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Original Research

Gender, social stratification, and differences in sports participation among Korean adults: data from the 2019 Korea National Sports Participation Survey

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Abstract

Background: Sports participation is influenced by various factors. Among them, gender and social stratification are most relevant to the creation of a divide in sports participation. To date, studies have focused on the degree of sports participation (period, frequency, and intensity); the form of participation (behavioral, affective, and cognitive), and the type of sports participation according to gender and social stratification. Although gender and social stratification are inseparable factors in sports participation, little is known about the inequality in sports participation caused by both factors. Therefore, this study aims to examine how Korean men and women participate differently in sports according to their social stratification. **Methods**: Out of 9000 samples from the 2019 Korea National Sports Participation Survey (KNSPS) conducted by the Korean Ministry of Culture, Sports and Tourism, data from 5366 individuals were analyzed in this study. SPSS 26.0 (IBM Corp., Chicago, IL, USA) was used to perform multiple correspondence analysis and cross-tabulation analysis. **Results**: This study found that for men, the lower the social stratification, the more frequent the participation in less capital-intensive sports (e.g., gateball, walking, and stretching exercises). Meanwhile, women tend to participate in sports such as aerobics, yoga, and dance sports. These are popularly referred to as "women's sports" which evidences social stratification. **Conclusions**: This study reveals through national statistical indicators that there is a difference in the types of sports in which Korean men and women participate according to social stratification. Thus, gender and stratification inequalities may be inherent in the modern Korean society for sports participation.

Keywords: gender; social stratification; inequality; Korean adults; difference in sports participation

1. Introduction

Regular participation in sports is a major policy goal of national governments and other health ministries. State-led policies for the promotion of sports participation contribute to public participation by addressing the problems faced by individuals, such as lack of time, money, or information [1].

In Korea, national interest in sports has increased due to rapid economic growth. As physical activities have been highlighted as a way to relieve the stress caused by a post-capitalist society, public interest in sports participation has steadily increased. In Korea, the sports participation rate increased by 4.4% from 62.2% in 2018 to 66.6% in 2019. This increase is significant compared to the average annual increase of 2.3% over the previous three years. In terms of gender, 65.1% of women and 68.1% of men participated in sports. Regarding the sports participation rate concerning social stratification, stratification inequality has gradually been resolved, with a 59.6% participation rate for individuals with low-income stratification (those with a monthly income of less than South Korean won (KRW) 1 million (USD 1000) in 2019), which is an increase of 2.2% from 57.4% in 2018 [2].

However, there are still unresolved issues in Korean society resulting from traditional stereotypes that create a divide in the types of sports in which Korean people participate. Sports participation is influenced by various factors, but gender and social stratification are the critical factors triggering this divide. Bourdieu selected sports participation as an indicator of social classification by identifying the relationship between sports activities and their social, cultural, and economic capital [3]. According to Bourdieu, individuals in higher classes tend to monopolize certain sports, such as tennis and golf, because these sports are symbolically connected to their class [3]. In this regard, Collins argued that an individual's economic capital acts as a factor that determines the continuation of sports participation [4], and Gemar argued that social stratification factors determine not only the continuity of sports participation but also the types of sports involved [5]. In previous studies [3–5], however, social stratification was measured using abstract concepts such as cultural, economic, and social capital. In this study, social stratification can be defined as an individual's hierarchical status based on objective attributes (occupation, education, income, etc.).

Sports participation has long been recognized as an exclusive benefit for men, while women are excluded and estranged from it [6]. Modern sports have perpetuated gender inequality by strengthening the division of work based on gender, rather than promoting purely participatory activities, thereby contributing to the exploitation and oppression of both men and women [7]. In particular, the gender ideology of sports has limited the participation of individuals by dividing various sports into those for men, which are characterized by strength, speed, and aggression, and those for women, which are characterized by beauty, softness, and flexibility [8]. In this context, individual participation in a sport is influenced by factors such as social stratification and gender.

Previous studies have focused on attributing differences in sports participation to social stratification or gender. Studies on sports participation according to social stratification have argued that the socio-cultural context of each country, and the social stratum to which an individual belongs, result in differences in participation [9–13]. Moreover, research on sports participation and stratification are limited to specific countries, such as the United States, Canada, and the United Kingdom, thereby limiting the objective identification of the types of sports that are combined with the cultures of various nations and their social stratifications.

Meanwhile, studies related to sports participation according to gender have argued that participation in sports goes beyond gender, and inequality in participation is due to the factors such as nationality, race, and age [14–17]. Despite social stratification being an important variable in sports participation, studies on the differences between sports participation from an intersectional point of gender and stratification are yet to be conducted. Reeves argued that social stratification is a strong mediating factor in sports participation, along with gender and age [18]. This suggests there is a strong relationship between social stratification and gender in sports participation.

Therefore, this study aims to empirically examine the differences in sports participation among Korean adults, based on the interaction of social stratification and gender.

Understanding Gender, Social Stratification, and Inequality in a Sports Context:

To date, studies on sports and gender have mainly focused on the inequality that women face. This is because the socially accepted logic of masculinity is firmly established as the basis of sports [19]. Over the past 50 years, women's participation in sports has dramatically changed. The proportion of women participating in sports has grown, and the areas of participation have also expanded with women entering male-dominated sports. Despite this dramatic growth, while some sports are practiced mostly by men, others are practiced almost exclusively by women. This indicates that gender stereotypes remain in sports, thus, affecting individuals' sports participation [6].

