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The Development of Health-Belief Scale on Sportive Recreational Activities

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Abstract

Purpose: To develop a Health-Belief Scale on Sportive Recreational Activities (HBSSRA) and to analyse validity and reliability of the scale. **Methods:** Data were found as suitable for factor analysis and exploratory factor analysis was used to analyze construct validity and factor structure of HBSSRA. Cronbach Alfa, internal consistency coefficient, test-retest, paired-t and Pearson correlation tests were used for reliability of data. **Results:** Total variance in the scale was calculated as 61%. For reliability analysis, Cronbach Alfa internal consistency coefficient was calculated as 0.88 for all items. **Conclusions:** Finally, a valid and reliable likert-type scale with 21 items and 5 sub-dimensions was developed to evaluate Health Belief in the society as to Sportive Recreational Activities.

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1. Introduction

Recreation stems from the Latin word “recreation” which means renewal, recreation or reconstruction. Turkish meaning of this word is widely used as enjoying leisure time. This means relaxing and amusing activities, which individuals or social groups voluntarily do in their leisure times (Karakucuk, 2005).

With industrialization, the importance of leisure times and recreation has progressively increased in modern life.

With the convenience and opportunities civilization brought, people have become less and less mobile. Working all day long by sitting is followed by the habit of watching television for long hours at home, thus, this way of life unfit with the structure of organism responds in a negative manner showing atrophía meaning you lose what you do not use (Akgun, 1986).

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Health is a concept associated with all aspects of life such as physical wellbeing, social interactions, mental and emotional capacity and spiritual condition. In terms of today's point of view, health includes life quality and life satisfaction. Health, which is regarded as one-way developmental concept in individual-environment integration, means progressive increase of awareness, personal experience and self-realization. (Edelman & Mandel, 1998).

As stated in the book titled "Hypokinetic Disease" written by Kraus and Raab, action is one of the fundamental needs of human beings like air, water and food. In pre-history period, people used to live walking to distant places to meet their needs and survive fighting against wild animals. This was achieved by motion system (Akgun, 1986).

As is known, many of the diseases are caused by stress. The most successful way of preventing or diminishing stress is participation in recreational activities because an individual will feel emotions such as relaxation, refreshment, changes and escape from daily life, and will purify his body, spirit and mind (Bammel & Burrus-Bammel, 1996).

People also need spiritual comfort to protect their health. Because, mental stress like sorrowfulness, grievance, restlessness, not enjoying life and weariness disturb social relations of an individual. Moreover, the nervous system is affected severely, and consequently, functions of some systems are affected negatively. For instance, gastric ulcer occurs in nervous sorrowful people as a result of excessive gastric acid secretion (Ozden, 1993).

According to modern public health concept, protection against diseases is far more effective and cheaper health service than treatment after the occurrence of diseases. It is significant that lifelong sports understanding has emanated from the developed countries. Though preventive medicine is very crucial, treatment of a patient affects people more. This is natural as well since man realizes the significance of something when he loses it, and the person whose health we protect cannot understand the importance of his health, as he does not lose it. Therefore, except high cultured people, no one demands services to protect their health and pays money for it (Fisek, 1983).

Apart from the competitive goal of sports, the idea of protecting health has progressively developed, and large masses have been invited to various sportive activities. It has been tried to increase the number of the people engaging in sports with the slogans such as lifelong sports, sports for a healthy life, fitness, aerobics, jogging and so on (Kalyon, 2000).

Recently, the most frequently used conceptual framework in explanation of health behaviours is Health Belief Model (HBM) (Glanz and et al., 2002). The model was developed by a group of social psychologists for prevention of diseases (Hochbaum, 1958, Rosenstock, 1960, & Nahcivanve Secginli, 2003). The main concept of the model is clarification of determiners related with realization of preventive health behaviours (Glanz and et al., 2002).

