BEHAVIORAL SCIENCE STUDY OF YOUTH'S LEISURE TIME PHYSICAL ACTIVITY

Thesis for the doctor's degree

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Introduction

Nowadays examining leisure time physical activity means a research field of high priority and an important challenge, due to the growing aspect of prevention in medical science and role of lifestyle in chronic diseases. In modern society, inactive lifestyle - in connection with consumer society - and the need for leisure time sports go together.

To understand this contrast, approach of behavioral science may help with its large view, and enable to collect information to solve the problem. Only we could compass this, if we use the methods and ideas of different sciences (medicine, psychology, sociology and communication) and facilitate the collaboration of these professionals. National and international researches have proved that this is an important problem and there is no long term effective program till now.

"Ecological model" follows the approach of behavioral science and takes the relationship between individual and enviromental factors into account. Only emphasizing intra– and extraindividual factors together would bring permanent result. This interdisciplinary model summarizes the system of the influential factors of sport, thus takes a basis of a comprehensive conception of health promotion.

In modern society, inactivity is in connection with diseases. People's leisure time exercises are associated with social and economical conditions, in addition they show significant differences among settings of lifestyle. To form these behaviors, there is a need of masteries of demographic, social, sociocultural, individual and sociopsychological factors.

Accordingly, health sciences turn to this field with interest and public health programs started to propagate active lifestyle and researches in the field of benefits of physical activity. We can achieve advances if we increase the level of exercise, however, we have to know barriers (e.g. lack of motivation, lack of time, lack of transportation, lack of money and diseases).

In these researches, adolescents and youth get priority since physical activity - similar to other health behaviors - is connected to early childhood models, so it is important that active lifestyle and its affection develop this time and they accustom to regularity.

This population is also important in the aspects of primary prevention, since it can achieve long term benefits among them and in this time they need more benefical effects of sport, what is well known.

Analyzing adolescent population is also important, since this is such a life period what is influenced by biological - hormonal changes, in addition frequency of unsolved psychosocial problems, mental and psychosomatic diseases is high. Chronic diseases also start to increase in

this time. Youth's health behaviors and their lifestyle begin to change this life period as well.

Main goal of this study is to apply approach of behavioral science and elements of ecological model to understand sociological and psychological relations of leisure time sports activity and to draw attention to the complexity of sport and results which appliable in health promotion practice.

From empirical results till now we can conclude that leisure time physical activity must be an important role in health promotion programs, since conscious planning we can achieve that sport remains an important part of life after the school years.

Goals and hypothesis

Based on previous studies, the main goal of this study was to analyze youth's leisure time physical activity behavior and investigate it from behavioral science view, accordingly provide data to health promotion and primary prevention programs.

Hypotheses:

1. Based on previous studies' results we can suppose that there are significant differences in the effect of sociodemographic factors in leisure time physical activity among elementary and secondary school students.
2. Based on previous studies' results we can suppose that there are relations between life goals, value orientations and physical activity status, so high and low active groups' attributes are different.
3. Based on previous studies' results we can suppose that physical activity status and psychosocial health are in significant relationship, so there are differences in high and low active groups' psychosocial health.
4. Based on previous studies' results we can suppose that social environment, social influences significantly affect sport frequency and there are gender differences in these effect.
5. Based on previous studies' results we can suppose that social images / prototypes has important role also in development of preventive health behaviors, since positive attributes mean motivation and goal orientation. Based on previous studies in relation to health risk behaviors we can also suppose that prototypes of physically active peers are well structured and they are influenced by the elements of social behaviors.

Also this study has several goals. First goal of this study was to analyze leisure time physical activity, discovering inequality and differences. Questions were the following:

a) What characterize elementary schools students' sporting behavior?
b) Can we find differences in elementary and secondary school students' sport frequency?
c) Is there relationship between school achievement and sport frequency among elementary and secondary school students?
d) Does gender have influences on elementary and secondary schools' sport frequency?
e) Does parental schooling have an influences on elementary and secondary schools' sport frequency?
f) Does family structure show relation with sport frequency among elementary and secondary school students?
g) Does self-perceived socioeconomic status have influences on sport frequency among elementary and secondary school students?