Gender stereotypes in sports are views or preconceptions about characteristics that ought to be possessed or roles that ought to be performed according to biological sex. For example, masculine sports include intense physical contact, face-to-face competition, strength, speed, and aggression, whereas feminine sports are represented by expressiveness, elegance, and aesthetic emphasis [8,20,21]. Historical gender stereotypes are projected onto sports, thereby classifying the types of sports according to gender [22]. American football, ice hockey, wrestling, baseball, rugby, and boxing are classified as men's sports, while gymnastics, field hockey, softball, volleyball, cheerleading, synchronized swimming, and ice skating can be defined as women's sports [23]. In the same vein, in Hong and Lee's [24] study on the perception of gender types in sports in Korea, "women's sports" included dance sports, artistic swimming, stretching exercises, aerobics, yoga, Pilates, and so on. "Neutral sports" included water skiing, archery, volleyball, tennis, and golf, while "men's sports" included basketball, rugby, American football, ice hockey, baseball, taekwondo, and soccer [24]. This trend is similar in most countries [6,8,22] and indicates how men and women perceive gender appropriateness concerning sports participation.

Stereotyping sports participation according to gender results in discrimination and inequality because of the perception that a certain gender is better suited to a particular sport. For example, in male-dominated sports, women's athletic abilities are marginalized without being highlighted [25]. Conversely, the same is true for men participating in women's sports events. According to Cagas *et al.* [26], men tend to avoid yoga as their heterosexuality can be questioned.

In addition to gender, social stratification is a representative factor that affects sports participation. In general, wealthy individuals participate in sports such as golf, tennis, skiing, and yachting in exclusive clubs or resorts, while people with low incomes and those below the minimum cost of living rarely participate in sports [27].

Similarly, Kahma [28] found that the higher the income level of individuals, the greater the likelihood of their participation in sports. Furthermore, professionals in the higher income strata preferred tennis, golf, and skiing. In contrast, people in the middle-income strata preferred walking and aerobics, while those in the labor strata preferred ice hockey. In Canada, ice hockey is the most popular sports, but the preference for ice hockey was higher in the labor strata than in the upper-class strata, because of the "violence" involved in ice hockey [9]. In Germany, among 10 popular sports, tennis, running, and fitness activities were found to be more popular among highly educated groups [29]. Similarly, in the United States, tennis, golf, fitness activities, running, and outdoor activities were associated with higher economic status, while soccer, American football, and bowling rarely were [11,12]. According to Mutz & Müller, racquetball is a sport that is difficult to access be-

cause of economic capital, whereas soccer is less affected by access to economic capital [30]. Thus, soccer is a more inclusive sport, while racquetball is one of the more exclusive activities. Haut argues that alpine skiing, tennis, and running are closely related to exclusive and prestigious high-quality lifestyles, such as enjoying contemporary art or gourmet cuisine [31].

According to the findings of combined studies on social stratification and sports participation patterns in Korea, a certain level of stable income and time are required to engage in sports activities [32,33]. Therefore, the type of sports participation is determined by an individual's status [34]. In particular, Jin and Chang's study on sports participation by social stratification among Koreans showed that sports participation reflected the recent stratification characteristics of Korean society [35]. People with low socioeconomic status showed a tendency to participate in gateball, aquarobics, and stretching exercises, while people of higher socioeconomic status showed a tendency to participate in golf, tennis, fitness activities, and yoga.

Moreover, recent research suggests that social stratification continues to constrain the sporting opportunities of women [36]. However, little is known about the differences in sport participation caused by interaction of gender and social stratification in Korea. Therefore, this study examines how the interaction between gender and social stratification impacts inequality in sports participation among Korean adults.

2. Materials and methods

The data used in this study were obtained from the 2019 Korea National Sports Participation Survey, which is a survey on people's participation in physical activities published annually by the Korean Ministry of Culture, Sports and Tourism [2]. The survey targeted Korean citizens aged 10 years or older and a total of 9000 people (one person in each of 9000 households).

Among the 9000 samples of raw data, the following were excluded from our analysis: 2040 were from individuals who answered, "I do not participate in sports regularly", 1100 were from a school-aged population who were vulnerable to economic activity, 288 were from university students (unemployed), 26 indicated no response, and 3 were from soldiers. In addition, frequency analysis was conducted to exclude 177 participants in sports events for which the number of regular participants was less than 30. Finally, data from 5366 participants who participate in sports activities on a regular basis were included in the analysis. This study was approved by the Ethics Committee of the Korea Ministry of Culture, Sports and Tourism (approval code: 113003).

2.1 Variables

To define the differences in sports participation according to gender and social stratification among Korean adults, gender, monthly household income level, and educational background were set as independent variables, and types of sports participation were set as the dependent variables. Social stratification was reviewed through three variables: monthly household income level, educational background, and occupation. Specifically, monthly household income levels were classified as less than KRW 3 million (USD 3000), KRW 3 million (USD 3000) to less than KRW 4 million (USD 4000), KRW 4 million (USD 4000) to less than KRW 5 million (USD 5000), and KRW 5 million (USD 5000) and above. Educational background was classified into four groups: up to lower secondary, upper secondary, college, and bachelor's level or higher. Occupations were classified into six groups: no occupation (homemaker, unemployed), blue-collar workers, sales workers, service workers, office workers, and administrators and professionals.

