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Examining the sports participation motivation of high school arm wrestling students-athletes

RESEARCH ARTICLE OPEN ACCESS

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Highlights:

- Intrinsic factors predominantly drive the motivation of high school arm wrestling athletes to participate in sports.
- The gender variable revealed statistically significant differences in the 'fun' and 'team membership' sub-dimensions.
- Age significantly impacted the achievement, physical fitness, and friendship dimensions of motivation.

Abstract

This study examines the motivations for participating in sports among high school arm-wrestling students, examining these motivations in relation to various sociodemographic variables. This descriptive survey study included 206 student-athletes (101 females and 105 males) who participated in Turkish school sports championship competitions in Manisa Province. Data were collected using a sports participation motivation scale, and analyses were conducted using Mann-Whitney U, Kruskal-Wallis H, and one-way ANOVA. According to the research findings, significant differences were observed in the fun and team affiliation subscales based on gender. Age influenced the achievement, physical fitness, and friendship subscales. However, variables such as years in sports and parental education level did not significantly affect motivation. In conclusion, motivation to participate in sports is shaped mainly by intrinsic motivations, while some social and age-related variables affect the social motivation dimension. This study contributes to our understanding of the motivational structure of arm wrestling and offers suggestions for the field of sports education.

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INTRODUCTION

Sport is regarded as a fundamental life activity that makes multifaceted contributions to individuals' physical, mental, and social development processes. For adolescents in particular, sport offers multidimensional benefits, including the acquisition of healthy lifestyle habits, the development of achievement-oriented goals, the strengthening of social relationships, and the enhancement of self-confidence (Yıldız, 2014; Weiss & Ferrer-Caja, 2002; Gould & Petlichkoff, 1988). In this context, for high school students, sport encompasses significant developmental opportunities in areas such as personal awareness, discipline, socialization, and self-perception (Sezen-Balcı & Yıldıran, 2016). Studies aimed at understanding young individuals' motivation to participate in sports reveal a multidimensional structure shaped by the interaction of personal characteristics, environmental conditions, and socio-cultural factors (Roberts, 1982). The concept of sport participation motivation has emerged as a topic requiring examination in youth sports (Çetin, 2013). According to the general education literature, motivation is an important factor that directly affects not only learning but also participation in sport and the sustainability of this participation (Vansteenkiste et al., 2004, 2005b; Hustinx et al., 2009). Motivation is a dynamic and continuous process (Kusurkar et al., 2011). The direction and intensity of this process play a significant role in determining whether sport will continue, especially in younger age groups (Nielsen et al., 2024; Deci & Ryan, 2000). Motivation to participate in sport is a psychological process that drives an individual towards physical activities; it helps explain why they started, how they continue, or why they quit (Aydoğdu, 2020; Altıntaş & Bayar Koruç, 2014; Vallerand, 2004; Vallerand et al., 1987).

Research indicates that motivation is driven by both internal factors (such as skill development, self-confidence, and a sense of achievement) and external factors (like social approval and environmental influences) (Weinberg & Gould, 2011; Şirin, 2008). Children and teenagers typically engage in sports for enjoyment, skill enhancement, and learning new skills (Tannehill et al., 2013; Dismore & Bailey, 2010; Steven et al., 2006; Gill et al., 1983). There are also some gender-related differences in sports participation. Girls tend to choose sports for self-perception, enjoyment, and health benefits (Hopkins et al., 2022), while boys are more focused on competition (Akkaya, 2019). Age is also a key factor influencing motivation. For young children, sports are mainly about fun and simplicity, but as they grow older, sports become more competitive and time-and effort-demanding (Şirin et al., 2008). Nonetheless, demographic factors like genetic predisposition, psychological traits, athletic background, and the specific sport practiced can significantly affect motivation levels (Çetin, 2013; Sit & Lindner, 2006). These results show that sports participation is closely linked not only to social and environmental influences but also to biological and psychological characteristics, highlighting the importance of considering this multidimensional structure in future studies. Most research on sports participation motivation has largely focused on popular, organized sports. Summarizing and citing studies showing the lack of research into less common sports highlights this gap. In less-known disciplines with narrower research scopes, such as arm wrestling, there is a notable lack of data, particularly regarding why young athletes participate. This gap hampers a complete understanding of the motivational factors unique to this sport and limits the development of practical guidance and training strategies tailored to it (Weiss & Chaumeton, 1992; Scanlan & Lewthwaite, 1986). Arm wrestling is a traditional strength sport that can be practiced by people of all ages and genders, combining physical and psychological elements (Zileli et al., 2012). It requires not only muscular strength but also speed, flexibility, strategy, technical skill, and motivation. Growing in popularity among young people today, arm wrestling offers more than physical benefits; it also provides opportunities for self-expression and a sense of achievement (Weinberg & Gould, 2015).

With regular competitions held in over 100 countries worldwide, arm wrestling has become a professional sport and a popular activity involving men and women of all ages (Ogawa et al., 2022; Pedrazzini et al., 2012; Bavlı et al., 2009). Over its history, the sport has gone beyond just a test of strength, also carrying cultural and symbolic meanings (Diem, 2012; Özer, 2024). The fact that matches end quickly highlights athletes' abilities to manage stress and anxiety, make instant decisions, and react swiftly (Özer, 2024). In this context, the present study aims to understand better how arm wrestling affects youth, physically and psychologically, by examining the motivations of high school student-athletes who participate in this sport. This study explores what motivates student-athletes in less mainstream sports, such as arm wrestling, addressing a gap in the current research. By understanding the specific factors that drive participation, the findings provide valuable insights to help shape training methods, support educational initiatives, and guide youth sports policies.