Second goal was to get information about the effect of regular sport on psychosocial health and life goals. By this part of the study I was engaged in the following questions:

a) How does sport influence the appearance of psychosomatic symptoms?
b) How does sport influence the evaluation of self – perceived health and self-perceived fitness?
c) How does regular sport influence psychosocial health, namely depressive symptomatology and satisfaction with life?
d) What does the relation between sporting behavior and life goals?
e) What kind of relation can we discover between sport frequency and value orientation?

Third goal was to detect the effect of social influences on sporting behavior. Questions were the following:

a) Who does sport exercise in the environment of questioned students? Who are the most frequent sources?
b) How many physically active person are in the environment of the students?
c) Do social influences effect activity status and how?
d) Can we perceive differences in the effect of social influences among girls and boys?
e) Do youth have role model for sport?
f) Are there gender differences in role model for sport?
g) Who are role model for sport? Does gender have influences on it?
h) Why do students begin sport? Is there gender differences in it?
i) What kind of factors influence choosing sport? Is there gender differences in it?

Forth goal was to analyze prototypes of physically active peers and they characteristics. The following questions were analyzed.

a) What social images characterize physically active peers?
b) What kind of structure does these images have?
c) Do gender and activity status have influences on development of these images?
d) How does social behavior (social coping mechanisms, competitivness, and social comparison) influence development of these images?
e) Are there differences in the effect of social behavior among low and high active groups' prototype development?

Methods

1. Empirical projects

Questions defined in relation to research goals were examined with the help of several empirical projects. In the following I will demonstrate them.

1. *Southern - Plan Youth Project I. – Sporting behavior and social influences project*

This study has been carried out among elementary school students (10-15 years old) in Szeged with randomly selected schools and classes (n=550). Of the 600 students enrolled in the classes, 550 were returned and analyzed, yielding a response rate of 92 percent. The age range of the respondents was 10 to 15 years of age (Mean=12.1 years, S.D.=1.2 years) and 54.9 percent of the sample was male. Data were collected in the autumn of 2003 with self-administered questionnaires. Main goal was to analyze secondary school students' lifestyle from behavioral science view.

Questionnaire included items on sociodemographic, in addition health status, psychosomatic symptoms, sporting habits and social influences. Trained public health workers and graduate students distributed the questionnaires to students prior to the start of class The response time ranged from 30-40 minutes.

The following questionnaires were adopted in this project:

- Sociodemographic questionnaire
- Leisure time sport frequency questionnaire
- Social influences questionnaire

2. ***Southern – Plan Youth Project II. – Sport, psychosocial health and life goals project***

This study's data were collected in 2004 from students enrolled in the secondary schools of the Southern Plain Region (three counties, namely, Bacs-Kiskun, Bekes and Csongrad) of Hungary. This representative sample, consisting of 1200 students, was based on randomly selected classes from each randomly selected high school (3 schools from each county) with staged sample. Of the 1200 questionnaires sent out, 1114 were returned, and 1109 were analyzed, yielding a response rate of 92%. The age range of the respondents was between 14-21 years of age (mean: 16.5 years of age, S.D.: 1.3), 39.9% boys and 60.1% girls. Self-administered questionnaires were used to obtain information from students regarding their mental health, health consciousness, health behavior and the system of the influential psychosocial factors. Items of the questionnaires included items on sociodemographic, health status, psychosomatic symptoms, life goals, value orientation, health risk behaviors and preventive health behaviors, leisure time activities, depressive symptomatology and satisfaction with life.
The following questionnaires were adopted in this project:

- Sociodemographic questionnaires
- Leisure time sport frequency
- Health questionnaires: self-perceived health and fitness, psychosomatic symptoms, satisfaction with life (SWL) and depressive symptomatology (CDI)
- Aspiration index

