

RESISTANCE TRAINING AMONG ACTIVE WOMEN: MOTIVATIONS, BARRIERS, AND ITS ROLE IN SELF-ESTEEM AND BODY SATISFACTION**Jessica Vaz Velho Sebastião de Melo^{1*}, Nuno Miguel Prazeres Batalha^{1 2}, Gabriela Sousa Neves de Almeida¹²****¹Department of Sport and Health, University of Evora, Portugal; ²Comprehensive Health Research Centre (CHRC), Evora, Portugal.****Abstract**

Resistance training (RT) has been increasingly recognized as a relevant health behavior among women, with potential benefits extending beyond physical health to psychological well-being. However, adherence to RT remains influenced by multiple individual and contextual factors.

This cross-sectional study aimed to examine RT adherence among physically active women, focusing on motivational and perceived barriers, as well as exploring associations with self-esteem and body satisfaction. A total of 240 physically active women (30.69 ± 8.87 years) answered a questionnaire about training habits, motivations and barriers associated with adherence to the RT. They also completed the *Rosenberg Self-Esteem Scale* and the *Silhouette Rating Scale*.

Most participants (80.8%) reported engaging in RT. Women who are single and without minor or dependent children engage in RT more frequently than those with a partner and children. Improving physical fitness and health (physical and mental) are the main motivations for the practice of RT, and lack of commitment and motivation are the main barriers. No statistically significant differences were found between RT practitioners and non-practitioners in self-esteem or body satisfaction. However, women with longer RT experience (≥ 1 year) reported greater body satisfaction, and practitioners tended to perceive their bodies more positively. A negative association was also observed between body dissatisfaction and self-esteem.

These findings highlight the role of psychological and contextual factors in RT adherence among women and suggest that sustained engagement in RT may be associated with more positive body perception over time.

Keywords: women adherence; resistance training; physical exercise; self-esteem; body satisfaction; motivations.

Resumen

El entrenamiento de fuerza (RT) ha sido cada vez más reconocido como un comportamiento relevante para la salud en las mujeres, con posibles beneficios que van más allá de la salud física y se extienden al bienestar psicológico. Sin embargo, la adherencia al RT sigue estando influenciada por múltiples factores individuales y contextuales.

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Este estudio transversal tuvo como objetivo examinar la adherencia al RT en mujeres físicamente activas, centrándose en las motivaciones y barreras percibidas, así como explorar su asociación con la autoestima y la satisfacción corporal. Un total de 240 mujeres físicamente activas (30.69 ± 8.87 años) respondieron a un cuestionario sobre hábitos de entrenamiento, motivaciones y barreras asociadas a la adherencia al RT. Asimismo, completaron la *Escala de Autoestima de Rosenberg* y la *Escala de Siluetas*.

La mayoría de las participantes (80.8%) reportó practicar RT. Las mujeres solteras y sin hijos menores o dependientes practican RT con mayor frecuencia que aquellas con pareja e hijos. La mejora de la condición física y de la salud (física y mental) fueron las principales motivaciones para la práctica del RT, mientras que la falta de compromiso y motivación fueron las principales barreras. No se encontraron diferencias estadísticamente significativas entre practicantes y no practicantes de RT en autoestima o satisfacción corporal. Sin embargo, las mujeres con mayor experiencia en RT (≥ 1 año) reportaron mayor satisfacción corporal, y las practicantes tendieron a percibir su cuerpo de forma más positiva. También se observó una asociación negativa entre la insatisfacción corporal y la autoestima.

Estos resultados destacan el papel de los factores psicológicos y contextuales en la adherencia al RT en mujeres y sugieren que la práctica sostenida de RT puede estar asociada a una percepción corporal más positiva a lo largo del tiempo.

Palabras clave: adherencia en mujeres; entrenamiento de fuerza; ejercicio físico; autoestima; satisfacción corporal; motivación.

Resumo

O treino de força (TF) tem vindo a ser cada vez mais reconhecido como um comportamento relevante para a saúde das mulheres, com potenciais benefícios que vão além da saúde física, estendendo-se ao bem-estar psicológico. No entanto, a adesão ao TF continua a ser influenciada por múltiplos fatores individuais e contextuais.

Este estudo transversal teve como objetivo analisar a adesão ao TF em mulheres físicamente ativas, focando-se nas motivações e barreiras percebidas, bem como explorar a sua associação com a autoestima e a satisfação corporal. Um total de 240 mulheres físicamente ativas (30.69 ± 8.87 anos) respondeu

a um questionário sobre hábitos de treino, motivações e barreiras associadas à adesão ao TF. As participantes completaram ainda a *Escala de Autoestima de Rosenberg* e a *Escala de Silhuetas*.

A maioria das participantes (80.8%) referiu praticar TF. As mulheres sem companheiro e sem filhos menores ou dependentes praticam TF com maior frequência do que aquelas com companheiro e filhos. A melhoria da condição física e da saúde (física e mental) foram as principais motivações para a prática de TF, enquanto a falta de compromisso e motivação foram as principais barreiras. Não se verificaram diferenças estatisticamente significativas entre praticantes e não praticantes de TF na autoestima ou satisfação corporal. No entanto, mulheres com maior tempo de prática de TF (≥ 1 ano) apresentaram maior satisfação corporal, e as praticantes tenderam a perceber o seu corpo de forma mais positiva. Observou-se ainda uma associação negativa entre a insatisfação corporal e a autoestima.

