

Understanding the Gender Gap in Sports through a socio-environmental lens. “To what extent can socio-environmental factors be attributed to the differences in participation in competitive sports between the two genders?”

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ABSTRACT

The issue of low levels of women’s participation in the sports has always been a key global issue. The discipline of sport psychology allows for a psychological interpretation of reasons to why this is the unfortunate case. The main focus in sport psychology lies upon the concepts of gender stereotyping. This research paper will explore the *socio-environmental approach*: through gender schema and parental involvement; and the *biological approach*: through the understanding of various concepts regarding hormones and evolution. Both these approaches help explain why this difference of participation levels exist between the two biological genders.

Introduction

“People would say, ‘Girls don’t play hockey. Girls don’t skate.’ I would say, ‘Watch this.’” Quoted by Canadian ice hockey player Hayley Wickenheiser, who was judged by people for playing the sport she did, due to **gender stereotyping**. Gender stereotypes refer to descriptive beliefs, such as, ‘*men participate more in sport than women*’, and are assumed to affect how individuals behave and view themselves (Eagly & Karau, 2002). Gender differences exist in many domains, a major one relates to the unequal participation levels between men and women in competitive sports. While 74% of men engage in competitive sports at least once a week, only 55% of women do so (European Commission, 2014). Such statistics are seen cross-culturally (e.g., USA, Hardin & Greer, 2009; Metheny, 1965), emphasising a key social problem. The consequences of the unequal participation levels between the genders are diabolical for women where gender stereotyping could result in gender stereotyping and offer fewer opportunities for talented female athletes to excel in these fields, have good health and well-being (Benefits - Why Sports Participation for Girls and Women). Since good health and well-being are Goal 3 of the United Nations Sustainable Development Goals- 2030, solutions to these differences in participation levels ought to be achieved.

Both historically (Matteo, 1986; Messner, 1988, 1990; Pedersen & Kono, 1990; Snyder & Spreitzer, 1983) and concurrently (Wood & Eagly, 2012; Van Tuyckom & Bracke 2010; Clément-Guillotin & Fontayne, 2012), sports has predominantly been a male-dominated field. As such, women’s participation in sports is often viewed as "a woman in man's territory" (Birrel, 1983, p. 49). Sports would traditionally get categorized as masculine, feminine or neutral through gender appropriateness. This categorization influences the choice of physical activities, such as competitive sports (e.g., Colley, Roberts, & Chipps, 1985; Engel, 1994; Matteo, 1988). *Competitive sport* is an organized activity in which individuals or teams compete to win based on set procedures and rules, (Chick, 1984; Roberts, Arth, & Bush, 1959) with a high requirement of physical strength and skill (Deaner & Smith, 2013; Guttman, 2004). This definition,

therefore, excludes recreational sports (e.g., exercise), games of chance (e.g., crosswords), and strategic games that depend on mental skills (e.g., chess).

Socio-environmental factors, such as gender schema and parental involvement, could help explain the differences in competitive sports participation levels between the genders. However, other factors could have significance in exploring this topic. The identification of these factors might allow researchers to find solutions to this problem affecting women all over the world. Henceforth, this essay explores the research question: *'To what extent can socio-environmental factors be attributed to the differences in participation in competitive sports between the two genders?'*

This essay will examine the differences in participation levels between the two genders through socio-environmental and biological explanations. Studies on gender schema (Koivula et al., 1995; Matteo et al., 1988), and parental involvement (Fredricks and Eccles, 2005; Brustad et al., 1993) will be explored to understand the socio-environmental approach. In order to conclude the extent to which gender schema influences participation in sport, biological explanations of hormones (Stanton and Schultheiss, 2009; Giuliano, Popp & Knight, 2012) and evolutionary arguments (Deaner et al., 2012; Apostolu et al., 2014) will be evaluated in this essay.

Two models referred to as the Bem Sex Role Inventory (BSRI) (Bem et al., 1974) and the Expectancy Value Model (Eccles et al., 1983) explore the socio-environmental explanation of the topic. The BSRI has four possible gender identities: *"individuals are masculine when they endorse masculine characteristics, feminine when they adopt feminine characteristics, androgynous when they endorse both, and undifferentiated when they adopt neither of these characteristics"* (Bem, 1974, p.155-162). The BSRI therefore helps in investigating whether female sport-participation is considered more masculine or androgynous (Clément-Guillotin & Fontayne, 2011). Another factor that could cause unequal participation levels between the genders is the socializing influence of parents. Parental involvement is a significant source of reinforcement, as parents serve as role models, and supporters in participation in sports (Anderssen & Wold, 1992). Parent socialization could decide children's behaviour through the competence values using the Eccles Expectancy Value Model (Eccles et al., 1983).

