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## Gender differences in motives for participation in sports and exercise among Norwegian adolescents

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# Gender differences in motives for participation in sports and exercise among Norwegian adolescents

## Authors' Contribution:

- A Study Design
- B Data Collection
- C Statistical Analysis
- D Data Interpretation
- E Manuscript Preparation
- F Literature Search
- G Funds Collection

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## abstract

**Background:** Drawing from the theories of self-determination, this study examined how intrinsic and extrinsic motives affect Norwegian adolescents' participation in organized sports and their stamina for exercising relative to gender. We also investigated which motives can predict exercising/training, and whether this is influenced by gender.

**Material/Methods:** 368 students (male, 51%; female 49%) aged between 16 and 18 years completed a standardized questionnaire "Motives for Physical Activity Measure - Revised (MPAM-R)" (by Ryan, Frederick, Lepes, Rubio & Sheldon). The main effects were followed up using one-way analyses of variance (ANOVA). To analyze the relationship between the dependent variable "sustained exercise" and the independent variables "intrinsic motives", "gender", and "age", we conducted a multiple regression analysis.

**Results:** Our results showed that Norwegian girls have higher scores on intrinsic motives for sports participation than boys, and that boys have higher scores on more extrinsic motives. We also determined that girls are more active in organized sports and exercise more than boys.

**Conclusions:** Intrinsic motives, such as interest/enjoyment and competence, were found to influence sustained exercise in adolescents, but gender had no influence.

**Key words:** motives, sports, exercise, Norwegian, adolescents.

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## INTRODUCTION

Factors affecting young people's engagement in sports have attracted increasing research attention in recent years [1, 2]. This study investigates further how intrinsic motives affect participation in organized sports as well as stamina for exercising. It also aims to determine whether there are gender differences among Norwegian adolescents in these areas.

Most participants are intrinsically motivated for sports. People participate in sports more often due to intrinsic motives, such as enjoyment and interest rather than extrinsic goals [3, 4], while exercisers are more likely to be motivated by extrinsic motives, such as improving one's appearance. Contexts fostering autonomy and perceived competence enhance enjoyment and sustained motivation [1, 5, 7]. Sustained exercise is most likely when a person has both well-internalized extrinsic motivation and intrinsic motivation [8, 9, 10, 11, 12].

The motivation for engaging in sports and exercise extends beyond intrinsic motivation. People also have many extrinsic reasons for engaging in sports, from health reasons to a desire for recognition. Self-determination theory includes two broad classes of non-intrinsic motivation: extrinsic motivation, which is behavior motivated by expected outcomes not inherent to the activity itself, and amotivation, which is the lack of energy directed toward action or intention. People are typically viewed as having multiple motives, both extrinsic and intrinsic [13, 14, 15].

The optimal motivational function is achieved through the satisfaction of a person's needs for autonomy, competence, and relatedness. This is called the basic psychological needs theory. Cognitive evaluation theory describes the environmental contingencies that lead to the adoption of intrinsically- or extrinsically-motivated behavior. Lastly, the organismic integration theory identifies the quality of motivation on a scale of perceived locus of causality. These causalities are ranked from highly autonomous to highly controlling [10, 16, 17, 18].

The highest level of intrinsically motivated behavior includes activities people do only for enjoyment, pleasure, and fun and there are no rewards or discernible reinforcements involved [19, 20]. Autonomous regulation is associated with action and maintenance of change for exercise [17, 21], exercise-related self-esteem [22], greater physical fitness [23, 24], more frequent self-reported exercise behavior [25], and more positive attitudes toward exercise [23, 24]. Perceived autonomy support from friends is positively associated with identified regulation and intrinsic motivation [25]. It has also been reported that perceived autonomy support from exercise instructors positively predicts relatedness, autonomy, competence need satisfaction, and intrinsic motivation [17]. Psychological need satisfaction is positively correlated with identified and introjected regulation and intrinsic motivation [23, 25, 26]. Competence need satisfaction and introjected and identified regulations positively predict strenuous exercise behavior, while external regulation is a more negative predictor of strenuous exercise behavior [27]. Competence need satisfaction also has both direct and indirect effects on behavioral investment [17]. The expectancy-value theory of motivation states that gender directly influences children's motivational beliefs and participation through gender role expectations and schemas [28]. Males report higher perceived

competence, value (interest and importance), and participation in organized sports than females [29,30]. Males are also more likely than females to have higher values and self-competence [31]. Additionally, age has been shown to be a predictor of participation in organized sports. Fifty-six percent of Norwegian adolescents are members of a sports club at age 14, while nearly 40% of the adolescents are members of a sports club at age 19 [32, 33].

