

## LIFE SATISFACTION OF HEALTHY PEOPLE AND PEOPLE WITH NON-COMMUNICABLE DISEASES: DIFFERENCES BETWEEN ACTIVE AND INACTIVE INDIVIDUALS

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### Abstract

Life satisfaction (LS) is among other factors strongly influenced by an individual's health status. The aim of this study was to compare the satisfaction with life scores between active and inactive members of the population with different health statuses. Participants (n=664) were divided into two groups based on their health status: a) healthy population (HP, n=313, female=126); and b) people with non-communicable diseases (NCDs; n=351; female=185). The Satisfaction with Life Scale (SWLS) between active and inactive individuals of the population (HP, NCDs) was used. Quantitative variables were presented as the mean of the standard deviation and range. The Pearson chi-square test was used to determine the differences between active and inactive within each population group. We found that the lowest level of LS was presented by inactive people with NCDs with  $20.8 \pm 7.8$  points indicating that this group have neutral LS. On the other hand, the highest LS was seen in active HP, which achieved  $24.4 \pm 7.4$  points, indicating that this group had average LS, close to the high score of LS. Furthermore, we found that the LS scores (overall as well as in statements) between the active and inactive individuals of the population was not significant in the HP group, but in the group of people with NCDs, the overall as well as in statements scores show high significant differences in LS between active and inactive participants. This evaluation of the psychometric properties of the SWLS shows that it is a suitable tool to assess LS in the population regardless of health status. The results of our study confirmed that regular participation in sport significantly increases the level of LS especially in members of the population with NCDs.

**Key words:** health, hypokinesia, life style and satisfaction, physical activity

### Introduction

Human health is interconnected throughout the life span from conception to fetal life to early childhood and adolescence and on into adulthood and the senior years. Each stage presents its own unique health needs and problems, yet each of them is interconnected. There is compelling evidence that early life may have a profound impact on health and disease in later life (Barker 1992; Bhargava et al., 2004; Gluckman et al., 2008). The emerging pandemic of non-communicable diseases (NCDs) is creating major health challenges globally. Non-communicable diseases are currently the leading cause of mortality, causing 68% of all deaths globally. Cardiovascular diseases, cancer, chronic obstructive pulmonary diseases and diabetes have been identified by the World Health Organization as the four major NCDs occurring worldwide (WHO, 2014). Except of these four major diseases, NCDs include also some musculoskeletal impairment (Onagbiye, Moss & Cameron, 2016). These diseases are driven by various forces, including ageing, rapid unplanned urbanization, and the globalization of unhealthy lifestyles. Most NCDs are the result of four particular behaviours like tobacco use, unhealthy diet, and harmful use of alcohol and lack of physical activity. Regular physical activity and exercise is beneficial for improving the overall health and aerobic capacity and minimizing the aforementioned risks factor and chronic diseases of lifestyle (Ickes & Sharma, 2012; Malan et al.,

2012). LS of growing age is strongly influenced by life experience and relationships, especially family relationships and health status (Nemček et al., 2014). Many people with NCDs have poor general health, limited community participation, and low quality of their life (Nemček & Wittmannová, 2013). The benefits of physical activity include prevention of heart diseases and diabetes, reduction in obesity, blood pressure and cholesterol, and improved mental health conditions. However, few investigations have shown that participation in sports has a positive effect on overall health, quality of life, quality of family life and quality of social life among people with NCDs (Nemček, Labudová & Oršulová, 2014). LS assessment (n=452) done by Nemček, Labudová & Kraček (2012) showed higher LS in the four statements of active population and only one statement speaks in favour of sedentary living population.

Significantly higher LS (extremely satisfied and very satisfied) in the same study was observed in actively living population compared to low LS (dissatisfied, extremely dissatisfied) in sedentary living population. As LS is used as an overall goal in the management and rehabilitation of lifelong disabilities, it is important to determine aspects of LS and factors that may influence it. One commonly used LS rating scale is the Satisfaction With Life Scale (SWLS) (Pavot & Diener, 1993).

The SWLS offers a global measure of satisfaction with life and provides an overall summation of a person's life situation. Considering the previous research findings, the aim of our research was to compare LS between actively living population and population living sedentary life style within two main groups (healthy people and people with NCDs). We hypothesized that LS scores represented by all five statements as well as by overall LS score will be significantly higher in actively living people comparing inactive individuals within each assessed group (healthy people, people with NCDs).

