

## Developing Scale for Barriers to Participation in Outdoor Sports

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### Abstract

With the increase of leisure time, the need for people to be with nature and to do physical activity has increased. Outdoor sports activities can be defined as leisure activities which create interaction between a part of nature and the participant. Outdoor sports activities are carried out entirely following the individual's own physical, health, spiritual and social interests. Reasons for individuals to prefer outdoor sports activities and the benefits they obtained by doing outdoor sports attracted the attention of scientists. So, many kinds of research have been made on this topic. However, after observations and related literature review, it was evaluated that there are some obstacles in university students' participation in extreme sports activities. So, this study aimed to reveal a valid and reliable measurement tool for examining university students' participation barriers to outdoor sports activities. The research was designed as quantitative descriptive research. The research group of the study consisted of 342 students from Kastamonu University School of Physical Education and Sports in the 2019-2020 academic year. Exploratory and confirmatory factor analyses were made to reveal the factor structure of the scale. According to the exploratory analysis results, it was found that the scale had a structure with four factors and 12 items. The factors were named as Safety, Financial Status, Social Environment and Informing. Besides, confirmatory factor analysis results showed good fit indicates for the model ( $X^2$ : 143,328,  $X^2 / df$ : 2,98, GFI: 94, AGFI: 90, CFI: 97, TLI: 96, IFI: 96, RMSEA: 076).

**Key Words:** Barriers, outdoor recreation, scale, sports, students

### 1. INTRODUCTION

As a result of the intense involvement of technology in our lives, people's lives have become more comfortable, and their free time has increased. Furthermore, this led to an increase in the need to be with nature and to do physical activity. Outdoor sports can be defined as leisure time activities that can create interaction between a part of nature and the participant and are carried out entirely following the individual's physical, health, spiritual and social interests (Ibrahim and Cordes, 2002). Reasons of individuals to prefer outdoor sports activities and the benefits they obtained by doing outdoor sports attracted the attention of scientists in this direction, and many kinds of research have been made in this topic (Jones et al., 2007; Soori and Bhopal, 2002; Yıldırım and Akamca, 2017; Weng

and Chiang, 2014; Gagliardi et al., 2007; Dickson et al., 2000; Kocak and Balci, 2010; Gürer et al., 2016).<sup>©</sup>

In general, the essential feature that distinguishes outdoor sports activities from other sports is that it contains higher risk and difficulty than other sports branches (Dickson, 2012; Soori, 2000). Risk status in outdoor sports is evaluated in three different categories (Demirhan, 2003):

- The risk from nature's structure (Landslide, Avalanche, Rocks),
- Risk arising from the human structure (ignorance, lack of control, lack of material),
- The risk from other creatures (Animal Attacks).

Despite these risks, there is an instinct for integration with nature in social structure, and many people demand outdoor sports activities. A study showed that participation in outdoor activities of the United States increased from 48.4% to 48.8% in 2015 and 48.8% in 2016 (outdoorindustry.org, 2017). Besides, despite the difficulty and risks of outdoor sports activities, there are many essential benefits. Outdoor sports activities provide significant psychological and social benefits for peoples of all ages (Farnham and Mutrie, 1997; Brown, 1981; Teaff and Kablach, 1987; Duvall, 2011; Andre et al., 2017; McCullough et al., 2018). Besides, outdoor sports activities also have many physical benefits. Some of them are as follows: prevention and supportive treatment from chronic diseases, increased endurance, increased oxygen capacity, weight control (Booth, 2012; Haskell et al., 2007; Rosenberg et al., 2009).

A meta-analysis study has revealed that walking or running activities performed in a natural environment (parks, forests, recreation facilities) provide more psycho-emotional benefits than a physical activity performed in a synthetic or closed environment, revealing feelings of renewal, well-being and peace (Bowler et al., 2010). Previous research has shown that participating in outdoor sports activities has a positive effect on mental health (Buckley et al., 2018; Zhou et al., 2020; Thomsen et al., 2018).

Outdoor sports activities provide social benefits such as improvement in social networks, improved feelings of friendship, increased appreciation of nature, improvements in self-esteem and escape from modern life (Thompson Coon et al., 2011; West and Merriam, 2009; Cetinkaya et al., 2017; Manfredelli and Codella, 2019). According to the results of the research conducted by Kanters et al. (2002), a one-day experience of outdoor sports activities, helps to decrease negative mood states, including anxiety depression-dejection, are significantly reduced.

