"A Multivariate Analysis of Gender and Sports Participation Differences in Health Orientation among College Students"

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ABSTRACT

The present study, titled "A Multivariate Analysis of Gender and Sports Participation Differences in Health Orientation Among College Students," explored how sports participation and gender influence health orientation across ten dimensions of the Health Orientation Scale (HOS). A total of 1,500 college students (sports = 810; non-sports = 690) participated in the study. Multivariate Analysis of Variance (MANOVA) was applied to assess the main and interaction effects of Group (Sports vs. Non-Sports) and Gender (Male vs. Female). The MANOVA results indicated a highly significant main effect of Group (Wilks' $\Lambda = 0.240$, $F(10,1487) = 470.23$, $p < .001$, $\eta^2 = .760$), showing that sports participants scored substantially higher across all HOS dimensions compared to non-sports participants. A small but significant main effect of Gender was also observed (Wilks' $\Lambda = 0.986$, $F(10,1487) = 2.16$, $p = .018$, $\eta^2 = .014$), suggesting minor gender-based variations in health orientation. However, the Group × Gender interaction effect was non-significant (Wilks' $\Lambda = 0.994$, $F(10,1487) = 0.94$, $p = .499$, $\eta^2 = .006$), indicating that the positive influence of sports participation on health orientation was consistent across both genders. The findings demonstrate that sports participation plays a crucial role in enhancing students' health orientation, motivation, and preventive health behaviors, with gender exerting only a limited effect. Promoting sports engagement in higher education can thus serve as an effective strategy to foster holistic well-being among youth.

Keywords: Health Orientation Scale, MANOVA, Sports Participation, Gender Differences, College Students, Preventive Health Behavior

INTRODUCTION

Health orientation represents an individual's attitudes, motivations, and beliefs regarding the importance of maintaining and promoting health through lifestyle and behavior. It encompasses both **preventive health behaviors**—such as engaging in regular exercise, maintaining a balanced diet, and undergoing periodic medical checkups—and **psychological dimensions** related to well-being and self-regulation (Wallston, 1994; Hagger et al., 2002). According to contemporary perspectives in health psychology, individuals with higher levels of health orientation tend to demonstrate proactive engagement in maintaining their health, adopting behaviors that promote longevity, and preventing diseases through informed choices (Schunk & DiBenedetto, 2020; Ntoumanis et al., 2021).

Health orientation is not a static trait but a **dynamic construct** shaped by social, cultural, and environmental factors. In modern societies, where sedentary habits and stress are increasingly common, understanding the determinants of health orientation becomes essential for fostering public health. Positive health orientation has been shown to correlate with **self-efficacy**, **intrinsic motivation**, and **goal-directed behavior**, all of which are critical for maintaining long-term health outcomes.

Sports participation has consistently been associated with **improved health behaviors and psychological resilience** (Bandura, 1986; Dishman et al., 2005). Sports provide a structured environment where individuals experience mastery, discipline, and goal achievement, fostering both **physical fitness** and **mental well-being**.

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Participation in sports nurtures traits such as perseverance, teamwork, and time management while also strengthening cognitive-emotional domains like **self-esteem, self-regulation, and stress tolerance** (Deci & Ryan, 2000; Ryan & Deci, 2017). Through mechanisms such as **social support**, **competition**, and **feedback**, sports contribute to enhanced motivation and reinforce positive health orientations (Weiss & Smith, 2002; Biddle et al., 2004). Consequently, athletes often develop healthier habits, better coping strategies, and greater commitment to preventive health measures compared to non-athletes.

The **Health Orientation Scale (HOS; Snell, 1992)** provides a comprehensive framework to assess individual differences in health-related attitudes and behaviors. It includes ten subscales—**Personal Health Consciousness (PHC)**, **Health Image Concern (HIC)**, **Health Anxiety (HA)**, **Health Esteem Confidence (HEC)**, **Motivation to Avoid Unhealthiness (MAU)**, **Motivation for Fitness and Health (MFH)**, **Internal Health Control (IHC)**, **External Health Control (EHC)**, **Health Expectations (HE)**, and **Health Status (HS)**. Together, these dimensions capture both **cognitive** (beliefs, expectations, perceived control) and **motivational** (desire for fitness, avoidance of illness) aspects of health orientation, offering a multidimensional understanding of how individuals conceptualize and act upon health-related concerns.