The group classification of each variable was reclassified in accordance with this study. The classifications considered Korea's average monthly household income as of 2019, as presented by Statistics Korea [37], compulsory elementary and middle school education, high school and college entrance rates, occupational classification, frequency, and so on, according to the Korean Standard Classification of Occupations (2018) [38]. In terms of sports type, 21 sports events with 30 or more regular participants, among the sports events specified in the 2019 KNSPS, were set as dependent variables [2]. Table 1 shows demographic information about the participants.

2.2 Data analysis

SPSS 26.0 was used to analyze the data for multiple correspondence analysis (MCA) and cross-tabulation analysis (cross-tab). MCA is a statistical analysis technique used to express the row and column information of a contingency table in a two- or three-dimensional figure. It is a statistical method used to classify respondents with similar and dissimilar patterns according to their questionnaire responses.

MCA analyzes the correlation between variables by calculating the distance between two or more categorical variables and visually presenting the results [39]. This study intends to show the correlation of sports participation according to gender and social stratification by using the MCA method designed to calculate the distance in a two-dimensional space.

In addition, a cross-tab was conducted to examine the differences in sports participation according to gender and social stratification. This is meaningful not only in determining the differences in frequency through the cross-tab but also in setting the range of correlation between independent and dependent variables shown through the MCA.

An adjusted residual (AR) greater than 1.96 indicates that the number of cases in that cell is significantly larger than expected, with a significance level of 0.05. An AR

Table 1. Participants' demographics.

Variables		Frequency	%
Gender	Male	2655	49.5
	Female	2711	50.5
Income	<3 million (3000 USD)	1378	25.7
	3–4 million (3000–4000 USD)	1227	22.9
	4–5 million (4000–5000 USD)	1300	24.2
	≥5 million (over 5000 USD)	1461	27.2
Educational Background	Up to lower secondary	761	14.2
	Upper secondary	2006	37.4
	College	1024	19.1
	Bachelor's level or higher	1575	29.4
Occupation	No occupation (homemaker, unemployed)	1456	27.1
	Blue-collar workers	680	12.7
	Sales workers	688	12.8
	Service workers	922	17.2
	Office workers	1262	23.5
	Administrators and professionals	358	6.7
Sports events	Golf	228	4.2
	Tennis	55	1.0
	Fitness	743	13.8
	Football	128	2.4
	Billiards	87	1.6
	Yoga	342	6.4
	Bowling	86	1.6
	Badminton	96	1.8
	Table tennis	61	1.1
	Track & field	43	0.8
	Swimming	398	7.4
	Aerobics	71	1.3
	Dance sports	43	0.8
	Cycle	164	3.1
	Hula hoop	39	0.7
	Hiking	421	7.8
	Fishing	42	0.8
	Gateball	35	0.7
	Walking	2086	38.9
	Aquarobics	33	0.6
	Stretching exercises	165	3.1
Total		5366	100

that is less than –1.96 indicates that the number of cases in that cell is significantly smaller than expected. If there is a statistically significant difference between groups through MCA and AR, researchers should pay attention to the group in which the absolute value of the AR is less than 1.96. For instance, as seen in Table 2, if the golf participation ARs of a male and female group, both having incomes between USD 4000 to USD 5000 are +3.1 and –3.8, respectively, then it can be interpreted that the men in the group actively participated in golf while the women did not, with a significance level of 0.05.

3. Results

3.1 MCA of types of sports participation by gender and social stratification

Fig. 1 is a two-dimensional representation of MCA results of types of sports participation by Korean men according to their social stratification. When male social stratification and types of sports participation are grouped by the distance characteristics shown in the figure, the group with an income of less than KRW 3 million (USD 3000), educational background of up to lower secondary, and no occupation (homemaker, unemployed) showed a tendency to participate in gateball. In contrast, the group with an income between KRW 3 million (USD 3000) and KRW 4 million (USD 4000), educational background of upper secondary, and blue-collar worker, sales, and service occupations showed a tendency to participate in fishing, hiking, and cycling. Finally, the group with an income of KRW 4 million (USD 4000) or more, educational background of bachelor's level or higher, and office worker, administrator, and professional occupations showed a tendency to participate in golf, tennis, bowling, fitness activities, badminton, billiards, soccer, and table tennis.

Table 2. Cross-tab results of types of sports participation according to gender and social stratification.