Estes resultados destacam o papel dos fatores psicológicos e contextuais na adesão ao TF em mulheres e sugerem que a prática sustentada de TF pode estar associada a uma percepção corporal mais positiva ao longo do tempo.

Palavras-chave: adesão em mulheres; treino de força; exercício físico; autoestima; satisfação corporal; motivação.

Introduction

The World Health Organization (2020) recommends that adults engage in muscle-strengthening activities of moderate or greater intensity, involving the major muscle groups, at least two days per week.

Resistance training is a broad term encompassing various exercise methods designed to increase muscular strength, power, and endurance through resistance provided by machines, free weights (such as barbells, dumbbells, medicine balls, kettlebells, resistance bands), or body weight (Stricker et al., 2020).

In recent years, there has been a notable increase in the number of women engaging in physical activity, particularly in fitness centers (Fernández-Martínez et al., 2020). Among these activities, participation in resistance training has gained particular prominence, signalling a shift in traditional perceptions of fitness and health. An increase number of women are adopting resistance

training, recognizing its value not only in physical wellbeing but also in psychological health. In addition to its physiological benefits, regular resistance training has been linked to improvements in self-esteem, self-confidence, body image, and self-acceptance among women (Aşçı, 2003; Ossip-Klein et al., 1989).

Several studies highlight common barriers to resistance training among women, such as social stereotypes, lack of motivation, fear of judgment or harassment, and unfamiliarity with the gym environment (Ford et al., 2023; Grogan, 2016; Kanel & Rellinger, 2019). Additional factors like family responsibilities, time constraints, and life routine changes also affect adherence (Arikawa et al., 2011; White et al., 2005).

Research suggests that adult physical activity adherence is associated with habits developed during adolescence, such as high levels of activity, access to nearby gyms, and frequent participation in physical education classes (Sun et al., 2017). Women's motivations tend to be extrinsic, focused on appearance and weight control (Kilpatrick et al., 2005) though intrinsic motivation is essential for long-term adherence (Dąbrowska-Galas & Dąbrowska, 2021). Despite its health benefits, many women are driven to engage in resistance training to enhance physical appearance (Grogan, 2016).

Self-esteem refers to the subjective evaluation an individual makes of themselves, influenced by self-related beliefs and emotions (Huit, 2009). It is closely related to self-concept, representing a more specific assessment of how one sees oneself. According to Rosenberg (1989), global self-esteem expresses an overall positive or negative orientation toward the self. It is also linked to self-efficacy, self-respect, and self-acceptance (Palenzuela-Luis et al., 2022), which directly influence mental health, interpersonal relationships, and general wellbeing.

Body image, on the other hand, refers to an individual's perceptions, thoughts, and feelings about their physical appearance. This concept is key to understanding how women perceive their bodies in relation to societal standards. A positive body image is strongly associated with higher levels of self-esteem. Women who are satisfied with their body image tend to have greater overall self-esteem (Grogan, 2016).

Body image is considered an essential component of global self-esteem in women and is influenced by factors such as BMI, media-imposed beauty standards, and bodily changes throughout life (Olchowska-Kotala, 2017; Pop, 2016; Pruis & Janowsky, 2010). Body dissatisfaction is often linked to lower levels of self-esteem (Rudd & Lennon, 2000) and is intensified by comparisons with idealized and unattainable images (Carter & Vartanian, 2022). The pressure to conform to the thin and toned body ideal leads many women to adopt extreme behaviors to achieve a socially valued appearance (Donovan & Uhlmann, 2022; Grogan, 2016).

Physical activity, especially resistance training, has been associated with significant improvements in women's self-esteem and body (Dąbrowska-Galas & Dąbrowska, 2021; Grogan, 2016). In addition to its physical benefits, resistance training can promote self-efficacy, self-satisfaction, and empowerment (Aşçı, 2003; Collins et al., 2019). Studies show that consistent training programs contribute to a more positive self-concept and greater body satisfaction (Brazell-Roberts & Thomas, 1989; Velez et al., 2010). Therefore, consistent practice can strengthen not only the body but also women's mental and emotional health.

This study aimed to analyze resistance training adherence among physically active women, considering training frequency, volume, and habits, as well as to identify the main factors that motivate or hinder this practice. It also sought to explore the role of resistance training in self-esteem and body image satisfaction.

Method

Study Design and Procedures

This cross-sectional study was conducted in accordance with the principles of the Declaration of Helsinki, current ethical and legal standards and received approval from the Ethics Committee of the University of Évora. All procedures followed national regulations regarding research with human participants, ensuring confidentiality and anonymity throughout the study. Data collection was conducted online using a Google Forms questionnaire, which was accessible from February 26 to May 30, 2024. The questionnaire link was disseminated through social media platforms, targeting physically active women. Participation was voluntary, and only one submission per participant was allowed through Google Forms' settings to prevent duplicate responses. On the first page of the questionnaire, participants were presented with an informed consent statement outlining the study's objectives, procedures, risks, and confidentiality measures. Only participants who actively agreed to participate by selecting the acceptance option were granted access to the questionnaire.

Participants

The study was conducted with adult women aged between 18 and 64 years, who were physically active, that is, engage in physical activities at least twice per week, for more than 60 minutes weekly, and walked more than 5000 steps per day (monitored via technological devices). The demographic and anthropometric characteristics of participants are displayed in Table 1. A total of 264 women were recruited, however, 24 were excluded for not meeting the inclusion criteria (Figure 1), resulting in a final of 240 participants (Figure 1).