No gender differences were found in organized sports participation among Norwegian adolescents [32]. However, in the same study girls also reported a higher amount of training during a week than boys - 80% of the girls compared to 70% of the boys [32].

Men rate competition/excitement as their major reasons for participating in sports more frequently than women. On the other hand, women rate appearance as more important than men [34]. Men use sports as a tool for achieving popularity in society and among friends, while women participate in sports as a means of relaxation [35]. Male university students report higher levels of motivation than women for challenge, competition, social recognition, strength and endurance, enjoyment, fitness, skill development, and health pressure. Women rate weight management, appearance, and stress management as more important than men [36, 37]. Males tend to score higher than females on autonomous motivation, whereas females tend to report higher levels of controlled motivation [38, 39].

A study among British university students reported female gender to be a negative predictor of periods of moderate intensity exercise [39]. Male gender has been found to increase the likelihood of meeting physical activity guidelines [40]. The gender of sport is conspicuously masculine. Women in sport can be seen as the 'other sex' [41]. It is, therefore, important to study the gender differences in motives for participation in sport and exercise.

The aims of this study were to determine whether gender differences in sports motivation exist among Norwegian students between the ages of 16 and 18 at upper secondary schools, whether gender predicts participation in organized sports, and whether gender differences influence the amount of exercise/training during the week. It also sought to determine which motivating factors can predict exercising/training, and whether these are influenced by gender.

The hypotheses were as follows:

- H1: Male students are more intrinsically motivated and place higher values on sports than female students.
- H2: There are no gender differences in organized sports participation.
- H3: Female students exercise more than male students during a week.
- H4: There is a positive correlation between intrinsic motives and exercise/training.
- H5: We also expect that gender (female) influences the amount of exercise/training during a week.

## **MATERIAL AND METHODS**

### **PARTICIPANTS**

The participants were 368 upper secondary school students. A total of 186 male and 182 female students participated in the study (age 16 – 143 subjects; age 17 – 126 subjects; and age 18 – 95 subjects). Gender and age were the inclusion criteria. Two hundred and twenty of the included students held a membership in a sport club, and 148 did not. The ethnicity was native Norwegians.

### **PRODECURE**

The data were collected during one month in the spring of 2014. The language of the questionnaire was Norwegian. The questionnaire was translated into Norwegian and validated in an earlier study [42]. We collected the data at school during a Physical Education lesson.

### **MEASURES**

Participants' motives were assessed using the Motives for Physical Activity Measure – Revised (MPAM-R) [43]. The scale consists of 30 items assessing five different motives for participating in physical activities.

Fitness (5 items) refers to being physically active out of the desire to be physically healthy, strong, and energetic ("Because I want to be physically fit"). Appearance (6 items), assesses being physically active in order to become more physically attractive, to have defined muscles, and to achieve or maintain a desired weight ("Because I want to lose or maintain weight so I look better"). Competence (7 items), refers to being physically active out of the desire to improve at an activity, to meet a challenge, or to acquire new skills ("Because I like engaging in activities that physically challenge me"). Social motives (5 items) refer to being physically active in order to spend time with friends and meet new people ("Because I enjoy spending time with others doing this activity"). Interest/enjoyment (7 items) measures being physically active because it is fun, makes the person happy, and is interesting, stimulating, and enjoyable ("Because I like the excitement of participation").

The questions are rated on a 7-point Likert scale, from one (not at all true for me) to 7 (very true for me). We also registered total physical activity (training) during a week.

### **ANALYSIS**

The data were analyzed using SPSS (Version 20.0). In the section describing the sample, one-way analyses of variance (ANOVAs) were applied to determine sample differences. Significant main effects were also followed up using ANOVAs. Effect sizes were reported using Cohen's  $d$  and eta-square  $\eta^2$ . Cohen defined effect sizes as "small,  $d = .2$ ," "medium,  $d = .5$ ," and "large,  $d = .8$ " [44].

To analyze the relationship between the dependent variable „sustained exercise” and the independent variables “intrinsic motives”, “gender”, and “age”, we constructed a multiple regression analysis.