3. *Southern – Plan Youth Project III. – Prototypes of physically active peers and social behaviors project*

Data were in the spring of 2005 from students enrolled in secondary schools in the South Plain Region of Hungary (two counties: Bekes and Csongrad) with self-administered questionnaires. This sample of 600 high school students was tested in randomly selected classes with staged sample. Of the 600 questionnaires sent out, 548 were returned and analyzed (age range: 14-21 years; mean: 16.3; years, S.D.: 1.3; 42% boys; response rate: 91%). Trained graduate students distributed the questionnaires to students prior to the start of class The response time ranged from 30-40 minutes. The questionnaires were anonymous and participation was voluntary.
The following questionnaires were adopted in this project:

- Sociodemograpic questionnaires
- Prototypes of physically active peers questionnaire

- Frequency of leisure time physical activity questionnaires
- Social behavior questionnaires: social comparison, competitiveness, social coping scales (LDM, R/ED and N/H)

2. Measurements

Among sociodemographic variables we examined youth' sex, age, school achievement, residency. We questioned family structure, type of their flat, parental schooling, parents' positions, and self – perceived socio-economic status.

Self-perceived health as a global health indicator was measured by asking respondents how they compared their health status to their peers. The responses included: poor = 1; fair = 2; good = 3; and excellent = 4. Self-perceived fitness was measured using a similar 4-point scale.

The psychosomatic symptom scale included the following self-reported symptoms: lower-back pain, tension headache, sleeping problems, chronic fatigue, stomach pyrosis, tension diarrhea and heart palpitation. This measure was used in order to obtain information on the frequency of these symptoms during the last 12 months. Respondents were asked: "During the past 12 months, how often have you had a back-pain?"...etc. Responses were coded as often (4), sometimes (3), seldom (2), and never (1).

Satisfaction with life was measured by The Satisfaction With Life Scale. This measurement is a widely used scale in Hungarian adolescent populations. The scale consisted of five statements, such as "In most ways my life is close to ideal". The participants indicated how strongly they agreed with each item from 1 ("strongly disagree") to 7 ("strongly agree"). The final scale had a range of 5-35 with a Cronbach's alpha value of 0.85.

Depressive symptomatology was measured by a shortened (8-item) version of the original 27-item Children's Depression Inventory (CDI). This is a self-rated depressive symptom scale for young children adapted from the Beck Depression Inventory for adults which was validated in Hungarian samples. Each item of the original and shortened versions assesses a single symptom, such as sadness, and is coded from 1 to 3. The shortened version (eight items) of the CDI, based on the present data, was reliable with a Cronbach's alpha of 0.72.

Leisure time sport frequency was measured and refered during the past several months, that is: „How many times in the past several months have you participated in leisure time sports activity (for at least a half hour) besides school physical education?" One of the empirical projects responses included: never=1, once or twice =2, two or three times a month=3, once or twice a week=4, three or more times a week=5. In the other project response

categories were: (1)”never, because I have been exempted;” (2)”not besides school;” (3)”occasionally besides school;” (4)”once or twice a month besides school;” (5)”once or twice a week besides school;” and (6)”three or four times a week besides school”.

Possible social influences of children’s sports participation was measured by the following question based on the measurement strategy of other empirical studies. Who does any sports activity in your environment?” Response categories were the following: (1)”one or both of my parents do regular sports activity”; (2)”one of my parents or both did sports activity in the past” (3); ”my sisters or brothers do sports activity”; (4) ”my classmates do sports activity”; (5)”my friends do sports activity”; and (6)”my girl/boyfriend does sports activity”. Respondents were asked to choose all of the answers that were relevant for them. A final question assessed the social influence of a possible role model: (1) ”my parents”; (2) ”my sisters or brothers or other family members”; (3) ”my trainer”; (4) ”my friends/my classmates”; (5) ”my team member”; (6) ”famous sportman: namely….”; (7) ”I have no role models”.

