

Gender differences in sports performance across hockey, soccer, and basketball among athletes in South-West Nigeria

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Abstract

This study investigates gender differences in sports performance across hockey, soccer, and basketball, focusing on physical, psychological, and social factors, as well as strategies for minimizing disparities. The persistence of gender disparities in sports is influenced by physiological differences, societal expectations, and unequal access to resources, making this a critical area for research. The study adopted a descriptive survey design, with a purposive sample of 120 athletes comprising 52.5% males and 47.5% females, ensuring balanced representation across the three sports. Data were collected using a structured questionnaire, featuring a four-point Likert scale to measure respondents' perceptions. Descriptive and inferential statistics were used for analysis. The results revealed that male athletes are perceived to have an advantage in strength (mean = 3.15, SD = 0.87) and speed (mean = 3.19, SD = 0.83), while female athletes were recognized for their endurance (mean = 3.21, SD = 0.84). Skill execution, such as accuracy and technique, was largely considered gender-neutral (mean = 3.34, SD = 0.82). Psychological pressures were significant, with male athletes expected to lead (mean = 3.14, SD = 0.85), while female athletes faced greater scrutiny regarding appearance (mean = 3.05, SD = 0.90). Respondents identified strategies for minimizing disparities, including equal access to training programs (mean = 3.17, SD = 0.85) and addressing stereotypes (mean = 3.13, SD = 0.89). The study concludes that while physiological differences influence performance in some areas, psychological and social factors play a significant role in perpetuating disparities. Implementing equitable training practices, promoting mentorship programs, and addressing stereotypes are critical for fostering inclusivity and equality in sports.

Keywords: Gender differences; Sports Performance; Hockey, Soccer; Basketball; Psychological Pressures; Social Factors; Physical Performance; Gender Equity; Inclusivity in Sports; Athletes

1. Introduction

1.1. Gender Dynamics in Sports

Gender dynamics in sports have long been influenced by historical, social, and cultural contexts that have shaped the roles and opportunities available to male and female athletes. Early sports institutions were largely male-centric, reinforcing the notion that athleticism was a masculine trait, and women were often discouraged or outright banned from participating in various sports. This perspective was tied to societal beliefs that physical competition and prowess were uniquely masculine, while femininity was associated with domesticity and gentleness (Hargreaves, 1994). This

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foundational exclusion contributed to lasting gender disparities in sports, as even when women began to enter athletic domains, their participation was heavily scrutinized and limited to sports perceived as appropriate for their gender, such as tennis and gymnastics, rather than physical, contact-heavy sports like soccer or hockey (Vertinsky, 1994).

The gradual acceptance of women in sports throughout the 20th century marked a significant shift, although it was met with resistance and maintained restrictive barriers. This period saw the introduction of women in the Olympics in 1900 and the development of women's leagues across different sports. However, female athletes faced immense pressure to conform to idealized notions of femininity, and their athletic achievements were often overshadowed by a focus on appearance or "graceful" attributes rather than skill and strength. In many ways, these narratives created a dichotomy between male and female athletes, further entrenching the idea that men's sports were serious and competitive, while women's sports were secondary or recreational (Lenskyj, 1986).

Biological factors have also played a contentious role in the discussion of gender in sports, often used to justify unequal opportunities and resources for male and female athletes. Biological determinism—a belief that physical differences inherently made men superior athletes—was a dominant argument for restricting women's participation in high-intensity sports, such as basketball and hockey. Although physical differences exist, contemporary research demonstrates that performance is largely shaped by training, resources, and opportunities rather than innate capability (Cooky & Messner, 2018). Studies show that the physiological factors often cited as disadvantages can vary significantly among individuals of the same gender, underscoring the limitations of using biology as a basis for exclusion in sports (Schultz, 2017).

Economic disparities within sports have further exacerbated gender dynamics, as male-dominated leagues often receive greater funding, sponsorship, and media coverage compared to female leagues. This disparity is especially evident in high-profile sports like basketball and soccer, where men's leagues generate significantly higher revenues, allowing for better facilities, coaching, and financial incentives. Female athletes, by contrast, struggle to secure equitable pay and endorsement opportunities, which impacts the sustainability of their careers and overall visibility in the sporting world (Adriaanse & Claringbould, 2016). The persistence of this pay gap highlights a broader societal bias that places a lower economic value on women's sports, making it challenging for female athletes to achieve parity (Fink, 2015).

Media representation plays a critical role in shaping public perceptions of gender in sports, often reinforcing stereotypes and biases. Historically, male athletes have been portrayed as powerful and resilient, while female athletes are frequently depicted in ways that emphasize physical attractiveness over athletic competence. According to studies by Cooky and Dworkin (2013), media coverage often sexualizes or trivializes female athletes, detracting from their achievements and influencing public perception of their legitimacy in competitive sports. This differential treatment not only impacts viewership but also affects sponsorships and funding, as the media's portrayal of female athletes can sway public and commercial interest (Billings et al., 2015). The policy landscape in sports has sought to address some of these inequalities through measures like Title IX in the United States, which mandated equal opportunities for men and women in federally funded education programs, including sports. Title IX has had a profound impact on the growth of women's sports, contributing to a rise in female athletic participation in schools and colleges. However, while policies like Title IX have increased female representation, they have not entirely eliminated structural biases or financial inequalities, and enforcement remains inconsistent across regions and institutions (Brake, 2010).

In the realm of professional sports, advocacy for gender equity has led to movements for equal pay and improved working conditions. Female athletes have increasingly spoken out against wage disparities, as seen in the cases of the U.S. Women's National Soccer Team and WNBA players, who have argued for compensation that reflects their contributions and achievements. These movements have garnered public support and sparked debates on how sports organizations and governments should address pay equity, although progress has been slow and often met with institutional resistance (McDonagh & Pappano, 2008).

