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Understanding Exercise Motivation in the Tâmega and Sousa Region: A Gender-Based Analysis

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ABSTRACT

The purpose of the study. To assess gender differences in motivations for physical exercise among adults in the Tâmega and Sousa region of Portugal, testing the hypothesis that men and women differ in their exercise motivations.

Materials and methods. An observational, descriptive, and inferential study was conducted between February and May 2024 using the Exercise Motivations Inventory-2 (EMI-2), a validated 51-item questionnaire across 14 subscales. Data were collected electronically via Google Forms and disseminated through social media platforms (Facebook, Instagram, LinkedIn, WhatsApp) and email. The sample comprised 100 participants (24 men, 76 women) with mean ages of 32.00 ± 13.31 years for men and 32.88 ± 10.33 years for women. Statistical analysis included descriptive statistics, Kolmogorov-Smirnov normality tests, independent samples t-tests, and Cohen's d effect size calculations using SPSS version 24.0.

Results. Statistically significant gender differences were found in individual exercise motivations ($p \leq 0.05$). Women demonstrated significantly higher motivation for preventing health issues, improving endurance, managing stress, avoiding illness, improving agility, weight management, engaging in social activities, and relieving tension compared to men. Men showed greater motivation for competition and achieving unique personal goals. However, no significant differences were observed between genders in the overall EMI-2 subscales.

Conclusions. The study confirmed the hypothesis that men and women have different motivations for physical exercise, with women more motivated by health-related and stress management factors, while men prioritize competition and personal achievement. These findings suggest the need for gender-specific strategies in promoting physical activity. Limitations include convenience sampling, small sample size, gender imbalance, and lack of consideration for physical activity levels and exercise barriers. Future research should employ larger, more representative samples and incorporate additional variables for comprehensive analysis to inform targeted health promotion interventions.

Keywords: physical exercise; motivation; gender differences; health promotion; stress management; exercise adherence.

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INTRODUCTION

Motivation for physical exercise is a complex concept influenced by various factors (Markland & Ingledew, 1997). Previous

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studies have identified the key motivating factors that lead individuals to engage in physical exercise. For individuals with paraplegia, the primary motivating factors include preventing health problems and improving physical fitness (Ferri-Caruana et al., 2020). Older adults are motivated to participate in physical exercise and cognitive programs by exercise self-efficacy, which reflects their confidence in achieving exercise goals (O'Neil-Pirozzi et al., 2022). Self-Determination Theory (SDT) is a prominent theoretical framework used to explain exercise adherence. SDT emphasizes the importance of intrinsic motivation, autonomy, and competence in driving individuals to engage in and maintain structured physical exercise programs (Eynon et al., 2018). In this regard, previous research has shown that intrinsic motivation is a key component of SDT, impacting exercise adherence and the internal drive to maintain physical activity routines (Dyrlund & Wininger, 2006). Furthermore, SDT has been applied to predict exercise adherence in various contexts, such as gyms and personal training, highlighting its validity in understanding exercise behavior (Ferri-Caruana et al., 2020).

To date, several studies have explored the relationship between Self-Determination Theory and exercise intention, demonstrating that individuals with high self-determined motivation are more likely to actively participate in exercise and exhibit a strong intention to adhere to exercise regimes (Lee et al., 2022). Additionally, SDT has been associated with the satisfaction of psychological needs, motivational regulations, and autonomy support, which play crucial roles in influencing exercise behavior and adherence (Edmunds et al., 2006). Exercise self-efficacy, a concept closely related to SDT, has been identified as a predictor of exercise adherence in various populations, including patients with heart failure, chronic conditions, and chronic obstructive pulmonary disease (COPD) (Yang et al., 2023). In addition, this concept has also been associated with better exercise adherence and outcomes, underscoring its importance in promoting sustained involvement in physical activity (Picha & Howell, 2018). So far, it has been demonstrated that the coexistence of internal and external motivations promotes physical exercise among university students, with an impact on emotional experiences and mental health (Klompstra et al., 2015). Indeed, intrinsic motivation, driven by individual needs, is a significant factor influencing participation in physical exercise, especially among adolescents (Lou et al., 2023). Motivations for physical activity in adults include advice from healthcare providers, family influences, health benefits, and psychosocial reasons such as social interaction and enjoyment of sports (Klompstra et al., 2015).