This study aims to better understand the motivations of student athletes who participate in school sports and practise arm wrestling. The study will consider factors such as age, gender, duration of participation in the sport, and parents' educational levels. It is thought that the findings obtained may indirectly contribute to educational practices, coaching approaches, and youth sports policies.

METHOD

Research Design

This study employs a descriptive research design within the broader framework of the survey model used in quantitative research methods. Descriptive research aims to precisely define the current state in educational studies by summarizing the traits of individuals and groups or, in some instances, characteristics such as abilities, preferences, and behaviors in the physical environment (Büyüköztürk et al., 2014).

Participants

A convenience sampling technique was used to identify the sample. The sample consists of 206 high school student-athletes (101 girls [49%] and 105 boys [51%]), aged between 14 and 17 years (mean age = 12.79 years, standard deviation = 0.95 years), who participated in the provincial championship competitions organised by the School Sports Federation in Manisa city centre. The competitions were held in arm wrestling, and the participants represented their schools. Participants were selected based on their accessibility and availability during the competitions (Büyüköztürk et al., 2014). The demographic characteristics of the participants are demonstrated in Table 1.

Table 1. Demographic Distribution of Participants

Variable	Sub-variable	f	%
Age	14	24	11.7
	15	96	46.6
	16	71	34.5
	17	15	7.3
Gender	Female	101	49
	Male	105	51
Sports Experience (years)	1-3	173	84
	4-6	31	15
	7-10	2	1
National Athlete	Yes	26	12.6
	No	180	87.4
National Athlete Year	1	18	8.7
	2	4	1.9
	3	1	0.5
Mother Education	Primary School	17	8.3
	Secondary School	67	32.5
	High School	32	15.5
	Undergraduate	67	32,5
	Bachelor	8	3.9
	Master	15	7.3
Father Education	Primary School	16	7.8
	Secondary School	53	25.7
	High School	30	14.6
	Undergraduate	75	36.4
	Bachelor	8	3.9
	Master	24	11.7

The study included a sample of 206 athletes aged 14–17 years, of whom 49% (n=101) were girls and 51% (n=105) were boys. Examination of the athletes' age distribution revealed that the 15-year-old group accounted for the largest share at 46.6% compared with other age groups. Additionally, the majority of participants reported a sport age of 1-3 years. Regarding parental education, the mothers of the participating athletes were predominantly at the middle school and associate degree levels in equal proportions. For paternal education, 36% had associate degrees, higher than for other educational levels.

Data Collection Tools: Personal Information Form to obtain demographic information, and the Sports Involvement Motivation Scale were used to collect the data.

Sports Involvement Motivation Scale; The scale was developed by Gill et al. (1983) and adapted by Oyar et al.. (2001). It consists of 30 items and uses a three-point Likert-type response format, divided into eight subdimensions. These subdimensions include achievement/status, physical activity/energy expenditure, team

affiliation, friendship, fun, competition, skill development, and activity/being active. Respondents were asked to rate each item as either 'Very Important,' 'Less Important,' or 'Not Important.' The results indicated that the factor loadings from the sub-dimensions varied. However, the factor loadings aligned with the fit indices (RMSEA = 0.059, CFI = 0.95). The internal consistency of the scale was confirmed by Cronbach's alpha, which was above 0.70 at the sub-dimension level. The reliability analysis of the Sports Involvement Motivation Scale, using Cronbach's alpha to assess internal consistency, is presented in Table 2.

Table 2. Cronbach Alpha Reliability Coefficients of Sports Involvement Motivation

Sub-dimension	α	μ	**Sd**
Achievement	.754	6.37	1.578
Physical Fitness	.765	6.72	1.476
Team Affliation	.770	5.67	1.828
Friendship	.776	4.68	1.507
Fun	.795	5.57	2.107
Competition	.780	3.71	.981
Skill Development	.781	3.47	.940
Activity	.773	3.82	1.082
General Cronbach Alfa Value of scale: .834			

According to the table, the overall reliability coefficient of the scale is high at. 834. The reliability values for the subdimensions range from. 754 to. 795, indicating that all items are reliable. Participants were reported their highest levels of motivation in the Physical Fitness dimension (M̄ = 6.72) and Achievement (M̄ = 6.37), while the lowest means were observed in Skill Development (M̄ = 3.47) and Competition (M̄ = 3.71). These results suggest that, in sport participation, the drive for physical development and success are prominent. In contrast, factors such as competition and skill development are comparatively less emphasized.

