

# CONSTRUCTION OF A QUESTIONNAIRE RELATED TO SOME ASPECTS OF HEALTH CARE FOR RECREATIONAL ATHLETES

Joško Sindik<sup>1</sup> and Narcisa Vojnović<sup>2</sup>

<sup>1</sup> Institute for Anthropological Research, Zagreb, Croatia, Gajeva 32

<sup>2</sup> Education and Teacher Training Agency, Zagreb, Croatia

Original scientific paper

## **Abstract**

The main objective of this study was to determine latent dimensions of the Questionnaire for recreational athletes and the correlations between variables of daily effort, the importance of free time and motivation to take care of personal health, at the recreational athletes. We examined a sample of 127 recreational athletes, both gender, different age and educational level, practicing for a different period of time in five different sports and recreation centers in Zagreb. We found four latent dimensions in the base of co-variations between the variables of Questionnaire for recreational athletes: the importance of health care, stress and fitness, experience of daily fatigue and the importance of leisure time. There is only one significant correlation between the dimensions of the Questionnaire: health care and the importance of leisure time. There is no significant possibility of prediction for the duration of physical exercising per week, based on the dimensions of the Questionnaire for recreational athletes.

**Keywords:** recreational athletes, attitudes, experience, health, latent dimensions

## **Introduction**

Leisure time is often described as a synthesis of the time spent without demands of work or duties, doing activities that make us feel pleased and enjoy, performed during specified unpaid time (Arbunić, 2004; Previšić, 2000). Thus, Adams (1976, from Arbunić, 2004) perceives four dimensions that strongly articulate activities associated with leisure time: the freedom of choice of activities, internal motivation, enjoyment and relaxation. The way of spending leisure time is recreational sport. In modern time, recreational exercising is for most people in developed countries a useful way of spending leisure time.

In this area, a series of studies has been conducted both abroad and in our country. Physical inactivity usually leads to damage and deterioration of health (Sallis et al., 1986). The stimulating effect of physical activity is mediated by genetic adaptation to regular physical activity, during the time in which our ancestors (for survival purposes) were very intensively physically active (Landers & Arent, 2001; Vuori, 2005). Physically active lifestyle is desirable and contributing to health, as it reduces the risk of many chronic non-infectious diseases. On the other hand, it relieves the state of stress and depression, improves the mood, confidence and life satisfaction. Promoting regular physical activity has become a public health priority.

Programs of physical exercise should be a daily activity in the leisure time of every human, so

they should be adapted to the specific needs of potential users (Relac, 1978). Such approach is in direct opposition to the common practice of offering a general program of physical exercise, aimed to 'an abstract population'. Bidders of the programs rarely know what are the real needs, wishes and preferences of potential users.

The development of recreational sport is inseparable from the development of technology and general progress of modern society. The position of recreational sport is a significant for quality functioning of the individual, with all his mental and physical potentials, as well as for the society at all levels. The effects of recreational sport are measurable with socio-economic parameters, and the notion of quality takes on a significant role in a culture and in a lifestyle (Henderson & Bialeschki, 2005). Through the development of the system of the recreative sport exercising it is possible to identify an extremely wide range of recreative sport participants, related to their size and age structure (from the youngest to the oldest). Sport recreation is now implemented at every life age, impacting on a variety of links that allow individual development (Petkovšek, 1981; Silverman & Subramaniam, 1999; Marcus & Forsyth, 2003; Miller et al, 2005; Gošnik, Sedar & Bunjevac, 2007). Specific life conditions of a modern human, which are not inherent to the biological requirements of the human body, have found a foothold in the recreative sport through the appropriate sporting facilities and activities to satisfy and compensate these needs.

One way to solve the problem of physical inactivity is the selection and organization of such forms of recreational sport that that would be appropriate for the population characteristics to which this activity is directly intended for. In this study we will try to determine the extent to which the selected demographic characteristics are associated with the estimation of daily efforts of individuals. That can be a starting point for designing an appropriate physical activity for a specific population. The main **goal** of this study was, using the Questionnaire for recreational athletes, to determine the latent dimensions and the correlation between the variables that describe daily effort, the importance of leisure time and motivation to take care of one's personal health, at the recreational athletes in various recreational centers in Zagreb. In accordance with the main goal, some research **problems** were defined:

1. to establish the reliability and construct validity of the Questionnaire for recreational athletes;
2. to determine the correlation between the dimensions of the Questionnaire for recreational athletes;
3. to determine the possibility of prediction of the duration of weekly exercising by using dimensions of the Questionnaire for recreational athletes.