		Income[1]								Education[2]								Occupation[3]											
		Male				Female				Male				Female				Male								Female					
		1	2	3	4	1	2	3	4	A	B	C	D	A	B	C	D	f	e	d	c	b	a	f	e	d	c	b	a
Gateball	C[4]	15	4	0	1	10	4	1	0	9	10	0	1	9	5	0	1	13	4	1	1	0	1	12	1	1	1	0	0
	AR[5]	5.8	0	–2.3	–1.8	2.5	0	–1.6	–2.4	5.6	1.8	–1.9	–2.3	3.4	–0.9	–2.0	–1.6	8.6	0.2	–1.0	–1.1	–2.5	–0.5	1.8	0.1	–0.7	–1.3	–1.8	–0.9
Golf	C	11	15	45	115	3	6	8	25	1	34	48	103	1	13	6	22	3	15	30	19	50	69	18	0	5	9	9	1
	AR	–3.2	–2.4	3.1	16.7	–5.7	–4.2	–3.8	–1.3	–3.3	–0.9	6.3	10.9	–4.6	–5.6	–3.7	–0.8	–2.7	–1.8	3.4	0.4	3.2	19.4	–5.2	–2.5	–2.2	–2.9	–2.7	–1.9
Football	C	14	29	35	50	0	0	0	0	0	44	35	49	0	0	0	0	2	27	24	21	46	8	0	0	0	0	0	0
	AR	–0.2	4.0	4.9	8.6	–4.6	–4.1	–4.1	–4.6	–2.7	5.3	7.2	6.0	–3.6	–5.8	–3.8	–4.1	–1.9	4.1	5.0	3.8	6.9	1.0	–6.1	–1.8	–2.8	–3.7	–3.6	–1.7
Billiards	C	6	18	28	33	0	0	1	1	0	21	30	34	0	1	0	1	3	17	15	11	34	5	0	0	1	0	1	0
	AR	–1.4	2.7	5.4	6.7	–3.8	–3.4	–3.0	–3.4	–2.2	1.8	8.2	5.1	–3.0	–4.5	–3.1	–3.0	–.7	2.9	3.6	1.8	6.5	0.6	–5.0	–1.5	–1.8	–3.0	–2.5	–1.4
Bowling	C	6	12	17	22	4	8	10	7	0	6	12	39	0	5	16	8	1	8	5	8	29	6	4	1	9	6	9	0
	AR	–1.3	0.7	1.9	3.3	–2.5	–0.6	0.1	–1.5	–2.2	–2.5	1.5	6.6	–3.0	–3.4	2.8	–0.6	–1.7	–0.3	–0.5	0.6	5.0	1.2	–3.9	–0.8	2.0	–0.8	0.5	–1.4
Tennis	C	1	8	15	13	0	2	5	11	1	5	8	23	0	3	6	9	1	4	4	2	16	10	7	0	0	3	8	0
	AR	–2.3	0.7	3.2	2.2	–3.0	–1.8	–0.5	1.3	–1.1	–1.6	1.4	4.6	–2.4	–2.8	0.3	1.2	–1.1	–0.7	0	–1.1	3.0	5.0	–1.7	–1.2	–1.8	–1.0	1.5	–1.1
Badminton	C	5	19	18	22	4	7	10	11	5	18	15	26	0	16	4	12	3	9	16	13	18	5	14	1	2	8	6	1
	AR	–2.0	2.5	1.7	2.7	–2.8	–1.3	–0.3	–0.7	0.1	0.4	2.2	2.3	–3.1	–0.9	–1.9	0.4	–0.9	–0.3	3.5	2.2	1.1	0.4	–1.8	–0.9	–1.5	–0.4	–0.9	–0.8
Table Tennis	C	9	11	15	14	2	4	0	6	0	19	11	19	1	4	1	6	5	13	10	1	14	6	5	0	1	2	4	0
	AR	0.8	1.6	2.7	2.2	–2.4	–1.2	–2.8	–0.9	–1.8	2.9	2.4	2.7	–2.0	–2.7	–2.2	–0.4	1.1	2.9	2.7	–1.8	1.8	2.1	–2.6	–1.3	–1.3	–1.7	–0.6	–1.2
Walking	C	321	241	164	122	469	300	248	221	178	386	107	177	332	561	167	178	154	219	133	149	162	31	601	81	132	237	123	64
	AR	7.0	0	–8.8	–13.0	14.0	5.7	1.1	–5.4	9.2	2.3	–8.3	–14.6	13.9	9.5	–3.6	–5.0	5.9	0.6	–2.2	–1.2	–11.4	–8.3	9.6	5.3	2.2	3.7	–6.0	3.2
Track & Field	C	8	6	3	3	8	7	5	3	3	8	7	2	3	12	5	3	4	4	6	2	4	0	11	2	2	6	2	0
	AR	1.5	0.5	–1.2	–1.2	0.8	1.0	0.1	–1.3	0.6	0.3	1.6	–2.3	–0.5	1.2	0.4	–0.9	1.2	–0.2	1.7	–0.7	–1.0	–1.4	0.6	0.9	–0.2	1.0	–1.0	–1.0
Fitness	C	62	99	212	163	15	33	67	92	14	110	102	310	8	72	52	75	28	62	40	84	277	45	64	3	23	36	71	10
	AR	–2.9	1.6	13.7	7.3	–10.2	–6.4	–2.1	–1.2	–4.3	–1.8	4.5	18.0	–8.2	–7.8	–2.8	–1.1	–1.8	–1.8	–2.2	4.0	18.7	2.3	–9.5	–3.9	–3.1	–4.7	0.7	–1.8
Swimming	C	12	34	40	35	44	77	77	79	2	34	29	56	14	129	65	69	5	13	26	21	44	12	117	7	30	59	48	16
	AR	–5.5	–2.0	–1.8	–2.8	–1.8	5.3	5.3	3.7	–4.3	–4.7	–1.4	–2.2	–4.0	6.2	4.5	4.0	–3.7	–4.7	–0.6	–1.9	–2.1	–1.4	3.7	–1.0	1.9	3.8	2.4	2.5
Aquarobics	C	0	0	1	0	17	6	4	5	0	1	0	0	15	14	2	1	0	0	0	0	1	0	26	1	2	3	0	0
	AR	–2.1	–2.1	–1.7	–2.3	6.2	1.2	0.2	0.2	–1.3	–2.1	–1.8	–2.7	7.3	3.2	–0.7	–1.5	–1.3	–1.9	–1.6	–1.7	–1.9	–1.2	7.9	0.2	0.1	–0.1	–1.8	–0.9

Table 2. Continued.

