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Motivational Dimensions Among Athletes with Physical Disabilities in Türkiye: Sociodemographic and Sport-Related Correlates

Research Article

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Abstract: This study examined intrinsic motivation, extrinsic motivation, and amotivation among active athletes with physical disabilities in Türkiye and investigated their sociodemographic and sport-related correlates. A cross-sectional survey was conducted with 205 athletes, including 74 women and 131 men. Data were collected using a personal information form and the Sport Participation Motivation Scale for Individuals with Disabilities. Descriptive statistics, group comparisons, correlations, and multiple linear regression models with heteroskedasticity-consistent standard errors were employed. Mean item scores were 4.20 for intrinsic motivation, 3.80 for extrinsic motivation, and 3.48 for amotivation. The intrinsic motivation model had limited explanatory value (adjusted R^2 = 0.020), whereas the amotivation model explained substantially more variance (adjusted R^2 = 0.281). After adjustment, upper income was associated with higher intrinsic motivation. Selected educational categories and income were associated with extrinsic motivation, although education-related estimates require caution because of small and unbalanced subgroups. Men and single athletes reported lower amotivation, whereas team-sport participation, selected educational categories, and upper income were associated with higher amotivation. The team-sport finding applies specifically to amputee football and wheelchair basketball athletes in this sample and should not be generalised to team sports overall. Years of sport participation was not independently associated with intrinsic motivation or amotivation, and its association with extrinsic motivation was not robust in sensitivity analysis. Overall, the three motivational dimensions showed distinct correlates. Further research should examine psychological, social, disability-related, and organisational factors associated with sustainable sport participation.

Keywords: *Amotivation • Disability sport • Extrinsic motivation • Intrinsic motivation • Physical disability • Sport participation*

1. Introduction

Sport participation can provide athletes with physical disabilities with opportunities for physical development, psychological well-being, social interaction, identity formation, and community involvement. Sport may also create a context in which individuals experience competence, mastery, achievement, autonomy, and belonging rather than primarily focusing on impairment or limitation (Groff et al., 2009; Martin Ginis et al., 2017; Shirazipour et al., 2017). However, these potential benefits are shaped by the social, economic, organisational, and environmental conditions surrounding participation.

Athletes with physical disabilities may encounter barriers involving transportation, facility accessibility, adaptive equipment, financial resources, limited competitive opportunities, social attitudes, and institutional support (Ascondo et al., 2023; Jaarsma et al., 2014; Martin Ginis et al., 2016). Recent evidence also indicates that sport participation among people with disabilities is associated with socioeconomic circumstances and characteristics of the built environment (Chen et al., 2024). Motivation in disability sport should therefore be considered in relation to both individual experiences and the broader conditions within which sport participation occurs.

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In Türkiye, the public health and sport context also points to a substantial population affected by mobility-related limitations and to an established disability-sport infrastructure. In the 2022 Health Module, 19.2% of individuals aged 15 years and older reported some degree of difficulty walking, and 0.5% reported being unable to walk (Turkish Statistical Institute, 2023). The Ministry of Youth and Sports 2024–2028 Strategic Plan listed a baseline of 49,547 athletes with disabilities and 2,331 sport clubs serving people with disabilities, with first-year targets of 50,500 athletes and 2,700 clubs (Republic of Türkiye Ministry of Youth and Sports, 2024). These figures should not be read as estimates of the prevalence of physical disability or as sport-participation rates specifically among people with physical disabilities; they are included to provide national context for mobility limitations and organised disability sport in Türkiye.

Motivation is central to understanding why individuals initiate, maintain, or discontinue sport participation. Self-Determination Theory (SDT) distinguishes among different qualities of motivation rather than treating motivation as a single construct (Ryan & Deci, 2000, 2017). Intrinsic motivation refers to participation driven by enjoyment, interest, mastery, and satisfaction inherent in the activity. Extrinsic motivation broadly reflects participation influenced by separable outcomes such as recognition, rewards, competitive achievement, social approval, or expectations from significant others. Amotivation refers to a lack of intention, uncertainty regarding the value of participation, or difficulty perceiving a meaningful relationship between one's actions and expected outcomes.

The full SDT framework distinguishes different forms of extrinsic regulation and emphasises the basic psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2017; Teixeira et al., 2012). Previous sport research has linked autonomy-supportive coaching, motivational climate, and psychological-need satisfaction with athletes' motivational experiences (Jakobsen, 2023), and related evidence has been reported among athletes with physical disabilities (Ağduman & Alpdoğan, 2023). The instrument used in the present study, however, measures only the broad dimensions of intrinsic motivation, extrinsic motivation, and amotivation. Accordingly, SDT is used here as a guiding conceptual framework for interpreting these broad motivational dimensions; the study does not assess the full continuum of behavioural regulation, the different forms of extrinsic regulation, or basic psychological-need satisfaction and therefore should not be interpreted as a comprehensive test of the theory.

Previous studies have identified enjoyment, health, achievement, personal development, social interaction, independence, identity, empowerment, competition, and stress reduction as important motives for sport participation among people with disabilities (McLoughlin et al., 2017; Romero et al., 2025). Recent studies have also examined sport-participation motivation in individuals with physical and hearing impairments and in specific disability-sport groups, including para-karate and wheelchair basketball athletes (Ayyildiz et al., 2024; Boz et al., 2024; Karakoç, 2023). These studies demonstrate the relevance of motivation to participation and broader psychosocial outcomes.

However, the existing literature remains fragmented. Some studies combine different disability groups, whereas others focus on a single sport discipline or relatively small samples. Physical disability is heterogeneous and may involve differences in impairment type, functional classification, age at disability onset, assistive-device use, and support requirements. Findings from one disability or sport group therefore cannot automatically be generalised to all athletes with physical disabilities.

Motivation may also vary according to sociodemographic and sport-related characteristics. Women with disabilities, for example, may experience strong commitment to sport while simultaneously encountering gender- and disability-related restrictions on access and support (Olasagasti-Ibargoien et al., 2023; Romero et al., 2025). Recent research has also identified sex-related differences in participation motives within specific sport contexts involving people with physical disabilities (Koper et al., 2024). Socioeconomic position, educational background, marital status, sport type, and accumulated sport experience may similarly be associated with the resources, expectations, responsibilities, and opportunities surrounding participation. These characteristics should not, however, be treated as direct measures of accessibility, support, or organisational quality.