Although researchers such as (Eagly et al., 1995) predict only a 5% difference in physical capabilities between females and males, biological explanations should however be considered. This is because sex differences are important psychological determinants of participation: boys are generally more motivated than girls to participate in sports because of hormones (Stanton and Schultheiss, 2009; Giuliano, Popp & Knight, 2012) and due to evolution (Deaner et al., 2012; Apostolu et al., 2014). **While sex refers to the biological differences, gender refers to the differences in behaviour between males and females.**

This paper will argue that although the socio-environmental factors explain the participation level differences between men and women to a great extent, the biological factors, such as both hormone secretion and evolutionary explanations play a role as well.

Review of literature:

The socio-environmental explanations:

i. Gender schema: Gender schema refers to the organized set of gender-related beliefs that have an influence on behaviour (Bem, 1974, p. 354-364). Gender schemas may cause gender stereotyping, which can result in individuals to orient their behaviors on the basis of male and female defined by their culture (Bem et al., 1981). Sex-typed individuals refer to 'masculine' males, 'feminine' females who use gender to process and organize information that align to their sex in contrast to non sex-typed individuals (such as, androgynous and undifferentiated males and females). In contrast, cross sex-typed individuals refer to 'feminine' males and 'masculine' females. Often sex-typed and cross sex-typed individuals reject sports due to gender reasoning which results in a diminished presence of women in the field of competitive sports, in contrast to male participation (Koivula et al., 1995; Matteo et al., 1988).

Gender schema is examined in a study where the researchers explored how gender stereotypes influenced people's perception of and participation in various kinds of sports. Participants were 104 women and 103 men from Sweden. Researchers utilized a BSRI questionnaire in which participants rated 60 different sports on a 7-point scale, with 1 being *'very masculine'*, 7 being *'very feminine'*, and 4 indicating *'gender neutrality'*. Additionally, a personality attribute test was conducted to allow researchers to classify them as sex-typed, cross-sex typed, androgynous, or undifferentiated. The results showed that the sex-typed individuals often viewed the traditionally classified *'masculine'* sports as more masculine and the *'feminine'* sports as more feminine in contrast to non-sex typed individuals. On the other hand, androgynous and undifferentiated individuals did not use gender-based schematic information processing throughout the experiment. It is noteworthy to mention that the men were more likely to sex-type sport than women. A potential environmental explanation for the findings could be that gender-aschematic individuals may not be constrained to traditional views and norms and thus, change their views as changes regarding stereotyping occur in society. This study only included Swedish sporting cultures, young students and mainly Caucasian people, thus, making the sample have rather low population validity, reducing the ability to generalise the findings to other cultures- which refers to how generalizable the findings of the study would be across different cultures. This is an important critique as gender stereotypes are culturally based. Moreover, the participants filled a questionnaire to rate gender appropriateness and this may have opened opportunities for demand characteristics, as participants could have guessed through the aim and submitted responses that would be more socially desirable, rather than reflecting on their own thoughts. This is commonly known as social desirability bias. A strength of this study is the utilization of BSRI questionnaire- which gives strong empirical evidence. The BSRI questionnaire is commonly used in sports psychology and has been replicated many times, increasing the reliability of the findings. The findings of this study have been investigated and further confirmed by (Mateo et al., 1988; Csizma et al., 1988). This study suggests that gender stereotypes may demotivate women into joining competitive sports socially deemed as *'inappropriate for their sex'*, resulting in decreased women's participation, therefore, creating unequal participation level between genders (Koivula et al, 1995, p. 434-557).