We assumed that there are a few latent dimensions that may interpret co-variations in the base of set of variables in the Questionnaire for recreational athletes; we also assumed that there is a statistically significant correlation between some dimensions of the Questionnaire for recreational athletes. We assumed that, based on the latent dimensions of the Questionnaire, we can successfully predict the duration of physical exercise per a week.

## Method

### *Subjects*

Population of subjects (recreational athletes who are exercising in recreational centers in Zagreb) was represented by a sample of 127 recreational sport athletes in the city of Zagreb (18 men and 109 women), with different chronological age (ranged from 28 to 81 years, average age 66 years), with different levels of education (3 with elementary school and 61 with high school education, 63 with university degrees), with 0-6 family members (average 1.5), who are exercising with the general duration of recreational exercising from less than one year and up to 57 years (average 8.8 years), and ranging from 1 to 7 hours per week

(average 2.7 hours). So, all the subjects live in urban areas, and they were examined in five different recreational sport centers.

### *Measuring Instruments and Variables*

All participants anonymously filled out a Questionnaire for recreational athletes (Andrijašević, 2009): the individual's evaluation of experience of the general psycho-physical fitness (14 items), the experience of the importance of leisure time for individuals (8 items) and one's health care (13 items). The subjects answered to the questionnaire statements using the estimation scale with a six-degree assessment ('0' means a minimal or zero degree of intensity of the estimated variable; '5' means maximal estimation). We also collected demographic variables: education level, number of family members, length of service, gender, age, duration of exercise in general, duration of exercise on a weekly basis.

### *Data Analysis*

We have calculated the basic descriptive parameters: means, standard deviations and test of distribution normality. The main components for certain parts of the Questionnaire were determined using optimal scaling, i.e. using CATPCA - Principal Components Analysis for Categorical Data. Having in mind the fact that three parts of the Questionnaire are substantially different terms, these three parts were analyzed separately. On the basis of items that satisfactorily saturated the main component (correlation with a component equal or higher than 0.350), we formed total scores on the particular four dimensions of the Questionnaire. Then we calculated Pearson's correlations to determine the relationship between these four dimensions and the prediction of the variable 'average duration of physical exercise per a day', with four dimensions of the Questionnaire as predictors.

## Results and Discussion

In the sub-questionnaire 'Experience of the general psycho-physical condition of the individual', the maximum means were obtained for the variables of the general level of daytime fatigue, and the two aspects of fatigue: physical and mental fatigue (Table 1). The lowest average scores were achieved for the feelings of the life optimism and good health. Our subjects showed a relatively high degree of measured physical and mental fatigue, which can be reflected on the level of positive feelings. Of course, some possible interpretations go in the opposite direction: negative feelings and

pessimism can affect the feeling of fatigue. Turning to the results of component analysis, measuring daily fatigue is defined by the items Nos. 1, 2, 3, 4, 9 and 10. Dimension of stress and physical fitness is defined by items Nos. 8, 11, 12, 13 and 14 (the item No. 8 is recoded: it actually indicates the degree of dissatisfaction). Association of aspects of stress and fitness could be interpreted as the importance of mental and physical stamina to overcome the stress. Otherwise usually constructive sign of fitness

could be only additional feature of stress. Feelings of fatigue and perceived stress are best described by the dimensions in the sub-questionnaire Experience of general psycho-physical state of the individual. Three items (Nos. 5, 6 and 7) are not satisfactorily correlated with any of two dimensions of the sub-questionnaire. In our sample, the reliability of the dimensions were low to moderately high but satisfactory: 'Daily fatigue' (Cronbach's alpha 0.773) and 'Stress and physical fitness' (0.569).