The participants were divided according to marital status: women without a partner (single, divorced, or widowed, $n = 174$) and women with a partner (married or in a domestic partnership, $n = 66$). Around 79.6% ($n = 191$) of the participants reported not having dependent children, while 20.4% ($n = 49$) confirmed having them.

Measures and Instruments

The questionnaire comprised three sections: Sociodemographic and Resistance Training Adherence Questionnaire, developed for this study to capture participants' background and training habits; Self-Esteem Scale (Rosenberg Self-Esteem Scale); Body Image Satisfaction Scale (Silhouette Rating Scale).

Sociodemographic Characteristics and Resistance Training Adherence

A structured questionnaire "Sociodemographic and Resistance Training Adherence Questionnaire" was developed specifically for this study to collect data on participants' sociodemographic characteristics and resistance training (RT) adherence. Content validity was assessed by two exercise physiology experts, who evaluated each item for relevance, clarity, simplicity, and ambiguity. The final version was informed by literature, expert recommendations, and the author's professional experience as a Personal Trainer (PT).

Table 1. Demographic and Anthropometric Characteristics of Participants ($n=240$).

Variable	Mean ($\pm$ SD)	Minimum	Maximum
Age (years)	30.69 $\pm$ 8.87	18	61
Weight (kg)	62.04 $\pm$ 11.43	40	115
Height (m)	1.62 $\pm$ 0.06	1.4	1.8
Body Mass Index (kg/m ²)	23.46 $\pm$ 3.81	17.2	39.7

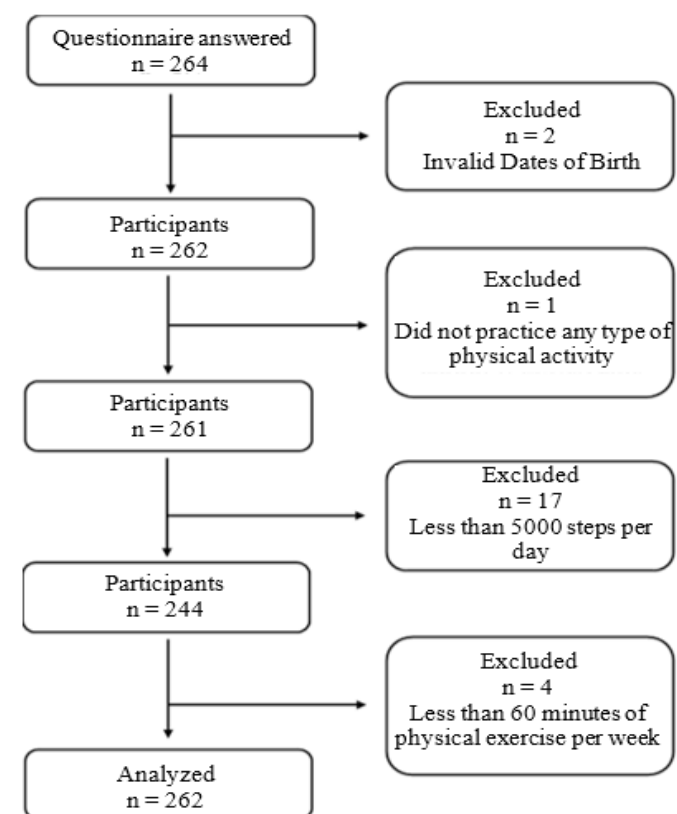


Figure1. Participant flow diagram.

In the first section of the questionnaire, items were used to collect sociodemographic information, including date of birth, weight, height (used to calculate BMI), marital status, and the presence of dependent children.

The second section included questions about participants' physical activity habits (type of resistance training, company during training, training planning, and location of resistance training), such as weekly frequency, how long they have been practicing RT and participation in sports. Women who reported regular RT participation were asked to indicate perceived motivations using a multiple-response checklist created based on the literature, but also on suggestions from experts and on the author's personal experiences as a PT: "To improve my physical fitness", "To reduce body fat", "To gain muscle mass", "To improve my health", "To socialize", "Because I enjoy it", "Because it makes me feel good", "To improve my mental health", "To reduce anxiety/depression", "To rehabilitate an injury". Those who reported not engaging in RT completed a Likert-scale section (1 = strongly disagree to 5 = strongly agree) regarding their barriers for engaging in RT.

An exploratory test-retest reliability study was conducted to assess the temporal stability of the RT barriers subscale. Eleven physically active women who did not engage in RT completed the barriers questionnaire twice, one week apart. Intra-class correlation coefficients (ICCs) were calculated to determine item stability over time. ICC values <0.50 were interpreted as poor, 0.50–0.75 as moderate, 0.75–0.90 as good, and >0.90 as excellent (Koo & Li, 2016). Internal consistency was also evaluated using Cronbach's alpha, with values ≥0.70 considered acceptable (Cronbach, 1951). Based on the reliability results, two items (Q1 and Q11) were excluded due to low ICC values and inadequate internal consistency, resulting in a questionnaire with sixteen items (Table 2). Most items demonstrated good to excellent temporal stability, with ICC values ranging from 0.659 to 0.974 (Table 2).