Previous research concluded that motivation for exercise is positively correlated with exercise behavior among university students, with exercise climate and self-efficacy playing mediating roles (Zhao et al., 2023). Self-identity influences participation in physical activity, with individuals motivated by self-determined reasons being more likely to maintain their exercise behavior (Reifsteck et al., 2016). Moreover, attitudes and motivation toward physical exercise are crucial for older adults' exercise adherence, with perceived benefits and motivators playing significant roles in maintaining an active lifestyle (Shaikh & Dandekar, 2019). To assess motivation for physical exercise, several questionnaires have been developed and used in research studies to evaluate various aspects of exercise motivation and provide valuable insights into individuals' reasons for engaging in physical activity. The main questionnaires include the Exercise Motivations Inventory (EMI-2), which measures motivations such as strength, endurance, and enjoyment (Markland & Hardy, 1993) the Goal Content for Exercise Questionnaire, which evaluates intrinsic and extrinsic motivations for exercise (Teixeira et al., 2012); the behavioral Regulations in Exercise Questionnaire (BREQ), which assesses various motivational styles (Lee et al., 2022) the International Physical Activity Questionnaire (IPAQ), used to evaluate physical activity levels and patterns (Khair et al., 2021) the Self-Determination Motivation Scale, which measures self-determined motivation based on autonomy, competence, and relatedness (Jankauskiene et al., 2022) the Exercise Motivation Scale, which assesses factors driving physical activity (Li et al., 2022) the Stages of Change Questionnaire, evaluating readiness to change behavior in exercise (Khair et al., 2021) and the Exercise Dependence Scale-Revised (EDS-R), studying exercise dependence (Tornero-Quiñones et al., 2019).

EMI-2 is a widely used instrument to assess motivation for physical exercise due to its comprehensive nature and its validity in capturing a broad range of reasons for engaging in regular physical activity. The EMI-2 consists of 51 items across 14 subscales, providing an extensive measure of motivation for participating in physical exercise (Markland & Ingledew, 1997). This questionnaire has been validated and used in several studies to assess individuals' motives for engaging in regular physical exercise, including reasons related to health, fitness, body image, social recognition, competition, and psychological factors (Gjestvang et al., 2021); (Edmunds et al., 2006). EMI-2 is considered a reliable and validated instrument for assessing motivation for exercise, making it suitable for both athletes and non-athletes (Edmunds et al., 2006). Its factorially valid design allows for the assessment of a wide range of motivations for participation in sports activities among both men and women (Tornero-Quiñones et al., 2019). Moreover, the EMI-2's ability to differentiate between various motivational components makes it a valuable tool for understanding motivations and exercise behaviors (Ednie & Stibor, 2016).

The literature has previously indicated variations in exercise motivation based on gender. For instance, a study conducted by Ferri-Caruana et al., (2020) analyzed motivation for physical exercise in adolescents, revealing differences in motivation based on sex and age, highlighting the importance of considering gender disparities in motivation for exercise. Similarly, significant differences were found in exercise dependence and body dissatisfaction between sexes, emphasizing the relevance of gender in understanding exercise-related behaviors (Tornero-Quiñones et al., 2019). Understanding the nuances of exercise motivation between genders can guide the development of targeted interventions that address the specific needs and preferences of men and women in a region in northern Portugal. By identifying gender-specific motivators and barriers to exercise, health professionals and policymakers can design more effective strategies to promote physical activity and improve the overall health and well-being of the population. Therefore, the main aim of this study was to assess motivations for physical exercise in a sample from the Penafiel municipality, with the hypothesis that there are differences in motivation between genders for engaging in physical exercise.

MATERIALS AND METHODS

Participants

The study sample comprised 100 participants from the community of the Tâmega and Sousa region. Of this total, 24 were male and 76 were female, with mean ages of 32.00 ± 13.31 years for men and 32.88 ± 10.33 years for women.