Despite the established disability-sport infrastructure in Türkiye, the scientific evidence on motivation among active athletes with physical disabilities remains comparatively limited. Existing studies in Türkiye have examined motivation and related psychological experiences among people and athletes with disabilities (Ağduman & Alpdoğan, 2023; Ayyildiz et al., 2024; Boz et al., 2024; Karakoç, 2023), but the literature often combines different disability groups or focuses on particular sport disciplines and selected athlete groups. More importantly, previous studies have not consistently examined intrinsic motivation, extrinsic motivation, and amotivation as separate outcomes while simultaneously accounting for multiple sociodemographic and sport-related characteristics. The resulting gap is not simply a lack of descriptive

information, but limited evidence regarding whether the correlates of one motivational dimension are also relevant to the others among active athletes with physical disabilities.

The present study was designed to address this gap by examining intrinsic motivation, extrinsic motivation, and amotivation separately in a sample of active athletes with physical disabilities in Türkiye and by evaluating their sociodemographic and sport-related correlates within the same analytical framework. Rather than combining motivation into a single total score, the three dimensions were treated as distinct outcomes. The study further distinguished unadjusted group differences from independent associations estimated after the simultaneous consideration of age, sex, marital status, sport type, years of sport participation, educational level, and sample-specific income categories. In this way, the study contributes a more differentiated account of motivational variation while remaining within the measurement boundaries of the three broad dimensions assessed by the instrument.

The study addressed the following research questions:

1. What are the distributions and mean scores of intrinsic motivation, extrinsic motivation, and amotivation among active athletes with physical disabilities in Türkiye?
2. Do these motivational dimensions differ according to sex, marital status, sport type, educational level, and sample-specific income category?
3. Are years of sport participation associated with intrinsic motivation, extrinsic motivation, and amotivation?
4. Which sociodemographic and sport-related characteristics remain independently associated with each motivational dimension when the measured variables are considered simultaneously?

2. Material and Methods

2.1 Study Design

This study used a cross-sectional survey design to examine intrinsic motivation, extrinsic motivation, and amotivation among active athletes with physical disabilities in Türkiye. The study also investigated the relationships of these motivational dimensions with selected sociodemographic and sport-related characteristics.

The primary outcome variables were intrinsic motivation, extrinsic motivation, and amotivation. The explanatory variables included age, sex, marital status, educational level, monthly income category, sport type, and years of sport participation.

2.2 Participants

The study included 205 athletes with physical disabilities who were actively participating in organised sport at the time of data collection in late November 2024. Eligibility was based on current participation during the data-collection period rather than on a formally defined seasonal window. The sample comprised 74 women and 131 men. Participants were between 16 and 56 years of age, with a mean age of 28.41 years (SD = 8.24). The mean age was 29.22 years (SD = 8.58) for women and 27.95 years (SD = 8.05) for men.

Participants were eligible for inclusion if they had a physical disability, were currently participating in organised sport during the data-collection period, were able to understand and complete the questionnaire, and provided voluntary consent. Active participation was operationalised as current involvement in an organised sport setting at the time of recruitment. No prespecified minimum weekly training frequency, training duration, or competition-frequency threshold was used as an eligibility criterion. Questionnaires with incomplete responses were planned to be excluded; however, no missing responses were identified in the final dataset.

A convenience sampling approach was used to reach active athletes through sport clubs, disability-sport environments, and athlete networks in Türkiye. This approach enabled the inclusion of participants from a range of organised sport settings.

The sample included athletes from both individual and team sports. A total of 110 participants competed in individual sports, including athletics, badminton, arm wrestling, weightlifting, table tennis, swimming, archery, and shooting. The remaining 95 participants competed in team sports, including amputee football and wheelchair basketball. Sports were classified according to whether performance was evaluated primarily at the individual level or depended on coordinated team performance. For the present analyses, sport participation was retained as an individual-versus-team classification; discipline-specific frequencies were not available in the analytical dataset.

The mean duration of sport participation was 11.16 years (SD = 6.41), with a range of 1–29 years. Sixty-four participants were married, and 141 were single. Regarding educational level, 105 participants had completed primary education, 8 had completed high school, 76 had completed university education, and 16 had completed postgraduate education.

Monthly income was recorded using the categories provided in the Personal Information Form. The categories represented in the final sample were minimum-wage income (n = 61), TRY 20,000–40,000 (n = 106), and TRY 40,001–60,000 (n = 38). During the 2024 data-collection period, the statutory net monthly minimum wage in Türkiye was TRY 17,002.12 (Republic of Türkiye Ministry of Labour and Social Security, 2024). Accordingly, the two higher categories represented monthly income above the statutory minimum-wage level at that time. For analytical clarity, the three observed categories were referred to as the lower, middle, and upper income categories within the study sample. These labels were used only to distinguish the observed response categories and were not intended as nationally standardised socioeconomic classifications.

Participants were included on the basis of active sport participation and the presence of a physical disability. The questionnaire did not include a detailed clinical or functional classification of disability; therefore, the analyses focused on the sample as a whole.

2.3 Measures

2.3.1 Personal Information Form

A Personal Information Form developed by the researchers was used to collect sociodemographic and sport-related information. The form included age, sex, marital status, educational level, monthly income, sport type, and years of sport participation.

Sex was coded as woman or man, and marital status as married or single. Sport type was classified as individual or team sport. Educational level was grouped as primary education, high school, university, or postgraduate education. Monthly income was represented by the three categories observed in the sample. Age and years of sport participation were treated as continuous variables.

2.3.2 Sport Participation Motivation Scale for Individuals with Disabilities

Sport participation motivation was assessed using the Sport Participation Motivation Scale for Individuals with Disabilities, developed and validated for the Turkish population by Tekkurşun Demir et al. (2018). The scale contains 22 items rated on a five-point Likert-type response format ranging from 1 (strongly disagree) to 5 (strongly agree).

The instrument comprises three subscales. The first 12 items measure intrinsic motivation, the following five items measure extrinsic motivation, and the final five items measure amotivation. Possible scores range from 12 to 60 for intrinsic motivation and from 5 to 25 for both extrinsic motivation and amotivation. Higher scores indicate a greater level of the respective motivational dimension.