Data Analysis

The research was analyzed using data obtained from the participants with IBM SPSS 26.0. The choice of data analysis methods was based on the assumption of normality. To determine whether the data followed a normal distribution, the skewness and kurtosis coefficients (Tabachnick & Fidell, 2013) were evaluated to be within ±1.5. The data for achievement, Physical Fitness, Team Affiliation, Friendship, and Competition subdimensions demonstrated a normal distribution within this range. For these, parametric tests such as the ANOVA and independent t-test were used. However, the data for Fun, Skill Development, and their subdimensions fell outside the ±1.5 range, and the normality tests were not significant (p>.05). Therefore, for the non-normal subdimension data, non-parametric tests such as the Mann-Whitney U test and Kruskal-Wallis were employed. For normally distributed data, independent-samples t-tests and one-way ANOVA were used. When significant differences were found, the Gabriel post hoc test was used. The significance level was set at 05. To evaluate the normality of the data distribution, the skewness and kurtosis values for each variable were examined. The results of this analysis are presented in Table 3.

Table 3. Distribution of Scale Normality Scores by Variable

Variable	**(Skewness)**	**(Kurtosis)**	**Normality**
Achievement	1,109	0,468	Parametric
Physical Fitness	0,836	0,488	Parametric
Team Affiliation	1,037	0,370	Parametric
Friendship	0,765	0,068	Parametric
Fun	5,392	5.126	Nonparametric
Competition	1,277	0,906	Parametric
Skill Development	2,929	10,823	Nonparametric
Activity	1,574	3,049	Nonparametric

To assess the normality of the data distribution, the skewness and kurtosis values of each variable were examined. The analysis revealed that the skewness and kurtosis values of the Achievement, Physical Fitness, Team Affiliation, Friendship, and Competition sub-dimensions were all within the acceptable range of ±2. This indicates that these variables are normally distributed and therefore suitable for parametric tests.

Conversely, the Fun, Skill Development, and Activity sub-dimensions exhibited values outside this range for both skewness and kurtosis. Notably, the 'Fun' sub-dimension exhibited a skewness value of 5.392, while the 'Skill Development' sub-dimension displayed a kurtosis value of 10.823. Based on these findings, it was concluded that these variables do not follow a normal distribution and that non-parametric test methods would be more appropriate for their analysis.

RESULTS

The sports participation motivation levels of student-athletes by gender are presented in Table 4.

Table 4. Sports involvement Motivation Level of Students-Athletes According to Gender

Sub-dimension	Category	n	x	ss	t-test		
					t	df	P
Achievement	Female	101	1.23	0.28	-1.802	201	0.07
	Male	105	1.31	0.33			
PhysicalFitness	Female	101	1.32	0.28	-0.902	203	0.36
	Male	105	1.36	0.30			
Team Affiliation	Female	101	1.35	0.41	-2.092	201	**0.03***
	Male	105	1.48	0.48			
Friendship	Female	101	1.56	0.50	0.034	203	0.97
	Male	105	1.56	0.50			
Competition	Female	101	1.21	0.30	-1.076	202	0.28
	Male	105	1.26	0.34			
General Average	Female	101	38.80	6.57	-2.354	195	**0.01***
	Male	105	41.27	8.42			

(p<0.05)

The table analysis reveals that the Team Affiliation sub-dimension of athlete students shows a significant difference based on gender (t=-2.092; p<0.05). A significant advantage is observed for female student athletes in this sub-dimension (X=1.35±0.41). Results suggest that female participants have higher Sports Involvement Motivation than male participants. Additionally, the total motivation scores of student athletes also display a statistically significant difference favoring female athletes according to gender (t=-2.354; p<0.05). The findings from the Mann-Whitney U test on sports involvement motivation levels among student-athletes, categorized by gender, are presented in Table 5.

Table 5. Sports involvement Motivation Level of Students-Athletes According to Gender Variable result of Mann-Whitney U test

Sub-dimension	Kategori	n	s.o	st.	U	Z	p
Skill Development	Female	101	97.48	984.50	4694.50	-1.763	0.07
	Male	105	109.29	1147.50			
Activity	Female	101	100.01	10102.00	4951.00	-0.896	0.36
	Male	105	106.84	11219.00			
Fun	Female	101	92.23	9315.50	4164.50	-2.747	**0.006***
	Male	105	114.33	12005.50			

(p<0.01)

The table showed that there was a no difference between the Skill Development (U=4694,50; p>.05) Activity (U= 4951,00; p>.05) sub-dimensions score according to the gender and there was significant difference between fun sub-dimension score according to the gender (U= 4164,50; p<.05). The results of the ANOVA test for the sub-dimensions of sports participation motivation according to age are presented in Table 6.

Table 6. Anova Test Results for the Sub-dimensions of Sports Participation Motivation According to the Age

Subdimension	Age Group	n	x	ss	df	f	p	Difference
Achievement	14	24	1.32	0.26	3	3.183	**0.02***	15>17
	15	96	1.32	0.35				
	16	71	1.23	0.28				
	17	15	1.08	0.16				

Physical Fitness	14	24	1.44	0.24	3	2.586	**0.04***	14>17
	15	96	1.36	0.30				
	16	71	1.32	0.30				
	17	15	1.18	0.21				
Team Affiliation	14	24	1.36	0.39	3	1.488	0.21	
	15	96	1.46	0.49				-
	16	71	1.41	0.44				
	17	15	1.21	0.28				
Friendship	14	24	1.52	0.43	3	3.713	**0.01***	15>17
	15	96	1.55	0.55				
	16	71	1.66	0.46				
	17	15	1.20	0.24				
Competition	14	24	1.23	0.28	3	1.477	0.22	
	15	96	1.28	0.33				-
	16	71	1.21	0.34				
	17	15	1.11	0.20				
General Average	14	24	1.36	0.24	3	2.572	**0.04***	15>17
	15	96	1.35	0.26				
	16	71	1.33	0.24				
	17	15	1.16	0.22				