Study Design

This study is observational, descriptive, and inferential in nature, designed to explore motivations for physical exercise within a sample of the population in the municipality of Penafiel. Data collection was conducted electronically between February and May 2024, using a questionnaire created through the Google Forms platform. The primary assessment tool was the Exercise Motivations Inventory-2 (EMI-2), a widely validated and utilized instrument for measuring various motives related to physical exercise.

The questionnaire was disseminated via email and social media platforms, including Facebook, Instagram, LinkedIn, and WhatsApp, allowing for a diverse reach of the target population. Following data collection, statistical analyses focused on descriptive and comparative inferences between genders, enabling the identification of potential differences in exercise motivations between men and women.

All procedures adhered to the ethical principles outlined in the Declaration of Helsinki for Human Research and complied with the regulations of the Ethics Committee of ISCE Douro. Participant anonymity and confidentiality were maintained throughout all stages of the study, with informed consent obtained from everyone prior to participation.

Test and Measurement Procedures

The Exercise Motivations Inventory-2 (EMI-2) is a widely used and validated tool for assessing motivation for physical exercise. It has robust psychometric properties, with studies demonstrating its reliability and validity in capturing various motivational aspects related to exercise. The questionnaire consists of 51 items organized into 14 subscales, providing a comprehensive measure of motivation for physical activity (Pyae et al., 2017).

The EMI-2 employs a 6-point Likert scale, where participants rate each item based on its personal relevance, ranging from 0 ("not true for me") to 5 ("very true for me") (Eynon, MJ). The subscales encompass various motivational dimensions, such as health, physical fitness, body image, and social recognition. To calculate scores, responses corresponding to each subscale are summed, considering the direction and weight of each item (Eynon et al., 2018).

The EMI-2 version used in this study was translated and validated for Portuguese, with studies confirming its validity and reliability within the Portuguese population (Edmunds et al., 2006; Jankauskiene et al., 2022). The instrument has been applied in numerous studies involving participants of both genders, active and inactive, demonstrating its applicability across different contexts and populations (Ednie & Stibor, 2016; Picha & Howell, 2018).

In this study, the EMI-2 was distributed electronically between February and May 2024 through Google Forms, and data were collected via dissemination on social media platforms (Facebook, Instagram, LinkedIn, and WhatsApp) and email. Statistical procedures following data collection included analyzing subscale scores, enabling a detailed understanding of the motivations for physical exercise among participants.

All procedures adhered to the Declaration of Helsinki guidelines and the regulations of the Ethics Committee of ISCE Douro, ensuring compliance with ethical standards for research involving human subjects.

Statistical Analysis.

Descriptive statistics were initially calculated for the study variables, including means and standard deviations for each analyzed variable. Sample normality and homogeneity were assessed using the Kolmogorov-Smirnov test, appropriate for samples with $n \geq 30$. For comparisons between independent groups, an independent samples t-test was applied, determining statistical significance with a 95% confidence interval (CI 95%) and considering $p < 0.05$ as the threshold for significance. Additionally, effect sizes were calculated using Cohen's d and classified according to the following criteria: 0.2 – trivial; 0.6 – small; 1.2 – large; 2.0 – very large. All statistical analyses were performed using SPSS, version 24.0 (SPSS, Inc., Chicago, IL, USA), ensuring rigor and standardization of procedures.

RESULTS

The results indicated statistically significant differences ($p \leq 0.004$) with a moderate effect size in motivations for physical exercise between genders. Women placed greater value on exercising to prevent health issues, improve endurance, and manage stress compared to men (Table 1). Additionally, men showed greater motivation for physical exercise due to their enjoyment of competition and the desire to achieve unique goals relative to others ($p \leq 0.05$, small effect). Conversely, women demonstrated higher motivation to avoid illness, improve agility, lose and control weight, engage in active group fun, and relieve tension, compared to men ($p \leq 0.05$, small effect).

Table 1. Statistically significant differences were found in the comparison between genders for all questionnaire responses.