Table 1: Descriptive statistics and results of CATPCA (Principal Components Analysis for Categorical Data) (correlation of variables with main components 'Daily fatigue' and 'Stress and physical fitness')

Items - The degree of...	Arithmetic Mean	Standard Deviation	Kolmogorov-Smirnov test	Daily Fatigue	Stress and Fitness
1. general daily fatigue	3.134	.963	2.704	<b>.746</b>	-.249
2. mental fatigue daily	2.819	1.275	2.189	<b>.664</b>	-.300
3. daily physical fatigue	2.930	1.128	2.722	<b>.696</b>	-.090
4. daily feelings of boredom	2.347	1.982	2.218	<b>.552</b>	-.309
5. happiness	1.780	1.227	2.258	-	-
6. feelings of good health	1.638	.879	2.733	-	-
7. optimism, a sense of living	1.394	1.135	2.549	-	-
8. satisfaction	1.992	3.633	3.673	-.389	<b>-.441*</b>
9. anger	2.150	1.480	1.972	<b>.698</b>	-.226
10. loneliness	2.205	1.747	1.762	<b>.579</b>	-.443
11. physical stress	2.268	1.591	1.773	.343	<b>.762</b>
12. psychological stress	2.606	1.465	1.682	.433	<b>.653</b>
13. physical fitness	2.386	1.148	2.592	.415	<b>.422</b>
14. mental fitness	2.701	1.122	2.143	.328	<b>.430</b>
<b>Eigen Value</b>	<b>(sub-questionnaire in general) 5.665</b>			<b>3.543</b>	<b>2.122</b>
<b>Reliability (Cronbach's Alpha)</b>	<b>(sub-questionnaire in general) .887</b>			<b>.773</b>	<b>.569</b>

\* Variable is recoded in calculating the total results

The highest means are obtained for the variables socializing with family and enjoying in the nature in the sub-questionnaire 'Experience of the importance of leisure time' (Table 2). The lowest means are found for variables: playing games that make me relaxed and socializing in coffee bars. In other words, our subjects prefer more active holidays and spending time with close people,

than spending time in 'dispensable pastime'. The dimension 'Experience of the importance of leisure time' is defined with 8 items and it is most saturated by items Nos. 6, 7 and 2, i.e. (items that describe methods for spending active holidays). Reliability of this dimension in our sample was relatively high (0.785).

Table 2: Descriptive statistics and results of CATPCA (Principal Components Analysis for Categorical Data) (correlation of variables with the main component: 'The importance of leisure time')

Items	Arithmetic Mean	Standard Deviation	Kolmogorov-Smirnov test	Importance of leisure
1. Playing different games that make me relax	2.362	1.872	1.940	<b>.526</b>
2. Sport and recreation	3.512	1.321	2.379	<b>.742</b>
3. Music, watching movies and series	3.252	1.527	2.250	<b>.635</b>
4. Reading books, press, internet surfing	3.095	1.561	2.070	<b>.553</b>
5. Hanging out in cafes	2.413	1.856	1.859	<b>.461</b>
6. Trips and excursions	3.591	1.514	2.488	<b>.834</b>
7. Enjoying nature	3.850	1.346	2.666	<b>.752</b>
8. Socializing with family	3.913	1.202	2.498	<b>.432</b>
<b>Eigen Value</b>	<b>3.196</b>		<b>Reliability</b>	<b>.785</b>

In the sub-questionnaire 'Individual's health care', the highest means were obtained for the variables: the importance of physical activity for one's health, concern about physical activity, and consideration that the whole day one should be physically active (Table 3). The lowest average values were obtained for the opinion that the doctor needs to worry about the health of the individual, and that outdoor activities (in nature) are especially important. In

other words, our subjects prefer physical exercise as the best way for their own health care.

The dimension 'Individual's health care' is defined with 12 items and it is most saturated with items No. 4 and No. 1, i.e. items that describe an active health care (nutrition, regular exercise). Reliability of the dimension 'Individual's health care' (0.786) was relatively high.