Intrinsic motivation reflects participation associated with enjoyment, interest, mastery, and personal satisfaction. Extrinsic motivation reflects participation influenced by outcomes such as recognition, competitive achievement, approval, rewards, or expectations from other people. Amotivation reflects uncertainty about the reasons for participation, reduced intention, or difficulty perceiving a meaningful relationship between participation and its outcomes.

The scale assesses these three broad motivational dimensions and was therefore used to compare their distinct sociodemographic and sport-related correlates. It was not used to calculate a single overall motivation score.

In the original validation study, Cronbach's alpha coefficients were 0.94 for intrinsic motivation, 0.84 for extrinsic motivation, 0.88 for amotivation, and 0.82 for the total scale (Tekkurşun Demir et al., 2018). In the present sample, internal consistency was excellent for intrinsic motivation (α = 0.962) and good for extrinsic motivation (α = 0.851) and amotivation (α = 0.871). The alpha coefficient for all 22 items was 0.927.

Raw subscale totals were used in the statistical analyses. Mean item scores were also calculated to facilitate descriptive comparison across subscales containing different numbers of items. Because the scale does not provide validated classification thresholds, the results were interpreted on the basis of the observed scores and the five-point response format.

2.4 Procedure

Ethical approval was obtained from the Gaziantep University Health and Sports Sciences Ethics Committee on 15 November 2024 under protocol number 24. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Data were collected in late November 2024 using online and printed questionnaires. The online questionnaire was prepared using Google Forms and distributed through athlete networks and sport-related contacts. Printed questionnaires were administered in sport club environments, generally following training sessions.

The online and printed versions contained the same information, instructions, item order, response categories,

and scale items. Responses obtained through both formats were coded using the same procedure and combined in a single dataset.

Before completing the questionnaire, participants were informed about the purpose of the study, voluntary participation, confidentiality, anonymity, and their right to withdraw. Written or electronic informed consent was obtained from adult participants. For participants younger than 18 years, assent was obtained from the participant together with informed consent from a parent or legal guardian. No directly identifying information was collected. Completion of the questionnaire required approximately 10 min.

2.5 Statistical Analysis

Data were analysed using IBM SPSS Statistics, version 22. Before the main analyses, the dataset was examined for missing values, coding errors, score-calculation errors, outliers, and distributional characteristics. No missing values were identified. The three motivation subscale scores were independently recalculated from the corresponding items and confirmed against the scores stored in the dataset.

Frequencies and percentages were calculated for categorical variables. Means, standard deviations, observed ranges, skewness, and kurtosis were calculated for continuous variables and motivation scores. Internal consistency was evaluated using Cronbach's alpha.

Independent-samples t tests were used to compare motivation scores according to sex, marital status, and sport type. Equality of variances was examined using Levene's test. When the homogeneity assumption was not met, Welch-adjusted statistics were interpreted. Cohen's d was reported as the effect-size measure.

Educational-level and income-category differences were examined using one-way analysis of variance. Because group sizes were unequal and variance homogeneity was not consistently supported, Welch's analysis of variance was used as the principal omnibus test. Significant group differences were examined using Games–Howell *post hoc* comparisons. Eta squared was reported as an effect-size estimate.

Pearson correlation coefficients were calculated to examine the associations between years of sport participation and intrinsic motivation, extrinsic motivation, and amotivation. Two-sided 95% confidence intervals were calculated using Fisher's z transformation.

Holm's sequential correction was applied within prespecified families of related comparisons to control the familywise Type I error rate. Separate corrections were conducted for sex, marital status, sport type, educational level, income category, and correlations with years of sport participation. Interpretation considered adjusted p values together with effect sizes and confidence intervals.

Three multiple linear regression models were conducted to examine the independent associations of the measured sociodemographic and sport-related variables with intrinsic motivation, extrinsic motivation, and amotivation. Each model included age, sex, marital status, sport type, years of sport participation, educational level, and income category.

Categorical predictors with more than two categories were dummy coded. Primary education was used as the reference category for educational level, and the lower income category was used as the reference category for income. Woman, married status, and individual sport were used as the reference categories for binary variables.

Unstandardised coefficients, heteroskedasticity-consistent HC3 standard errors, standardised beta coefficients, 95% confidence intervals, model R^2, adjusted R^2, and overall model tests were reported. HC3 standard errors were used to provide estimates that were less sensitive to variance heterogeneity.

Regression diagnostics included examination of residual plots, normal probability plots, variance inflation factors, tolerance statistics, and influence measures. Variance inflation factors below 5 and tolerance values above 0.20 were used as indicators that problematic multicollinearity was not present.

Sensitivity analyses examined the stability of findings after excluding the smallest educational subgroup and evaluated the adjusted team-sport association with amotivation. These analyses were used to support cautious interpretation of results that were potentially influenced by subgroup imbalance.

A sensitivity power analysis was conducted using G*Power 3.1. For the regression models, with $N = 205$, 10 predictor parameters, $\alpha = 0.05$, and power = 0.80, the minimum detectable overall effect was Cohen's $f^2 = 0.083$. For three-group and four-group comparisons, the minimum detectable effects were approximately $f = 0.218$ and $f = 0.233$, respectively. For the comparison between 74 women and 131 men, the minimum detectable effect was approximately $d = 0.409$.

Statistical significance was set at a two-sided p value of less than 0.05. Exact p values were reported whenever possible. Statistical findings were interpreted together with effect sizes, confidence intervals, sample distributions, and the stability of estimates.

3. Results

3.1 Participant Characteristics

The final sample comprised 205 active athletes with physical disabilities. Participants were aged between 16 and 56 years, with a mean age of 28.41 years (SD = 8.24). The mean duration of sport participation was 11.16 years (SD = 6.41; range = 1–29 years).

The sample included 74 women (36.1%) and 131 men (63.9%). Sixty-four participants (31.2%) were married, and 141 (68.8%) were single. A total of 110 athletes (53.7%) participated in individual sports, whereas 95 (46.3%) participated in team sports.