($p<0.05$)

According to the results of a one-way analysis of variance conducted to determine the participation motivation levels of student-athletes in sports, the sub-dimensions of "Achievement" ($F=3.183$; $p<.05$), "Physical Fitness" ($F=2.586$; $p<.05$), and "Friendship" ($F=3.713$; $p<.05$) showed significant differences in the overall scores of sport participation motivation ($F=2.572$; $p<.05$). By contrast, no significant differences were found in the sub-dimensions of "Team Affiliation" and "Competition" ($p>.05$). To identify the groups that contributed to the significant differences, Gabriel post hoc tests were conducted. According to the post hoc analysis, student-athletes in the 17-year age group exhibited lower scores in the sub-dimensions of "Achievement" and "Friendship" and in the overall sport participation motivation score compared with those in the 15-year age group. Additionally, in the sub-dimension of "Physical Fitness" participants in the 17-year age group scored significantly lower than those in the 14-year age group. The results of the Kruskal–Wallis H test for the sub-dimensions of sports participation motivation according to age are presented in Table 7.

Table 7. Kruskal-Wallis H Tests Results for the Sub-dimensions of Sports Participation Motivation According to the Age

Sub-dimension	Age Group	n	x	X^2	df	p
Skil Development	14	24	109.95	2.859		0.41
	15	96	107.64		3	
	16	71	96.07			
	17	15	101.80			
Activity	14	24	99.87	4.196		0.24
	15	96	105.51		3	
	16	71	107.62			
	17	15	76.90			
Fun	14	24	117.64	7.339	3	0.06
	15	96	105.91			
	16	71	102.99			
	17	15	67.83			

($p<0.05$)

According to the Kruskal-Wallis H test results in Table 6, the ranking of athletes' motivation to participate in sports by their age shows: "Skill Development" ($X^2=2.859$; $p>.05$), "Activity" ($X^2= 4.196$; $p>.05$), and "Fun" ($X^2=7.339$; $p>.05$). The results of the ANOVA test for the sub-dimensions of sports participation motivation according to sports year are presented in Table 8.

Table 8. Anova Test Results for the Sub-dimensions of Sports Participation Motivation According to the Sports Year

Sub-dimensions	Year	n	x	ss	df	F	P
Achievement	1-3	173	1.27	0.31	2		
	4-6	31	1.27	0.34		0.779	0.46
	7-10	2	1.00	0.00			
Physical Fitness	1-3	173	1.34	0.28	2		
	4-6	31	1.34	0.35		1.389	0.25
	7-10	2	1.00	0.00			
Team Affiliation	1-3	173	1.43	0.47	2		
	4-6	31	1.34	0.35		0.608	0.54
	7-10	2	1.25	0.35			
Friendship	1-3	173	1.56	0.49	2		
	4-6	31	1.61	0.53		1.414	0.24
	7-10	2	1.00	0.00			
Competition	1-3	173	1.23	0.32	2		
	4-6	31	1.25	0.34		0.583	0.55
	7-10	2	1.00	0.00			
General Average	1-3	173	1.33	0.25	2		
	4-6	31	1.31	0.27		0.826	0.43
	7-10	2	1.11	0.16			

($p<0.05$)

Table 8 shows the results of a one-way analysis of variance conducted to determine the levels of Sports involvement Motivation among student athletes. "Achievement" (F=0.779; p>.05), "Physical Fitness" (F=1.389; p>.05), "Team Affiliation" (F=0.608; p>.05), "Friendship" (F=1.414; p>.05), "Competition" (F=0.583; p>.05) sub-dimensions, and overall sports participation motivation scores (F=0.826; p>.05). The results of the Kruskal–Wallis H test for the sub-dimensions of sports participation motivation according to sports year are presented in Table 9.

Table 9. Kruskal-Wallis H Test Results for the Sub-dimensions of Sports Participation Motivation According to the Sports Year

Subdimensions	Yıl	n	x	X^2	df	p
Skill Development	1-3	173	103.50	0.886	2	0.64
	4-6	31	105.50			
	7-10	2	72.50			
Activity	1-3	173	105.48	1.426	2	0.48
	4-6	31	93.04			
	7-10	2	93.75			
Fun	1-3	173	104.88	0.781	2	0.67
	4-6	31	95.22			
	7-10	2	112.25			

($p<0.05$)

According to Table 9, the Kruskal-Wallis test results indicated no statistically significant differences in motivation to participate in sports among student-athletes by age in the "Skill Development" (X^2=0.887, p>.05) and "Activity" (X^2=1.426, p>.05) dimensions. However, a significant difference was observed in the "Fun" (X^2=0.782, p<.05) dimension. The ANOVA test results for the sub-dimensions of sports participation motivation according to the father's educational status are shown in Table 10.