## RESULTS

### PRELIMINARY DATA ANALYSIS

Data were screened according to the recommendations of Hair Jr, Black, Babin and Anderson [45]. Examination of the assumptions associated with regression analyses (homoscedasticity, linearity, and normality) suggests that there were no particular problems in the data. Both homoscedasticity and linearity assumptions were tenable.

To explore whether the data were marked by multicollinearity, both tolerance and variance inflation were examined. No problems were found, since the obtained values were within acceptable values [45].

### RELIABILITY ANALYSIS AND DESCRIPTIVE STATISTICS

Internal consistency estimates (Cronbach's alpha) of the MPAM-R subscales were computed. The reliability analyses indicated that the internal consistency coefficients were good. All coefficients were greater than 0.86 for all multi-item scales (Table 1).

**Table 1.** Mean, standard deviations and internal consistency estimates (Cronbach's alpha) of the MPAM-R subscales

	N	Mean	Std. Error	Std. Deviation	$\alpha$
Interest/enjoyment	352	5.33	.08	1.50	.94
Competence	358	5.32	.08	1.45	.95
Fitness	359	5.38	.07	1.38	.90
Social	359	4.36	.08	1.42	.86
Appearance	357	4.12	.09	1.63	.90
Valid N	333				

### DIFFERENCES BETWEEN BOYS AND GIRLS WITH REGARD TO MOTIVES FOR PARTICIPATION IN SPORT

Both boys and girls seem to score high on intrinsic motives, such as "interest/enjoyment" and "competence". They also scored high on "fitness", which is an extrinsic motive. Both groups showed a low score on "appearance". The last motive, "social", also had a relatively low score in both groups. Statistically significant differences existed between the two groups at the 5% level in "interest/enjoyment" and "appearance". Girls received higher scores on "interest/enjoyment" (5% level,  $\eta^2 = .01$  and  $d = .2$ ), while the boys received the highest scores on appearance (5% level,  $\eta^2 = .02$  and  $d = .14$ ). "Competence", in which the girls scored higher than the boys, was also close to being significantly different at the 5% level (sign .067).

### DIFFERENCES IN ORGANIZED SPORTS PARTICIPATION BETWEEN BOYS AND GIRLS

The organized sports participation score was high. Two hundred twenty (60%) of the students reported that they participated in organized sports. The girls (122; 67%) were found to participate more than the boys (98; 53%). The difference was significant at the 1% level ( $\eta^2 = .02$  and  $d = .3$ ).

## DIFFERENCES BETWEEN BOYS AND GIRLS IN EXERCISING/TRAINING DURING A WEEK

There was a small difference in exercising/training between boys and girls. The girls were found to exercise more than the boys (Table 2). 51% of the girls exercised more than 9 hours a week, while only 42% of boys reported the same amount of exercise. The difference was significant at the 1% level.

**Table 2.** Crosstab between physical activity during a week and gender

Gender	Physical activity during a week						Total
	3 hours or less	4–6 hours	7–9 hours	10–12 hours	13–15 hours	16 hours or more	
Male	31 16.7%	48 25.8%	28 15.1%	32 17.2%	16 8.6%	31 16.7%	186 100.0%
Female	25 13.8%	37 20.4%	27 14.9%	40 22.1%	32 17.7%	20 11.0%	181 100.0%
Total	56 15.3%	85 23.2%	55 15.0%	72 19.6%	48 13.1%	51 13.9%	367 100.0%

## REGRESSION ANALYSIS

One hierarchical regression analysis was conducted to examine how extrinsic and intrinsic motives and gender predict the variable exercising/training during the week. As shown in Table 3, the only motives that had an effect on exercise/training were the intrinsic motives interest/enjoyment and competence. These were significant at the 5% level. Gender had no effect on the model. The explained variance for the model was 21%.

**Table 3.** Hierarchical regression analysis on how extrinsic and intrinsic motives and gender predict the variable exercising/training during the week

	$\beta$	t	CI
Constant		2.10*	[.0451, .418]
Interest/enjoyment	.28	2.55*	[.070, .544]
Competence	.24	2.19*	[.028, .519]
Appearance	-.05	-.75	[-.181, .081]
Fitness	-.04	-.47	[-.248, .152]
Social	-.00	.02	[-.158, .161]
Gender	-.01	-.21	[-.359, .289]
R <sup>2</sup>	.21		
F	15.64		

\* $p < .05$  \*\* $p < .01$

## DISCUSSION

The current study examines whether gender differences exist in sports motivation among Norwegian secondary school students between the ages of 16 and 18 years. It also examines gender differences as a predictor for participation in organized sports and whether there are differences between boys and girls in the amount of exercising/training during a week. Finally, it examines which motives can predict the amount of exercise/training during a week and whether gender influences this.