Regarding educational level, 105 participants (51.2%) had completed primary education, 8 (3.9%) had completed high school, 76 (37.1%) had completed university education, and 16 (7.8%) had completed postgraduate education. Sixty-one participants (29.8%) were in the lower income category, 106 (51.7%) were in the middle category, and 38 (18.5%) were in the upper income category within the study sample. No missing data were identified.

3.1.1 Descriptive Statistics and Internal Consistency

The mean intrinsic motivation score was 50.37 (SD = 9.52), corresponding to a mean item score of 4.20 on the five-point response scale. The mean extrinsic motivation score was 19.02 (SD = 4.07), corresponding to a mean item score of 3.80. The mean amotivation score was 17.39 (SD = 5.50), corresponding to a mean item score of 3.48.

Internal consistency was excellent for intrinsic motivation (α = 0.962) and good for extrinsic motivation (α = 0.851) and amotivation (α = 0.871). Descriptive statistics and reliability coefficients are presented in Table 1.

Intrinsic motivation scores were concentrated toward the upper end of the scale. Twenty-six participants (12.7%) obtained the maximum intrinsic motivation score, and 34 (16.6%) scored within one point of the maximum. Variance heterogeneity was also observed in several group comparisons. Accordingly, Welch-adjusted procedures and heteroskedasticity-consistent standard errors were used where appropriate.

3.1.2 Differences According to Sex

Women and men did not differ in intrinsic motivation, $t(203) = -0.174$, $p = 0.862$, $d = -0.03$. Men reported higher extrinsic motivation than women in the unadjusted comparison, Welch's $t(121.27) = -2.485$, unadjusted $p = 0.014$, Holm-adjusted $p = 0.028$, $d = -0.39$.

Women reported higher amotivation than men, Welch's $t(190.41) = 4.409$, unadjusted $p < 0.001$, Holm-adjusted $p < 0.003$, $d = 0.59$. The sex difference in amotivation represented the largest unadjusted sex-related effect (Table 2).

3.1.3 Differences According to Marital Status

Married and single athletes did not differ in intrinsic motivation, $t(203) = 0.732$, $p = 0.465$, $d = 0.11$, or extrinsic motivation, Welch's $t(163.57) = -0.897$, $p = 0.371$, $d = -0.12$.

Married athletes reported higher amotivation than single athletes, $t(203) = 3.590$, unadjusted $p < 0.001$, Holm-adjusted $p < 0.003$, $d = 0.54$ (Table 3).

3.1.4 Differences According to Sport Type

No statistically significant unadjusted differences were observed between individual- and team-sport athletes in intrinsic motivation, $t(203) = 0.018$, $p = 0.986$, $d = 0.00$; extrinsic motivation, Welch's $t(175.74) = -0.381$, $p = 0.703$, $d = -0.05$; or amotivation, $t(203) = -1.491$, $p = 0.137$, $d = -0.21$.

Sport type was subsequently associated with amotivation in the adjusted multivariable model.

3.1.5 Differences According to Educational Level

Educational level was associated with all three motivational dimensions in the unadjusted omnibus analyses.

Intrinsic motivation differed according to educational level, Welch's $F(3, 70.60) = 11.971$, $p < 0.001$. Postgraduate participants reported higher intrinsic motivation than high-school graduates.

Subscale	Items	Possible range	Observed range	M	SD	Mean item score	Cronbach's α
Intrinsic motivation	12	12–60	12–60	50.37	9.52	4.20	0.962
Extrinsic motivation	5	5–25	7–25	19.02	4.07	3.80	0.851
Amotivation	5	5–25	5–25	17.39	5.50	3.48	0.871

Note. Mean item scores were calculated to facilitate comparison across subscales containing different numbers of items.
Table 1. Descriptive statistics and internal consistency of the motivation subscales.
Source: Authors' contribution.

Outcome	Women, M (SD)	Men, M (SD)	Test statistic	Unadjusted *p*	Holm-adjusted *p*	Cohen's *d*
Intrinsic motivation	50.22 (10.37)	50.46 (9.05)	−0.174	0.862	0.862	−0.03
Extrinsic motivation	18.03 (4.69)	19.59 (3.57)	−2.485	0.014	0.028	−0.39
Amotivation	19.38 (4.23)	16.26 (5.82)	4.409	<0.001	<0.003	0.59

Note. Positive values of Cohen's *d* indicate higher scores among women; negative values indicate higher scores among men.
Table 2. Motivation scores according to sex.
Source: Authors' contribution.

Extrinsic motivation also differed by educational level, Welch's $F(3, 30.68) = 7.719$, $p = 0.001$. High-school graduates reported lower extrinsic motivation than participants with primary, university, and postgraduate education. Participants with primary education also reported higher extrinsic motivation than postgraduate participants.

Amotivation differed according to educational level, Welch's $F(3, 47.64) = 24.758$, $p < 0.001$. Participants with primary education reported lower amotivation than high-school, university, and postgraduate participants. High-school graduates also reported higher amotivation than university graduates. University graduates also reported lower a motivation than postgraduate participants.

All three omnibus tests remained statistically significant after Holm correction. Because some educational groups were small, the corresponding comparisons were interpreted together with their confidence intervals and the sensitivity analyses.

3.1.6 Differences According to Income Category

Income category was associated with intrinsic motivation, Welch's $F(2, 114.91) = 6.966$, unadjusted $p = 0.001$, Holm-adjusted $p = 0.002$; extrinsic motivation, Welch's $F(2, 107.60) = 7.467$, unadjusted $p = 0.001$, Holm-adjusted $p = 0.002$; and amotivation, Welch's $F(2, 109.90) = 9.708$, unadjusted $p < 0.001$, Holm-adjusted $p < 0.003$.

Participants in the upper income category reported higher intrinsic motivation than those in the lower category. They also reported higher extrinsic motivation than participants in the middle category. For amotivation, participants in the upper category scored higher than those in both the lower and middle categories (Table 4).

Significant Games–Howell comparisons for educational level and income category are presented in Table 5.

3.2 Associations with Years of Sport Participation

Years of sport participation showed a weak positive correlation with intrinsic motivation, $r = 0.140$, 95% CI [0.003, 0.272], unadjusted $p = 0.045$. This association did not remain statistically significant after Holm correction, adjusted $p = 0.090$.