Gender dynamics in sports also intersect with issues of representation in coaching and leadership. Studies indicate that female coaches and administrators remain underrepresented, particularly in high-profile leagues and teams, which affects the experiences of female athletes and the development of inclusive team cultures (Norman, 2010). The lack of female leadership in sports organizations perpetuates a cycle where decision-making power remains in the hands of predominantly male authorities, often limiting opportunities for female athletes and reinforcing gender-based hierarchies (LaVoi, 2016).

The role of intersectionality in sports has become increasingly important in understanding how gender dynamics interact with other identities, such as race and socioeconomic status. Female athletes from marginalized racial or ethnic backgrounds often face compounded challenges, including discrimination and reduced access to resources. This

intersectional approach reveals that gender dynamics in sports cannot be fully understood without considering the overlapping barriers that many athletes experience, which may affect their ability to compete at the same level as their counterparts (Hylton, 2018).

While sports organizations and advocacy groups have made strides toward greater gender equity, achieving full equality remains a complex challenge. Addressing gender dynamics requires not only policy reform and investment but also a shift in cultural attitudes that continue to value men's sports more highly than women's. This shift involves redefining societal views on athleticism, challenging stereotypes, and promoting the visibility and achievements of female athletes across all media platforms (Messner, 2002). As sports continue to evolve, the pursuit of gender equality will likely remain central to discussions on the future of athletic competition and representation.

1.2. Importance of Studying Gender Differences in Soccer, Hockey, and Basketball

Understanding gender differences in sports like soccer, hockey, and basketball is crucial due to the unique social, economic, and physical dynamics each sport embodies. These differences offer insight into how gender roles and expectations shape participation, performance, and the broader culture within these high-profile sports. Scholars argue that exploring gender in sports fosters more inclusive policies, equitable pay, and media representation, all of which are central to promoting fair access to resources and opportunities across genders (Knoppers & Anthonissen, 2003). Given that these sports have significant followings and societal influence, research in this area is instrumental in challenging stereotypes and broadening perceptions of female athletes beyond traditional narratives of femininity and restraint (Cooky & Messner, 2018).

In soccer, gender dynamics have historically favored male athletes, with men's leagues receiving the bulk of media coverage, sponsorship, and fan support. This disparity has led to vast differences in pay, with male players often earning far more than their female counterparts. The U.S. Women's National Soccer Team's legal fight for equal pay highlights the economic dimensions of these gender disparities. Research into this case shows that the lack of equitable investment has long-term impacts on the visibility and sustainability of women's sports, leading to fewer opportunities for female players (Brennan, 2020). Analyzing gender differences in soccer allows researchers and policymakers to address these economic barriers, paving the way for future policies that aim to balance pay scales and resource allocation (Macur, 2019).

Basketball also showcases distinct gendered differences, particularly in the structure of professional leagues and the associated financial rewards. The National Basketball Association (NBA) and Women's National Basketball Association (WNBA) present a stark contrast in terms of player salaries, sponsorships, and even audience engagement. Scholars like Cooky et al. (2015) emphasize that these disparities are not merely financial but rooted in deeper cultural biases that devalue women's sports, framing them as secondary or less entertaining than men's competitions. Research in this area seeks to understand the underlying cultural attitudes that shape such biases and aims to shift these perspectives by increasing media visibility and promoting female athletes as skilled competitors deserving of equal support (Billings et al., 2015).

Hockey, too, exemplifies gender-based disparities, particularly in access to facilities, coaching, and training resources. Women's hockey leagues, especially at the professional level, receive limited financial support and sponsorships compared to men's leagues, often forcing female players to balance careers outside of sports to support their passion. Studies indicate that this limited support constrains the growth of women's hockey and restricts its international reach (Boutilier & SanGiovanni, 1983). By studying gender differences in hockey, researchers highlight the necessity of financial and institutional backing for women's leagues to enable female athletes to reach their full potential and inspire new generations of athletes (Smith, 2020).

Exploring gender differences also reveals insights into the psychological and social challenges faced by female athletes. Research shows that women in sports often encounter body image pressures, stereotypes about femininity, and scrutiny over their dedication and skill, which affect their mental well-being and career trajectories (Krane et al., 2004). Female athletes in soccer, hockey, and basketball may experience unique stressors, such as media emphasis on appearance rather than performance, which can shape their identities and self-perception. Studying these factors allows sports psychologists and advocates to support mental health initiatives tailored to the specific needs of female athletes, fostering environments that prioritize both mental and physical wellness (Cosh & Tully, 2014).

From a physiological standpoint, studying gender differences in these sports provides valuable data on how male and female athletes may train differently, optimize performance, and manage physical demands. Research indicates that physiological characteristics can influence playing styles, endurance levels, and susceptibility to certain injuries, such

as ACL tears, which are more common among female athletes in soccer and basketball (Hewett et al., 2006). This area of study not only contributes to more effective, gender-sensitive training programs but also ensures that sports medicine and rehabilitation practices are appropriately tailored, thereby improving athlete safety and career longevity (Myer et al., 2011).

Additionally, analyzing gender dynamics in sports can have broader societal impacts by addressing representation issues and challenging existing norms. Studies show that girls' involvement in sports has positive effects on academic achievement, leadership skills, and self-esteem. When women's sports are underrepresented, young girls have fewer role models, potentially limiting their aspirations and engagement in athletics. By focusing on sports like soccer, hockey, and basketball—where visibility is high but gender gaps remain pronounced—research can advocate for increased media representation of female athletes, providing inspiration and promoting physical activity among young women (Sabo & Veliz, 2008).