Table 3: Descriptive statistics and results of CATPCA (Principal Components Analysis for Categorical Data) (correlation of variables with the main component: 'Health care')

Items	Arithmetic Mean	Standard Deviation	Kolmogorov-Smirnov test	Health Care
1. I take care about my nutrition	3.850	1.182	2.741	<b>.703</b>
2. I take care about my physical activity	4.078	1.020	2.715	<b>.689</b>
3. Physical activity is important for health	4.315	1.006	3.773	<b>.380</b>
4. I think the whole day I should be physically active	4.056	1.215	3.092	<b>.714</b>
5. I think I'm the most responsible for my own health	3.827	1.386	3.001	<b>.494</b>
6. I think that the doctor is responsible for my health	2.480	1.704	1.572	<b>.473</b>
7. An expert for exercise is indispensable to me	3.378	1.593	2.200	<b>.531</b>
8. For me activities in the nature are important	2.921	1.824	2.379	<b>.439</b>
9. For me it is important to exercise in the fitness gym	3.260	1.658	2.608	<b>.546</b>
10. I prefer group exercise (sports games, aerobics ...)	3.772	1.316	2.460	<b>.487</b>
11. I need someone to animate me to exercise	3.102	1.759	2.356	<b>.407</b>
12. Media (TV, newspapers) are responsible for the adoption of lifestyles	3.079	1.726	1.969	<b>.371</b>
<b>Eigen Value</b>	<b>3.649</b>		<b>Reliability</b>	<b>.786</b>

On the basis of all the items that saturated four dimensions in three sub-questionnaires from the Questionnaire for recreational athletes in a satisfactory way, we defined overall results for dimensions as a simple linear combination of items that define a particular dimension

(Table 4). Only the results for the dimension 'Experience of the importance of leisure time' deviate significantly from the normal distribution, while the results for the remaining three dimensions are normally distributed.

Table 4: Total scores on the dimensions of the Questionnaire for recreational athletes (descriptives)

Dimension	Arithmetic Mean	Standard Deviation	Kolmogorov-Smirnov test	Significance
<b>Stress and fitness</b>	13.575	4.500	.750	>.20
<b>Daily fatigue</b>	15.583	5.930	.851	>.20
<b>Importance of leisure</b>	25.969	7.507	<b>1.484</b>	<b>&lt;.05</b>
<b>Health care</b>	45.567	9.233	.752	>.20

Of the six possible, only one correlation between the results in the dimensions of the Questionnaire is statistically significant, moderately high and positive: between the experiences about the importance of health care and leisure time (Table 5). In

other words, those who feel the importance how they will spend their leisure time mostly want to direct the implementation of their leisure time for the purpose of their own health care.

Table 5: Correlation between the dimensions of the Questionnaire for recreational athletes (Pearson)

Correlations	Importance of leisure	Health care	Stress and fitness	Daily fatigue
Importance of leisure	1	.509**	.072	.132
Health care		1	.058	.103
Stress and fitness			1	.086
Daily fatigue				1

\*\* correlation significant with  $p < .01$  (2-tailed)

Finally, we tried to predict the duration of physical exercise per week based on four dimensions of the Questionnaire (Table 5). None of the predictors can satisfactorily predict the duration of physical exercise a week. This result can be explained by the real diversity of attitudes

and behaviors of individuals. While there may be an extremely positive attitude towards the importance of positive leisure time and health care, on the other side individuals may experience relatively high level of stress and fatigue.

Table 6: Prediction of the duration of physical exercise per week based on the dimensions of the Questionnaire for recreational athletes

Criteria	R	R <sup>2</sup>	F	p	Predictors	$\beta$	B	t	p
physical exercising per week	.115	.013	.406	>.20	Importance of leisure	.024	.005	.230	>.20
					Health care	.018	.003	.170	>.20
					Stress and fitness	.106	.040	1.175	>.20
					Daily fatigue	-.025	-.006	-.274	>.20

We constructed a satisfactory metric measuring instrument, with four dimensions. In future studies it would certainly be useful, preferably on a larger and more representative sample, to try to relate the dimensions of the questionnaire with a higher number of demographic and anthropometric variables. For practical purposes, the Questionnaire would have to be primarily used for those who do not spend their free time constructively, to be able, based on feedback, to direct them into recreational sport activities, as per their preferences.

### Conclusions

We have confirmed the existence of four latent dimensions of the Questionnaire for

recreational athletes, which reliably interpret the space of the experience aspects of the leisure time and health care. They are the importance of health care, stress and fitness, experience of daytime fatigue and the importance of leisure time. The first hypothesis has been confirmed. There is only one significant correlation between the variables of Questionnaire for recreational athletes (between the importances of health care and leisure time). So, we can only partly confirm the second hypothesis. We can't predict the duration of the physical exercise per week based on the dimensions of the Questionnaire for recreational athletes. The third hypothesis has been rejected.