Self-Esteem

The *Rosenberg Self-Esteem Scale (RSES)*, developed by Morris Rosenberg in 1965, is widely used to assess individual self-esteem. It consists of ten items rated on a 4-point Likert scale from "4 – Strongly Disagree" to "1 Strongly Agree." Positive statements (1, 3, 4, 7, 10) are scored directly, while negative statements (2, 5, 6, 8, 9) are reverse-scored. The total score is the sum of all items, with higher scores indicating greater self-esteem (Pechorro et al., 2011; Rocha, 2011).

Body Image Satisfaction

The *Silhouette Rating Scale (SRS)* is a universally validated tool to assess body satisfaction (Lombardo et al., 2022). It consists of nine numbered silhouettes (1 to 9), ranging from very thin to very heavy. Participants first choose the

figure that best represents their current body (Current Body Image, SRS-C), followed by the figure that represents their ideal body (Ideal Body Image, SRS-I). The discrepancy between the two is considered a good measure of body dissatisfaction (SRS-D). Negative values indicate a preference for a thinner body, while positive values indicate a preference for a heavier body.

Data Analysis

Data were analyzed using SPSS software (v.27.0). Statistical significance was set at $p < .05$. Descriptive analysis was performed, including frequencies, means, standard deviations, minimum and maximum values. Data normality was tested using the Kolmogorov-Smirnov test. As BMI, age, and self-esteem did not follow a normal distribution, non-parametric tests (Mann-Whitney and Kruskal-Wallis) were used for group comparisons. Chi-square tests were applied to assess associations between categorical variables. Correlations between continuous variables were analyzed using Spearman and Pearson coefficients. Linear regressions were conducted to adjust for the covariate age, followed by ANCOVA for comparing groups with age as a control variable.

Results

Adherence to Resistance Training

Of the 240 women participants, 194 (80.8%) engage in resistance training and 46 (19.2%) do not. Among those who do, approximately half combine resistance training with another type of physical exercise (40.4%), while the other half practice resistance training exclusively (40.4%). The majority of women who engage in any form of physical activity include RT in their routine (67.8%).

No statistically significant differences were found in RT participation based on age ($p = 0.998$, $U = 4461.00$), current relationship status ($p = 0.388$), or the presence of minor or dependent children ($p = 0.513$). Nonetheless, a higher proportion of women without a partner (82.2%) and without minor or dependent children (81.7%) reported engaging in resistance training.

Regarding current relationship status, women without a partner engage in resistance training more frequently ($p = 0.006$). Among them, 47.94% train three to four times per week, compared to 10.31% of women with partner. Women with partner show a lower training frequency, especially among those training one to two times per week. Concerning the presence of children, women without minor or dependent children also train more frequently ($p = 0.022$). 48.97% of these women train three to four times per week, compared to 9.28% of those with children. Therefore, RT is more common among women without a partner and without minor or dependent children. No significant differences were observed between participants' age and training frequency ($p = 0.121$; $H = 4.223$).

Preferences for the Type of Resistance Training, Company During Training, Training Planning, and Location of Resistance Training

Regarding the preferred modality of resistance training, weight training in the gym stands out as the most common choice (80.4%), with 35.6% of women practicing it exclusively. This is followed by bodyweight training (36.6%), group classes with resistance (32.5%), and the use of free weights (30.9%), all with lower percentages of exclusive practice. Many participants combine two or more modalities. Additionally, 6.7% report practicing CrossFit and 3.6% calisthenics.

When it comes to training companionship, most women (39.2%) prefer to train exclusively alone. Others report training only with friends, family, or acquaintances (16.5%), or solely with a PT (15.5%). Some combine different types of companionship: 13.9% train alone and with acquaintances; 6.7% alone and with a PT; 6.2% with acquaintances and a PT; and 2.1% combine all three. Overall, there is a clear preference for solo training.

In terms of training planning, most women (39.2%) rely exclusively on an individual plan. A considerable proportion (27.8%) follow guidance solely from a PT, while 6.7% use only social media videos. Mixed approaches are also present: 8.8% combine a plan and a PT; 6.7% use a plan and videos; 1.0% rely on videos and a PT; and 0.5% use all three sources. Additionally, 9.3% do not follow any structured planning.

As for the training location, the vast majority (76.3%) train exclusively at the gym. Smaller groups train only at home (4.6%) or outdoors (2.1%). Some participants combine locations: 7.2% train at both the gym and at home; 3.1% at the gym and outdoors; 1.5% at home and outdoors; and 3.1% use all three. Moreover, 2.1% train exclusively at a CrossFit box.

Motivations for Engaging in Resistance Training

Table 3 summarizes the motivational reasons reported by the 194 women who engage in RT. The most common motivations were improving physical fitness (88.14%; $n=171$), health (74.23%; $n=144$), and mental health (69.59%; $n=135$). Women without a partner or children more often reported increasing muscle mass (65.98%; $n=128$), whereas those with a partner emphasized well-

Table 2. Test-retest reliability of the subscale on barriers to resistance training.