Outcome	Married, M (SD)	Single, M (SD)	Test statistic	Unadjusted *p*	Holm-adjusted *p*	Cohen's *d*
Intrinsic motivation	51.09 (9.28)	50.04 (9.65)	0.732	0.465	0.742	0.11
Extrinsic motivation	18.69 (3.20)	19.18 (4.41)	−0.897	0.371	0.742	−0.12
Amotivation	19.38 (5.28)	16.48 (5.38)	3.590	<0.001	<0.003	0.54

Note. Positive values of Cohen's *d* indicate higher scores among married athletes.
Table 3. Motivation scores according to marital status.
Source: Authors' contribution.

Outcome	Lower category, M (SD)	Middle category, M (SD)	Upper category, M (SD)	Welch's *F*	Unadjusted *p*	η^2	Holm-adjusted *p*
Intrinsic motivation	47.54 (11.27)	50.89 (9.31)	53.47 (4.94)	6.966	0.001	0.048	0.002
Extrinsic motivation	19.34 (3.75)	18.23 (4.38)	20.74 (3.01)	7.467	0.001	0.055	0.002
Amotivation	16.30 (4.67)	17.08 (6.13)	20.00 (3.95)	9.708	<0.001	0.056	<0.003

Note. Income-category labels distinguish the three categories represented in the study sample.
Table 4. Motivation scores according to income category.
Source: Authors' contribution.

Grouping factor	Outcome	Comparison	Mean difference	95% CI	*p*
Education	Intrinsic motivation	High school–postgraduate	−1.75	[−2.60, −0.90]	<0.001
Education	Extrinsic motivation	Primary–high school	7.95	[1.99, 13.90]	0.012
Education	Extrinsic motivation	Primary–postgraduate	1.20	[0.16, 2.23]	0.017
Education	Extrinsic motivation	High school–university	−7.22	[−13.18, −1.26]	0.020
Education	Extrinsic motivation	High school–postgraduate	−6.75	[−12.71, −0.79]	0.029
Education	Amotivation	Primary–high school	−4.79	[−6.56, −3.01]	<0.001
Education	Amotivation	Primary–university	−2.89	[−4.96, −0.82]	0.002
Education	Amotivation	Primary–postgraduate	−5.29	[−6.97, −3.60]	<0.001
Education	Amotivation	High school–university	1.89	[0.24, 3.55]	0.019
Education	Amotivation	University–postgraduate	−2.39	[−3.95, −0.84]	<0.001
Income	Intrinsic motivation	Lower–upper category	−5.93	[−9.87, −2.00]	0.002
Income	Extrinsic motivation	Middle–upper category	−2.51	[−4.05, −0.97]	<0.001
Income	Amotivation	Lower–upper category	−3.70	[−5.79, −1.62]	<0.001
Income	Amotivation	Middle–upper category	−2.92	[−5.00, −0.85]	0.003

Note. Mean differences were calculated as the first group minus the second group.
Table 5. Significant Games–Howell *post hoc* comparisons.
Source: Authors' contribution.

Years of participation was not associated with extrinsic motivation, r = −0.082, 95% CI [−0.217, 0.056], p = 0.242. A weak positive correlation was observed with amotivation, r = 0.191, 95% CI [0.056, 0.320], unadjusted p = 0.006, Holm-adjusted p = 0.018 (Table 6).

3.3 Multivariable Analyses

Three multiple linear regression models were conducted to examine the independent associations of age, sex, marital status, sport type, years of sport participation, educational level, and income category with each motivational outcome. Variance inflation factors were below 3.19, and no observation showed excessive influence. HC3 heteroskedasticity-consistent standard errors were used in all models (Table 7).

3.3.1 Intrinsic Motivation

The intrinsic motivation model accounted for 6.8% of the variance, R^2 = 0.068, adjusted R^2 = 0.020, robust $F(10, 194)$ = 2.640, p = 0.005.

After adjustment, the upper income category was the only variable independently associated with intrinsic motivation. Compared with the lower category, participants in the upper category scored 5.54 points higher, B = 5.54, HC3 SE = 2.10, β = 0.227, 95% CI [1.43, 9.65], p = 0.008.

Age, sex, marital status, sport type, years of sport participation, and educational level were not independently associated with intrinsic motivation.

3.3.2 Extrinsic Motivation

The extrinsic motivation model explained 23.0% of the variance, R^2 = 0.230, adjusted R^2 = 0.191, robust $F(10, 194)$ = 7.369, p < 0.001.

Longer sport participation was associated with slightly lower extrinsic motivation, B = −0.15 per year, HC3 SE = 0.07, β = −0.237, 95% CI [−0.28, −0.02], p = 0.025. This association was attenuated in the sensitivity analysis.

High-school graduates reported lower extrinsic motivation than participants with primary education, B = −7.26, HC3 SE = 2.00, β = −0.346, 95% CI [−11.17, −3.35],

Outcome	*r*	Unadjusted *p*	Holm-adjusted *p*	95% CI
Intrinsic motivation	0.140	0.045	0.090	[0.003, 0.272]
Extrinsic motivation	−0.082	0.242	0.242	[−0.217, 0.056]
Amotivation	0.191	0.006	0.018	[0.056, 0.320]

Table 6. Correlations between years of sport participation and motivation.
Source: Authors' contribution.