According to Table 10, the results of the one-way analysis of variance (ANOVA) conducted to determine the motivation levels of student-athletes to participate in sports revealed the following: "Achievement" (F=0.450; p>.05), "Physical Fitness" (F=0.593; p>0.05), "Team Affiliation" (F=0.662; p>0.05), "Friendship" (F=0.842; p>0.05) and "Competition" (F= 0.840; p>0.05) sub-dimensions, as well as the general score of Sports İnvolvement Motivation (F=0.529; p>0.05). The results of the Kruskal–Wallis H test for the sub-dimensions of sports participation motivation, stratified by the father's educational status, are presented in Table 11.

Table 10. Anova Test Results for the Sub-dimensions of Sports Participation Motivation According to the Father's Educational Status

Subdimensions	Educational Statu	n	x	ss	sd	F	P
Achievement	Primary School	16	1.20	.33			
	Secondary School	53	1.26	.31			
	High School	30	1.30	.32	5	0.450	0.81
	Undergraduate	75	1.26	.30			
	Bachelor	8	1.35	.27			
	Master	24	1.32	.36			
Physical Fitness	Primary School	16	1.25	.23			
	Secondary School	53	1.35	.31			
	High School	30	1.30	.24	5	0.593	0.70
	Undergraduate	75	1.37	.32			
	Bachelor	8	1.32	.33			
	Master	24	1.35	.25			
Team Affiliation	Primary School	16	1.32	.38			
	Secondary School	53	1.34	.36			
	High School	30	1.42	.51	5	0.662	0.65
	Undergraduate	75	1.46	.47			
	Bachelor	8	1.37	.35			
	Master	24	1.48	.58			
Friendship	Primary School	16	1.37	.56			
	Secondary School	53	1.52	.44			
	High School	30	1.58	.53	5	0.842	0.52
	Undergraduate	75	1.60	.50			
	Bachelor	8	1.75	.58			
	Master	24	1.54	.51			
Competition	Primary School	16	1.25	.39			
	Secondary School	53	1.27	.37			
	High School	30	1.22	.30	5	0.840	0.52
	Undergraduate	75	1.22	.29			
	Bachelor	8	1.04	.11			
	Master	24	1.29	.34			
General Average	Primary School	16	1.25	.28			
	Secondary School	53	1.31	.22			
	High School	30	1.33	.25	5	0.529	0.75
	Undergraduate	75	1.35	.25			
	Bachelor	8	1.30	.19			
	Master	24	1.37	.30			

($p<0.05$)

Table 11. Kruskal-Wallis H Test Results for the Sub-dimensions of Sports Participation Motivation According to the Father's Educational Statu

Subdimensions	Year	n	X	X^2	df	p
Skill Development	Primary School	16	109.56			
	Secondary School	53	103.50			
	High School	30	100.27	2.891	5	0.71
	Undergraduate	75	102.21			
	Bachelor	8	84.13			
	Master	24	114.00			
Activity	Primary School	16	88.03			
	Secondary School	53	108.42			
	High School	30	106.08	3.458	5	0.62
	Undergraduate	75	105.24			
	Bachelor	8	79.13			
	Master	24	102.40			
Fun	Primary School	16	90.16			
	Secondary School	53	105.05			
	High School	30	101.00	2.013	5	0.84

	Undergraduate	75	102.01
	Bachelor	8	109.00
	Master	24	114.94

(p<0.05)

Table 11 shows that there are no statistically significant differences in the sub-dimensions of "Skill Development" (X^2=2.891; p>.05) and "Activity" (X^2=3.458; p>.05) and of "Fun" (X^2=2.013; p>.05). The results of the ANOVA test for the sub-dimensions of sports participation motivation according to the educational status of the mother are presented in Table 12.

Table 12. Anova Test Results for the Sub-dimensions of Sports Participation Motivation According to the Mother's Educational Status

Subdimensions	Educational Statu	n	x	ss	sd	F	p
Achievement	Primary School	17	1.15	0.25			
	Secondary School	67	1.29	0.31			
	High School	32	1.26	0.28	5	1.707	0.13
	Undergraduate	67	1.24	0.31			
	Bachelor	8	1.37	0.24			
	Master	15	1.44	0.42			
Physical Fitness	Primary School	17	1.23	0.23			
	Secondary School	67	1.36	0,31			
	High School	32	1.34	0,28	5		
	Undergraduate	67	1,33	0,27		0.785	0.56
	Bachelor	8	1,40	0,37			
	Master	15	1,41	0,30			
Team Affiliation	Primary School	17	1,22	0,27			
	Secondary School	67	1,34	0,38			
	High School	32	1,53	0,56	5		
	Undergraduate	67	1,45	0,47		1.782	0.11
	Bachelor	8	1,59	0,61			
	Master	15	1,46	0,43			
Friendship	Primary School	17	1,31	0,36			
	Secondary School	67	1,57	0,53			
	High School	32	1,54	0,57	5	1.073	0.37
	Undergraduate	67	1,62	0,46			
	Bachelor	8	1,58	0,34			
	Master	15	1,55	0,54			
Competition	Primary School	17	1,15	0,23			
	Secondary School	67	1,27	0,38			
	High School	32	1,21	0,26	5	0.473	0.79
	Undergraduate	67	1,22	0,30			
	Bachelor	8	1,29	0,41			
	Master	15	1,26	0,36			
General Average	Primary School	17	1,18	0,20			
	Secondary School	67	1,33	0,23			
	High School	32	1,34	0,28	5	1.781	0.11
	Undergraduate	67	1,33	0,23			
	Bachelor	8	1,38	0,17			
	Master	15	1,44	0,39			