Another study investigated the role gender-schematic processing had on sport participation and decisions about sex-inappropriate sport behavior. 80 students at Cornell University were selected based on their results from BSRI questionnaires, to ensure equal numbers of sex-typed, cross-sex-typed, androgynous, and undifferentiated male and female participants. Participants answered a questionnaire rating how interested they would be in trying 68 sports on a 9-point scale and were also asked to form an impression on a hypothetical individual who enjoyed a specific sport. Results showed that both sex-typed and cross-sex typed individuals gave gender-based explanations for the rejection of trying out the sports and activities presented to them, while androgynous people did not use such reasonings. Furthermore, sex-typed individuals formed more masculine and feminine impressions of the hypothetical person consistent with the gender stereotype of the sport, in contrast to undifferentiated and androgynous individuals. It is essential to mention that there is a greater proportion of sex-typed individuals in the population compared to non-sex-typed individuals. If the people who decide what is of interest to viewers, and if the viewers themselves are more likely to be sex typed, then the invisibility of female athletes may be partially due to the gender-based biases of these individuals. This study investigated gender schema in 4 different ways, which is a handful amount of data and observations. While the researcher investigated the four gender identities, the sample was small, making this study difficult to generalize to larger populations. The findings of this study were not able to unveil whether sex-typed and cross-sex-typed individuals had different attitudes regarding gender role in their actions- which could have helped the researchers to not only understand whether cross-sex typed individuals are gender-schematic but also what other parts of gender schematicity may be. With higher numbers of sex-typed individuals in the population, many individuals may use gender to reject participating in competitive sports that are deemed as inappropriate for their sex- resulting in a difference of participation levels (Matteo, 1988, p. 41-58).

These studies show and confirm that gender stereotypes are most often used by sex-typed individuals when judging others and making decisions that are appropriate to their sex, since these individuals process information on

a gender basis. (Koivula et al., 1995; Matteo et al., 1988) demonstrate the influence of gender schema on participation in sports, however, other factors such as parental involvement should be considered.

ii. Parental involvement: According to the Social Cognitive Learning Theory (Bandura et al., 1986), children imitate behaviours their parents exhibit. One paper conducted a longitudinal study that explored the role parents had in their children's engagement in competitive sports and other extracurricular activities. Parents and their children from elementary school completed a self-administered questionnaire where the children were asked to rate their perceived competence on their athletic ability on a 7-point scale (e.g., how good at sports are you?). Parents were asked questions regarding their beliefs and behaviour. Results showed that boys reported a higher perceived competence, value, and participation in sport in comparison to the girls. Similarly, most parents reported beliefs and behaviours that were gender-stereotypical as they generally perceived their sons as more competent and had higher athletic ability, which resulted in providing more opportunities and support to their son's involvement in competitive sports in contrast to their daughter's involvement. A strength of this study is self-administered questionnaires were used which have high replicability for other researchers to use due to the standardized procedure. Unlike most studies, this study included self-administered reports from both the children and their parents which offers two perspectives on the topic. However, the sample consisted of 95% Caucasian families, with only 5% of the participants being African American, Asian, and Hispanic families, demonstrating low cross-cultural validity since the results may not be generalizable to a larger population and other ethnicities. The participants consisted of young children in which it could be difficult to receive accurate and precise information as they may have a limited understanding of the information within the questionnaire. Since the parents were asked about their beliefs and behaviours, there is limited information on validity and reliability of the aspects of socialization. In conclusion, the lack of opportunities and encouragement provided to women by their parents could result in fewer participation levels of women in these competitive sports (Fredricks & Eccles, 2005, p. 3–31).

Similarly, another study investigated the influences of parents and physiological differences on children's attraction to physical activities such as competitive sports. Participants were elementary school students, 39 boys and 42 girls and their parents. A self-administered questionnaire was completed by both the children and their parents. The results demonstrated that higher parental encouragement was linked to greater perceived competence for children. The concept of gender was also directly linked to children's perception of ability with the boys reporting higher competence than girls. It seems that parents who express greater encouragement and motivation are more likely to provide opportunities for children to be physically active. It should be noted that 77% of these parental questionnaires were completed by mothers which could be an underrepresentation, as some literature suggests that fathers are more influential in shaping children's sport involvement. However, this study overcame the population underrepresentation from other studies by including participants from different cultural backgrounds and lower socio-economic levels, increasing cross-cultural validity. A diverse population enhances the knowledge on parental socialization and its influence of children's participation. This study demonstrated how girls feeling less competent and receiving less support from their parents may make them attach less value to sports compared to boys, which may result in higher participation in sports, in favor of boys (Brustad et al, 1993, p. 210-233).

A handful of research indicates how young children's athletic opportunities depend greatly upon the beliefs and encouragements given by their parents, indicating that parents have a large role in the transmission of sex stereotypes to hinder women from participating in sports (Fredricks et al & Eccles, 2005; Brustad et al, 1993).

The biological explanations,

A possible explanation of the difference of participation rates between men and women could lie in the pervasiveness of the biological explanation of sex differences, explored through hormones and evolutionary approach.