## Methods

Two main groups (n=664) were recruited for the study: healthy people (HP; n=313) and people with NCDs (n=351). Both groups were divided into active individuals who were regularly participating in physical activity and sport (competitive as well as non-competitive) at least two times per week and inactive who did not participate in any sports in their leisure time. Participants with NCDs were contacted through representatives of national organisations and schools all around Slovakia, unifying people with different NCDs. Some questionnaires were sent electronically by representatives of the organisations and some were passed out at different meetings held by national organisations. Pupils and students filled out the questionnaires during their classes with the school principals' permission. All data were collected during a two years period (2013 – 2014). All participants with NCDs agreed to participate in the study and gave their written informed consent. The SWLS offers a global measure of satisfaction with life, as an overall summation of a person's LS (Pavot & Diener, 1993). The SWLS consists of five items (statements) all tapping into global LS: (1) In most ways my life is close to my ideal; (2) The conditions of my life are excellent; (3) I am satisfied with my life; (4) So far I have gotten the important things I want in life; and (5) If I could live my life over, I would change almost nothing. The statements are rated on a 7-point Likert scale, and the scores summate to a total score ranging from 5 to 35 points.

A score of 20 points represents the midpoint between satisfied and dissatisfied with life. Total scores can be categorized as follows: very high scores/highly satisfied (30-35 points), high scores (25-29 points), average scores (21-24 points), a score of 20 represents the neutral point on the scale, slightly below average in LS (15-19 points), dissatisfied (10-14 points), and extremely dissatisfied (5-9 points) (Diener, Emmons, Larsen & Griffin, 1985). The scale has shown good convergent validity with other LS scales (Post, Leeuwen, van Koppenhagen & de Groot, 2012) and other types of assessment of subjective well-being. In this study a Slovak version of the SWLS was used (Nemček, 2013). Statistical analysis was performed using SPSS v. 15.0. Qualitative variables are presented as proportion and percentage.

Quantitative variables are presented as mean of standard deviation and range. Pearson chi-square test was used to determine the differences between actively living people and inactive individuals within each evaluated group (HP and people with NCDs). In current study, only one measurement has been made and two main groups formed the study. The level of statistical significance was set at  $p < .05$ .

## Results

Group of people with NCDs included individuals with problems of internal systems and musculoskeletal health problems (fig. 1). Musculoskeletal impairments (26.9 %) included back pains, problems with joints (hip joint arthrosis, knee arthrosis, ankle pain, etc.), damaged meniscus, flatfeet, scoliosis, muscular disbalance, muscle fatigue, etc. Cardiovascular diseases (19 %) included high blood pressure, ischemic heart disease, arrhythmias, heart murmurs, valve deformities, varicose veins, etc. Metabolic diseases (18.7 %) included diabetes mellitus, DNA, celiac disease, osteoporosis, obesity, problems with pancreas, gall bladder, Crohn's disease, etc. Other impairments (15.4 %) covered hormonal system impairments (5.5 %), cancer (4.7 %), problems with excreting (3.2 %) and gynaecologic impairments (2.0 %).

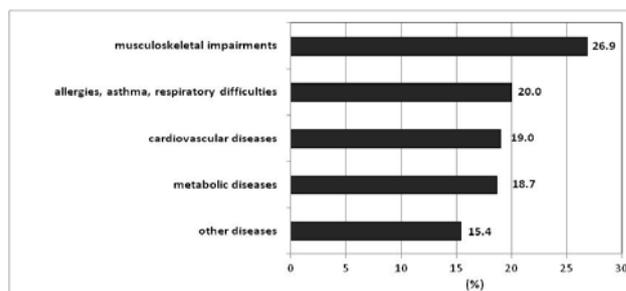


Figure 1. NCDs percentage presence

The highest number of inactive participants showing the group of people with NCDs (41.6 %) is mostly represented by women (64.4 %) over the 30 years of age (72.6 %). On the other hand, the highest number of active individuals are represented by HP (73.5 %) involving men (67.8 %) up to 29 years of age (88.7 %). The highest numbers of participants from all evaluated groups achieved the high school education level and mostly of them are single, except inactive individuals with NCDs. HP and active population with NCDs including mostly students comparing inactive people with NCDs, who are mostly employed and pensioners (68.4 %).