(p<0.05)

The one-way variance results were analyzed to determine the motivation levels of athlete students to participate in sports. The sub-dimensions were "Achievement" (F=1.707; p>.05), "Physical Fitness" (F=.785; p>.05), "Team Affiliation" (F=1.782; p>.05), "Friendship" (F=1.073; p>.05), "Competition" (F=0.473; p>.05), and the general sports participation motivation scores (F=1.781; p=.11). The results of the Kruskal–Wallis H test for the sub-dimensions of sports participation motivation according to the educational status of the mother are presented in Table 13.

Table 13. Kruskal-Wallis H Test Results for the Sub-dimensions of Sports Participation Motivation According to the Mother's Educational Status

Subdimensions	Year	n	x	X^2	df	p
Skill Development	Primary School	17	83.44			
	Secondary School	67	102.11			
	High School	32	104.09	5.514	5	0.35
	Undergraduate	67	104.95			
	Bachelor	8	107.38			
	Master	15	122.63			
Activity	Primary School	17	82.32			
	Secondary School	67	107.75			
	High School	32	115.39	5.268	5	0.38
	Undergraduate	67	99.37			
	Bachelor	8	112.13			
	Master	15	97.00			
Fun	Primary School	17	80.74			
	Secondary School	67	106.25			
	High School	32	99.30	5.315	5	0.37
	Undergraduate	67	102.90			
	Bachelor	8	108.44			
	Master	15	126.03			

($p<0.05$)

As a result of the Kruskal-Wallis H test conducted according to Table 12, it was determined that there was no statistically significant difference in terms of "Skill Development" (X^2=5,514; p>.05), 'Activity' (X^2=5,268; p>.05) and "Fun" (X^2=5,315; p>.05) sub-dimensions of sports participation motivation levels of student athletes according to their father's education level.

DISCUSSION

In this study, the participation motivations of high school student-athletes involved in arm wrestling were examined in relation to demographic variables, including gender, age, sport year, and parental education level. The results showed that motivational levels varied significantly across some variables, while similarities were observed in others. A particularly notable finding regarding the gender variable was that female students scored higher than male students on the 'Enjoyment' and 'Team Affiliation' subscales. This suggests that girls are generally more motivated by enjoyment, social interaction, and the sense of belonging that sports can provide. These findings align with previous research, which often highlights enjoyment and social connection as key motivational factors for female students. A strong sense of team spirit and social bonding seems to significantly boost motivation, even in individual sports like arm wrestling. Consistent with this, Şirin et al. (2008) emphasized that enjoyment is a critical factor in women's participation in sports. Similarly, Scanlan et al. (1989) reported that enjoyment is the most influential motivating factor across different sporting contexts. Güllü and Güçlü (2012) also found that enjoyment and social opportunities were more significant reasons for participation in sports among female students than among their male counterparts. Furthermore, Weiss and Williams (2004) highlighted the importance of enjoyment and friendship in maintaining young people's long-term engagement in sport. Cross-cultural studies with similar age groups have supported these findings, showing that enjoyment is a central motivational factor in sports participation (Kolt et al., 1999; Weiss, 2000). Overall, these findings emphasize the importance of enjoyment as a powerful motivation for adolescent female athletes, an aspect that coaches and educators should consider when designing and implementing training programs. Additionally, female students scored higher than male students on the 'Team Affiliation' subscale and on overall motivation scores, indicating that social belonging, coordinated action, and team spirit are more influential for this group. This finding suggests that team sentiment may play a significant role in motivation even in individual disciplines such as arm wrestling (Carron & Eys, 2012). Indeed, Erdoğan et al (2014) noted that 'team spirit' is a decisive factor in girls' participation in sport. Arslan and Altay (2009) also identified a significant relationship between sport participation and team affiliation. The literature often highlights that factors such as social interaction, belonging, and recognition are more prominent for women than for men, suggesting that team-based motivations are especially significant for female athletes. However, some studies present different results. Sallis et al. (2000) reported higher participation rates in physical activities among men, while Butt et al. (2011) indicated that men show greater interest in sport than women. These findings suggest that gender can be a key factor in motivation. Aksoy and Civelek (2022)

found no significant gender differences among kickboxing athletes. Similarly, Temel (2018) found no notable gender difference in a study of table tennis and wushu athletes. This pattern implies that participation motivation is not solely determined by gender; various factors, such as age, discipline, individual traits, and environmental conditions, can also play a role.

Regarding age, students in the 17-year-old group scored lower on social motivational sources such as 'Achievement' and 'Friendship'. This pattern suggests that people's expectations and priorities regarding sport may shift as they age. In particular, academic pressures and changes in social relationships can negatively affect students' motivation for sports in this age group. Kocaj et al. (2018) noted that individuals aged 15–18 are still undergoing psychological development, and that this period can be emotionally unstable. Similarly, Nicholls (1989) argued that perceptions of achievement change with age, which can influence motivation levels.