Item	t	df	p	Mean Diff.	SE Diff.	95% CI for Mean Difference		Cohen's d	Effect Size
						95% CI (Lower)	95% CI (Upper)		
Q1	0.839	98	0.404	0.243	0.290	-0.333	0.819	0.196	Trivial
Q2	-2.138	98	0.035*	-0.568	0.266	-1.095	-0.041	0.501	Small
Q3	-1.192	98	0.236	-0.232	0.195	-0.620	0.155	0.279	Small
Q4	-0.141	97	0.888	-0.060	0.425	-0.903	0.783	0.033	Trivial
Q5	1.010	98	0.315	0.439	0.434	-0.423	1.301	0.236	Small
Q6	0.428	95	0.669	0.187	0.436	-0.679	1.053	0.102	Trivial
Q7	-1.222	98	0.225	-0.276	0.226	-0.725	0.173	0.286	Small
Q8	-1.564	98	0.121	-0.436	0.279	-0.990	0.117	0.366	Small
Q9	0.064	98	0.949	0.020	0.308	-0.592	0.631	0.015	Trivial
Q10	0.560	98	0.577	0.219	0.391	-0.557	0.996	0.131	Trivial
Q11	-0.636	96	0.526	-0.305	0.479	-1.256	0.646	0.154	Trivial
Q12	0.975	98	0.332	0.421	0.432	-0.436	1.278	0.228	Small
Q13	-2.503	98	0.014**	-0.706	0.282	-1.266	-0.146	0.586	Small

Q14	-0.688	98	0.493	-0.243	0.354	-0.945	0.458	0.161	Trivial
Q15	-2.215	98	0.029*	-0.875	0.395	-1.659	-0.091	0.519	Small
Q16	-3.632	98	< .001***	-0.857	0.236	-1.326	-0.389	0.850	Moderate
Q17	-1.014	97	0.313	-0.278	0.274	-0.822	0.266	0.241	Small
Q18	1.476	98	0.143	0.575	0.389	-0.198	1.347	0.346	Small
Q19	-0.487	98	0.627	-0.643	1.319	-3.261	1.976	0.114	Trivial
Q20	-1.798	97	0.075	-0.702	0.390	-1.476	0.073	0.422	Small
Q21	-1.825	98	0.071	-0.309	0.169	-0.645	0.027	0.427	Small
Q22	-2.910	98	0.004**	-0.575	0.197	-0.966	-0.183	0.681	Moderate
Q23	-0.507	98	0.614	-0.147	0.290	-0.722	0.429	0.119	Trivial
Q24	-0.473	98	0.637	-0.167	0.352	-0.866	0.533	0.111	Trivial
Q25	1.012	98	0.314	0.428	0.423	-0.411	1.267	0.237	Small
Q26	2.560	97	0.012**	1.012	0.395	0.227	1.796	0.600	Small
Q27	-0.766	98	0.446	-0.246	0.321	-0.882	0.391	0.179	Trivial
Q28	0.398	98	0.692	0.164	0.413	-0.656	0.985	0.093	Trivial
Q29	-2.288	96	0.024**	-0.834	0.365	-1.559	-0.110	0.537	Small
Q30	0.402	97	0.689	0.118	0.295	-0.466	0.703	0.094	Trivial
Q31	-1.329	98	0.187	-1.274	0.959	-3.177	0.629	0.311	Small
Q32	-1.361	98	0.177	-0.469	0.345	-1.154	0.215	0.319	Small
Q33	0.155	96	0.877	0.064	0.414	-0.757	0.886	0.036	Trivial
Q34	-3.609	98	< .001***	-1.154	0.320	-1.788	-0.519	0.845	Moderate
Q35	-1.847	98	0.068	-0.456	0.247	-0.946	0.034	0.433	Small
Q36	-1.564	97	0.121	-0.475	0.304	-1.078	0.128	0.367	Small
Q37	-1.213	95	0.228	-0.410	0.338	-1.080	0.261	0.294	Small
Q38	-1.991	98	0.049*	-0.721	0.362	-1.441	-0.002	0.466	Small
Q39	1.294	98	0.199	0.561	0.434	-0.300	1.422	0.303	Small
Q40	1.665	98	0.099	0.614	0.369	-0.118	1.346	0.390	Small
Q41	-0.836	98	0.405	-0.996	1.190	-3.358	1.366	0.196	Trivial
Q42	0.734	98	0.465	0.241	0.329	-0.411	0.893	0.172	Trivial
Q43	-0.443	98	0.659	-0.149	0.337	-0.817	0.519	0.104	Trivial
Q44	-0.958	98	0.340	-0.401	0.419	-1.232	0.430	0.224	Small
Q45	2.286	98	0.024**	1.013	0.443	0.133	1.893	0.535	Small
Q46	-3.267	98	0.001***	-1.114	0.341	-1.791	-0.437	0.765	Small
Q47	0.163	96	0.871	0.047	0.290	-0.528	0.622	0.038	Trivial
Q48	-1.059	98	0.292	-0.393	0.371	-1.128	0.343	0.248	Small
Q49	0.564	98	0.574	0.215	0.381	-0.541	0.971	0.132	Trivial
Q50	1.854	98	0.067	0.743	0.401	-0.052	1.539	0.434	Small
Q51	-0.659	94	0.512	-0.250	0.380	-1.004	0.504	0.155	Trivial