Basic participant's characteristics are presented in table 1. The results presenting the LS of people with NCDs are different comparing the LS scores of HP. LS of active people with NCDs is significantly higher comparing inactive people with chronic diseases. Higher LS of active people with NCDs is presented by all five statements scores as well as by the overall LS score ( $23.4 \pm 7.9$  vs  $20.8 \pm 7.8$ ;  $p < 0.01$ ).

Table 1. Data of the 664 participants

Baseline characteristics of participants		HP; n (%)		People with NCDs; n (%)	
		Active	Inactive	Active	Inactive
		230 (73.5)	83 (26.5)	205 (58.4)	146 (41.6)
Gender	Men	156 (67.8)	31 (37.3)	114 (55.6)	52 (35.6)
	Women	74 (32.2)	52 (62.7)	91 (44.4)	94 (64.4)
Age	Range 15-29 years	204 (88.7)	57 (68.7)	137 (66.8)	40 (27.4)
	Range 30+ years	26 (11.3)	26 (31.3)	68 (33.2)	106 (72.6)
Education level	Primary	10 (4.3)	12 (14.4)	32 (15.6)	40 (27.4)
	High school	164 (71.3)	61 (73.5)	109 (53.2)	83 (56.8)
	University	56 (24.4)	10 (12.1)	64 (31.2)	23 (15.8)
Marital status	Single	214 (93.0)	60 (72.3)	142 (69.3)	48 (32.9)
	Married	13 (5.7)	16 (19.3)	47 (22.9)	58 (39.7)
	Divorced	3 (1.3)	4 (4.8)	6 (2.9)	13 (8.9)
	Widow	0 (0)	3 (3.6)	10 (4.9)	27 (18.5)
Employment status	Employed	20 (8.7)	18 (21.7)	51 (24.9)	50 (34.2)
	Unemployed	6 (2.6)	3 (3.6)	4 (1.9)	7 (4.8)
	Student	198 (86.1)	53 (63.9)	124 (60.5)	39 (26.8)
	Pensioner	6 (2.6)	9 (10.8)	26 (12.7)	50 (34.2)

*SWLS (Satisfaction With Life Scale)*

The results of the study demonstrate no significant differences in LS between active and inactive HP not in one evaluated LS statement neither in overall LS score (table 2). The mean score of assessed LS statements pointing to the higher LS of active HP, when they declare higher LS by four from five statements (number 2, 3, 4 and 5) as well as mean of the total score showing higher LS in active HP (24.4±7.4 vs 23.9 ± 7.7). On the other hand, in most ways, life of inactive HP is little bit closer to their ideal comparing active HP (statement number 1).

Table 2. Differences in LS between active and inactive HP (n=313)

Statement	Mean ± SD		χ <sup>2</sup>	p	sig.
	Active	Inactive			
1	4.92 ± 2.0	4.98 ± 1.7	1.58	0.90	ns
2	5.40 ± 1.8	5.33 ± 1.9	8.81	0.18	ns
3	5.12 ± 1.7	4.94 ± 1.9	5.29	0.50	ns
4	4.89 ± 1.9	4.80 ± 2.1	5.92	0.43	ns
5	4.04 ± 1.9	3.87 ± 1.8	7.94	0.24	ns
Total score	24.4 ± 7.4	23.9 ± 7.7	4.58	0.46	ns

*Legend:* Possible statement score range is 1–7 and possible total score range is 5–35; higher scores indicate better LS

In most ways the life of active people with NCDs is close to their ideal (p<0.01) comparing to the inactive. The conditions of their life are more excellent (p<0.01) than the condition of inactive people with NCDs. Active people with chronic diseases are more satisfied with their life than inactive people with chronic diseases (p<0.05). Active people with NCDs have gotten significantly frequented important things they wanted in life

(p<0.01) than inactive people with NCDs and if they could live their life over, they would change almost nothing (p<0.05).