It is well established that athletic success is not determined solely by physical ability but is closely related to technical, tactical, and, most importantly, psychological factors (Masrun, Alnedral & Yendrizal, 2022). Sun et al. (2022) also emphasize that psychological factors play a crucial role in achieving elite-level success. Yalçın et al. (2017) found that among female athletes, motivation for 'achievement' and 'team spirit' decreases with age. Similarly, Aycan and Yıldız (2016) reported that girls aged 11–14 showed higher motivation than boys in the 'achievement' and 'competition' subdimensions.

However, findings from studies conducted in different cultures may sometimes contradict these results. For example, Guedes and Netto (2013) conducted a study in Brazil, finding that for athletes aged 12–18, 'Enjoyment' and 'Achievement' subdimensions were the least significant sources of motivation. These results suggest that motivation, which can vary with age, is also influenced by contextual and cultural factors.

Similarly, a significant age-related difference was observed in the 'Friendship' sub-dimension, with 17-year-olds scoring lower. This can be explained by changes in the social environment and a weakening of athletic friendships as individuals grow older. Smith (2003) notes that peer support and team commitment are important for sustaining participation in sports during adolescence. Therefore, in environments where young athletes are immersed, interventions that strengthen social bonds and establish supportive structures are likely to be effective in maintaining motivation. The study results indicate that the 'Friendship' dimension ranks among the lowest motivators of sport participation for both female and male athletes, aligning with Acar (2012). Conversely, Şirin et al. (2008) found significant differences between motivations related to competition and friendship in participation in games and sports activities. Kondric et al. (2013), in a study across three countries, reported that among the primary reasons for engaging in sports, spending time with friends, social acceptance, and physical fitness were prominent.

Developing intellectual sport psychology research also indicates that significant differences between young and adult Athletes are influenced by factors such as self-perception, social influence, emotional response, and motivation (Kim & Cruz, 2021). In particular, during times of heightened external pressure, such as university entrance exams, a decrease in sports motivation may indicate a greater need for psychosocial support among this age group. It can be argued that motivation for sport tends to decline with age, with academic and social pressures playing a role in this process. The study found no significant differences based on gender, age, years of sport participation, or parental education level in the subdimensions of 'Skill Development' and 'Movement.' This suggests these aspects are more closely linked to individuals' intrinsic motivation. Among Generation Z young people, who have grown up with technology and are influenced by global trends, motivation for sports appears to be shaped by these characteristics as well (Smith et al., 2005).

This study's noteworthy finding is the lack of a significant difference in sports participation motivation based on parents' educational level. However, interpreting this result superficially might overlook deeper sociocultural factors that could influence it. In the current literature, parental education is often considered an indicator of social and cultural capital. Still, assessing its impact on sports participation alone is inadequate. Its effect is more meaningful when considered alongside broader factors such as socioeconomic status, parental support, the cultural context of sport, and prevailing social values (Coakley, 2015; Green, 2008).

From this perspective, the absence of a significant difference may be due to other variables that were not directly measured in the study. Factors such as the participant's living environment, family structure, financial means, or the cultural meanings attributed to sport within their community could all indirectly impact the results. Therefore, future studies should aim for a more comprehensive approach rather than focusing solely on educational background. In addition, employing mixed-method research designs that combine quantitative and qualitative data would be beneficial for gaining a deeper, more nuanced understanding of these complex relationships.

According to Deci and Ryan's (1985) Self-Determination Theory, intrinsic motivators such as skill development, a sense of achievement, and the enjoyment of physical activity boost an individual's commitment to sport and encourage long-term participation. These findings show that arm wrestlers tend to prioritize intrinsic rewards in their approach to the sport. Likewise, Çetinkaya (2019), Kavaz and Yıldız (2020), have highlighted that intrinsic motivation is more impactful than demographic factors. However, some research has identified 'Skill Development' as a particularly key motivator for male students to take part in sports (Weiss, 2000; White & Duda, 1994; Gill & Decter, 1988). In a study in Brazil, Guedes and Netto (2013) found that 'Skill 'Development' and 'Physical Fitness' scored the highest among participants. These results highlight that sources of intrinsic motivation vary among individuals and can be influenced by contextual factors. In the study, motivation scores for sports participation were consistently similar and showed a positive correlation across students, regardless of their parents' education levels.

This indicates that even with different parental education backgrounds, children's attitudes toward sports tend to be similar. Several studies support this finding. For example, Hazır et al. (2018) found no significant differences in sport motivation among high school students based on their mothers' and fathers' education levels. Danışman (2011), in a study comparing motivation in students involved in individual and team sports, also found no significant differences. Esentürk (2014), in research with high school students, did not observe a significant relationship between maternal education and the 'intrinsic motivation for knowing and achieving' subcategory. Overall, these findings suggest that students' attitudes toward sports are shaped more by personal goals, intrinsic motivation, and environmental factors than solely by parental education. difference was found for the 'Competition' sub-dimension. This suggests that competitive motivation may be more closely linked to stable, individual factors such as personality traits. Additionally, since arm wrestling is a one-on-one sport, it is natural for competition motivation to emerge at similar levels regardless of gender. The literature reports similar findings. Scudder and colleagues (2008) noted that personal factors (e.g., self-confidence), social factors (e.g., positive peer relationships), and environmental factors (e.g., family support) influence how youth cope with stress. White and Bennie (2015) emphasized that social support networks strengthen a sense of belonging and enhance psychological resilience. Yan and McCullagh (2004), in a study of children aged 12–16 in the United States, demonstrated that 'Skill Development' and 'Competition' are important factors for sport participation. Morris et al. (1996) found that among 13–18 year-old males, motivation in sport was associated with 'Competition' and 'Status,' whereas females were motivated by factors such as 'Health' and 'Social Affiliation.' These findings indicate that competition motivation may be significant for certain groups but that gender differences may lessen in some sports, with individual characteristics also playing a vital role.