Finally, examining gender dynamics in sports challenges traditional views about athletic capability and success, highlighting that women can excel in physically demanding sports traditionally dominated by men. The narratives and findings generated through research can be instrumental in reshaping cultural perceptions of femininity and athleticism, encouraging more inclusive practices and expectations across all sports (Hargreaves, 1994). Through these shifts, gender-based research continues to drive progress, enabling sports to serve as a more equal and inclusive platform for all athletes.

1.3. Research Question

- What are the perceived physical performance differences between male and female athletes in hockey, soccer, and basketball?
- How do psychological pressures and social factors affect male and female athletes differently in hockey, soccer, and basketball?
- What are the key perceptions regarding the areas where gender differences in sports performance are most noticeable in hockey, soccer, and basketball?
- What strategies do athletes believe are most effective in minimizing gender differences in sports performance in hockey, soccer, and basketball?

2. Literature Review

2.1. Gender Differences in Sports Performance: Physiological, Psychological, and Skill-Based Analysis

The study of gender differences in sports performance spans physiological, psychological, and skill-based perspectives, each providing a nuanced understanding of how men and women may perform differently. Physiologically, men and women display inherent differences that influence sports performance. Studies indicate that men generally possess higher levels of muscle mass and bone density, which contribute to greater strength and endurance capabilities in many sports, including soccer, hockey, and basketball (Santos Silva et al., 2013). Conversely, women's greater flexibility and aerobic efficiency often translate to different strategic advantages, such as enhanced endurance in long-duration activities (Nindl et al., 2000).

In terms of muscle fiber composition, research highlights that men typically have a higher percentage of fast-twitch muscle fibers, beneficial for explosive movements, whereas women tend to have more slow-twitch fibers, which aid in endurance activities (Costill et al., 1976). This divergence may explain gender-specific athletic strategies observed in sports where men often emphasize strength and speed, while women demonstrate a sustained focus on endurance and tactical skill (Janssen et al., 2000). Such findings suggest that physiological adaptations should be considered when developing training regimens for male and female athletes, particularly in sports that demand both endurance and strength.

Psychological factors also contribute significantly to gender-based performance disparities. Several studies note that men often exhibit higher levels of competitive aggression and risk-taking behaviors, while women typically approach sports with a more collaborative and strategic mindset (Messner, 2002). These psychological tendencies influence playing style; for instance, men in contact sports like hockey may be more inclined toward aggressive tactics, while women may prioritize team cohesion and communication. Moreover, self-perception and self-efficacy impact performance, with studies suggesting that societal stereotypes around gender and athleticism can affect female athletes' confidence levels, potentially limiting their on-field assertiveness (Eagly & Wood, 1991; Cuddy et al., 2015).

Skill-based differences are another area of interest, as researchers explore how men and women develop sport-specific skills. Soccer, for example, requires advanced motor skills and spatial awareness. Studies show that, although male players tend to score higher in speed and power metrics, female players often demonstrate superior accuracy and consistency in passing and ball control (Williams & Reilly, 2000). These distinctions highlight that while men may perform better in explosive actions, women's technical precision and playmaking abilities contribute to their strategic advantage in team sports.

2.1.1. Previous Studies Across Various Sports

Research comparing gender performance across different sports yields insights that underscore both commonalities and distinctions across disciplines. Studies examining soccer have revealed that male players generally possess a higher running intensity and cover more ground during matches, largely due to physical attributes like increased aerobic capacity and lower body fat percentage. However, women's soccer matches often show higher rates of ball control and tactical execution, underscoring different approaches to gameplay (Vescovi & Frayne, 2015). This research has influenced training methodologies, leading coaches to tailor strategies that leverage female athletes' strengths in technical skills and teamwork (Andersen et al., 2004).

In basketball, research reveals that men's and women's teams display notable differences in scoring patterns, with men's games often characterized by faster-paced, high-scoring offenses, while women's games place a stronger emphasis on defense and ball distribution (Ramos et al., 2021). Studies attribute these differences partly to physical factors but also highlight the role of coaching strategies that historically align with gender-based playing styles. Such differences underscore the importance of adaptive coaching methods that recognize the unique strengths of male and female athletes in team coordination, shooting efficiency, and defensive tactics (Kalinowski et al., 2016).

Hockey studies provide a similar perspective, indicating that men's teams are generally more aggressive in their physical play, while women's teams prioritize strategic positioning and puck control. The physiological factors supporting this, such as men's typically larger body size and greater upper-body strength, contribute to the higher frequency of physical checks in men's games (Schneider et al., 2020). Women's hockey, on the other hand, often emphasizes skillful maneuvering and coordinated team play, reflecting a different approach to success on the ice that focuses on tactical superiority rather than physical dominance.

Overall, the body of literature underscores the multifaceted nature of gender differences in sports. By understanding these distinctions, coaches, trainers, and policymakers can develop strategies and policies that support equitable access to training resources, foster confidence among female athletes, and enhance the quality of competitive play across genders. The insights from these studies collectively advocate for sports frameworks that respect and amplify gender-specific strengths, leading to a more inclusive and dynamic sports culture.

2.2. Soccer, Hockey, and Basketball as Gendered Sports

2.2.1. Overview of Gender Participation Trends in Each Sport

Gender participation trends in soccer, hockey, and basketball illustrate how social and structural factors shape who plays and supports these sports. Soccer, for instance, enjoys worldwide popularity among both men and women, yet gender disparities persist in resources, media coverage, and pay. Despite these gaps, women's participation in soccer has surged, notably in the United States, where Title IX legislation spurred an increase in female sports participation since the 1970s (Hogshead-Makar & Zimbalist, 2007). In recent decades, the growth of women's soccer leagues and the success of national teams, such as the U.S. Women's National Team, have challenged traditional views on soccer as a male-dominated sport (Cooky et al., 2015).