The model explains the relationship between individual's belief and behaviours, and the effect of his individual motivation towards health behaviours at individual decision-making level (Rosenstock, 1960). At the same time, the model describes what motivates the person to do or not to do actions related with health, and the efficient circumstances in exhibiting health behaviours (Mikhail, 1994). As a preventive health service, recreational exercise has gradually gained value across the world and in our country. Material and nonmaterial losses suffered during solutions of increased health problems have caused this matter to be included in our agenda. Therefore, in this study we aim to develop a scale in order to determine health belief and perceptions of people doing sports with recreational motives.

2. Method

2.1 Forming the scale

In forming items of Health Belief Scale on Sportive Recreational Activities (HBSSRA), primarily the literature was scanned, and existing scales related with health belief were researched. We created a pool including many items related with sportive recreational activities. For the validity of assessment instruments, 3 faculty members from the Recreation Department of Physical Training and Sports School College, 2 faculty members from the Public Health Department of Faculty of Medicine were consulted along with 3 faculty members from Faculty of Health Sciences. Language specialists reviewed the scale in terms of Turkish language rules.

The required changes were made compatible with the opinions expressed, and a draft scale consisting of 42 items was prepared. The expected answers to the items are 5 Likert-type and graded as I strongly disagree (1), I disagree (2), I am undecided (3), I agree (4) and I strongly agree (5).

2.2 Application

The scale has been aimed so that everyone can use it. The draft scale was applied with four-week interval, and the application of 400 people in the first stage and then 323 people were accepted as valid. While negative and positive statements were written in the scale, the items were sequenced in mixed form in order to diminish the possibility of directing the respondent to give a negative or positive answer. As the scale designed to be filled out on one's own, being at least a primary school graduate was accepted as the criteria for participation.

2.3 Analysis of Data

Validity: Researchers first checked using Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Test whether data are suitable for factor analysis for structure validity. As the data turned out to be suitable for factor analysis, exploratory factor analysis was used in order to examine structure validity and factor structure of Health Belief Scale on Sportive Recreational Activities, and basic components analysis was used as factoring technique. Moreover, vertical rotation technique was utilized to entitle and interpret factors. Vertical rotation was performed via Varimax technique. During the analyses, common factor variance, factor loadings of items, their variance rates and line graph was examined, and factor loads of the items were determined as at least 0.50.

Reliability: Secondly, Cronbach's Alpha internal consistency coefficient was calculated as 0.88 for reliability analysis. Test retest reliability was tested by applying Health Belief Scale on Sportive Recreational Activities to the same group four weeks after the first application. Pearson Product-Moment Correlation Coefficient was calculated between the results obtained from these two applications, and also the results were tested with t-test to find out whether there was significance difference between.

3. Findings

Table 1. Findings related with features of the participants

VARIABLES		N	%
Age	20 and over	400	100
Sex	Male	222	55.5
	Female	178	44.5
Working Status	Unemployed	53	13.3
	Day-worker only	321	80.3
	Shift worker	26	6.5
Have Children	Yes	249	62.3
	No	151	37.8
Educational Status	Primary School	-	
	High School	74	18.5
	College/Faculty	251	62.8
	Post Graduate	75	18.8
Income Status	0-2000 TL	104	26
	2001-4000 TL	175	43.8
	4001 TL and over	121	30.3
Participation in Sportive Recreational Activities in any Period of Life	Yes	338	84.6
	No	62	15.5

Factor analysis is carried out to reach significant structures from many variants and to reveal the structures that the items in the scale assess (Balci, 2001; Buyukozturk, 2002; Tezbasaran, 1997). At first, an exploratory factor analysis was conducted to examine structure validity of the scale. Conformity of the data for carrying out factor analysis was checked using Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Test. KMO value was found as 0.898 and it was observed that it was higher than 0.60. Diagonal values of correlation matrix for a sound factor analysis also indicate sample sufficiency. For the sample to be sufficient, diagonal values of correlation matrix need to be 0.60 or over (Akgul & Cevik, 2003, p. 428). In Factor Analysis, the data need to be in compliance with normal distribution, and whether data are derived from multi-variant normal distribution or not is determined through Barlett test. The higher Barlett test result is, the more likely it is significant. Barlett test applied to the available data came out to be significant (Chi-Square= 3102,4; sd: 210; P<0.001).