Hormones:

One hormone that could help explain the biological differences between the sexes is testosterone. Testosterone is a crucial hormone in male athletes both during puberty and adulthood. However, there is a difference between hormonal responses between the sexes and high-testosterone individuals may have more motivation to compete in sports. A study aimed to find out the association between testosterone, cortisol, competition and whether the association was the same for women as it was for men. Participants were 23 males and 23 females from the Northeastern University crew team. The procedure included saliva samples taken before warm up, 20 and 40 minutes after competition. A questionnaire was filled out to assess their behaviour. Results showed that the behavioral correlates of, and endocrine responses to, this competitive setting varied significantly by gender. Altogether, researchers found that high-testosterone individuals tend to play sports that have a positive influence on dominance striving, known as power motivation. High levels of testosterone positively correlated with motivation in men and not women, suggesting that high-testosterone individuals may be the most motivated to pursue athletic competition. The researchers included many different procedures to investigate their aim; such as saliva sampling and surveys. The utilization of both a biological test and questionnaire offers a high-quantitative amount of data. This study did not have a clear link of testosterone levels and competitiveness or power dominance in women, limiting the exploration of the aim of this study. In conclusion, this study provides biological support to how hormones can affect female participation in sports, seeing that women don't have high-levels of testosterone (Stanton and Schultheiss, 2009, p. 942–949).

Prenatal hormones could affect why women's participation is lower. A factor such as childhood activity patterns correlate with prenatal testosterone which could predict adult sport interests. A study investigated the extent to which childhood activity patterns indicate cultural participation in the sports by women. 84 college women participated in this study, 44 non-athletes and 40 athletes. They completed a questionnaire that measured their adult experiences as well as their childhood play activities. Results showed that the women who played with masculine toys and were often referred to as 'tomboys' later became college athletes. This finding suggests that childhood play activities should be considered as they have a direct correlation to prenatal testosterone. The aim of this study was never systematically examined before and thus, the study was the first to biologically explore female sport socialization. However, not many studies have been conducted to back the findings, resulting in low reliability. It is also not fair to draw big conclusions that playing with 'masculine toys' produces more male hormones and makes one more of a *tomboy*, a term that is subjective and difficult to define. This study suggests that women with less testosterone are less likely to be athletes, creating differences in participation levels (Giuliano, Popp, & Knight, 2000, p. 159-181).

Evolutionary perspective:

Another biological explanation for why fewer women participate in sports is explored through the evolutionary perspective. A study investigated whether women preferred team sports and competitive sports compared to men. Data from American Time Use Survey (ATUS) was analyzed, which is a large, representative sample of 112,000 individuals, with participants from 60 societies to ensure coverage of different cultures around the world. Participants were shown 258 sports and asked which one they would participate in. Results showed that out of the 258 sports, 235 sports were played by males and 50 played by females, indicating an enormous sex difference, suggesting that men have greater inborn motivation to participate in sports compared to women. Evolutionary history of men having to engage in more contests compared to women (Deaner & Smith, 2013; Ellis et al., 2008; Guttman, 2004) helped explain the results as men often participate in sports to display their physical abilities in comparison to other men, known as intrasexual selection. This leads to the conclusion that men may be more interested in taking part in competitive sports compared to women. The study included people of many cultures, making this study rich in diverse data- useful for comparisons between different backgrounds and communities, resulting in high cross-cultural validity. However, the ATUS did not include sports such as water polo, swimming, or competitive cheerleading, indicating findings being an overestimate. Findings conclude that evolved male tendency of an evolved male predisposition for competition, manifests in modern societies as greater participation of males in sports and fewer participation of females, serving to create unequal levels of participation (Deaner et al., 2012, p. 73-97).

Similarly, another study investigated how evolutionary pressures have formed male and female minds differently, indicating that the sex differences in athletic behaviour should be found across different cultures. 27,423 women and 22,270 men from 37 different countries were included within this study to fill out a survey. The survey included questions regarding participants' attitudes towards social problems, gender and the economy. Results showed that evolutionary forces have made men more interested in participating in sports as factors such as intrasexual competition caused men to become physically stronger and have more stamina than women over time. This means that because competitive sports require physical strength and stamina, men are more willing to participate in these competitive sports compared to women. This study had a large sample size and data from different countries, resulting in a high sample-to-population generalizability. However, this study was reliant on self-reported evidence, thus it can't control discrepancies between what participants state they do and what they actually do. The proposed theoretical framework did not include all the evolutionary theories on sports, which could limit the understanding of the role of evolution in sports. Intrasexual selection may explain why men have a higher participation in sports, therefore this study argues that the lack of female participation in sports is not due to socio-environmental factors, but rather the evolutionary part of biological explanations (Apostolu et al, 2014, p. 151–173).