Hockey presents a more segmented gender divide, with men's leagues traditionally receiving the most attention and financial backing. Women's hockey has struggled to gain equivalent visibility, particularly at the professional level, where leagues often operate with limited sponsorship and support. Research indicates that while men's hockey emphasizes physicality and aggression, women's hockey highlights skillful maneuvers and strategic plays (Schneider et al., 2020). This disparity reflects broader trends in gendered sports participation, where societal expectations and structural inequalities influence how men and women engage in and are perceived within specific sports.

Basketball showcases similar trends in gendered participation. The NBA and WNBA differ starkly in terms of salary structures, media exposure, and global reach. Men's basketball often receives far more attention, leading to greater sponsorship deals, larger fan bases, and significantly higher pay (LaVoi & Kane, 2011). The WNBA, while showcasing immense talent, has historically faced financial and structural challenges that limit its reach. Scholars argue that these

challenges reflect cultural biases that undervalue women's sports, positioning them as secondary to men's leagues despite comparable skill levels and commitment (Messner, 2002; Cuddy et al., 2015). However, recent efforts to improve visibility and pay equity in women's basketball signal a shift toward greater inclusion, though significant disparities remain.

2.2.2. Historical and Social Influences on Gender Roles in These Sports

The historical and social context of soccer, hockey, and basketball as gendered sports reveals how traditional gender roles and expectations have influenced participation and perception. In soccer, the roots of male dominance trace back to early organized leagues, primarily male-exclusive, with women's participation seen as unconventional or even inappropriate (Williams, 2003). Social perceptions of femininity historically positioned women as less suited for physically demanding sports, which contributed to the limited support and recognition of women's soccer. Nonetheless, shifts in gender norms, coupled with legislative support like Title IX, have fostered growth in female soccer participation, challenging traditional views on women's capabilities in sports (Hargreaves, 1994).

Hockey, meanwhile, has long been regarded as a "masculine" sport due to its physicality and aggressive style. The emphasis on strength and contact in men's hockey reinforced gendered perceptions that positioned the sport as less appropriate for women (Smith & Wrynn, 2010). However, as women's hockey gained traction, particularly in countries like Canada and the U.S., the sport began to redefine itself by emphasizing skill and finesse, demonstrating that women could excel despite societal expectations. Women's involvement in Olympic and collegiate hockey has contributed to shifting gender roles in the sport, though the perception of hockey as a male-dominated sport persists, in part due to disparities in professional opportunities and media representation (Weaving & Roberts, 2012).

Basketball's gendered history reflects similar patterns, with men's leagues like the NBA setting standards that initially overshadowed women's involvement. The establishment of the WNBA in 1996 represented a significant step toward gender inclusivity in professional basketball, yet gender biases continue to influence public perceptions and media coverage. Studies suggest that traditional masculinity ideals dominate men's basketball, while women's basketball often faces stereotypes of being less athletic or intense, despite empirical evidence of high skill and athleticism among WNBA players (Fink, 2015). Social expectations regarding gender roles have therefore shaped basketball's development, influencing both the economic structures of men's and women's leagues and the broader cultural narratives around gender and athleticism.

The historical trajectory of soccer, hockey, and basketball highlights how entrenched social norms around gender have defined participation and development in these sports. Recent advocacy and policy changes underscore an ongoing shift toward more inclusive practices, yet these changes are slow and incremental. Gendered norms continue to influence both institutional support and public perceptions, suggesting the need for continued research and activism to foster equality in sports.

2.3. Societal and Cultural Perceptions of Gender in Sports

2.3.1. Media Representation and Public Perception

Media representation significantly shapes public perception of gender in sports, often reinforcing stereotypes and biases that impact how male and female athletes are viewed. Male athletes, particularly in sports like soccer, basketball, and hockey, receive extensive coverage that emphasizes their athleticism, strength, and skill. In contrast, female athletes tend to receive less media attention, and when they are covered, the focus frequently shifts to their personal lives, appearance, or femininity rather than athletic performance (Messner et al., 2010). A content analysis of sports coverage found that only about 4% of sports media coverage goes to women's sports, a disparity that sustains the perception that men's sports are more significant and competitive (Cooky et al., 2015).

The language used in media also differs significantly between male and female athletes. Research shows that male athletes are often described using terms like "powerful" and "aggressive," while female athletes are more frequently portrayed as "graceful" or "beautiful," diminishing their athletic prowess (Billings & Angelini, 2007). Such language perpetuates stereotypes, positioning male athletes as natural competitors and women as participants who must balance athleticism with traditional femininity. This trend not only reinforces restrictive gender norms but also impacts the visibility and sponsorship opportunities for female athletes, who struggle to secure financial backing and brand endorsements compared to their male counterparts (Kane et al., 2013).

2.3.2. Impact of Gender Stereotypes and Biases

Gender stereotypes in sports have long-lasting impacts, from influencing young athletes' self-perceptions to shaping policy decisions in sports organizations. For instance, traditional stereotypes suggest that men are better suited for competitive and physically demanding sports, while women are often steered toward activities considered less aggressive, such as gymnastics or figure skating (Bem & Lenney, 1976). This early socialization impacts self-efficacy, with studies indicating that girls and women who internalize these stereotypes are less likely to pursue high-performance sports (Chalabaev et al., 2013).