As expected, both boys and girls had a high score on intrinsic motivation for exercising/training. Interest/enjoyment and competence were the two motives with the highest scores. Gender is an aspect of our society which affects the daily lives of individuals, including their interests. Some studies have indicated that women are more motivated to participate in sport by intrinsic motives rather than extrinsic motives [46]. Intrinsic and extrinsic motives play a role in the kinds of sports an individual participates in [43]. Research integrates the findings of Ryan et al. [43] on intrinsic and extrinsic motivation with the differences in motivation based on gender. Studies have found that men are more likely to be motivated by intrinsic factors than women [24]. In a Brazilian study, it was found that the motivation to exercise appears to have different origins in each gender, with women displaying greater motivation to exercise in order to lose or maintain their weight, while men are more likely to participate in exercise and sports due to social and competitive factors related to vigor [47]. This study, found that girls had significantly higher scores on the intrinsic motive interest/enjoyment, and boys had significantly higher scores on the extrinsic motive appearance. In addition, the intrinsic motive competence nearly had significant differences between the boys and girls, with girls showing a slight advantage.

Internationally, boys have consistently reported more activity than girls [48]. However, it is informative to examine the gender differences in physical activity in the context of exercise intensity. For daily vigorous physical activity, the average gender gap has been substantial. In contrast, the average gender difference for moderate-intensity physical activity is quite modest. This indicates that boys and girls do not differ markedly with respect to daily participation in moderate physical activity, and that the majority of the gender gap in overall physical activity is accounted for by low participation of girls in vigorous-intensity activities [48]. Additionally, a Norwegian study reported that there were no gender differences in organized sports participation [21]. In this study, it is found that there was a significant difference in favor of the girls among the 220 students who participated in organized sports. Based on a previous Norwegian study, it was hypothesized that girls exercise more than boys during a week [32] despite the fact that other studies have reported that gender is a negative predictor of physical activity. However, females are less likely to participate in exercise/sports than men [39, 40, 47]. In this study, a gender difference was found regarding the amount of exercise performed during a week. This difference supports our hypothesis that girls exercise more during a week than boys. The reasons why there are differences between Norway and Britain/USA is hard to explain. The most obvious reason is cultural differences between the countries in women's liberation.

It is also known from earlier studies that intrinsic motives dominate the reasons for sustained exercise among both men and women. Therefore, it was hypothesized that there was a positive correlation between intrinsic motives and exercise/training, but also expected that gender (male) would explain sustained exercise [8, 9, 10, 11, 12, 16, 49] Also in this study, it was found that intrinsic motives, such as competence and interest/enjoyment influenced sustained exercise, while gender had no influence on the amount of exercise performed during a week.



## CONCLUSIONS

Girls had high scores on intrinsic motives for sports participation, while boys had high scores on more extrinsic motives. This led to rejection of the hypothesis that male students are more intrinsically motivated and place higher values on sports than female students. A possible explanation for this could be cultural differences in gender roles between the Scandinavian countries and the countries in which earlier studies have been conducted.

It was also determined that girls are more active in organized sports and exercise more than boys. This required rejecting the hypotheses that there are no gender differences in organized sports participation. The null hypothesis can be replaced with an alternative hypothesis that girls are more active in organized sports than boys. Finally, it was determined that intrinsic motives, such as interest/enjoyment and competence influenced sustained exercise, while gender had no influence. This maintains the hypothesis regarding the correlation between intrinsic motives and exercise and rejects the hypothesis that gender (women) can explain the amount of weekly exercise.

There are several limitations of the study. The participants are all students, they are between 16 and 19 years old and most of them hold a membership in a sport club. Generalization to other groups can be problematic. The fact that women's liberation possibly has come a long way in Scandinavia makes it difficult to compare with countries outside of Scandinavia. On the other hand, the study can provide new knowledge about gender differences in motivation for sport and physical activity.

The results indicate that promotion of physical activity should be differentiated more between men and women. More of the promotion should be aimed at men.

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