This study reveals that sport participation motivation is a multidimensional and complex construct. While intrinsic motivations anchored in individual goals tend to show commonalities, social motivations such as fun, friendship, and achievement exhibit differences. This underscores the particular importance of educational and psychosocial support in social domains. Understanding the motivation structure of young arm-wrestling athletes accurately is critical for developing strategies that enhance their motivation and foster sustainable participation. To sustain athletes' long-term engagement in sport, it is necessary to strengthen intrinsic motivations, highlighting the enjoyment derived from the sport itself. In this process, coaches and physical education teachers play a pivotal role by getting to know the athletes well and creating supportive, meaningful sport environments tailored to their needs. Consequently, youths' interest and commitment to sport are likely to increase, makingsport a lifelong habit.

Limitations and directions for future research

This study has several limitations. Firstly, it is limited to high school student-athletes engaged in arm wrestling in the province of Manisa; therefore, the findings cannot be generalized to other sports branches, age groups, or regions. Data were collected solely through a quantitative tool, namely, a questionnaire and no qualitative data collection methods were employed. Additionally, as the research was conducted cross-sectionally within a specific time frame, motivational changes over time could not be assessed. The participants' responses were self-reported, which may be subject to bias, such as social desirability. Lastly, the study considered only a limited number of demographic variables, excluding other potentially influential factors such as socioeconomic status, psychological elements, or school environment.

To foster long-term participation in sports, it is essential to prioritize social motivations such as enjoyment, friendship, and team spirit, particularly for female students. By actively promoting these elements within both school and club environments, institutions can significantly increase long-term engagement among young athletes. Furthermore, recognizing the noticeable decline in motivation typically observed around the age

of 17, it is vital to develop targeted guidance and support programs for this specific demographic. Such focused interventions are necessary to maintain participation levels and prevent early dropout from athletic activities. In this process, coaches serve a key role in identifying and understanding the unique motivations of their athletes. By accounting for age and gender differences, they can better tailor their training methodologies and cultivate a more supportive, motivating environment for every individual athlete.

Educational leaders and policymakers should take active steps to promote individual sports, such as arm wrestling, within the school curriculum. The visibility of these disciplines can be enhanced through the organization of intramural competitions and the introduction of school-based incentive programs. Given the significant impact that sports have on the physical, social, and emotional development of students, there is a clear need to diversify national and local policies to support more inclusive and accessible sports programming. Making these opportunities more available from an early age encourages students to develop consistent exercise habits that last a lifetime. Because the motivation to stay active begins in childhood, it is crucial to expand initiatives that encourage participation throughout the primary and secondary education years.

As this study was limited to a specific group of arm-wrestling athletes, future research should seek to include larger and more diverse sample sizes across various regions, age groups, and sporting disciplines to provide a more comprehensive perspective. To gain deeper insight into the personal experiences and motivations of athletes, researchers should consider employing qualitative methods, such as semi-structured interviews and focus group discussions. Regarding the presentation of findings, it is recommended that results sections include detailed textual descriptions and interpretations of the data alongside tables and figures. Finally, the concluding sections of future studies should summarize findings in relation to existing literature, discussing the results in the context of their implications for policy, professional practice, and future research directions.

Conclusion

This study reveals that a variety of intrinsic and social factors influences the motivation of high school student-athletes taking part in arm wrestling. While intrinsic motivations such as skill development and the joy of movement remain strong across genders and age groups, social motivations like enjoyment, friendship, and team affiliation vary more noticeably. Notably, female athletes place greater value on social connection and team spirit. The observed decline in motivation around age 17 suggests that academic pressures and shifting social dynamics can negatively affect sustained engagement in sport during this critical period. However, the lack of a significant difference in the 'Competition' sub-dimension indicates that competitive motivation is influenced more by personal characteristics and individual differences. Notably, parental educational attainment did not significantly impact motivation, suggesting that individual and environmental factors may play a more significant role in shaping young athletes' commitment to sport. These findings emphasise the need for comprehensive support systems that address the psychological and social dimensions of motivation. Coaches and educators should foster intrinsic motivation by emphasising enjoyment and skill development, as well as nurturing social bonds and team cohesion, to encourage long-term participation. Additionally, targeted interventions, especially for students experiencing motivational decline during adolescence, can help maintain engagement. Future research should explore these motivational dynamics in broader populations and diverse sporting contexts using mixed methods to deepen understanding. Recognising and responding to the multifaceted nature of sporting motivation can lead to more effective strategies for sustaining youth participation and promoting lifelong physical activity.

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