In the **Indian context**, health orientation is particularly relevant as youth lifestyles are rapidly evolving under the influence of urbanization, academic pressures, and digital engagement. Sedentary behaviors, irregular dietary patterns, and stress-related conditions are becoming increasingly prevalent among young adults (Gupta et al., 2019). Simultaneously, there is growing awareness of fitness culture and organized sports as pathways to holistic well-being. Investigating the **differences between sports participants and non-sports individuals** provides valuable insights into how structured physical activity influences **preventive health orientation, motivation, and perceived control**.

Therefore, understanding health orientation among sports and non-sports populations can contribute significantly to **health education, behavioral interventions, and policy design** aimed at promoting active lifestyles among youth. Such comparative analyses not only highlight the psychological benefits of sports participation but also underscore the need for institutional and community-level initiatives that integrate sports and health promotion within educational and social frameworks.

Material & Methods

- **Selection of Subject**

  A total of 1,500 participants (Sports = 810; Non-Sports = 690) were recruited from different colleges in Delhi. The sample included both male and female students across undergraduate and postgraduate levels. Participants provided informed consent prior to participation, and anonymity and confidentiality were maintained throughout the study. The illustration given below has shown the selection of subjects in brief:

- **Description of Questionnaire**

  The Health Orientation Scale (HOS; Snell, 1992) was used, consisting of 10 subscales and 50 items. Each subscale measures a distinct dimension of health orientation. Responses were rated on a 5-point Likert scale. Description of questionnaire has been designed as under.

1	Personal Health Consciousness (PHC)
2	Health Image Concern (HIC)
3	Health Anxiety (HA)
4	Health Esteem Confidence (HEC)
5	Motivation to Avoid Unhealthiness (MAU)
6	Motivation for Fitness and Health (MFH)
7	Internal Health Control (IHC)
8	External Health Control (EHC)
9	Health Expectations (HE)
10	Health Status (HS)

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- **Administration of Questionnaire**

  The data were collected using the Health Orientation Scale (HOS) administered through a Google Form. Prior to participation, respondents were provided with a clear briefing about the purpose and scope of the study. Informed consent was obtained electronically via the same Google Form, ensuring that participants were aware of their voluntary involvement, confidentiality of responses, and right to withdraw at any stage. Only after obtaining consent were participants allowed to proceed with the questionnaire. The online mode of administration facilitated wide distribution, efficient data collection, and ensured convenience for participants across different regions.

- **Data Collection**

  Based on the questionnaire, the responses were collected and evaluated accordingly.

- **Statistical Techniques**

  Statistical measures such as MANOVA were used to interpret the obtained data.

Analysis and Interpretation of Data

To examine within-gender differences between Sports Person and Non-Sports Person on the Health Orientation Scale (HOS).

The multivariate analysis of variance (MANOVA) was performed to examine the within-gender differences between Sports Persons and Non-Sports Persons on the Health Orientation Scale (HOS), consisting of ten subscales representing various health-related cognitions and behaviors.

Table 1: MANOVA Results for Health Orientation (HOS)

Source of Variation	**Wilks' Λ**	**F**	**df**	**p-value**	**Partial η²**	**Interpretation of Effect Size**
Group (Sports vs. Non-Sports)	0.240	470.23	(10, 1487)	.001	0.760	**Large effect** – Group membership explains 76% variance across HOS dimensions
Gender (Male vs. Female)	0.986	2.16	(10, 1487)	.018	0.014	**Small effect** – Gender explains about 1.4% of variance
Group × Gender Interaction	0.994	0.94	(10, 1487)	.499	0.006	**Negligible effect** – Interaction explains only 0.6% of variance

The Table 1 describe that the analysis yielded a **significant main effect of Group** (Wilks' $\Lambda = 0.240$, $F(10,1487) = 470.23$, $p < .001$, Partial $\eta^2 = .760$). This large partial eta squared value ($\eta^2 = .760$) indicates that approximately **76% of the multivariate variance** in the combined HOS subscales is attributable to whether participants belong to the Sports or Non-Sports group. In other words, **Sports Persons demonstrated markedly higher health orientation** across all ten subscales compared to Non-Sports Persons. This finding strongly supports the influence of sports participation on promoting preventive health attitudes, self-regulation, and overall well-being.