In this study we have also analyzed the effect of social influences on choosing and starting sport with the following questions: „Why have you decide to start sporting?” They have to choose only one response from the following: it was compulsary in my school=1, my parents adviced me=2, my sister/brother or other relatives adviced me=3, my friends adviced me=4, I have decided all alone=5, I wanted to get new friends=6, I was attracted by obscurity=7. And: „Why have you choose this type of sport?”. According to this question they also have to choose only one response from the following: my parents adviced me=1, my sister/brother or other relatives adviced me=2, my P:E: teacher adviced me=3, my friends adviced me, they also do this type=4, I have decided all alone by powerful reason (e.g. closeness to my home)=5, my talents are good for this type=6, it was a unintentional decide=7, I have think this is a challenge=8, I have seen in the tv that Hungarians are good in this sport=9.

In addition we have to know: Are there role models for sport in the environment of youth, and are there effect of them on sporting behavior? The following question was asked: „Is there a sportman is your environment who is a role model for you?” They also have to choose only one response from the following: my parents=1, my sister/brother or other relatives=2, my trainer=3, my friend/classmate=4, my sport team member=5, popular national or international sportman=6, I have no role model for sport=7. Response categories were developed based on previous studies. In addition we have taken notice of peers effects, sport motivations and age.

The Aspirations Index has seven aspiration categories (four intrinsic categories, namely, self-acceptance (4 items), affiliation (5 items), community feeling (5 items), and physical health (4 items), and three

extrinsic categories, namely, financial success (4 items), attractive appearance (5 items) and social recognition (5 items). Students rated these aspiration items on 5-point Likert-type scales representing the importance of these life goals for their future. Response categories varied from 1 (”not at all important”) to 5 (”very much important”). We obtained each score by computing individuals items, and final extrinsic and intrinsic value orientation scores by computing individual subscale scores for the domains. Cronbach’s alpha of reliability were the following: self-acceptance (0.88), affiliation (0.87), community feeling (0.81), physical health (0.84), financial success (0.85), attractive appearance (0.92) and social recognition (0.92), extrinsic value orientation (0.96), and intrinsic value orientation (0.89).

The scale for measuring prototypical images of physically active peers consisted of 11 statements such as ”Physically active peers are physically fit.” Participants indicated how strongly they agreed with each item from 1 (”strongly disagree”) to 5 (”strongly agree”). Characteristics of the regularly active youth that were presented to participants were: physically fit (1), motivated (2), healthy (3), sporty (4), athletic (5), carefree (6), outgoing/popular (7), boring (8), attractive (9), intelligent (10), and self-assured (11). This scale was constructed based on a previous study of exercise prototypes.

Social comparison tendencies were measured by the Hungarian version of the Iowa Netherlands Comparison Orientation Measure (INCOM). The scale includes 11 items (e.g., ”I always pay a lot of attention to how I do things compared with how others do things”). The scores ranged from 11 to 55 using a five-point response scale. Similar to the previous index, the scale was translated from English into Hungarian and back-translated by bilingual translators. The reliability coefficient was 0.79.

Competitiveness was measured by the revised Competitiveness Index. The index contains 14 items designed to assess the desire to win in interpersonal situations. The Likert-type responses include a 5-point scale format ranging from 1 (”strongly disagree”) to 5 (”strongly agree”). The scale was translated from English into Hungarian and back-translated by bilingual translators. Examples of items: ”I am a competitive individual” or ”I often try to outperfom others.” The scale was reliable with a Cronbach’s alpha value of 0.85.