	Test-retest Reliability	P
	ICC (n=11)	
Q1. I don't have time	0.441	0.06
Q2. I don't have the financial means	0.832	<0.001*
Q3. I am not motivated	0.659	0.005*
Q4. I don't have anyone to train with	0.808	<0.001*
Q5. I don't see the need	0.816	<0.001*
Q6. I don't know how to train	0.767	0.002*
Q7. The gym is far from home or work	0.66	0.009*
Q8. I'm afraid of being judged	0.867	<0.001*
Q9. I'm afraid of being watched or harassed	0.835	<0.001*
Q10. I'm afraid of becoming too muscular	0.781	0.002*
Q11. I think resistance training is more suitable for men	-0.111	0.621
Q12. I have little information about the benefits of resistance training	0.91	<0.001*
Q13. I feel discomfort or pain when doing resistance training	0.795	<0.001*
Q14. I believe I'm too old for resistance training	0.681	0.009**
Q15. I lack commitment or discipline	0.771	0.002*
Q16. I'm unable to define realistic goals	0.974	<0.001*
Q17. I can't rest or sleep well	0.825	<0.001*
Q18. I had negative past experiences	0.906	<0.001*

Note. Q. – Question; Test-retest reliability assessed using intraclass correlation (ICC), with values ranging from 0 to 1. * Significant correlation at $p < 0.05$; ** Significant correlation at $p < 0.01$. Statements that were excluded from the final version of the subscale on barriers to resistance training are in italics.

being (62.37%; $n=121$). The only statistically significant difference was in the motivation “reducing anxiety/depression” (44.84%; $n=87$), which was more frequently cited by women without a partner ($p = 0.024$).

Barriers to Resistance Training Practice

Table 4 presents the barriers reported by the 46 women in the study who do not engage in RT, with responses rated on a Likert scale. The main barriers were “Lack of commitment” and “Lack of motivation”, while “I’m not the right age to practice” and “Fear of becoming too muscular” had the lowest averages. The barrier “I don’t have realistic goals” received a neutral average score, suggesting that although it is not one of the main barriers, it may still influence adherence to resistance training.

An analysis of covariance (ANCOVA) revealed a significant difference ($p = 0.020$) in responses to the barrier “Fear of being watched/harassed,” which was more frequent among women without a partner compared to those with a partner.

For both women with underage or dependent children and those without children, the most frequently cited barriers were “Lack of motivation” and “Lack of commitment.” No statistically significant differences were found between the two groups ($p > 0.05$).

Additionally, 58.7% of women who do not engage in RT stated that they would be willing to start if the barriers were removed, while 41.3% indicated that they would still not wish to begin training, even in the absence of barriers.

Self-Esteem

The average self-esteem score, assessed using the *RSES*, was 31.23 ± 4.72 , indicating generally high levels (Table 5). Women who practiced resistance training had slightly higher scores than non-practitioners, though the difference was not statistically significant. Self-esteem was weakly to moderately positively correlated with age ($r_s = 0.299$; $p < 0.001$), but showed no significant association with BMI, relationship status, or having dependent children after, controlling for age.

Body Satisfaction

According to Table 6, on average, participants wished to have a thinner silhouette than the one they currently perceive and a discrepancy of approximately one silhouette ($SRS-D = -0.71 \pm 0.97$; $|SRS-D| = 0.92 \pm 0.77$). Additionally, 68 participants reported no difference between their current and ideal silhouette, indicating satisfaction with their current body shape, 57 of whom practiced resistance training. Women who engaged in resistance training reported slightly thinner silhouettes (3.67 ± 1.19 vs. 3.91 ± 1.30) and greater body satisfaction (0.91 ± 0.78 vs. 0.96 ± 0.76), although these differences were not statistically significant ($p > 0.05$). However, women who had been training for more than one year reported significantly greater body satisfaction (0.81 ± 0.74) than those who had been training for less than a year (1.08 ± 0.82), with statistical significance ($Z = 5.599$; $p = 0.019$).

Women without a partner reported more robust silhouettes (3.75 ± 1.21 vs. 3.62 ± 1.24) and lower body satisfaction (0.95 ± 0.76 vs. 0.85 ± 0.81), as did those without minor or dependent children (silhouette: 3.74 ± 1.18 vs. 3.61 ± 1.37 ; satisfaction: 0.93 ± 0.77 vs. 0.88 ± 0.81), although these differences were

also not statistically significant ($p > 0.05$). Pearson correlation analysis revealed a moderate, statistically significant negative relationship between BMI and silhouette discrepancy ($r = -0.624$; $p < 0.001$), suggesting that women with higher BMI tend to report greater body dissatisfaction.

Discussion

This study analyzed adherence to RT among physically active women, exploring their motivations, barriers, preferences, and the impact on self-esteem and body satisfaction. The participants showed a high rate of RT participation (80.8%), with many women incorporating it even when practicing other sports, reflecting a growing awareness of its health benefits.

Our findings indicate that, age did not significantly influence adherence to RT, which was practiced by women across a wide age range. However, previous research by Surakka et al. (2004) suggests that women over 50 reported higher training frequency compared to those under 40, likely due to increased availability of time.

Nonetheless, our data revealed a tendency for higher adherence among women without a partner or without young or dependent children. This is in line with the findings of Arikawa et al. (2011), who also observed that familial and caregiving responsibilities may serve as practical barriers to consistent training, particularly among younger women with dependents.

Most participants (72.6%) engaged in RT at least three times per week, in line with WHO (2020) recommendations for muscular strength development and maintenance. A substantial number (62.9%) had been practicing RT for more than a year, suggesting established habits.