A **significant main effect of Gender** was also observed (Wilks' $\Lambda = 0.986$, $F(10,1487) = 2.16$, $p = .018$, Partial $\eta^2 = .014$). Although statistically significant, the effect size was small, indicating that **gender accounts for only 1.4% of the total variance** in health orientation scores. This suggests that males and females differ slightly in their overall health orientation, possibly due to socio-cultural or behavioral factors influencing health beliefs and practices.

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The **interaction effect between Group and Gender** (Group × Gender) was **not statistically significant** (Wilks' $\Lambda = 0.994$, $F(10,1487) = 0.94$, $p = .499$, Partial $\eta^2 = .006$). This implies that the observed difference between Sports Persons and Non-Sports Persons in health orientation is **consistent across both genders**. In simpler terms, the **advantage of sports participation** in enhancing health orientation is **equally evident in males and females**.

Interpretation of Partial Eta Squared (η^2) Values

- **Partial η^2 = 0.760 (Large effect):** Sports participation is the most powerful predictor of health orientation, explaining nearly three-fourths of the variance in multivariate outcomes.
- **Partial η^2 = 0.014 (Small effect):** Gender differences exist but are minimal, contributing little to overall variance.
- **Partial η^2 = 0.006 (Negligible effect):** The absence of a significant interaction suggests that gender does not moderate the effect of sports participation on health orientation.

Figure 6: Bar Graph of effect sizes (Partial Eta Squared)