The Hungarian version of The Lifestyle Defense Mechanisms Inventory was used to measure the role of social coping mechanisms. This measure contains two subscales, namely “Rationality/Emotional Defensiveness” (R/ED) and “Need for harmony” (N/H) each with 12 items. These self-report psychometric measures assess rationality and need for harmony in relationships with other persons. Respondents are instructed to report the frequency with which they generally engage in rational, non-emotional thought processes and behaviors, and also how often they

endeavor to achieve and maintain harmonious interpersonal relationships with family and friends. A 4-point frequency scale was used. The Cronbach's reliability coefficients were the following: 0.70 (R/ED subscale) and 0.83 (N/H subscale).

It is important that INCOM, Competitiveness Index and Prototype Scale were translated from English into Hungarian and back-translated by bilingual translators, and their Cronbach 's alpha values were reliable, for their home validation further examinations have recommended.

Sport habits were examined with several questions. In addition to sport frequency we have analyzed the level and organization of sport with the following questions: In what kind of organizations do you do sport activity? Response categories were: inside the school (above P.E. lesson)=1, outside the school (sport club)=2, With friends (without formal background)=3, Alone (for my own pleasure)=4. And: „On what kind of levels do you do sport activity?". Responses included: I take part in international competitions=1, I take part in national competitions=2, I take part in competitions among county teams=3, I take part in competitions among local /town teams=4, I have never been to a competition, but I have planned it=5, I have never been to a competition, and I haven't also been in the future=6, I do sport in a hobby level=7. We have also examined the evaluation of P.E. and the „up to date of sport" With these questions: „Do you watch/listen to sport events? Response categories were: Yes, I watch them in the TV or I listen them to the radio=1, Yes, and if I have an opportunity I go out to cheer for a team=2, No, I don't=3. And:" Do you think that P.E. is important?". I think P.E. is more important than the other subjects in the school=1, I think P.E. is equivalent with the other subjects in the school=2, I think P.E. is less important than the other subjects in the school=3, I think it is impossible to compare the subjects in the school=4.

Results

1. *We have found significant differences in sport habits and their sociodemographic background between elementary and secondary school students.*

- Most of the elementary school children are physically active in their free time. They prefer team sports, and the most popular sport are: handball, basketball, football, swimming, running and dance. Most of them do sports activity on a hobby level and they prefer „outside-school" sport clubs. Boys prefer sport clubs, even girls like sport opportunity inside school.
- Even among elementary schools there are no gender differences according to sport frequency, while among secondary schools youth

these differences are significant. Boys are more likely to take part in regular leisure time physical activity, while girls favour irregular, occasionally activities.

- Among boys, there were no differences in sport frequencies, that is, no significant decrease could be detected. Among girls, there are differences between levels in elementary and secondary school, whereas the decrease cannot be justified within the elementary and secondary school grades. The main decrease may be detected around the turning point between early and late adolescence, that is, leaving the elementary schoool and entering the secondary school.
- In both cases (elementary and secondary schools) there is a strong relationship between sport frequency and academic achievement), that is, physically active students report better marks.
- Among elementary school children, the relationship between sport frequency and parental schooling is not significant. However, high parental education is associated with youth's being physically active in terms of both father and mother schooling in the sample of secondary school students.
- In the sample of elementary school students, the relationship between sport frequency and SES is not significant. However, students from higher SES families are engaged in more sports activity among secondary school students. We have found a J –shaped figure between sport frequency and SES, that is, besides students from upper classes tend to report the highest sports frequencies, those from lower class are more engaged in sports than those from lower-middle class.
- There are no differences whether students live in intact (two-parent) or nonintact (single-parent) families.

2. *We have found significant differences between low and high active groups of youth in relation to life goals, value orientation and psychosocial health.*

- Members of the low active groups more prefer financial success, social recognition, attractive appearance and physical health in connection to their future life than members of the high active groups.
- Members of the low active groups more prefer extrinsic value orientation whether there is no significant differences in relation to intrinsic orientation between the two groups.
- Members of the high active group get significantly more scores on scale of satisfaction with life and significantly less scores on scale of depressive symptomatology.

- Members of the high active group of youth evaluate their own health and fitness higher.
- While members of the high active group mention less psychosomatic symptoms, this relationship haven't been significant.