Outcome and predictor	*B*	HC3 SE	*β*	95% CI	*p*
			Intrinsic motivation		
Age	0.14	0.19	0.125	[−0.23, 0.52]	0.453
Male sex	−0.32	1.88	−0.016	[−4.00, 3.35]	0.863
Single marital status	2.56	2.04	0.125	[−1.45, 6.56]	0.211
Team sport	0.57	1.53	0.030	[−2.43, 3.56]	0.710
Years of sport participation	0.03	0.17	0.022	[−0.31, 0.37]	0.850
High school	0.11	2.05	0.002	[−3.90, 4.13]	0.956
University	1.94	1.61	0.099	[−1.22, 5.10]	0.228
Postgraduate	1.27	2.30	0.036	[−3.23, 5.77]	0.580
Middle income category	3.39	1.89	0.178	[−0.33, 7.10]	0.074
Upper income category	5.54	2.10	0.227	[1.43, 9.65]	0.008
			Extrinsic motivation		
Age	0.04	0.07	0.083	[−0.10, 0.18]	0.562
Male sex	0.96	0.73	0.113	[−0.46, 2.38]	0.186
Single marital status	0.43	0.99	0.049	[−1.50, 2.36]	0.662
Team sport	−0.08	0.56	−0.009	[−1.18, 1.02]	0.890
Years of sport participation	−0.15	0.07	−0.237	[−0.28, −0.02]	0.025
High school	−7.26	2.00	−0.346	[−11.17, −3.35]	<0.001
University	−0.45	0.69	−0.053	[−1.79, 0.90]	0.513
Postgraduate	−2.39	0.89	−0.158	[−4.13, −0.64]	0.007
Middle income category	−0.72	0.76	−0.088	[−2.21, 0.78]	0.346
Upper income category	2.20	0.77	0.210	[0.68, 3.71]	0.004
			Amotivation		
Age	0.00	0.07	0.000	[−0.14, 0.14]	0.997
Male sex	−4.31	0.77	−0.377	[−5.81, −2.81]	<0.001
Single marital status	−2.57	1.14	−0.217	[−4.80, −0.34]	0.024
Team sport	2.41	0.76	0.219	[0.91, 3.90]	0.002
Years of sport participation	0.04	0.09	0.050	[−0.13, 0.22]	0.629
High school	4.88	0.98	0.172	[2.95, 6.81]	<0.001
University	2.83	0.94	0.249	[0.99, 4.68]	0.003
Postgraduate	1.88	1.12	0.092	[−0.31, 4.07]	0.093
Middle income category	−0.37	0.96	−0.034	[−2.25, 1.52]	0.701
Upper income category	2.88	1.08	0.204	[0.77, 4.99]	0.007

Note. Reference categories were woman, married, individual sport, primary education, and the lower income category. HC3 = heteroskedasticity-consistent standard error; *B* = unstandardised regression coefficient; *β* = standardised regression coefficient; CI = confidence interval.

Table 7. Multiple linear regression models predicting motivation.
Source: Authors' contribution.

$p < 0.001$. Postgraduate participants also reported lower scores than the primary-education group, $B = -2.39$, HC3 SE = 0.89, $\beta = -0.158$, 95% CI [−4.13, −0.64], $p = 0.007$.

Participants in the upper income category reported higher extrinsic motivation than those in the lower category, $B = 2.20$, HC3 SE = 0.77, $\beta = 0.210$, 95% CI [0.68, 3.71], $p = 0.004$.

The unadjusted sex difference in extrinsic motivation did not remain statistically significant after adjustment, $B = 0.96$, 95% CI [−0.46, 2.38], $p = 0.186$.

3.3.3 Amotivation

The amotivation model explained 31.7% of the variance, R^2 = 0.317, adjusted R^2 = 0.281, robust $F(10, 194)$ = 19.575, $p < 0.001$.

Men reported lower amotivation than women, B = −4.31, HC3 SE = 0.77, β = −0.377, 95% CI [−5.81, −2.81], $p < 0.001$. Single athletes also reported lower amotivation than married athletes, B = −2.57, HC3 SE = 1.14, β = −0.217, 95% CI [−4.80, −0.34], p = 0.024.

Team-sport athletes reported higher amotivation than individual-sport athletes after adjustment, B = 2.41, HC3 SE = 0.76, β = 0.219, 95% CI [0.91, 3.90], p = 0.002. The coefficient became statistically significant after adjustment for age and sex and remained significant in the fully adjusted model.

Compared with participants with primary education, high-school graduates reported higher amotivation, B = 4.88, HC3 SE = 0.98, β = 0.172, 95% CI [2.95, 6.81], $p < 0.001$, and university graduates reported higher amotivation, B = 2.83, HC3 SE = 0.94, β = 0.249, 95% CI [0.99, 4.68], p = 0.003.

Participants in the upper income category also reported higher amotivation than those in the lower category, B = 2.88, HC3 SE = 1.08, β = 0.204, 95% CI [0.77, 4.99], p = 0.007.

Years of sport participation was not independently associated with amotivation.

3.4 Sensitivity Analyses

Excluding the eight participants in the high-school group produced a similar pattern for intrinsic motivation and amotivation. The upper income category remained associated with intrinsic motivation and amotivation, while sex, marital status, sport type, and university education remained associated with amotivation.

The postgraduate association with lower extrinsic motivation and the upper income association with higher extrinsic motivation also remained statistically significant. However, the association between years of sport participation and extrinsic motivation was attenuated and no longer statistically significant, B = −0.12, p = 0.078.

Overall, the measured variables explained substantially more variance in amotivation than in intrinsic motivation. After adjustment, the most consistent associations involved sex, marital status, sport type, educational level, and income category for amotivation, whereas intrinsic motivation showed fewer independent sociodemographic and sport-related correlates.

4. Discussion

This study examined intrinsic motivation, extrinsic motivation, and amotivation among active athletes with physical disabilities in Türkiye and evaluated their associations with selected sociodemographic and sport-related characteristics. The principal finding was that the three motivational dimensions showed different patterns of association. Intrinsic motivation had relatively few independent correlates, whereas amotivation was associated with a broader set of participant characteristics and had the highest explained variance. Several unadjusted differences also changed after multivariable adjustment, underlining the importance of distinguishing descriptive group comparisons from independent associations.

The mean item score for intrinsic motivation was concentrated toward the upper end of the response scale. This finding is consistent with previous research identifying enjoyment, personal achievement, mastery, empowerment, health, and social connection as important motives for sport participation among people with disabilities (McLoughlin et al., 2017; Romero et al., 2025). Sport may provide athletes with opportunities to experience competence, personal development, social belonging, and athletic identity. However, the presence of comparatively high intrinsic motivation scores did not imply that extrinsic motivation or amotivation was absent. The three dimensions were analysed as separate outcomes, and the present variable-centred approach cannot establish whether different motivational dimensions coexisted within the same individuals.