Keterangan: *p < .05 → signifikan; **p < .01 → sangat signifikan; ***p < .001 → sangat kuat signifikan.
Cohen's d interpretasi: Trivial: d < 0.20; Small: 0.20 ≤ d < 0.50; Moderate: 0.50 ≤ d < 0.80; Large: d ≥ 0.80.

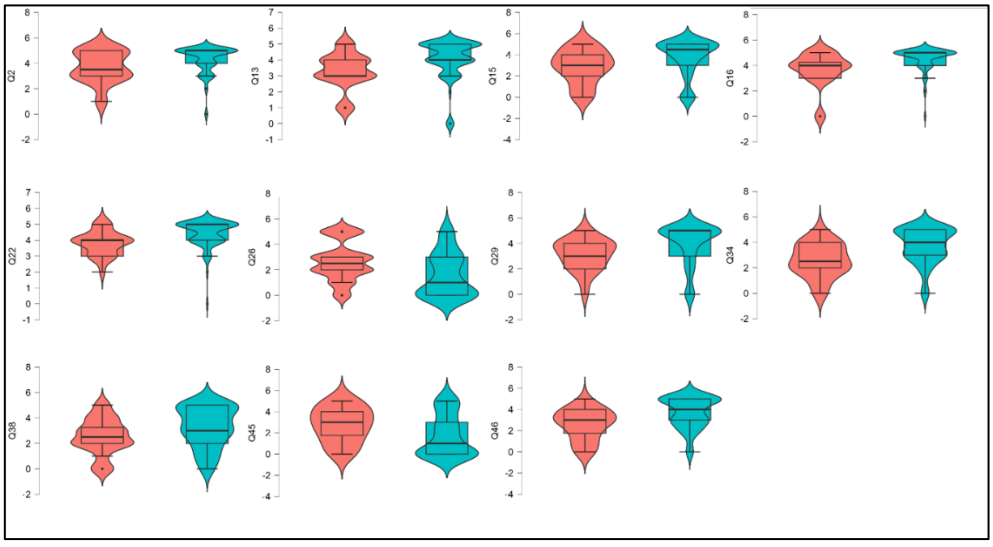

Figure 1. Mean differences and standard deviations for responses that showed significant gender differences on the EMI-2.

Regarding the general dimensions of analysis, no statistically significant differences were observed between men and women.

Table 2. Significant gender differences for the dimensions analyzed in the EMI-2.

Motivation Dimension	*t*	*p*	Mean Diff.	95% CI for Mean Difference		Cohen's d	Effect Size
				95% CI Lower	95% CI Upper		
Positive Health	0.486	0.628	0.158	-0.488	0.804	0.114	Trivial
Revitalization	-0.457	0.649	-0.088	-0.470	0.294	-0.107	Trivial
Agility	-1.260	0.211	-0.323	-0.832	0.186	-0.295	Small
Preventive Health	-0.104	0.917	-0.017	-0.342	0.308	-0.024	Trivial