Participants without a partner or dependent children trained more frequently, reflecting the influence of family responsibilities, which is in line with the studies carried out by (Arikawa et al., 2011) e O’Dougherty et al. (2008). Traditional gym-based resistance training was the preferred method (80.4%), followed by bodyweight exercises (36.6%) and group strength classes (32.5%) This reinforces the idea that limitations such as lack of confidence in the use of gym materials are not so perceived by women (Grogan, 2016). Free weights were used by 30.9%, but only 2.1% used them exclusively, indicating the need for greater technical skill and confidence.

Most participants trained alone (61.9%), with 39.2% never training with a partner, indicating a trend toward autonomy. However, a significant number trained with peers or personal trainers (PTs), with 15.5% training exclusively under PT supervision, reflecting a preference for safe and effective guidance as in the study of Nuzzo (2023). Some participants combined different training companions, showing flexibility and customization.

Regarding training planning, 55.2% followed a personalized plan, and 27.8% relied solely on PT. Social media videos were used by 6.7%, demonstrating the influence of digital platforms as in the study by de Freitas (2023). A small group (9.3%) did not follow any training structure, which may hinder consistent participation.

The gym was the most preferred location (76.3%), perceived as suitable due to access to equipment and professional support. In contrast, only 4.6% trained

Table 3. Motivations for resistance training practice by current relationship status and children under age or dependent ($n = 194$).

	Current relationship status					Minor or dependent children					
	Without partner (n=143)		With partner (n=51)		p(a)	No (n=156)		Yes (n=38)		p(b)	Total
	n	%	n	%		n	%	n	%		
To improve my physical fitness	128	89.51	43	84.31	0.324	137	87.82	34	89.47	-	171 (88.14)
To reduce body fat	74	51.74	29	56.86	0.53	81	51.92	22	57.89	0.508	103 (53.09)
To gain muscle mass	96	67.13	32	62.74	0.57	102	65.38	26	68.42	0.723	128 (65.98)
To improve my health	102	71.33	42	82.35	0.122	112	69.23	32	84.42	0.117	144 (74.23)
To socialize	10	6.99	3	5.88	-	7	4.49	6	15.79	-	13 (6.70)
Because I enjoy it	50	34.96	16	31.37	0.642	51	32.69	15	39.47	0.429	66 (34.02)
Because it makes me feel good	87	60.84	34	66.67	0.461	97	62.18	24	63.16	0.911	121 (62.37)
To improve my mental health	101	70.63	34	66.67	0.597	107	68.59	28	73.68	0.54	135 (69.59)
To reduce anxiety/depression	71	49.65	16	31.37	0.024*	73	46.79	14	36.84	0.259	87 (44.84)
To rehabilitate an injury	11	7.69	4	7.84	-	11	7.05	4	10.53	-	15 (7.73)
Because my profession requires it	1	0.7	0	0	-	1	0.64	0	0	-	1 (0.52)
To set an example for my children	0	0	1	1.96	-	0	0	1	2.63	-	1 (0.52)

Note. (a) p -values obtained using Pearson’s Chi-square test for the comparison between motivations for resistance training and marital status; (b) p -values obtained using Pearson’s Chi-square test for the comparison between motivations for resistance training and the presence of dependent or minor children; (*) statistically significant difference ($p < 0.05$).

Table 4. Participants responses regarding the barriers to engaging in resistance training (n=46).

	Current relationship status			Minor or dependent children			
	Without partner	With partner		No	Yes		Total
	(n=31)	(n=15)		(n=35)	(n=11)		
	M ± SD	M ± SD	p(a)	M ± SD	M ± SD	p(b)	M ± SD
I don't have the financial means	2.48 ± 1.36	1.87 ± 1.13	0.131	2.23 ± 1.24	2.45 ± 1.57	0.608	2.28 ± 1.31
I am not motivated	3.23 ± 1.33	3.20 ± 1.15	0.344	3.17 ± 1.29	3.36 ± 1.21	0.728	3.22 ± 1.26
I don't have anyone to train with	2.87 ± 1.54	2.60 ± 1.06	0.533	2.86 ± 1.44	2.55 ± 1.29	0.481	2.78 ± 1.40
I don't see the need	1.84 ± 1.24	2.40 ± 1.50	0.245	2.03 ± 1.34	2.00 ± 1.41	0.638	2.02 ± 1.34
I don't know how to train	2.94 ± 1.61	2.33 ± 1.18	0.059	2.83 ± 1.52	2.45 ± 1.44	0.221	2.74 ± 1.50
The gym is far from home or work	2.10 ± 1.37	2.47 ± 1.13	0.11	2.17 ± 1.36	2.36 ± 1.12	0.367	2.22 ± 1.30
I'm afraid of being judged	2.68 ± 1.49	1.73 ± 1.16	0.133	2.51 ± 1.44	1.91 ± 1.45	0.629	2.37 ± 1.45
I'm afraid of being watched or harassed	2.71 ± 1.49	1.60 ± 0.99	0.020*	2.51 ± 1.46	1.82 ± 1.25	0.267	2.35 ± 1.43
I'm afraid of becoming too muscular	1.87 ± 1.36	1.73 ± 0.88	0.3	1.83 ± 1.22	1.82 ± 1.25	0.625	1.83 ± 1.22
I have little information about the benefits of resistance training	2.48 ± 1.46	2.13 ± 1.25	0.102	2.34 ± 1.37	2.45 ± 1.51	0.565	2.37 ± 1.39
I feel discomfort or pain when doing resistance training	2.29 ± 1.40	2.00 ± 1.20	0.245	2.20 ± 1.28	2.18 ± 1.54	0.532	2.20 ± 1.33
I believe I'm too old for resistance training	1.39 ± 0.8	1.53 ± 0.83	0.634	1.37 ± 0.73	1.64 ± 1.03	0.511	1.43 ± 0.81
I lack commitment or discipline	3.58 ± 1.06	2.87 ± 0.92	0.054	3.43 ± 1.09	3.09 ± 0.94	0.505	3.35 ± 1.06
I'm unable to define realistic goals	2.77 ± 1.28	2.80 ± 0.94	0.945	2.80 ± 1.21	2.73 ± 1.10	0.844	2.78 ± 1.17
I can't rest or sleep well	2.77 ± 1.45	2.67 ± 1.45	0.901	2.71 ± 1.47	2.82 ± 1.40	0.495	2.74 ± 1.44
I had negative past experiences	1.81 ± 1.11	2.13 ± 1.13	0.458	1.77 ± 0.97	2.36 ± 1.43	0.314	1.91 ± 1.11