Studies to analyse the obstacles and difficulties of participating in outdoor sports activities have been studied for the last 50 years. While initial studies were mainly conducted on racial or gender differences, recent studies analysed the role of socioeconomic and demographic factors such as income, education, age and place of residence in addition to race and gender differences.

As mentioned before, outdoor sports activities have many significant benefits. Despite this, there are also preventive barriers to participation in outdoor sports. According to Scott and Kim (1998), these obstacles were expressed as:

- Lack of Time

- Low-Income Level
- Technological Changes
- Changes in Family Structure (Acting Together Differences).

In the research conducted by Jackson (1983) showed fifteen unique barriers of participating outdoor sports including time, money, opportunity, knowledge, talent, overcrowding, lack of partners, shyness and lack of transportation.

After evaluations and reading the related literature, it is thought that several factors prevent young people from participating in outdoor sports activities, and there is a lack of questionnaires on the subject. In this context, this study aimed to reveal a valid and reliable measurement tool for examining university students' barriers to outdoor sports activities participation.

## 2. METHOD

### 2.1. Research Model

The research was designed as descriptive research carried out with the quantitative research technique.

### 2.2. Study Group

The research group of the study consisted of 342 students studying in Kastamonu University School of Physical Education and Sports in the 2019-2020 academic year. The research group was selected according to the convenient sampling method among 1237 students studying in the relevant educational institution.

### 2.3. Data Collection Tools

#### 2.3.1. Item generation

Churchill (1979) stated that it is essential to define conceptual domains in measurement tools that will be developed within the scope of the research. So, the literature about the subject has been examined to determine the conceptual area related to outdoor sports activities participation barriers. The information obtained in this context was used as a guide in the conceptual field definition (Hinkin, 1995). After a comprehensive literature review, an initial scale of 4 dimensions and 29 items was created. In this process, the opinions of the academicians who have studies on nature sports were taken, and the items and dimension names were determined according to both literature research and academician opinions.

The theoretical framework, which is considered as the basis in the research, was evaluated within the Green' s (2005) Model of Sport Development. This theory aims to grasp the factors that are critical to the development of sport, more precisely their participation rates, and the combination of factors that influence individuals' commitment to the sport. At each stage of this model, there are various motivations and available opportunities that directly affect an individual's decision to continue or leave the sport. In the stated scope, a total of 29 items were presented to the opinions of 3 academician referees working in the field of sports sciences. Zaichkowsky (1985) realised that the referees should evaluate as "representative" or "not representative" for the research statements determined. Besides,

Mrad and Cui (2017) reported that it would be beneficial to evaluate the incomprehensible and complicated statements by the referees. As a result, it was concluded that at least 50% of the referees as "representative" means that the statement can be included in the research (Saxe and Weitz, 1982). In line with this information, four more expressions were excluded from the initial scale, and the structure consisting of 25 expressions in four dimensions were included in the scope of pilot research. The expressions in the scale developed and applied to the sample group, fully agree "5 points (5.00-4.20)", agree "4 points (4.19-3.40)", indecisive "3 points (3.39-2.60)", disagree "2 points (2.59-1.80)", Strongly disagree "1 point (1.791.00)". The formula  $n-1 / n$  was used when determining the score ranges ( $51/5 = 4/5 = 0.80$ ).

### 2.3.2. Data Analysis

In the analysis of the data, the item-total correlation test was used to test the validity of the items, and the "Cronbach's Alpha" coefficient values were used to test the reliability. KMO value and Barlett Sphericity test were used to determine the suitability of the data for factor analysis. Besides, Exploratory factor analysis (SPSS) and Confirmatory Factor Analysis (AMOS) methods were used to test the construct validity of the scale.