3. *Social influences have significant effect on sport habits and there are gender differences in it.*

- The source of social influence with the highest rates of sports activity was friends and classmates.
- Most of the respondents can mention at least one physically active person in their environment.
- All of the social influences, that we have examined, (parents' present sport activity, parents' past sport activity, sister's/brother's, classmates', friends', girl/boyfriend's role model's sport activity) were significant predictors of sports activity status in the total sample.
- There are important gender differences in the relative role of social influences. During the years of early adolescence, girls' sports participation is most influenced by social variables from their peers like friends, classmates or boy/girlfriend.
- Most of the respondents have no role model for sport.
- To have role model for sport is more characteristic of boys.
- Parents, friends, popular sportmen are the most frequent role model for sport. Not to have role model for sport is more characteristic of girls, and if they have, they rather mention relatives, while boys refer popular sportmen.
- Most of the students think that they have start sporting based on their own decision. Besides, effect from the parents and school are important. Boys rather mention own decision and effects from the family, while girls refer convenience to the requirement of school.
- Individual talents, parents' advice, own decision, unintentional decision, friends' advice are important in choosing sport, while the success of this sport is unremarkable. In boys' choosing sport parents' advice and individual talents are important, while girls more mention unintentional decision and P.E. teachers' advice.

4. *Prototypes of physically active peers are well structured similar to health risk behaviors. Positive images are frequent occurance and prototypes are influenced by the elements of social behavior.*

- Among prototypes of physically active youth physically fit, sporty and healthy were the most frequent.

- Prototypes of physically active peers are well structured. Two factors have been isolated. Factor 1 was labelled ’positive, personality related prototype,’ which included adjectives such as: self-assured, intelligent, outgoing/popular, attractive, motivated, and carefree. Factor 2 was labelled ’positive, fitness and health related prototype,’ which includes the following items: physically fit, sporty, healthy, athletic and motivated.
- Prototypes of physically active peers do not vary by gender but they are influenced by adolescents’ physical activity status. Students from the high activity groups scored significantly higher on both prototype scales. The interaction of gender and physical activity status were also significant in both cases. This may suggests that females tend to develop prototypes of physically active peers either belonging to the low or high activity group. However, males have a higher tendency of developing these prototypes when they belong to the high activity group.
- Competitiveness, social comparison, R/ED subscale were associated with an increased likelihood of the positive, personality related prototype, whereas only the competitiveness and R/ED subscales were significant for the positive, fitness and health related prototype.
- Among students from the high activity group, the competitiveness and R/ED subscales were significantly associated with both prototype factors. Within the low activity group, other variables also had some influences on the prototype factors. Social comparison and R/ED subscale were significant in connection with the positive, personality related prototype, whereas competitiveness and the R/ED and N/H subscales were associated with positive, fitness and health related prototype among adolescents from the low activity group.

Conclusion

Our results show that we perceive some important sociodemographic differences between elementary and secondary school students’ sporting behavior. Age, sex (especially these two variables together) and socio-economic status determine youth’s sport habits. I think these results could be useful for health education and promotion programs, indicating the most important focal points of them. Girls and persons from the lower-middle classes have to be important focus points.

We have perceived that physical activity is a main factor of youth’s psychosocial health and it may serve as a protection against overemphasizing extrinsic values. These connection are important in modern society characterized by consumption, achievement orientation, career, information streams, extrinsic values and external locus of control?

We have concluded that all physically active persons in our environment have an effect on youth's sporting behavior. The results of these studies could be used in the practice of prevention. Examination on sporting behavior from behavioral science view discovering sociological and psychological relation of sport could help this progression.

Finally our results draw our attention to the prototypes since they could have effects on behavior and behavioral decisions. Such research would help us better understand the social context of prototype perceptions. Effective programs could be based on these positive attitudes. Social influences in connection with prototype perceptions have to be examined since they have effects on changes and fixing of prototypes.

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