Discussion

While the theories, models and methodologies of these studies have many strengths, they have some limitations as well. Firstly, temporal validity refers to the validity of the results of the studies in relation to the progression of time (APA Dictionary of Psychology). While (Fredricks & Eccles, 2005) concluded that parents had huge effect on children's participation in sports, more recent studies show that parents' beliefs are indifferent towards the gender of the child (Holt, Tamminen, Black, Sehn & Wall, 2008; Kanters, Bocarro & Casper, 2008). This may be due to the fact that (Fredrick and Eccles, 2005) completed this survey over two decades ago and the growing importance of women in sport during the 1990's may have helped to reduce parents' stereotypes on female sport-participation. The study conducted by (Koivula et al., 1995), may have the same limitation as feminism and women's rights have been the zeitgeist of the 21st century, meaning it may have been difficult for participants to distinguish between their own feelings and what they believed was the current view of others.

Cross-cultural variability is the dominant beliefs, values, attitudes and ethics a group of people share that constitute a culture (Huang and Wong, 2014). This factor may have an effect as in some countries the feminist movement is prevalent, suggesting that sex differences in sports participation are likely to decrease. While the gender inequality index in the Republic of Chad is (0.701), where men indicate a stronger interest in doing sports, it is (0.040) in Sweden, where the sex difference is reversed (United Nations Development Program, 2018). (Koivula et al., 1995) was conducted in Sweden, therefore the findings are difficult to compare to other cultures, acknowledging the differences in gender inequality indexes.

The BSRI model has some strengths and limitations. While the BSRI has good test-retest reliability, making it an effective and reliable way of assessing gender identities, it narrows the concepts of masculinity and femininity using a single core which could be an oversimplification. (Koivula et al., 1995; Matteo et al., 1988) used the BSRI model to categorize individuals, making their studies undertake this limitation. BSRI also involves self-report and questionnaires as a methodology, which may result in participants giving socially desirable responses, resulting in low validity. More recent studies have shown that interests and abilities of individuals should be tested when discussing gender-related behaviour, rather than personality traits alone.

Social desirability bias refers to the tendency for participants to answer in a way that they think will be viewed favorably by others (Paulhus, 2002). This is often the case with self-report questionnaires and reports used in both the socio-environmental and biological studies. (Apostolu et al., 2014; Fredricks & Eccles, 2005; Koivula et al., 1995; Matteo et al., 1988; Brustad et al., 1993; Giuliano, Popp & Knight, 2000; Deaner et al., 2012), relied on self-report evidence, thus it can't control discrepancies between what participants state they do and what they actually do. Thus,

the answers in the findings may be exaggerated as participants may be too embarrassed to reveal private details and opinions.

The lack of studies for the biological explanations also created a limitation to the exploration. While much research is conducted on the correlation between hormones and testosterone levels, there has not been many studies forming a relation between testosterone and sport participation. Even the studies that have been conducted, (Stanton and Schultheiss, 2009), does not show a positive correlation between the two variables at most times.

Factors such as age and socio-economic background are not accounted for in most studies. This makes the generalizability of the findings limited, given the use of an upper-middle-class in many studies. Age is a factor that could limit the overall conclusion to be made. Due to the fact that sport participation between the genders declines with age, this factor should be considered. While (Brustad et al., 1993), had participants with the mean age of 10.4 years old, (Apostolu et al., 2014), had a mean age of around 45.85 for the participants. The difference age focuses makes findings more difficult to compare and draw solid conclusions to answer the research question.

Conclusion

This essay investigated the role the socio-environmental and biological explanations had on gender participation in competitive sports. There is a substantial amount of empirical evidence supporting that **the socio-environmental explanations account for the unequal participation differences between the genders to a greater extent, as compared to the biological explanations**. Factors such as *gender schema* and *parental involvement* have an enormous effect on children's participation and many studies support these factors (Koivula, 1995; Matteo, 1988; Fredricks and Eccles, 2005; Brustad et al, 1993). Although the biological explanations explain these differences as well, there only exists a 5% of variance in physical abilities (Eagly, 1995), making this perspective valid to a **lower extent** in answering the question. Observing the biological differences does not inform us about the origin, which may be natural but also environmental (Wood & Eagly, 2012). Although many argue that traditional stereotypes are declining, many studies still suggest that socio-environmental factors about females still reflect the maintenance of pro-masculine stereotypes. Future research is needed to reveal whether some socio-environmental factors are more influential than others, in order to identify appropriate strategies that could alleviate them. Similarly, due to a lack of biological research regarding the issue, more research should be conducted to collect more data and information.

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