Note. M – mean; SD – standard deviation; (a) *p*-values obtained from Analysis of Covariance (ANCOVA) comparing women with without a partner, controlling for age; (b) *p*-values obtained from ANCOVA comparing women with and without minor or dependent children, controlling for age; (*) statistically significant difference (*p* < 0.05).

Table 5. Responses to the Rosenberg Self-Esteem Scale (RSES) items (n = 240).

	Current relationship status		Minor or dependent children		Practices Resistance Training		
	Without partner	With partner	No	Yes	No	Yes	Total
	(n=176)	(n=66)	(n=35)	(n=11)	(n=46)	(n=194)	
	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD
1. On the whole, I am satisfied with myself.	2.78 ± 0.73	3.00 ± 0.72	2.82 ± 0.71	2.92 ± 0.81	2.61 ± 0.86	2.90 ± 0.69	2.84 ± 0.73
2. At times, I think I am no good at all.	2.97 ± 0.86	3.32 ± 0.79	2.99 ± 0.86	3.37 ± 0.76	3.00 ± 0.89	3.08 ± 0.85	3.07 ± 0.86
3. I feel that I have a number of good qualities.	3.28 ± 0.52	3.44 ± 0.53	3.28 ± 0.52	3.49 ± 0.54	3.37 ± 0.57	3.31 ± 0.52	3.33 ± 0.83
4. I am able to do things as well as most other people.	3.26 ± 0.63	3.38 ± 0.52	3.27 ± 0.61	3.39 ± 0.53	3.33 ± 0.67	3.29 ± 0.58	3.30 ± 0.60
5. I feel I do not have much to be proud of.	3.33 ± 0.78	3.52 ± 0.77	3.32 ± 0.81	3.61 ± 0.64	3.24 ± 0.85	3.41 ± 0.77	3.38 ± 0.78
6. I certainly feel useless at times.	2.95 ± 0.90	3.39 ± 0.68	2.98 ± 0.88	3.45 ± 0.71	2.96 ± 0.92	3.10 ± 0.86	3.07 ± 0.87
7. I feel that I'm a person of worth.	3.31 ± 0.59	3.30 ± 0.53	3.29 ± 0.57	3.39 ± 0.57	3.22 ± 0.70	3.33 ± 0.53	3.31 ± 0.57
8. I wish I could have more respect for myself.	2.17 ± 0.91	2.76 ± 0.96	2.25 ± 0.93	2.67 ± 1.03	2.20 ± 1.00	2.37 ± 0.95	2.33 ± 0.96
9. All in all, I am inclined to think that I am a failure.	3.43 ± 0.72	3.68 ± 0.59	3.47 ± 0.70	3.61 ± 0.64	3.20 ± 0.91	3.57 ± 0.61	3.50 ± 0.69
10. I take a positive attitude toward myself.	3.06 ± 0.72	3.26 ± 0.59	3.06 ± 0.70	3.33 ± 0.63	3.04 ± 0.76	3.13 ± 0.67	3.11 ± 0.69
Total (points) (M ± SD)	30.55 ± 4.85	33.05 ± 3.83	30.72 ± 4.65	33.22 ± 4.52	30.15 ± 5.44	31.49 ± 4.51	31.23 ± 4.72
p(a)	0.103		0.25		0.14		

Note. M – mean; SD – standard deviation; (a) *p*-values obtained from Analysis of Covariance (ANCOVA), controlled for age, between independent groups.

Table 6. Responses to the Silhouette Rating Scale (SRS) items (n=240).

	Current relationship status			Minor or dependent children		Practices Resistance Training		
		Without partner (n=176)	With partner	No	Yes	No	Yes	Total
				(n=35)	(n=11)	(n=46)	(n=194)	
Current Body Image	M ± SD	3.75 ± 1.21	3.62 ± 1.24	3.74 ± 1.18	3.61 ± 1.37	3.91 ± 1.31	3.67 ± 1.19	3.72 ± 1.21
(SRS-C)	Max.	8	8	8	8	8	8	8
	Min.	1	1	1	1	2	1	1
Ideal Body Image	M ± SD	3.01 ± 0.75	2.98 ± 0.83	2.99 ± 0.76	3.06 ± 0.83	3.22 ± 0.84	2.95 ± 0.75	3.00 ± 0.77
(SRS-I)	Max.	5	4	5	4	5	5	5
	Min.	1	1	1	1	1	1	1
SRS-D	M ± SD	-0.74 ± 0.97	-0.64 ± 0.99	-0.75 ± 0.94	-0.55 ± 1.06	-0.70 ± 1.01	-0.72 ± 0.96	-0.71 ± 0.97
SRS-D	M ± SD	0.95 ± 0.76	0.85 ± 0.81	0.93 ± 0.77	0.88 ± 0.81	0.96 ± 0.76	0.91 ± 0.78	0.92 ± 0.77
	p(a)	0.323		0.648		0.722		