This distinction is important because motivation should not be interpreted as a single continuum in which higher intrinsic motivation necessarily corresponds to lower amotivation. The present results instead suggest that athletes may value sport strongly while motivational uncertainty may still be associated with the circumstances surrounding participation. Similar research has shown that people with disabilities may experience enjoyment, achievement, and social connection alongside barriers involving access, cost, transportation, facilities, social attitudes, and institutional support (Chen et al., 2024; Jaarsma et al., 2014; Martin Ginis et al., 2016). These factors were not directly measured in the present study and therefore cannot be used as explanations for the observed associations, but they provide relevant directions for further investigation.

Sex was not associated with intrinsic motivation, indicating that women and men reported similar levels of enjoyment, interest, mastery, and personal value in relation to sport. Men initially reported higher extrinsic

motivation, but this difference was no longer statistically significant after adjustment. The unadjusted difference may therefore have reflected the distribution of other sociodemographic and sport-related characteristics rather than an independent association with sex.

In contrast, women reported higher amotivation than men in both unadjusted and adjusted analyses. This finding should not be interpreted as evidence that women were less interested in sport, because intrinsic motivation scores were almost identical across sexes. Rather, it indicates that sex was associated specifically with uncertainty or a reduced perceived connection between participation and its outcomes. An intersectionality perspective is useful here because gender and disability are not necessarily experienced as separate or simply additive characteristics; they may jointly shape access to opportunities, social recognition, organisational support, and expectations within sport (Blinde & McCallister, 1999; Paccaud, 2022). Research involving women with disabilities has described the coexistence of strong motives for participation with gender- and disability-related barriers involving accessibility, visibility, information, opportunity, and support (Olasagasti-Ibargoien et al., 2023; Romero et al., 2025). From this perspective, the higher amotivation observed among women may warrant investigation of how gendered and disability-related barriers interact within particular sport settings rather than being attributed to gender alone. However, the present study did not measure discrimination, organisational culture, accessibility, social support, caregiving demands, or other intersectional mechanisms and therefore cannot establish why this sex difference occurred. The finding should consequently be regarded as a basis for more focused investigation of the sociocultural, structural, and organisational conditions shaping women's continued participation in disability sport.

Marital status was not associated with intrinsic or extrinsic motivation. Married athletes nevertheless reported higher amotivation than single athletes, and the association remained significant after adjustment. This is an observational association and should not be interpreted as evidence that marital status causes amotivation. Differences in time availability, household or caregiving responsibilities, employment, family support, or participation arrangements are plausible hypotheses, but none of these factors were measured directly in the present study. The finding is therefore hypothesis-generating rather than explanatory. Qualitative studies examining athletes' family, work, and sport experiences, as well as longitudinal research, may help determine whether and how life-course circumstances are related to motivational uncertainty.

No unadjusted differences were observed between individual- and team-sport athletes. After adjustment, however, team-sport participation was associated with higher amotivation. Because this association appeared only after covariates were included, it should be interpreted cautiously. The sequential models indicated that adjustment for age and sex was sufficient for the coefficient to become statistically significant, which is compatible with a suppression pattern arising from the distribution of participant characteristics. The result does not demonstrate that team sport produces amotivation. Importantly, the team-sport category in this study consisted only of athletes participating in amputee football and wheelchair basketball. These sports have distinct organisational, competitive, interpersonal, and disability-related characteristics, and the available data did not allow those characteristics, functional classification, or team environment to be examined separately. Accordingly, the observed association should not be generalised to team sports as a whole. Replication across a broader range of team and individual sport disciplines is required.

Educational level was associated with the three motivational dimensions in the unadjusted analyses, but the adjusted pattern was less consistent. Selected education groups differed in extrinsic motivation and amotivation, whereas education was not independently associated with intrinsic motivation. These findings should be treated as exploratory because the educational groups were highly unequal, particularly the high-school (n = 8) and postgraduate (n = 16) groups. With categorical predictors represented by small and unbalanced subgroups, individual regression coefficients may be unstable even when robust standard errors are used. The sensitivity analysis excluding the high-school group supported the general pattern for several outcomes but also showed that the association between years of sport participation and extrinsic motivation was not robust. The education-related coefficients should therefore not be interpreted as precise population estimates or as evidence of a simple linear relationship between educational attainment and motivation.

Educational background may be associated with information access, employment conditions, expectations, awareness of opportunities, or perceptions of sport organisations. Nevertheless, these mechanisms were not measured, and the observed group differences should not be interpreted as effects of education itself. Larger and more balanced samples are required before firm conclusions can be drawn regarding educational variation.

Income category showed one of the more consistent patterns in the analyses. Participants in the upper category

within this sample reported higher intrinsic motivation, extrinsic motivation, and amotivation than participants in the lower category for selected comparisons. This apparently mixed pattern reinforces the value of analysing the three motivational dimensions separately. Higher scores across different dimensions should not be understood as a single motivational profile, because the analyses were conducted at the group level.

The income categories used in this study represented the observed questionnaire responses and were not nationally standardised socioeconomic classifications. The findings therefore refer specifically to the relative categories within this sample. Income may correspond to differences in access to equipment, travel, competition, training, financial support, or expectations, but none of these factors were measured directly. The results should consequently be regarded as evidence of an association requiring further explanation rather than as evidence that income itself determines motivation.

Years of sport participation showed weak bivariate associations with intrinsic motivation and amotivation, but neither remained significant in the adjusted models. These results do not support the interpretation that longer participation necessarily increases intrinsic motivation or amotivation. The initial correlations may have reflected shared variation with age, marital status, education, income, sex, or sport type.

Longer sport participation was associated with slightly lower extrinsic motivation in the full model. However, this association was attenuated and became non-significant when the small high-school subgroup was excluded. The finding is therefore tentative and should not be interpreted as evidence of motivational internalisation or change over time. The cross-sectional design does not show how motivation develops across an athlete's career, and the scale did not distinguish between more controlled and more autonomous forms of extrinsic regulation.

The regression models differed considerably in explanatory value. The intrinsic motivation model accounted for 6.8% of the variance (R^2 = 0.068), with an adjusted R^2 of 0.020, indicating limited explanatory value for the measured sociodemographic and sport-related characteristics. By contrast, the amotivation model accounted for 31.7% of the variance (R^2 = 0.317), with an adjusted R^2 of 0.281. This difference is relevant when interpreting individual coefficients: Statistically significant associations in a model with low overall explanatory capacity should not be taken to mean that the measured variables provide a comprehensive account of intrinsic motivation. Factors not included in the present dataset, such as enjoyment, perceived competence, goal orientation, coach support, mastery experiences, and satisfaction of psychological needs, may be relevant. These possibilities are consistent with the broader SDT literature but were not tested directly in this study (Jakobsen, 2023; Ryan & Deci, 2017).