Enjoyment	0.276	0.783	0.068	-0.419	0.554	0.065	Trivial
Strength/Endurance	-1.255	0.212	-0.251	-0.648	0.146	-0.294	Small
Appearance	-1.173	0.244	-0.287	-0.774	0.199	-0.275	Small
Weight Management	0.040	0.968	0.011	-0.531	0.553	0.009	Trivial
Stress Control	0.816	0.416	0.222	-0.317	0.761	0.191	Trivial
Affiliation	0.055	0.956	0.017	-0.594	0.628	0.013	Trivial
Challenge	0.856	0.394	0.234	-0.308	0.775	0.200	Small
Social Recognition	1.162	0.248	0.374	-0.265	1.013	0.272	Small
Medical Influences	0.774	0.441	0.169	-0.265	0.603	0.182	Trivial
Competition	1.151	0.253	0.391	-0.283	1.065	0.269	Small

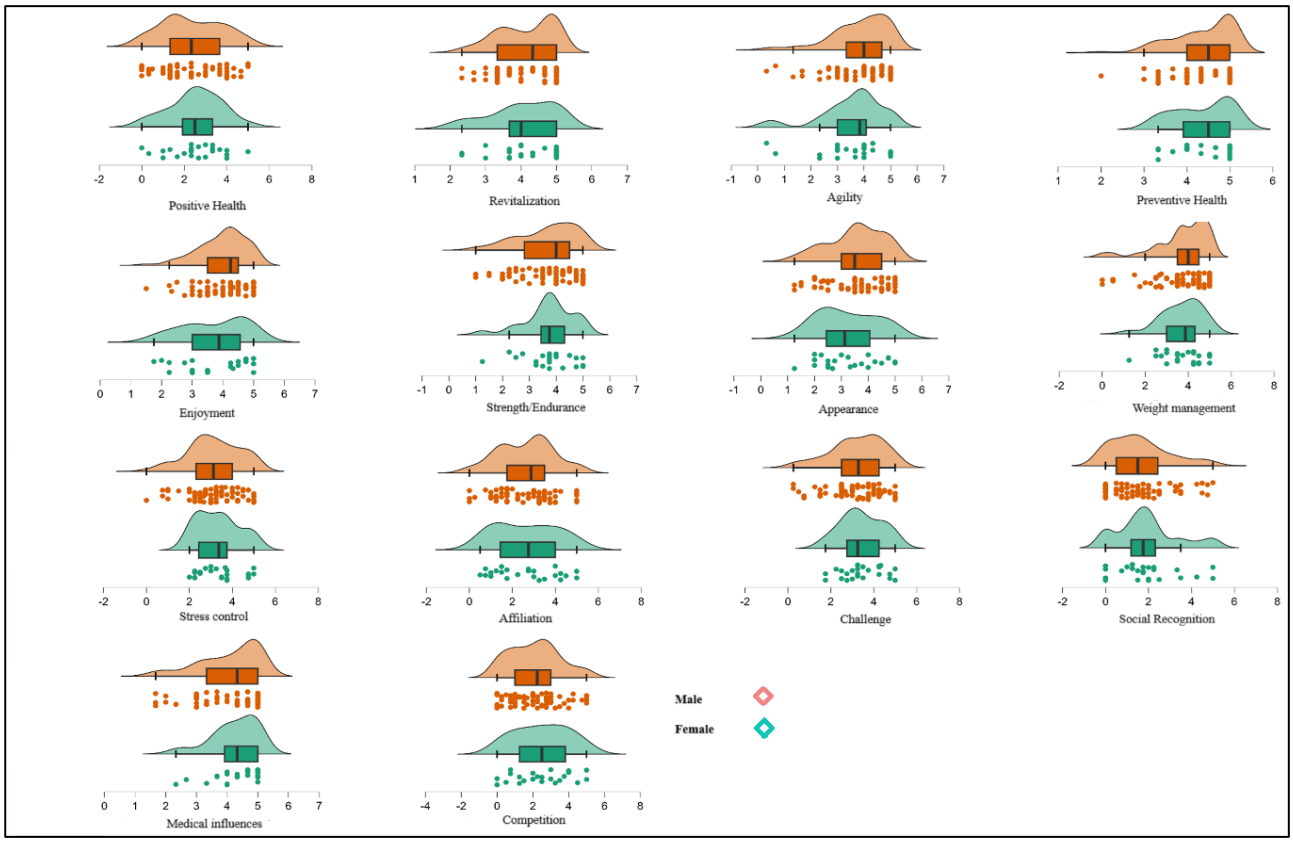

Figure 2. Mean and standard deviation of responses between genders for each of the EMI-2 analysis dimensions, with significant differences highlighted.