Table 2. Kaiser–Meyer-Olkin and Barlett’s Test Sphericity Analysis Results

Tests	Results	
KMO	0.898	P<0.001
Barlett’s Test Sphericity	3102.417	

In the next stage, scree plot was used to determine the Factor number. In this study, 5 factor numbers were determined at the beginning of the study, and 5 factors whose eigenvalue was higher than 1 were included in the scale. When the line chart is examined in Figure 1, it is observed the line becomes straight after fifth factor, and total announced variances related with these factors are illustrated on Table 3.

Table 3. Total Variance Announced after Rotation of Health Belief Scale on Sportive Recreational Activities

	Factor	Eigenvalue	Variance Percentage	Total Variance Percentage
1	Perceived Seriousness	3.561	16.958	16.958
2	Perceived Barriers	2.717	12.940	29.898
3	Physical Benefit	2.693	12.823	42.721
4	Psycho-social Benefit	2.449	11.660	54.382
5	Self-Efficacy	1.564	7.446	61.828

As can be seen on the table, all of the five factors explain 61.8% of the total variance. It is quite possible that the variance rate, which is higher than the acceptable rate of 41%, can be regarded as the scale consisting of five factors (Kline, 37, as cited in Devenci, 2002). 21 items under factor loading of 0.50 obtained after the items were rotated by Varimax technique were excluded from the scale. Distribution of 21 items included in the scale and factor loads of each item are provided on Table 4.

Table 4. The data obtained as a result of Factor Analysis of Health Belief Scale on Sportive Recreational Activities

Items		Factors				
		1	2	3	4	5
m32	My relations with my social environment get better during the time when I do recreational exercises.	0.784				
m33	My family relations get better during the time when I do recreational exercises.	0.774				
m28	My skill to manage my daily routines improves during the time when I do recreational exercises.	0.744				
m42	My capacity to do work increases during the time when I do recreational exercises.	0.666				
m25	I believe that recreational exercises have positive effects on my mental health.	0.570				
m21	My sleeping habit is in order when I do recreational exercises.	0.561				
m5	Participating in sportive recreational activities is vital for all of my body functions.		0.826			
m10	Sportive recreational activities are very important for a healthy life.		0.770			
m8	Participating in sportive recreational activities is important in terms of a healthy society.		0.767			
m2	Decrease in stress level on days when recreational activities are done is an important effect.		0.529			
m34	My daily water consumption increases during the time when I do recreational exercises.			0.768		
m40	I believe that recreational exercises have a positive effect on my physical appearance.			0.742		
m38	I believe that my excretory system works more regularly when I do recreational exercises.			0.648		

m30	I feel myself more energetic when I do recreational exercises.			0.608	
m26	For participating in recreational exercises, I sacrifice from my leisure time that I save for my social environment.			0.797	
m20	For participating in recreational exercises, I sacrifice from my time that I save for my family.			0.768	
m23	For participating in recreational exercises, I sacrifice from my economic condition.			0.738	
m36	For participating in recreational exercises, I sacrifice from my work.			0.660	
m6	My physical health problems affect me in my participation in recreational exercises.				0.743
m9	I am afraid of being injured while participating in sportive recreational exercises.				0.672
m11	My mood affects me in my participation in recreational exercises.				0.606

On Table 4, it is observed that factor loads of the items vary between 0.529 and 0.826. After the factor analysis, the scale consists of 21 items.