### References

1. Arbunić, A. (2004). Roditelji i slobodno vrijeme djece. *Pedagoški istraživanja*, 1 (2): 221-231.
2. Gošnik, J., Sedar, M., & Bunjevac, T. (2007). Preferencije studenata/ica Filozofskog fakulteta u Zagrebu prema sportskim aktivnostima. In: V. Findak (ur.). *Zbornik radova 16. ljetne škole kineziologa Republike Hrvatske*, Poreč, 19.-23.6.2007., pp. 430-437. Zagreb: Hrvatski kineziološki savez.
3. Henderson, K.A., & Bialeschki, M.D. (2005). Leisure and active lifestyles: Research reflections. *Leisure Sciences*, 27: 255-265.
4. Landers D.M., & Arent S.M. (2001). Physical activity and mental health. In: R. Singer, H. Hausenblas, C. Janelle (Eds.), *Handbook of sport psychology* (2nd. Ed.), (pp. 740-765). New York: Wiley.
5. Marcus, B.H., & Forsyth, L.H. (2003). *Motivating people to be physically active*. Champaign, IL: Human Kinetics.

6. Miller, K, Staten, R.R., Rayens, M.K., & Noland, M.(2005). Levels and characteristics of physical activity among a college student cohort. *American Journal of Health Education*, 36: 215-220.
7. Petkovšek, M. (1981). *Dinamika interesov slovenskih visokošolcev za športno dejavnost*. Ljubljana: Institut za kineziologijo Visoke šole za telesno kulturo.
8. Previšić, V. (2000). Slobodno vrijeme između pedagogijske teorije i odgojne prakse. *Napredak*, 141 (4): 403-410. Zagreb: Hrvatski pedagoško-književni zbor.
9. Relac, M. (1978). *Rekreacija tjelesnim vježbanjem u procesu rada*. Zagreb: Sportska tribina.
10. Sallis, J.F., Haskell, W.L., Fortmann, S.P., Vranizan, K.M., Taylor, C.B., & Solomon, D.S. (1986). Predictors of adoption and maintenance of physical activity in a community sample. *Preventive Medicine*, 15: 331-341.
11. Silverman, S, & Subramaniam, P.R. (1999). Student attitude toward physical education and physical activity. A review of measurement issues and outcomes. *Journal of Teaching in Physical Education*, 19, 97-125.
12. *Vuori I. (2005). Tjelesna aktivnost je uzrok većine bolesti koje su javnozdravstveni problem*. Zagreb: Hrvatski savez za sportsku rekreaciju "Sport za sve".

## KONSTRUKCIJA UPITNIKA O NEKIM ASPEKTIMA BRIGE O ZDRAVLJU ZA SPORTSKE REKREATIVCE

*Originalni naučni rad*

### **Sažetak**

Glavni cilj istraživanja bio je utvrđivanje latentnih dimenzija Upitnika za sportske rekreativce i povezanosti varijabli dnevnog napora, važnosti slobodnog vremena te motivacije za brigu o osobnom zdravlju kod sportskih rekreativaca. Ispitali smo uzorak od ukupno 127 sportskih rekreativaca oba spola, različite kronološke dobi, stupnjeva obrazovanja, koji različito dugo vježbaju u pet različitih sportsko-rekreacijskih centara u Zagrebu. Utvrdili smo postojanje četiri latentne dimenzije u osnovi kovarijacija varijabli Upitnika za sportske rekreativce: važnost brige o zdravlju, stres i kondicija, doživljaj dnevnog umora te važnost slobodnog vremena. Samo je jedna značajna povezanost između dimenzija Upitnika: brige o zdravlju te važnosti slobodnog vremena. Ne postoji značajna mogućnost prognoze trajanja tjelesnog vježbanja tjedno na temelju dimenzija Upitnika za sportske rekreativce.

**Ključne riječi:** sportski rekreativci, stavovi, doživljaj, zdravlje, latentne dimenzije

### Corresponding author:

Joško Sindik, Ph.D.  
*Institute for Anthropological Research,*  
*Zagreb, Croatia, Gajeva 32*  
*e-mail: josko.sindik@xnet.hr*

*Received: 02 September 2011*  
*Accepted: 05 June 2012*