DISCUSSION

This study aimed to compare the motivations for physical exercise between men and women in the Tâmega and Sousa region, based on the hypothesis that there would be significant differences between genders. The results confirmed this hypothesis, identifying statistically significant differences in individual motivations between men and women. However, no significant differences were observed between the global subscales of the assessment tool, the Exercise Motivations Inventory-2 (EMI-2).

The EMI-2 is widely recognized as a robust and comprehensive psychometric tool, allowing for a detailed analysis of 14 subscales that assess different dimensions of motivation for physical exercise, including psychological, social, health, recreational factors, and those related to weight and stress management (Ednie & Stibor, 2016; Ferri-Caruana et al., 2020). The validation of the instrument in different languages, including Portuguese, strengthens its applicability in diverse cultural contexts (Pimenta et al., 2021; Mayolla, S. O. M. and Apriani, L., 2023) In this study, data collection was conducted via social media, a strategy that allowed for a broad reach but has inherent limitations due to the convenience sampling method.

The results indicated that women place greater value on physical exercise for the prevention of health issues, improvement of physical endurance, and stress management, while men reported higher motivation for competition and the pursuit of unique achievements. Additionally, women were more motivated by the desire to avoid illness, improve agility, manage weight, participate in social activities, and relieve stress (Lee et al., 2022; Fikri, M., et al., 2024). These findings support previous studies suggesting intrinsic and extrinsic motivational differences between genders, with men typically more influenced by intrinsic motives, such as personal achievement and competition, and women more driven by extrinsic motives, such as health and aesthetic benefits (Moutão, 2005).

While this study provides valuable contributions, such as the exploration of exercise motivation in a sample from the Tâmega and Sousa region, there are limitations that need to be highlighted: 1) Sample representativeness: The convenience sampling strategy through social media does not allow for generalization of the results to the broader population. 2) Unassessed additional factors: The study did not consider participants' physical activity levels or the barriers to exercise, which limits a comprehensive understanding of motivations. 3) Sample size and homogeneity: The small sample size and gender imbalance (predominance of women) may have

influenced the results.

Future studies should use representative samples, including participants from different socioeconomic backgrounds and age groups, and incorporate additional variables, such as perceived barriers and physical activity levels, for a more comprehensive analysis. Furthermore, it will be important to explore specific interventions targeting men and women, considering differences in their motivations, to promote sustained engagement in physical exercise.

The results of this study contribute to understanding motivational differences between genders in physical exercise, providing a foundation for the development of more personalized intervention strategies aligned with the needs and preferences of both men and women. These strategies can be particularly useful in health and wellness promotion campaigns, especially in populations like that of the Tâmega and Sousa region.

CONCLUSION

This study revealed significant differences in motivations for physical exercise between men and women in the Tâmega and Sousa region. Although no differences were observed in the global subscales of the evaluation instrument, the data highlighted that men and women assign different values to physical activity, emphasizing motivations such as competition, health problem prevention, stress management, and the pursuit of personal achievements.

Despite its contributions, this study has limitations that should be considered. The sample is not representative of the general population due to the convenience sampling method, and important factors such as participants' physical activity levels and barriers to exercise were not assessed. These limitations restrict the generalizability of the results.

Future research is recommended to use larger, more representative samples and more comprehensive methodological approaches, incorporating additional variables that allow for a more thorough analysis of the motivations and challenges associated with physical exercise. Studies with this focus could not only deepen the understanding of motivational differences between genders but also inform targeted strategies to promote physical activity and overall well-being, both in the Tâmega and Sousa region and in similar contexts. Such studies could also provide valuable insights for the development of more effective and gender-specific health promotion programs and campaigns.

CONFLICT OF INTEREST

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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