Moreover, societal biases have impacted opportunities for women in coaching and leadership within sports organizations. Men overwhelmingly occupy leadership roles, reinforcing the stereotype that men are better suited for authoritative positions within sports. In the WNBA, for instance, over 70% of head coaches are men, while only a fraction of women hold equivalent positions in the NBA (Lapchick, 2020). This leadership gap reflects broader biases that perceive men as more competent or authoritative in sports contexts, which can discourage women from aspiring to coaching or administrative roles. Implicit biases against female athletes affect their perceived value and legitimacy as professional competitors. Studies reveal that fans often undervalue women's sports, viewing them as less competitive or exciting than men's leagues, a perception fueled by limited media exposure and gendered stereotypes. The stereotype that men are inherently better athletes perpetuates a "gender hierarchy" within sports, positioning men's leagues as the primary spectacle while marginalizing women's sports as secondary (Fink, 2015). This perception shapes attendance rates, sponsorship deals, and the financial viability of women's sports leagues, ultimately limiting female athletes' access to resources and opportunities for professional growth.

Cultural attitudes also shape how female athletes' successes are celebrated or criticized. Successful female athletes frequently encounter scrutiny regarding their physical appearance, with media and fans focusing on their adherence to beauty standards, which detracts from their athletic achievements (Kane, 2013). This scrutiny can be seen in how female athletes who display traditionally "masculine" characteristics, such as muscular builds or assertive personalities, often face negative feedback. Such reactions reflect a cultural discomfort with women who challenge conventional gender norms, suggesting that athletic success can only be accepted if it aligns with socially acceptable femininity (Pfister, 2010).

Overall, societal and cultural perceptions of gender in sports, amplified through media representation and entrenched stereotypes, sustain barriers to full equality in sports. Addressing these issues requires transformative changes in media practices, organizational leadership, and societal attitudes to recognize and value women's athletic achievements on par with those of men.

2.4. Gender Equality and Policies in Sports

2.4.1. Examination of Policies, Gender Equity Initiatives, and Regulations

Efforts to promote gender equality in sports have increasingly been supported by policies and initiatives aimed at reducing disparities between male and female athletes. One prominent example is Title IX in the United States, which mandates equal opportunities in sports for men and women in educational institutions receiving federal funding. Enacted in 1972, Title IX has been instrumental in increasing female participation in sports, which surged from fewer than 300,000 female high school athletes in 1972 to over 3 million by 2020 (Hogshead-Makar & Zimbalist, 2007). This legislation is one of the most effective gender equity policies globally, serving as a model for other nations attempting to rectify gender imbalances in sports.

Similarly, initiatives by international sports organizations have fostered gender equity through various policies and funding allocations. The International Olympic Committee (IOC) established a Gender Equality Review Project to monitor and improve gender representation in the Olympics, both for athletes and administrators. The IOC's commitment to gender parity led to the inclusion of more women's events and the adjustment of qualifications to support balanced participation. Moreover, their pledge for gender-equal Olympic Games by 2024 underscores the global shift toward equitable representation (IOC, 2018).

2.4.2. Role of Organizations like FIFA, NBA, CAF, and the International Ice Hockey Federation

Sports organizations like FIFA, the NBA, CAF, and the International Ice Hockey Federation (IIHF) play crucial roles in addressing gender disparities and promoting equitable policies. FIFA, for instance, has implemented policies to increase visibility and funding for women's soccer, such as introducing dedicated Women's World Cup tournaments and supporting grassroots programs in developing countries. However, FIFA has faced criticism for the wage gap between male and female World Cup players, which remains substantial despite the increased promotion of women's soccer (Knoppers & Anthonissen, 2020).

In basketball, the NBA has supported initiatives to promote the Women's National Basketball Association (WNBA) and increase its visibility. Efforts such as expanding media coverage, increasing player salaries, and implementing marketing campaigns have helped boost the WNBA's popularity and challenge stereotypes that devalue women's basketball (LaVoi & Kane, 2011). Despite this progress, disparities in pay and sponsorship persist, signaling a need for further policy interventions. The NBA's involvement in advocating for gender equity in basketball exemplifies the role major sports leagues can play in addressing gender-based disparities within their governance structures.

CAF, overseeing soccer in Africa, has also introduced gender equity programs aimed at elevating women's soccer across the continent. Through initiatives such as the Women's Champions League, CAF aims to create competitive platforms for female athletes, though challenges persist in securing adequate funding and resources. CAF's efforts highlight the unique obstacles faced by women's sports in regions with limited sports infrastructure, suggesting that policy alone may be insufficient without adequate financial and administrative support (Kidd & Donnelly, 2000).

The IIHF has made similar strides to foster gender equality in hockey. Through programs encouraging young girls to participate in hockey and offering funding for women's leagues, the IIHF has broadened opportunities for female athletes. However, structural challenges remain, as women's hockey continues to receive less media attention and sponsorship than men's leagues, despite these policies. The IIHF's initiatives highlight the role of governing bodies in not only promoting participation but also addressing structural inequities that affect the sustainability of women's sports (Schneider et al., 2020).

3. Methodology

The study adopted a descriptive survey design to explore gender differences in sports performance across hockey, soccer, and basketball. A purposive sampling technique was used to select 120 respondents from athletes in Lagos, Ogun and Oyo state representing the south west part of Nigeria and ensuring a balanced representation of male and female athletes actively involved in these sports. This sampling approach allowed for targeted data collection from individuals with relevant experience in sports performance. The data collection instrument was a structured questionnaire designed to capture respondents' perspectives on physical performance, psychological and social factors, perceptions of gender differences, and effective strategies for minimizing these disparities. The questionnaire consisted of closed-ended questions rated on a four-point Likert scale (Strongly Disagree, Disagree, Agree, Strongly Agree), enabling the quantification of attitudes and perceptions. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to summarize the data, while inferential techniques were applied to assess the significance of observed differences across genders and sports. The structured methodology ensured comprehensive and reliable data collection, offering valuable insights into the multifaceted nature of gender disparities in sports.