		Income[1]								Education[2]								Occupation[3]											
		Male				Female				Male				Female				Male						Female					
		1	2	3	4	1	2	3	4	A	B	C	D	A	B	C	D	f	e	d	c	b	a	f	e	d	c	b	a
Aerobics	C	0	2	1	0	7	18	19	24	0	1	0	2	1	35	19	13	0	0	0	1	2	0	36	1	5	17	8	1
	AR	–3.1	–2.3	–2.9	–3.3	–1.0	3.8	4.1	4.9	–2.0	–3.5	–2.7	–3.4	–2.3	6.1	4.8	1.9	–2.0	–2.9	–2.4	–2.0	–2.8	–1.8	5.9	–0.6	0.6	4.2	0.7	–0.5
Yoga	C	4	1	0	1	56	53	70	157	0	4	2	0	28	69	95	144	2	1	0	2	1	0	112	7	25	41	139	12
	AR	–6.2	–6.7	–7.4	–7.4	1.2	2.5	5.5	17.8	–4.4	–8.1	–5.7	–9.0	–0.6	–0.1	11.5	18.7	–4.0	–6.3	–5.4	–5.1	–7.8	–4.1	5.0	–0.5	1.5	1.6	21.4	1.6
Dance Sports	C	0	1	0	0	6	6	14	16	0	0	0	1	3	12	10	17	0	0	0	0	1	0	20	0	5	7	7	3
	AR	–2.4	–1.9	–2.5	–2.6	0	0.5	4.4	4.5	–1.5	–3.0	–2.1	–2.7	–0.5	1.2	3.0	5.9	–1.5	–2.2	–1.9	–1.9	–2.3	–1.4	3.9	–1.0	1.8	1.5	1.7	2.1
Cycle	C	27	36	31	32	14	6	7	11	11	44	23	48	9	15	4	10	12	32	24	17	26	15	15	1	5	6	10	1
	AR	2.0	4.2	2.3	2.3	–2.1	–3.1	–2.9	–2.7	1.0	3.4	2.1	3.8	–1.6	–3.6	–3.2	–2.1	1.3	4.0	3.6	1.3	0.4	3.0	–4.0	–1.6	–1.4	–2.6	–1.3	–1.4
Stretching Exercises	C	42	6	10	9	42	22	21	13	19	31	7	10	42	38	9	9	23	15	7	16	5	1	50	15	11	12	5	5
	AR	5.7	–3.2	–2.7	–3.1	4.2	0.8	0.6	–2.2	3.8	0.6	–2.3	–4.1	7.4	0.9	–1.9	–2.4	5.2	–0.5	–1.6	1.0	–4.3	–2.4	2.6	5.5	0.7	–1.0	–2.7	0.7
Hula Hooping	C	0	2	2	0	9	8	5	13	0	2	1	1	2	15	9	9	0	1	1	1	1	0	12	0	9	7	7	0
	AR	–2.3	–1.3	–1.5	–2.5	1.6	1.8	0.3	3.6	–1.5	–2.0	–1.4	–2.5	–0.9	2.8	2.8	2.3	–1.5	–1.6	–1.1	–1.2	–2.1	–1.3	1.3	–1.0	4.8	1.8	2.0	–1.0
Hiking	C	64	67	46	82	47	39	33	43	24	121	51	63	19	72	55	16	16	86	46	36	52	23	53	12	24	50	17	6
	AR	2.5	2.9	–1.3	3.8	–1.8	–1.4	–2.3	–2.2	0.6	6.6	2.1	–1.7	–3.4	–1.7	2.3	–5.0	–1.3	7.2	2.9	0.7	–1.4	1.1	–4.8	0.5	0.2	1.7	–3.6	–1.2
Fishing	C	12	9	11	5	2	1	1	1	6	16	8	7	1	0	3	1	2	17	6	7	5	0	2	0	2	0	0	1
	AR	3.5	2.0	2.6	–0.3	–1.8	–1.8	–1.8	–2.2	2.7	3.6	2.2	–0.2	–1.5	–3.3	–0.6	–1.8	–0.1	6.5	1.7	2.2	–0.5	–1.4	–2.7	–1.0	–0.2	–2.1	–2.0	0.1

1 1: <3 million ₩ (3000 USD)/2: 3≤ to <4 million ₩ (3000–4000 USD)/3: 4≤ to <5 million ₩ (4000–5000 USD)/4: ≥5 million ₩ (over 5000 USD).

2 A: Up to lower secondary/B: Upper secondary/C: College/D: Bachelor's level.

3 a: No occupation (homemaker, unemployed)/b: Blue-collar worker/c: Sales worker/d: Service worker/e: Office worker/f: Administrator and professional.