## 3. FINDINGS

### 3.1. Exploratory factor analysis (EFA)

Google forms online platform was used to collect research data. Regarding the pilot study part of the scale development studies, Comrey and Lee (2013) argued that 100 to 500 samples would be sufficient in parallel with the number of items. Online forms were sent to 342 students who were studying at Kastamonu University School of Physical Education and Sports (BESYO) via e-mail. Before data collection, the participants were informed about the research, and consent form obtained before any assessments. Hair et al. (2014) stated that EFA (Exploratory factor analyse) could be used to understand and clarify the new scales as it enables the definition of research structures. Before the EFA was made, the Bartlett test of Sphericity and Kaiser-Meyer-Olkin (KMO) tests recommended in the literature were applied (Hair et al., 2014; Tabachnick and Fidell, 2013). As a result of the analysis, it was seen that the research data were suitable for EFA test. EFA test was applied to determine the structural pattern of the data collected within the pilot test of the research. Principal components analyse used to determine the factor structure. The varimax method, which is frequently used in the literature, has been applied in the interpretation of factor structures (Tabachnick and Fidell, 2013). As a result, it was determined that the data under four dimensions with an eigenvalue value above 1 received a factor load. Finally, it was determined as 0.70 cut-off point to create a conservative measurement model (Bagozzi and Yi, 1988). After eliminating the items in this direction, a structure consisting of 4 dimensions and 12 expressions was obtained. Hair et al. (2014) noted that the variance value announced for social sciences should be over 60%. Within the scope of the analyses, it was revealed that four dimensions explained 76.18% of the total variance (Table-1).

**Table 1.** The total variance of dimensions

Item	1 Eigenvalues % of variance (51,99)	2 Eigenvalues % of variance (14,12)	3 Eigenvalues % of variance (5,47)	4 Eigenvalues % of Variance (4,58)
5	,777			
2	,902			
1	,915			
19		,859		
18		,845		
21		,810		
13			,775	
12			,752	
16			,737	
24				,784
23				,742
25				,713

Notes: Extraction method: principal component analysis; Rotation method: varimax with Kaiser normalisation (Hair et al., 2019).

Cronbach alpha coefficients were examined in order to determine the reliability levels of all structures in the measurement tool and it was revealed that all structures had excellent ( $r > 85$ ) reliability levels. For the external validity of the measurement tool, the relationships between all dimensions were examined, and it was revealed that the correlation coefficients were not statistically significant and not above 0.85 (Table-2) (Bagozzi and Yi, 1988).

**Table 2.** Relationships between dimensions

	1	2	3	4
Safety	1.000			
Financial Status	,416**	1.000		
Social Environment	,542**	,610**	1.000	
Informing	,485	,652	,652	1.000
Mean	2,13	2,92	2,73	2,94
Standart Deviaton	1,05	1,31	1,27	1,33

### 3.2. Confirmatory factor analysis (CFA)

Within the scope of the pilot test, data were collected again to confirm the structure of motivation scale not participating in outdoor sports, whose factor structures were revealed. Through Google forms online platform, 342 university students were reached by convenient sampling method. In order to prevent one person from answering more than one questionnaire, IP restriction has been introduced to the questionnaire forms. The majority of the sample reached within the scope of this information was found to be male (66.6%) and 17-23 (59.6%). This indicates that the sample reached has similar characteristics to the universe. Tabachnick and Fidell (2013) stated that the assumption of

normality in social sciences should be made by controlling the Skewness and Kurtosis values. George and Mallery (2010) stated that having reference values in the range of +2.0 -2.0 is evidence of normal distribution. It was determined that the data set created within the scope of the research was within the stated value ranges, and the assumption of normality was provided. The structure obtained with EFA was tested with CFA, and CFA results revealed good fit indicates for four factors and twelve items ( $X^2$ : 143,328,  $X^2 / df$ : 2,98, GFI: 94, AGFI: 90, CFI: 97, TLI: 96, IFI: 96, RMSEA: 076).

**Table 3.** Factor loads of the items

<b>Safety (AVE: ,79; <math>\alpha</math>: ,93; CR:92)</b>	<b>Factor Load</b>
Because outdoor sports are dangerous	,925
Because there is a possibility of injury in outdoor sports activities	,934
Because environmental conditions are not safe in outdoor sports activities	,810
<b>Financial Status (AVE: ,75; <math>\alpha</math>: ,92; CR:92)</b>	
Because I have no financial situation to devote to outdoor sports	,804
Because outdoor sports activities are expensive	,904
Because outdoor sports equipment is expensive	,895
<b>Social Environment (AVE: ,88; <math>\alpha</math>: ,88; CR:87)</b>	
Because I do not have a social environment to participate in outdoor sports activities	,736
Because I do not have close friends to participate in outdoor sports activities.	,909
Because I cannot convince people to participate in extreme sports activities	,913
<b>Informing (AVE: ,75; <math>\alpha</math>: ,89; CR:90)</b>	
Because I am not aware of activities related to outdoor sports activities	,797
Because I do not have enough information about extreme sports activities	,923
Because I cannot reach the information about outdoor sports activities <sup>®</sup>	,877

Factor loadings (, 70-, 92) of all the expressions included in the study were above the specified limit and provided evidence of discriminant validity (Nunnally and Bernstein 1994). Also, AVE values of all structures were calculated for the convergent validity of the model, and it was determined that all values were higher than 0.5 (Hair et al., 2014). In order to determine construct reliability (CR), CR values of all factors were calculated, and it was found to be high (.70). In line with all this information, it can be stated that the validity and reliability of the outdoor sports participation barriers scale were provided.