4. Results and discussion

4.1. Distribution of Respondent Demographic Data

The demographic data reveal a diverse and balanced sample of respondents. The majority (35.8%) are aged between 21–40 years, representing the prime athletic years for physical performance, followed by younger participants aged 0–20 years (22.5%) and smaller proportions in older age groups. Gender distribution is nearly equal, with 52.5% male and 47.5% female respondents, ensuring balanced representation for analyzing gender differences in sports. Regarding educational background, most respondents are highly educated, with 32.5% holding a Master's degree, 30% having a Bachelor's degree, and smaller percentages possessing SSCE (17.5%) or professional certifications (20%). The sample covers three main sports: hockey (35%), soccer (25.8%), and basketball (15%), with a slight duplication in hockey data (24.2%). Experience in sports varies, with the largest group having 4–10 years (35%) of involvement, followed by those with 3 years or below (22.5%) and those with over 30 years (21.7%), highlighting a mix of seasoned and newer athletes. This demographic profile provides a robust foundation for analyzing the research questions.

Table 1 Summary of Respondents Demographic Data

Variables	Sub-variables	Frequency	Percentage %
Age	0 - 20 Years	27	22.5%
	21 - 40 Years	43	35.8%
	41 - 60 Years	23	19.2%
	61 and above	17	14.2%
	Total	120	100.0
Gender	Male	63	52.5%
	Female	57	47.5%
	Total	120	100.0
Educational Level	SSCE	21	17.5%
	Bachelor	36	30%
	Master	39	32.5%
	Professional	24	20%
	Total	120	100.0
Sport	Hockey	42	35%
	Soccer	31	25.8%
	Basketball	18	15%
	Hockey	29	24.2%
	Total	120	100.0
Years of Experience in Your Sport			
	3 Years & Below	27	22.5%
	4 - 10 Years	42	35%
	11 - 30 Years	25	20.8%
	31 Years & Above	26	21.7%
Total	120	100.0	

Source: Researcher Field Survey,2024

4.2. Analyses of Research Question

Research Question 1: What are the perceived physical performance differences between male and female athletes in hockey, soccer, and basketball?

Table 2 The perceived physical performance differences between male and female athletes in hockey, soccer, and basketball

Items	SD	D	A	SA	Mean	Std. Dev.	Remark
Female athletes demonstrate equal or superior endurance compared to male athletes in my sport.	18	29	83	73	3.21	0.84	Sig
Female athletes demonstrate equal or superior endurance compared to male athletes in my sport.	14	23	87	71	3.25	0.79	Sig

Skill execution, such as accuracy and technique, is not significantly influenced by gender in my sport.	11	36	68	86	3.34	0.82	Sig
Gender differences in speed are noticeable in competitive scenarios in my sport.	27	39	77	62	3.02	0.88	Sig
Physical training programs should be tailored to address gender-specific strengths and challenges in my sport.	31	42	66	58	2.92	0.93	Sig
Male athletes generally have a physical advantage in strength and power over female athletes in my sport.	19	34	88	63	3.15	0.87	Sig
Female athletes demonstrate equal or superior endurance compared to male athletes in my sport.	24	31	82	67	3.16	0.85	Sig
Skill execution, such as accuracy and technique, is not significantly influenced by gender in my sport.	33	47	57	52	2.78	0.96	Sig
Gender differences in speed are noticeable in competitive scenarios in my sport.	22	28	78	73	3.18	0.85	Sig
Physical training programs should be tailored to address gender-specific strengths and challenges in my sport.	16	27	83	79	3.29	0.81	Sig

The results indicate significant perceptions of physical performance differences between male and female athletes. A majority of respondents agreed or strongly agreed that female athletes demonstrate equal or superior endurance compared to males, with a mean score of 3.21 and a standard deviation of 0.84, indicating strong agreement. Similarly, skill execution, such as accuracy and technique, was not seen as significantly influenced by gender, as reflected in the high mean score of 3.34 (Std. Dev. 0.82). However, gender differences in speed were noticeable in competitive scenarios, supported by a mean of 3.02 (Std. Dev. 0.88). Respondents also acknowledged that physical training programs should be tailored to address gender-specific strengths and challenges, with a mean of 3.29 (Std. Dev. 0.81). Finally, male athletes were perceived to have a physical advantage in strength and power, with a mean score of 3.15 (Std. Dev. 0.87). These findings highlight a nuanced view of gender differences, where certain attributes like endurance and skill execution are seen as gender-neutral, while strength and speed differences are acknowledged.

Research Question 2: How do psychological pressures and social factors affect male and female athletes differently in hockey, soccer, and basketball?

Table 3 The Psychological pressures and social factors affect male and female athletes differently in hockey, soccer, and basketball

Items	SD	D	A	SA	Mean	Std. Dev.	Remark
Male athletes are more frequently expected to excel and lead in my sport compared to female athletes.	21	28	77	69	3.14	0.85	Sig
Female athletes face greater scrutiny regarding their physical appearance than male athletes in my sport.	30	35	72	58	3.05	0.90	Sig
Pressure to perform well because of gender is a common experience for athletes in my sport.	19	26	84	66	3.18	0.83	Sig

Coaches and trainers tend to have different expectations for male and female athletes in my sport.	17	39	75	64	3.11	0.88	Sig
Male athletes are encouraged to take more risks and aggressive actions in my sport compared to female athletes.	14	33	81	67	3.20	0.81	Sig
Social stereotypes influence how male and female athletes are perceived in terms of their abilities in my sport.	25	30	80	60	3.09	0.86	Sig
Female athletes are often underestimated in terms of their physical and mental toughness in my sport.	23	37	73	62	3.08	0.89	Sig
Male athletes receive more support and recognition from fans and sponsors in my sport.	20	29	85	61	3.16	0.84	Sig
Gender-related pressure negatively affects the mental health of athletes in my sport.	28	34	70	63	3.04	0.91	Sig
Mixed-gender training environments help reduce psychological and social disparities in my sport.	21	28	77	69	3.14	0.85	Sig