4 C, Count.

5 AR, Adjusted residual.

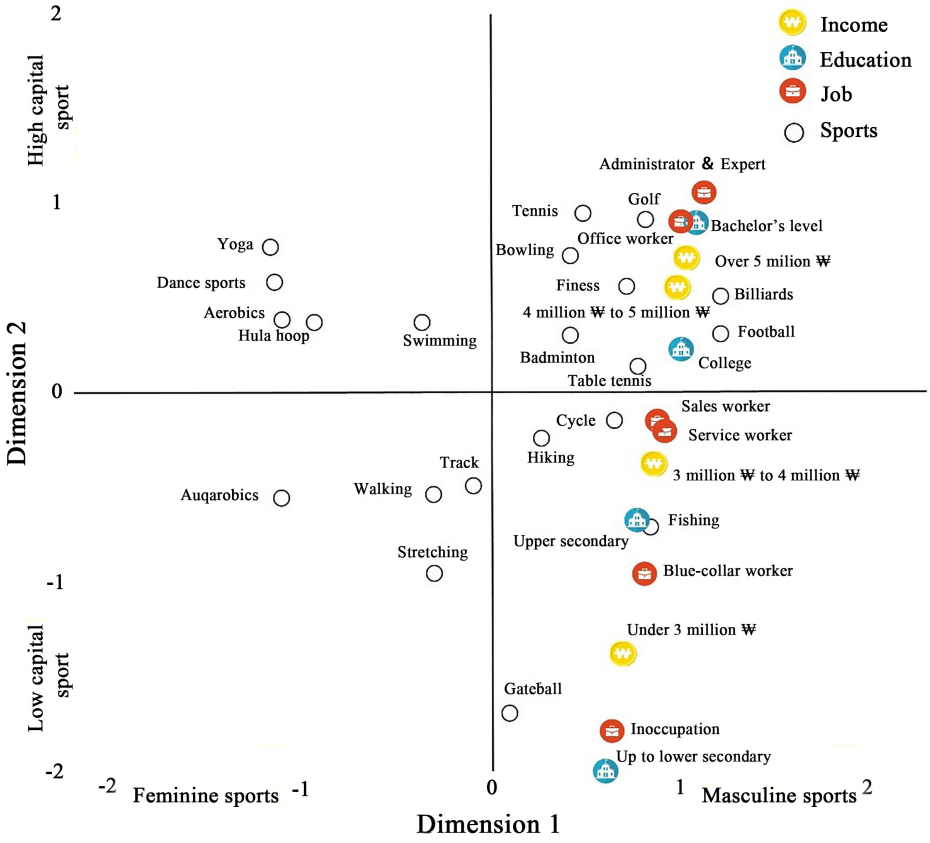

Fig. 1. Results of MCA for types of sports participation according to male social stratification.

Fig. 2 is a two-dimensional representation of the MCA results of the types of sports participated in by Korean women according to their social stratification. When women's social stratification and their types of sports participation were grouped according to the distance characteristics shown in the figure, the group with an income of less than KRW 4 million (USD 4000), educational background of up to lower secondary, and those who had no occupation or were employed as blue-collar workers, showed a tendency to participate in walking, track and field, stretching exercises, and aquarobics. In contrast, the group with an income of KRW 4 million (USD 4000) or more, educational background of bachelor's level or higher, and sales, service, office, administrator, and professional occupations tended to participate in yoga, dance sports, aerobics, hula hooping and swimming.

3.2 Cross-tab of types of sports participation by gender and social stratification

In this study, a cross-tab was conducted to minimize the error of interpretation of the two-dimensional schema shown through the MCA results of types of sports participation according to gender and social stratification. Table 2 shows the cross-tab results of the types of sports participated in according to men and women social stratification. Men with an income of less than KRW 3 million (USD 3000) participated in gateball (5.8), walking (7.0), cycling (2.0), stretching exercises (5.7), hiking (2.5), and fishing (3.5), while women with the same income participated in gateball (2.5), walking (14.0), aquarobics (6.2), and stretching exercises (4.2). In contrast, men with an income range of KRW 3 million (USD 3000) to less than KRW 4 million (USD 4000) participated in soccer (4.0), billiards (2.7), badminton (2.5), cycling (4.2), hiking (2.9), and fishing (2.0), while women with the same income range participated in walking (5.7), swimming (5.3), aerobics (3.8), and yoga (2.5). Men with an income range of KRW 4 million (USD 4000) to less than KRW 5 million (USD 5000) participated in golf (3.1), soccer (4.9), billiards (5.4), tennis (3.2), table tennis (2.7), fitness activities (13.7), cycling (2.3), and fishing (2.6), while women with the same income range participated in swimming (5.3), aerobics (4.1), yoga (5.5), and dance sports (4.4). Finally, men with an income of KRW 5 million (USD 5,000) and above participated in golf (16.7), soccer (8.6), billiards (6.7), bowling (3.3), tennis (2.2), badminton (2.7), table tennis (2.2), fitness activities (7.3), cycling (2.3), and hiking (3.8), while women with the same income or above participated in swimming (3.7), aerobics (4.9), yoga (17.8), dance sports (4.5), and hula hooping (3.6).