The more reliable a scale is, the more similar and determined the results obtained in independent assessments made with that scale becomes (Buyukozturk, 2007). In order to provide reliability of assessment instrument, Test Retest Reliability, Equivalent Forms and internal consistency methods are used. While developing Health Belief Scale on Sportive Recreational Activities, equivalent forms methods was utilized among these methods. In order to provide Test Retest Reliability, Health Belief Scale on Sportive Recreational Activities was first applied to 400 people and after four weeks it was reapplied to 323 people among the study group, and the difference between measurements in these two applications was calculated by Pearson Product-Moment Correlation Coefficient, and also t-test was applied for associated samples. Name and description of dimensions of the scale occurred according to factor analysis; its sample items, reliability coefficients and item numbers are shown on Table 5.

Table 5. Name and Description of Dimensions of the Scale, Its Sample Items, Cronbach's Alpha Reliability Coefficient and Related Items

Sub-dimensions	Description	Related Items	Cronbach's Alpha Reliability Coefficient
Perceived Seriousness	The seriousness that individuals perceive in relation to sportive recreational activities	5, 10, 8, 2	0.82
Perceived Barriers	Barriers which affect individuals' health beliefs in relation to sportive recreational activities	6, 9, 11	0.50
Physical Benefit	Physical benefits that individuals belief in as to sportive recreational activities	30, 34, 38, 40	0.82
Psycho-social Benefit	Psycho-social benefits that individuals belief as to sportive recreational activities	25, 21, 42, 32, 33, 28	0.87

Self-Efficacy	Individuals' belief in their ability to do necessary actions to participate in sportive recreational activities	20, 23, 26, 36	0.76
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Cronbach's Alpha internal consistency coefficient calculated for the whole scale is 0.88.

Table 6. Test Retest Analysis Results on Health Belief Scale on Sportive Recreational Activities

	N	Mean	Ss	Sd	t	p
1. application	400	77.6	12.7	322	1.67	0.095
2. application	323	78.5	10.6			

Pearson Product-Moment Correlation Coefficient is 0.200 and 0.594 (in total $r = 0.65$; $p < 0.001$)

4. Discussion and Conclusion:

As a result of the research, a valid and reliable Likert-type scale (HBSSRA) with 21 items and 5 sub-dimensions was created to determine the belief and perceptions of people, who do recreational sports, in health. In the first factor consisting of 4 items called 'Perceived Seriousness', statements, which assess how seriously participating in sportive recreational activities affects the health of individuals, were included. The second factor consisting of 3 items called 'Perceived Barriers' reflects the reasons that prevent participation in recreational activities. Third factor called 'Physical Benefit' consists of 4 items and assesses physical benefits by recreational activities, and the fourth factor consisting of 6 items and called 'Psycho-social Benefit' assesses psychosocial benefits perceived by these individuals. With 4 items, the fifth factor called 'Self-Efficacy' assesses what kind of things the participants can sacrifice in order to participate in sportive recreational activities. This scale can be applied to people who are at least high school graduates. Studies which have been made so far in Turkey on health belief model and which we can find have been on topics such as mammography applications, applications on HIV/AIDS and self-examination of breast that are motivated towards protecting health (Cenesiz, 2007).

A study which researches the studies carried out until 2006 on health belief model mentions that studies had been performed using this model on matters such as variables which determines the use of health services, patients' adaptation to treatment, children's smoking and use of addictive's substances, individuals' intention to have a health check, the effect of culture on health behaviour, women's knowledge of cervical cancer, mothers' belief in health, diabetes, patients with osteoporosis and depression (Cenesiz, 2007). The studies carried out so far have focused on assessing the beliefs of the individuals' for the protection of the health required by Health Belief Model. A scale has been developed from this model considering sportive recreational activities have also protective effects on health.

Basing on the findings obtained from this research, it can be said that HBSSRA is a valid and reliable scale, which can be used by researchers, who work in recreation and health fields, to determine the beliefs and perceptions of the people who do sportive recreational activities. Recently, sportive recreational activities have rapidly gained importance as a preventive health service. Considering this situation, the belief of the individuals in health are significant indicators of the country policies on preventive health services.

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