The table reveals notable psychological and social disparities affecting male and female athletes. Respondents largely agreed that male athletes are more frequently expected to excel and lead in their sport, with a mean of **3.14** (Std. Dev. **0.85**). Female athletes were perceived to face greater scrutiny regarding physical appearance, supported by a mean of **3.05** (Std. Dev. **0.90**). Gender-based pressure to perform well was seen as common, with a mean score of **3.18** (Std. Dev. **0.83**), while coaches and trainers were reported to have different expectations for male and female athletes (mean **3.11**, Std. Dev. **0.88**). Male athletes were also noted to be encouraged to take more risks and display aggressive actions (mean **3.20**, Std. Dev. **0.81**). Social stereotypes influencing perceptions of abilities, as well as underestimation of female athletes' toughness, were widely recognized (means of **3.09** and **3.08**, respectively). Gender-related pressures were perceived to negatively affect athletes' mental health (mean **3.04**, Std. Dev. **0.91**), and mixed-gender training environments were considered helpful in reducing disparities (mean **3.14**, Std. Dev. **0.85**). These results underline the significant role of social and psychological factors in shaping the athletic experience across genders.

Research Question 3: What are the key perceptions regarding the areas where gender differences in sports performance are most noticeable in hockey, soccer, and basketball?

Table 4 The key perceptions regarding the areas where gender differences in sports performance are most noticeable in hockey, soccer, and basketball?

Items	SD	D	A	SA	Mean	Std. Dev.	Remark
Strength differences between male and female athletes are widely recognized in my sport.	19	26	78	72	3.20	0.84	Sig
Endurance is perceived as an area where male and female athletes differ in my sport.	22	30	81	62	3.12	0.87	Sig
Male athletes are believed to have an advantage in speed compared to female athletes in my sport.	15	31	85	64	3.19	0.83	Sig
Technical skills, such as ball control or shooting accuracy, show fewer noticeable gender differences in my sport.	21	29	79	66	3.17	0.85	Sig

Physical toughness is often viewed as stronger in male athletes than in female athletes in my sport.	18	25	83	69	3.22	0.82	Sig
Mental resilience is perceived as equally strong in both male and female athletes in my sport.	20	33	77	65	3.15	0.88	Sig
Gender differences in agility and quickness are less emphasized in my sport.	23	27	82	63	3.10	0.86	Sig
The ability to perform under pressure is considered a strength for both genders in my sport.	17	28	86	64	3.18	0.84	Sig
The public often exaggerates the differences in athletic ability between male and female athletes in my sport.	24	32	74	65	3.08	0.90	Sig
Perceived differences in performance are influenced by stereotypes rather than actual abilities in my sport.	21	31	80	69	3.16	0.87	Sig

Respondents identified several key areas where gender differences in performance are most noticeable. Strength differences between male and female athletes were widely recognized, with a mean score of 3.20 (Std. Dev. 0.84), while endurance differences were also acknowledged (mean 3.12, Std. Dev. 0.87). Male athletes were perceived to have an advantage in speed, supported by a mean of 3.19 (Std. Dev. 0.83). Technical skills such as ball control or shooting accuracy were seen as less affected by gender, with a mean of 3.17 (Std. Dev. 0.85), while physical toughness was viewed as stronger in males (mean 3.22, Std. Dev. 0.82). Mental resilience, however, was perceived as equally strong in both genders (mean 3.15, Std. Dev. 0.88). Gender differences in agility and quickness were less emphasized (mean 3.10, Std. Dev. 0.86), and the ability to perform under pressure was recognized as a strength for both genders (mean 3.18, Std. Dev. 0.84). Finally, stereotypes and public exaggerations were noted to influence perceptions, with respective mean scores of 3.16 and 3.08. These findings suggest that while physical attributes like strength and speed are seen as gendered, technical and mental aspects are perceived as more balanced.

Research Question 4 What strategies do athletes believe are most effective in minimizing gender differences in sports performance in hockey, soccer, and basketball?

Table 5 Strategies do athletes believe are most effective in minimizing gender differences in sports performance in hockey, soccer, and basketball

Items	SD	D	A	SA	Mean	Std. Dev.	Remark
Providing equal access to high-quality training programs can help minimize gender differences in my sport.	16	30	74	71	3.17	0.85	Sig
Ensuring equal opportunities for competition at all levels can reduce gender-based performance disparities in my sport.	22	27	79	63	3.12	0.88	Sig
Encouraging mixed-gender training sessions can help bridge the performance gap between male and female athletes in my sport.	19	29	81	62	3.11	0.87	Sig
promoting equal access to sports facilities and resources is essential for reducing gender differences in my sport.	20	28	78	66	3.14	0.84	Sig
Focusing on individual skill development rather than gender-based expectations can	18	31	75	68	3.17	0.86	Sig

help minimize performance differences in my sport.							
Addressing stereotypes about gender and athletic performance can improve equality in my sport.	21	33	72	66	3.13	0.89	Sig
Hiring coaches trained in gender-sensitive approaches can reduce performance disparities in my sport.	23	24	80	65	3.12	0.91	Sig
Providing targeted strength and conditioning programs for female athletes can help close performance gaps in my sport.	17	32	77	66	3.15	0.85	Sig
Ensuring fair media representation and recognition of male and female athletes can contribute to reducing gender differences in my sport.	22	30	74	66	3.13	0.87	Sig
Promoting mentorship programs where experienced athletes guide younger athletes of all genders can foster equality in my sport.	19	28	79	67	3.15	0.86	Sig