The types of sports that men and women participated in were examined according to their educational backgrounds. Men with an educational background of up to

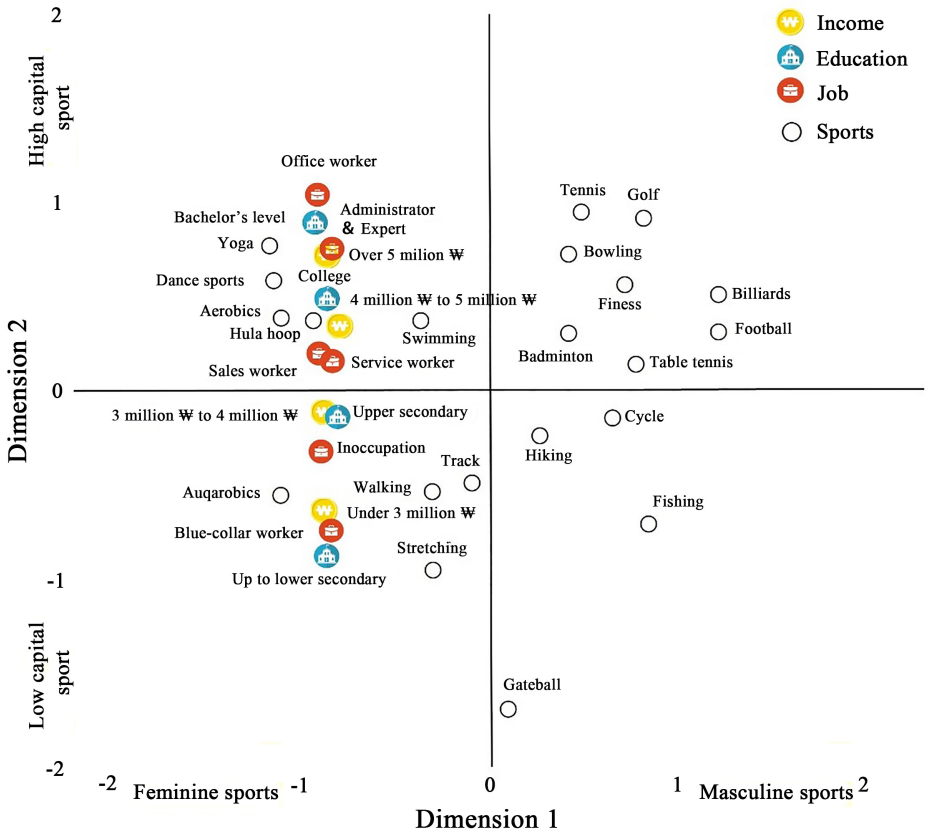

Fig. 2. MCA results of types of sports participation according to female social stratification.

lower secondary school participated in gateball (5.6), walking (9.2), stretching exercises (3.8), and fishing (2.7), while women with the same educational background participated in gateball (3.4), walking (13.9), aquarobics (7.3), and stretching exercises (7.4). Men with an educational background of upper secondary school participated in soccer (5.3), table tennis (2.9), walking (2.3), cycling (3.4), hiking (6.6), and fishing (3.6), while women with the same educational background participated in walking (9.5), swimming (6.2), aquarobics (3.2), aerobics (6.1), and hula hooping (2.8). Men with a college educational background participated in golf (6.3), soccer (7.2), billiards (8.2), badminton (2.2), table tennis (2.4), fitness activities (4.5), cycling (2.1), and hiking (2.1), while women with the same educational background participated in swimming (4.5), aerobics (4.8), yoga (11.5), dance sports (3.0), hula-hooping (2.8), and hiking (2.3). Finally, men with an educational background of bachelor's level or higher participated in golf (10.9), soccer (6.0), billiards (5.1), bowling (6.6), tennis (4.6), badminton (2.3), table tennis (2.7), fitness activities (18.0), and cycling (3.8), while women with the same educational background participated in swimming (4.0), yoga (18.7), dance sports (5.9), and hula hooping (2.3).

The types of sports participation of men and women according to their occupations were also examined. Men categorized as having no occupation participated in gateball (8.6), walking (5.9), and stretching exercises (5.2), while women in the same category participated in walking (9.6), swimming (3.7), aquarobics (7.9), aerobics (5.9), yoga (5.0), dance sports (3.9), and stretching exercises (2.6). Men who were designated as blue-collar workers participated in soccer (4.1), billiards (2.9), table tennis (2.9), cycling (4.0), hiking (7.2), and fishing (6.5), while women who were blue-collar workers participated in walking (5.3) and stretching exercises (5.5). Men who were sales workers participated in golf (3.4), soccer (5.0), billiards (3.6), badminton (3.5), table tennis (2.7), cycling (3.6), and hiking (2.9), while women in sales participated in bowling (2.0), walking (2.2), and hula hooping (4.8). In addition, men who were service workers participated in soccer (3.8), badminton (2.2), fitness activities (4.0), and fishing (2.2), while women who were service workers participated in walking (3.7), swimming (3.8), and aerobics (4.2). Among office workers, men participated in golf (3.2), soccer (6.9), billiards (6.5), bowling (5.0), tennis (3.0), and fitness activities (18.7), while women participated in swimming (2.4), yoga (21.4), and hula hooping (2.0). Finally, men who were administrators and professionals participated in golf (19.4), tennis (5.0), table tennis (2.1), fitness activities (2.3), and cycling (3.0), while women with the same occupations participated in walking (3.2), swimming (2.5), and dance sports (2.1).