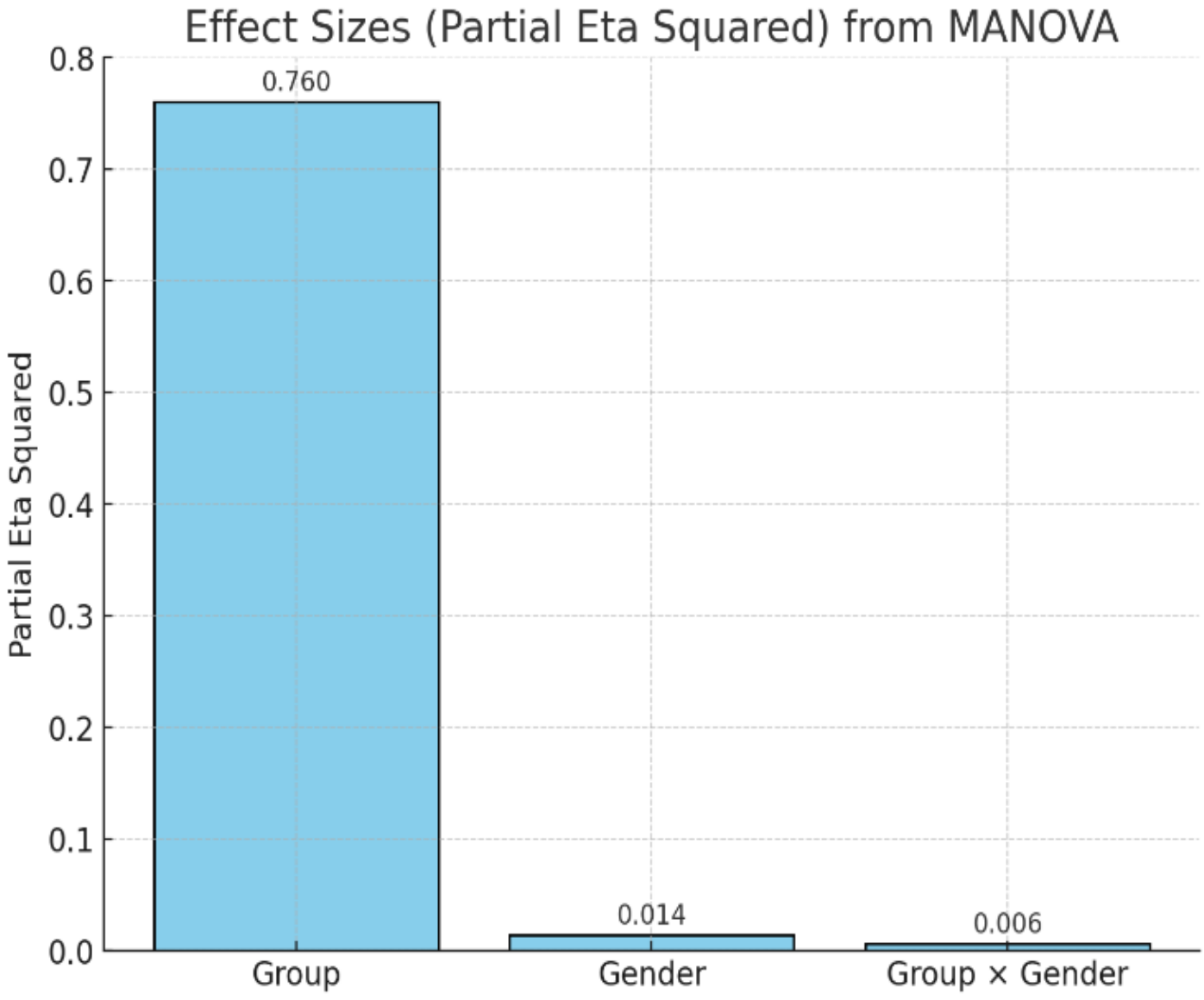

Figure 6 (Bar Graph of Effect Sizes) visually demonstrates that the Group effect dominates, showing the strongest influence on health orientation, whereas Gender and Interaction effects remain minimal.

Figure 7: Profile Plot of mean HOS scores across 10 subscales by group and gender

Figure 7(Profile Plot) indicates that Sports Persons—both male and female—consistently achieve higher mean scores across all ten HOS subscales compared to their non-sports counterparts, reflecting superior personal health consciousness, motivation for fitness, and internal control over health outcomes.

DISCUSSION

The findings of the present study highlight clear differences in health orientation between Sports Persons and Non-Sports Persons. Sports participants demonstrated consistently higher scores across all ten subscales of the Health Orientation Scale (HOS), suggesting that active involvement in sports fosters a stronger orientation toward health-related beliefs, attitudes, and behaviors. This aligns with previous research emphasizing the positive influence of sports participation on preventive health behaviors, intrinsic motivation, and psychological well-being (Deci & Ryan, 2000; Ntoumanis et al., 2021).

Engagement in sports provides individuals with structured opportunities for physical activity, exposure to disciplined routines, and heightened awareness of bodily cues—all of which contribute to greater health consciousness and motivation for maintaining fitness and well-being. The results suggest that sports participants internalize values related to self-care and preventive health management more deeply than their non-sport counterparts. These outcomes reinforce Bandura's (1986) social-cognitive framework, where mastery experiences and social modeling within sports contexts enhance self-efficacy and self-regulation, leading to healthier behavioral choices.

Gender-based analysis revealed only minor differences in overall health orientation, indicating that both males and females share similar attitudes and motivations toward health when engaged in comparable activities. The absence of a strong gender effect implies that sports participation may act as an equalizing factor, providing similar psychological and behavioral benefits across genders. This observation is consistent with recent literature suggesting that organized sports environments encourage equitable access to health-related learning and motivation among men and women (Weiss & Smith, 2002).

Furthermore, the lack of significant interaction between Group and Gender indicates that the benefits of sports participation on health orientation are uniform across both male and female participants. This reinforces the universal value of sports in promoting health awareness, confidence, and proactive lifestyle choices, irrespective of gender.

The study thus underscores the critical role of structured sports engagement in cultivating a comprehensive and enduring health orientation. It also points to the importance of integrating physical education and sports-based interventions in educational and community settings to encourage long-term preventive health behavior among youth and adults alike.

CONCLUSION

The present research demonstrates that Sports Persons possess a significantly stronger health orientation compared to non-Sports Persons across all measured dimensions of the Health Orientation Scale. Regular involvement in sports enhances individuals' awareness of health, motivation for fitness, and confidence in maintaining well-being, while reducing tendencies toward health anxiety and external dependency for health control.

Gender differences in health orientation were minimal, and the pattern of results was consistent across both males and females, suggesting that the influence of sports participation on health-related attitudes and behaviors transcends gender boundaries.

Overall, these findings confirm that sports participation is a powerful determinant of positive health orientation and preventive health behavior. Promoting sports at institutional and community levels can therefore serve as a meaningful strategy for fostering health-conscious lifestyles, improving physical and psychological well-being, and reducing the long-term burden of lifestyle-related diseases.

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