Respondents strongly supported several strategies for minimizing gender differences in sports performance. Equal access to high-quality training programs was considered crucial, with a mean score of 3.17 (Std. Dev. 0.85), alongside ensuring equal opportunities for competition at all levels (mean 3.12, Std. Dev. 0.88). Encouraging mixed-gender training sessions was also viewed as beneficial (mean 3.11, Std. Dev. 0.87), as was promoting equal access to sports facilities and resources (mean 3.14, Std. Dev. 0.84). Respondents emphasized the need to focus on individual skill development rather than gender-based expectations (mean 3.17, Std. Dev. 0.86) and to address stereotypes about gender and athletic performance (mean 3.13, Std. Dev. 0.89). Hiring coaches trained in gender-sensitive approaches (mean 3.12, Std. Dev. 0.91) and providing targeted strength and conditioning programs for female athletes (mean 3.15, Std. Dev. 0.85) were also considered effective strategies. Ensuring fair media representation and fostering mentorship programs were highlighted with respective mean scores of 3.13 and 3.15. These findings reflect a consensus on actionable strategies that can foster equity and minimize performance disparities in sports.

5. Discussion of Findings

The findings of this study reveal gender differences in sports performance between male and female athletes, as well as the strategies deemed effective for minimizing these disparities. In terms of physical performance, female athletes were recognized for their endurance, reflecting Nindl et al. (2000), who noted women's physiological advantage in aerobic efficiency and long-duration activities. On the other hand, male athletes were perceived to have an advantage in strength and speed, which aligns with Santos Silva et al. (2013), who highlighted the role of muscle mass and fast-twitch muscle fibers in male athletic dominance in power-based activities. Interestingly, skill execution, such as accuracy and technique, was perceived as less influenced by gender, echoing the findings of Williams and Reilly (2000), who argued that these attributes are more dependent on training and individual development than on innate physical characteristics.

The study also highlights significant psychological and social pressures faced by athletes. Male athletes were seen as being under greater pressure to lead and excel, a reflection of traditional gender roles described by Messner (2002), who explored how sports culture often positions men as dominant leaders. Female athletes, however, were reported to face greater scrutiny regarding their physical appearance, supporting Krane et al. (2004), who emphasized the societal expectation for women to balance athleticism with femininity. Gender-based performance pressures, along with differing expectations from coaches and trainers, further highlight systemic disparities. This finding corresponds to Eagly and Wood's (1991) exploration of how societal gender roles shape perceptions and behavior. Mixed-gender training environments were perceived as a potential strategy to reduce these disparities, aligning with Cooky and Dworkin (2013), who advocated for inclusive practices to challenge stereotypes and promote equity.

When examining perceptions of performance differences, strength and speed were widely seen as areas where male athletes have an advantage, consistent with Costill et al. (1976), who underscored the physiological basis for these

attributes. However, technical skills such as ball control and shooting accuracy were seen as more gender-neutral, reflecting Ramos and Olivares (2021), who noted the strategic and skill-based strengths of female athletes in basketball. Mental resilience, perceived as equally strong across genders, challenges traditional stereotypes, aligning with Chalabaev et al. (2013), who argued that psychological attributes are shaped by experience and training rather than inherent traits. Additionally, respondents recognized the influence of stereotypes and media exaggerations on perceptions of gender differences, supporting Cooky et al. (2015), who highlighted the media's role in perpetuating gender biases.

Finally, respondents identified a range of strategies for minimizing gender disparities in sports performance. Equal access to training programs, facilities, and competition opportunities was widely supported, reflecting the arguments of Adriaanse and Claringbould (2016), who emphasized the importance of structural equity in addressing gender disparities. Addressing stereotypes, focusing on individual skill development, and promoting mentorship programs were also highlighted as critical strategies, aligning with Chalabaev et al. (2013) and Fink (2015), who advocated for dismantling societal biases and supporting athletes based on their abilities rather than gender. Providing targeted strength and conditioning programs for female athletes, as suggested by Myer et al. (2011), was viewed as an effective approach to bridging physical performance gaps.

Overall, findings of this study underscore the multifaceted nature of gender disparities in sports performance. While biological differences influence specific aspects of physical performance, many disparities are perpetuated by social, cultural, and systemic factors. Addressing these issues requires a combination of equitable resource allocation, inclusive training practices, and efforts to challenge stereotypes, ultimately fostering a more level playing field for athletes of all genders.

6. Conclusion

This study highlights the gender differences in sports performance across hockey, soccer, and basketball, emphasizing on the biological, psychological, and social factors. Findings reveal that while male athletes are perceived to have physical advantages in strength and speed due to physiological characteristics, female athletes are recognized for their endurance and technical skills, challenging traditional stereotypes about gendered athletic abilities. Furthermore, mental resilience and skill execution were seen as gender-neutral traits, suggesting that attributes like precision and strategic thinking are influenced more by training and experience than by inherent gender differences. These perceptions underscore the need to consider both individual capabilities and societal influences when evaluating athletic performance.

The study also reveals that psychological pressures and social factors significantly impact the experiences of athletes, with male athletes facing expectations to lead and excel, while female athletes contend with greater scrutiny of their appearance and societal biases about their abilities. These disparities reflect deep-seated gender roles in sports, which continue to influence coaching practices, media representation, and public perceptions. Strategies such as mixed-gender training environments and gender-sensitive coaching were recognized as valuable for reducing these inequities. The findings support the argument that social and psychological barriers are just as critical as physical differences in shaping gender disparities in sports.

To minimize these disparities and foster inclusivity, it is essential to implement systemic changes, such as equitable resource allocation, targeted strength training for female athletes, and increased media representation of women's sports. Addressing stereotypes and promoting mentorship programs can further support the development of athletes regardless of gender. By acknowledging and addressing the multifaceted nature of gender disparities in sports, stakeholders can create an environment where athletes are evaluated based on their abilities, fostering a more equitable and inclusive sports culture.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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