The findings of this study indicate that sports in which men and women participate are clearly distinguished based

on income, educational background, and occupation, which are factors that constitute social stratification. Like men's income, education, and occupation differ in terms of their social stratification, the sporting events in which men participate differ as well. Upper class men participate in sports including golf, tennis, and fitness, and lower class men participate in gateball, walking, and stretching exercises. The sporting events in which women participate are limited to walking, swimming, yoga, aquarobics, dance sports, aerobics, and hula hooping instead of being differentiated by their social stratification.

4. Discussion

This study shows how Korean men and women participate differently in sports according to social stratification. The results show that not only do the sports events in which Korean adults participate differ according to gender, but also according to their social stratification factors, such as income, education, and occupation. In a study by Jin and Chang [35], Korean social stratification was classified into upper, upper-middle, middle, and lower, to reveal class differences in sports events in which each stratum participated. According to the research results, people in the upper class participated in golf and tennis, those in the upper-middle class participated in fitness activities, soccer, billiards, and yoga, while those in the lower class participated in gateball, walking, aquarobics, and stretching exercises. The results of the current study show a clear difference when compared with these results. The types of sports participation in the upper strata matched those of the men in the upper strata, while the types of sports that women participated in were rather limited to certain sports, regardless of class stratification.

Specifically, men in the upper-middle class or upper class in terms of income, education, and occupation mostly participated in golf, soccer, billiards, fitness activities, and tennis. These were similar to the sports events the upper-middle class or upper class participated in, as revealed in a study by Jin and Chang [35]. However, regardless of class, women participated intensively in sports events such as swimming, aerobics, dance sports, and hula hooping. This suggests that sports in which men participate reflect their stratification characteristics, thereby distinguishing between the upper and lower classes, whereas women have their own favorite sports events in which they participate, regardless of their stratification characteristics.

Compared with the past, more Koreans are participating in sports, regardless of gender or social stratification [2]. Nevertheless, the sports events in which they participate differ according to their social stratification. This indicates that there is an inherent inequality in sports participation. In addition to the stratification factors influencing people's participation in sports, this study found that women participated in limited sports events compared to men. This means that even women in the higher social strata do not participate in more diverse sports than men; rather, they only participate in those that are recognized as "feminine sports" such as yoga, aerobics, aquarobics, dance sports, and swimming. This may be the result of unequal opportunities for sports participation due to gender stereotypes [40]. Although the proportion of women participating in sports is increasing in Korea and worldwide [41–43], sports continue to be widely viewed as being exclusively for men [44]. The perception prevails that sports in which men participate can represent "sportiness" [6]. This is in line with the social perception that extreme and intense sports are only for males, while those that emphasize aesthetic elements are female sports. This also reflects women's experiences of negative perceptions about participating in certain sports, due to the physical strength and aggression required when participating in those sports [45–47].

The fact that demographic characteristics, such as social stratification factors and gender, have an important influence on the choice of sports participation has been suggested in many previous studies [29,33,35,48–52]. As previously stated, the higher the social strata of men, the more frequently they participate in sports such as golf and tennis. The number of sports events in which individuals participated varied from lower to upper classes. What is interesting in our study is the pattern of women's sports participation concerning their social stratification. Unemployed women tended to participate more in sporting events than women with high income, education, and occupational stratification. Compared to women with a monthly income of KRW 5 million (USD 5000) or above, a bachelor's level or higher, and administrative and professional occupations, unemployed women and homemakers without an occupation participated in more diverse sports. This can be interpreted as the factor of time being more significant than the factor of social stratification in women's sports participation in modern Korean society.

Women have relatively more restrictions than men when participating in sports. Major factors include socially prevalent sexual prejudice or stereotypes, difficulty or risk of physical activity itself, and a lack of information about or experience in sports [53–57]. As discussed in this study, factors influencing sports participation cannot be reduced to a single characteristic, such as gender or social stratification. This is because social positions are complex and multidimensional, and the categories that define an individual's social identity are not singular.

5. Conclusions

The results of this study confirm the differences in sports participation by gender and social stratification among Korean adults. More importantly, this study shows that women participated in limited sports events compared to men, regardless of social stratification, while men participated in sports based on their social stratification. Indeed, women only participated in sports that are typically

recognized as “feminine sports”, such as yoga, aerobics, aquarobics, dance sports, and swimming. To understand the constraints that affect women’s sports participation better, it is necessary to systematically analyze relevant factors such as government policies and actions. Efforts are needed to eliminate the barriers to entry into sports based on social stratification and gender and to resolve the inequality that exists in sports participation.

This study had several limitations. First, it could not provide an understanding of why women participate in limited sports events defined as feminine sports. Second, it failed to explain how other factors such as age, health condition, and residential area affect sports participation among Korean adults. Finally, data used in this study were collected before the Coronavirus disease 2019 pandemic, and therefore, it is difficult to explain how it may have influenced people’s sports participation in Korea.

Author contributions

Design—IYC and SYR; methodology—SYR and IYC; formal analysis—SYR and IYC; Writing-original draft preparation—SYR; writing-review and editing—IYC; visualization—SYR. All Authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board (Number: 113003) of the Korea Ministry of Culture, Sports and Tourism. Informed consent has been obtained from the participant.

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Conflict of interest

The authors declare no conflict of interest.

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