the championship playoffs (Euro and World Championships). Hence, the structure of the qualification process creates an advantage from a match significance point of view. If governing bodies decide to make changes to this structure in the future, they should proceed with caution.

6.2. Limitations and Future Research

Although the Borland and Macdonald framework [9] was a useful starting point in addressing overall match experience, it still poses some challenges, particularly for the match-level variables due to the limited number of matches. In one way, this hampered the possibility of exploring some of the match-related variables. More specifically, match significance for qualification and rivalries (derby matches) were tested in a more indirect (descriptive) manner by inspecting Figure 2 and the respective match's overall match experience. At the same time, the indications of this study are promising and thus call for future research to address and assess these issues in more detail. Finally, understanding the overall match experience is complex, and requires more investigation involving additional variables, such as demographic variables, as well as more observations at the match level.

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