Note. M – mean; SD – standard deviation; SRS-D - body dissatisfaction; (a) *p*-values obtained through Analysis of Covariance (ANCOVA), controlled for age, for comparison between independent groups.

exclusively at home and 2.1% outdoors. These findings contrast with earlier studies suggesting women preferred private settings due to discomfort in gym environments (Ford et al., 2023; Grogan, 2016; Kanel & Rellinger, 2019).

The most cited motivations were physical fitness improvement (88.1%), followed by general health (74.2%) and mental health (69.6%). Muscle gain (66%) and fat loss (53%) were also key reasons (Grogan, 2016; Kilpatrick et al., 2005). Some participants reported using RT as a strategy to manage anxiety and depression (44.8%) (Gammage et al., 2016; Gonçalves et al., 2022; Koplas et al., 2012).

Motivational patterns varied slightly across groups. McLaughlin (2015) said that women with partners more frequently emphasized feeling good, while those without partners often mentioned muscle gain and mental health benefits, possibly as a mechanism for self-worth and acceptance.

Among participants not engaging in RT, the main barriers were lack of motivation and commitment. Concerns about being "too old" or "getting too muscular" were minimal, suggesting changing perceptions and declining influence of body stereotypes (Grogan, 2016). Fear of harassment was more prominent among participants without partners, indicating a potential perceived vulnerability. The studies carried out by Ackerman (2015) and Kanel & Rellinger (2019) revealed that the fear of being observed and judged by men in the exercise room made women prefer to train in private environments or intended only for women, even preventing some from joining this modality.

Over half of the non-practicing participants reported willingness to begin training if these barriers were overcome, although 41.3% remained uninterested, emphasizing the need for targeted promotion strategies.

Self-esteem, assessed using the Rosenberg Self-Esteem Scale, showed high average scores (mean = 31.23), slightly below levels found in Greek physically active women (Zartaloudi et al., 2023). While RT participants had marginally higher self-esteem, differences were not significant after adjusting for age. This suggests that, although strength training may contribute to greater self-esteem (Melnick & Mookerjee, 1991) other modalities, practiced by the women in the study (RT practitioners or not) may also contribute to greater self-esteem (Frost & Mckelvie, 2005; Pop, 2016).

Self-esteem tended to increase with age, in line with findings by Bleidorn et al. (2016), potentially due to greater emotional and professional stability during adulthood.

Based on silhouette assessment, most participants identified their current body shape as silhouette 4 and desired silhouette 3, reflecting a common preference for a slimmer figure as reported in previous studies (Carter & Vartanian, 2022; Donovan & Uhlmann, 2022).

Participants who practiced RT perceived themselves as leaner and reported greater body satisfaction, especially those training for more than a year. In fact, Velez et al. (2010) and Brazell-Roberts & Thomas (1989) showed that a 12-week (4-month) strength training program can promote improvements in women's self-concept, which suggests that over time and with the acquisition of results, women begin to feel better about their bodies. A moderate correlation between BMI and perceived body discrepancy was observed higher BMI correlated with greater dissatisfaction as in the Olchowska-Kotala (2017) study.

A weak but significant negative correlation between self-esteem and body dissatisfaction was found, supporting the view that higher satisfaction with appearance is associated with higher self-esteem (Grogan, 2016; Olchowska-Kotala, 2017).

Participants with partners tended to report higher self-esteem and body satisfaction (Macdonald et al., 1987), while those with children also showed higher levels in both aspects. This may reflect fulfilment through motherhood and shifting priorities toward family well-being.

Conclusion

The present study showed that a high proportion of physically active women engage in resistance training (RT), with most incorporating this modality into their regular exercise routines. Adherence was not significantly influenced by age, relationship status, or the presence of dependent children, although women without these responsibilities tended to train more frequently. Participants predominantly preferred structured training in gym settings, performed individually or with peers. The main motivations were related to improvements in physical fitness, overall health, and mental well-being, while lack of motivation and commitment emerged as the primary barriers.

Higher self-esteem was associated with greater body satisfaction. Although no significant differences were found between RT practitioners and non-practitioners, women with longer RT experience (≥ 1 year) reported higher body satisfaction, suggesting that sustained engagement may play a role in more positive body-related perceptions over time.

These findings highlight the importance of promoting long-term adherence to RT and addressing motivational barriers. Future research should include more diverse samples and explore longitudinal and intervention-based designs to better understand the psychological outcomes associated with resistance training in women.

Declaration

Ethics approval and consent to participate

This study was reviewed and approved by the Ethics Committee of the University of Évora. Formal written approval was not issued, as the study involved anonymous, voluntary participation and posed minimal risk to participants. The study was conducted in accordance with the principles of the Declaration of Helsinki. All participants provided informed consent prior to participation.

Consent for publication

Not applicable.

Declaration of interest Statement

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