The extrinsic motivation model explained a moderate proportion of variance, although some associations were sensitive to subgroup composition. The amotivation model had the greatest explanatory value. Sex, marital status, sport type, education, and income category were independently associated with amotivation, whereas intrinsic motivation had fewer independent correlates. Given the small and unbalanced categories for some predictors, particularly educational level, individual coefficients should be interpreted together with confidence intervals, subgroup sizes, and the sensitivity analyses rather than as stable estimates applicable to all athletes with physical disabilities. Overall, the selected sociodemographic and sport-related variables were more informative for variation in amotivation than for intrinsic motivation. This pattern does not demonstrate that intrinsic motivation is primarily psychological or that amotivation is primarily social, because psychological needs, perceived barriers, organisational conditions, and social support were not assessed.

A theoretical implication of these findings is that intrinsic motivation, extrinsic motivation, and amotivation showed different correlates and should not be collapsed into a single total motivation score. SDT was used as a guiding conceptual framework for distinguishing broad qualities of motivation, not as a framework that was comprehensively tested. The instrument did not distinguish among external, introjected, identified, or integrated forms of extrinsic regulation and did not directly assess autonomy, competence, relatedness, or motivational climate. The findings should therefore be interpreted as SDT-informed evidence concerning three broad motivational dimensions rather than as evidence for or against the full SDT model.

From an applied perspective, the findings indicate that sport organisations should avoid assuming that motivation is a uniform characteristic. Athletes may report strong enjoyment and personal value while also experiencing uncertainty about continued participation or its outcomes. Coaches and organisations may therefore benefit from assessing motivational dimensions separately and examining whether scheduling, family responsibilities, team roles, financial demands, progression opportunities, accessibility, and support are relevant within their own settings. These implications should be regarded as directions for assessment and programme development rather than as interventions whose effectiveness was tested in the present study.

The study has several strengths. It focused on 205 active athletes with physical disabilities, included both women and men and individual- and team-sport participants, and examined three motivational dimensions separately. The analytical strategy also combined effect sizes, confidence intervals, corrections for multiple testing, Welch and Games–Howell procedures, robust regression estimates, and sensitivity analyses. This approach showed that several associations differed between unadjusted and adjusted analyses.

The findings should nevertheless be considered within the study's design and measurement boundaries. The cross-sectional design does not permit causal or developmental interpretations, and convenience sampling limits generalisability beyond the present group of active athletes. The sample was analysed as a broad group of athletes with physical disabilities because detailed clinical and functional classifications were not collected. Consequently, the analyses could not account for potentially important differences in functional ability, impairment type or severity, congenital versus acquired disability, age at disability onset, wheelchair use, prosthesis use, or other assistive-device requirements. These characteristics may influence access to sport, perceived barriers, competitive opportunities, and motivational experiences. Information on training frequency, weekly training load, and competitive level (e.g. regional, national, or international) was also unavailable, preventing examination of whether differences in training exposure or performance context were related to motivation. Some educational subgroups were small and unbalanced, particularly the high-school and postgraduate groups, which limits the stability and precision of category-specific comparisons and regression coefficients. All variables were self-reported. Finally, the motivation scale assessed broad intrinsic motivation, extrinsic motivation, and amotivation dimensions rather than the full continuum of behavioural regulation, and accessibility, transportation, coaching climate, family and social support, and psychological-need satisfaction were not directly measured.

Future research should use larger and more balanced samples and include disability-related, organisational, and psychological variables directly. Longitudinal designs would be particularly valuable for examining whether motivational dimensions change over time and whether amotivation predicts reduced participation or withdrawal. Person-centred approaches may also determine whether distinct combinations of intrinsic motivation, extrinsic motivation, and amotivation occur within individual athletes.

5. Conclusion

This study showed that intrinsic motivation, extrinsic motivation, and amotivation had distinct sociodemographic and sport-related correlates among active athletes with physical disabilities in Türkiye. The regression models differed markedly in explanatory value: the measured variables explained little adjusted variance in intrinsic motivation (adjusted $R^2 = 0.020$) but substantially more in amotivation (adjusted $R^2 = 0.281$). Sex, marital status, sport type, educational level, and income category were associated with amotivation in the adjusted model, whereas intrinsic motivation had fewer independent correlates. Education-related coefficients should be interpreted cautiously because of the small and unbalanced subgroup sizes, and the team-sport finding is specific to the amputee football and wheelchair basketball athletes included in this sample.

These findings indicate that motivation should not be treated as a single overall construct. Athletes may report strong enjoyment and personal value in sport while also experiencing uncertainty regarding participation or its outcomes. The results are consistent with the broad distinction among intrinsic motivation, extrinsic motivation, and amotivation but should not be interpreted as a comprehensive test of SDT, because the study did not assess specific forms of extrinsic regulation or the basic psychological needs of autonomy, competence, and relatedness. For this reason, coaches and sport organisations may benefit from considering intrinsic motivation, extrinsic motivation, and amotivation separately when evaluating athletes' experiences and planning supportive practices.

The findings should be interpreted within the limits of the cross-sectional design, convenience sampling, broad disability classification, and self-reported measures. The observed associations are not causal. Future research should use larger and more balanced samples and incorporate functional classification, disability onset, assistive-device use, training frequency and load, competitive level, accessibility, coaching climate, social support, and psychological-need measures. Longitudinal and qualitative designs would be particularly valuable for clarifying the mechanisms associated with motivational differences and continued sport participation.

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Author contributions

Contribution code: (a) conception and design of the study; (b) acquisition of data; (c) analysis and interpretation of data; (d) manuscript preparation; (e) obtaining funding. Selçuk Buğdaycı: (a, b, c). Gül Eda Burmaoğlu: (a, b, c, d). Uğur Abakay: (a, b, c, d).

Conflict of interest statement

The authors declare no conflicts of interest.

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