#### 4. DISCUSSION

It is thought that increasing the participation of university students in outdoor sports will contribute to both students' getting to know outdoor and valuing outdoor. This research aimed to develop a valid and reliable scale that can be used in determining the factors that hinder the participation of university students receiving sports education in outdoor sports. As a result of identifying these obstacles, it is expected that the importance of eliminating them will be taken and the university students will be more involved in outdoor sports activities.

In the research conducted by Dinç (2006), it was aimed to develop a leadership scale regarding outdoor sports. A total of 329 individuals participated in the study. In order to test the construct

validity of the scale, the principal components factor analysis using varimax rotation method was used, and it was determined that a total of 35 items were collected under seven sub-scales by explaining 60.05% of the total variance. In this context, it can be said that both scales are similar in terms of the number of participants and the context of scale development methods.

In the study conducted by Ekinçi et al. (2012), "Motivation Scale for Participation in Nature Walks" was developed with 182 participants. In the research, to test the structural validity of the scale, a total of 46 items were analysed with the Principle Component factor analysis. When the load matrix results were examined, it was understood that the scale has a 5-factor structure with 24 items explaining 54% of the variance. There are some differences between the two studies in terms of the number of participants and method care. It can be said that these differences arise from two different perspectives (Positive-Negative) between the two studies.

In the research conducted by Yılmaz et al. (2006), "Social Integration Scale in Sport" was developed. In the research, exploratory factor analysis was applied to reveal the factor structure of the scale, and varimax rotation method was applied in the exploratory factor analysis. Analysed results showed that the scale has seven factors with an eigenvalue higher than 1. Besides, to test the internal consistency of the survey, Cronbach's Alpha internal consistency test was applied. In this context, there are similarities between the two studies in terms of scale development methods.

In the research conducted by Próchniak (2017), Adventure Behavior Seeking Scale was developed. Exploratory factor analysis was conducted with 466 participants in the study, and a single factor structure emerged. The internal consistency coefficient of the research data was found as 0.80. In the study, a harmonised factor analysis was conducted using another sample group of 406 participants, and the results confirmed the single factor structure. In this context, it was seen that there are both similarities and differences between the two studies. This scale aimed to determine the adventure-seeking behaviours of people's desire to be in nature.

## 5. CONCLUSION

In conclusion, EFA and CFA results revealed a valid and reliable four-factor and 12 items scale. The research process was carried out considering the scale development standards. The higher scores obtained in the scale factors indicate more barriers and lower scores indicate fewer barriers to outdoor sports participation.

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### Author Contributions

All authors contributed to the article equally.

### Conflict of Interest

The authors stated any conflict of interest in their study and publication.

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	<b><u>Spor Bilimleri Öğrencilerine Yönelik Doğa Sporlarına Katılım Engelleri Ölçeği</u></b>	Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
	Doğa Sporlarına neden katılmazsınız?					
Güvenlik	Doğa sporları aktivitelerini tehlikeli olması					
	Doğa sporları aktivitelerinde sakatlanma ihtimalimin olması					
	Doğa sporları aktivitelerinde, çevresel koşulların güvenli olmadığını düşünüyorum olmam					
Finansal Durum	Doğa sporlarına ayıracak maddi imkânımın olmaması					
	Doğa sporları faaliyetlerinin pahalı olması					
	Doğa sporları malzemelerinin pahalı olması					
Sosyal Çevre	Doğa sporları aktivitelerine katılacak sosyal çevrem olmadığını düşünüyorum olmam					
	Doğa sporları aktivitelerine katılacak yakın arkadaşlarımın olmaması					
	Doğa sporları aktivitelerine katılmak için insanların ikna olmaması					
Bilgilendirme	Doğa sporları faaliyetlerine ilişkin etkinliklerden haberdar olamamam					
	Doğa sporları faaliyetlerine ilişkin yeterli bilgimin olmaması					
	Doğa sporları faaliyetlerinin bilgilerine ulaşamamam					