Table 3. Differences in LS between active and inactive people with NCDs (n=351)

Statement	Mean ± SD		χ <sup>2</sup>	p	sig.
	Active	Inactive			
1	4.61 ± 1.9	4.01 ± 1.9	29.01	6.05*E-5	p<0.01
2	5.04 ± 1.9	4.56 ± 1.9	19.09	1.85*E-3	p<0.01
3	4.79 ± 2.0	4.37 ± 2.0	13.68	0.0334	p<0.05
4	4.96 ± 1.9	4.45 ± 1.9	17.44	7.81*E-3	p<0.01
5	3.96 ± 1.6	3.37 ± 1.6	14.50	0.0245	p<0.05
Total score	23.4 ± 7.9	20.8 ± 7.8	17.16	8.71*E-3	p<0.01

*Legend:* Possible statement score range is 1–7 and possible total score range is 5–35; higher scores indicate better LS

Overall LS score of evaluated groups demonstrate that actively living HP presenting the highest LS (24.4 of the point score) and inactive people with NCDs the lowest LS (20.8 of the point score). It means that active HP with the total SWLS score of 24.4 points is closest to the high score, which means that they are the most satisfied with life. On the other side, inactive people with NCDs with the total SWLS score of 20.8 points is the most dissatisfied from all assessed groups in the present study. The results of the present study didn't confirm the hypothesis, where we assumed that LS scores represented by all five statements as well as by overall LS score will be significantly higher in actively living people comparing inactive individuals within each assessed group (HP and people with NCDs). Even LS score were significantly higher in the group of actively living people with NCDs demonstrated by all five statements as well as by

overall LS score the group of HP (active vs inactive) did not show statistically significant differences in LS.

## Discussion and conclusion

The correlation between physical activity and quality of life is well known and has been documented for many years. It has a significant impact on LS because of the participant's feeling of their own physical fitness in physical activities, which is considered to be synonymous with good health (Jennen & Uhlenbruck, 2004). Physical activity influences the level of LS, but it happens the other way around. From a social point of view, achieving LS seems to be an important value. A person who has a high degree of feeling happy is more daring in setting their goals and characterized as being highly involved in the activities of daily living (Veenhoven, 1988). Physical activity practised regularly is essential for mental health and quality of life related to health (Bize, Johnson & Plotnikoff, 2007, Kim et al., 2012; Dobay, 2015). It is a component of the treatment of many diseases and disorders, not only musculoskeletal, but also internal human systems (Rozim, 2005; Labudová & Tóthová, 2006; Labudová & Tóthová, 2007; Ihász & Rikk, 2010; Bendíková, 2014; Gurín, Hudák & Tomková, 2015, Bendíková et. al., 2016), depression or anxiety (Salmon, 2001; Carta et al.,

2008; Carek et al., 2011). In the current study the comparison of SWLS between actively living people and inactive individuals within two groups with different level of their health status have been evaluated. Some studies were found to compare the results of present study. The study of Rosengren et al. (2015) presented the SWLS of participants with Parkinson's disease. The mean SWLS score of participants in their study ( $24.2 \pm 7.7$ ) is surprising very close to mean score of active HP ( $24.4 \pm 7.4$ ) as well as inactive ( $23.9 \pm 7.7$ ) in the current study. The study of Czepiel & Nowak (2015) shows that there are no correlations between a sedentary lifestyle and LS. Passivity is not a recipe for a happy life. The authors investigated LS in 392 young people. The average LS index score was very low (women 20.4 and men 19.5 of the point score), comparable with inactive with NCDs (20.8 of the point score) of the present study. The present study's results showed the highest LS in active HP and the lowest LS in inactive people with NCDs. Significant differences in LS were not found between active and inactive HP, but on the other hand, significant differences in LS were found between active and inactive people with NCDs. Wattanapisit (2016) concludes that when adults with NCDs do physical activity according to their abilities, physical activity is safe. Doing physical activity should be under the care of healthcare providers.

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## ZADOVOLJSTVO ŽIVOTOM ZDRAVIH LJUDI I LJUDI S NEZARAZNIM BOLESTIMA: RAZLIKE IZMEĐU AKTIVNIH I NEAKTIVNIH POJEDINACA

### Sažetak

Na zadovoljstvo životom (LS), između ostalih faktora, snažno utječe zdravstveni status pojedinca. Cilj ovog istraživanja bio je usporediti zadovoljstvo životnim rezultatima između aktivnih i neaktivnih članova stanovništva s različitim zdravstvenim statusima. Sudionici (N=664) podijeljeni su u dvije grupe na osnovu njihovog zdravstvenog statusa: a) zdravo stanovništvo (HP, n=313, žene=126; te b) ljudi s nezaraznim bolestima (NCDs; n=351; žene=185). Skala zadovoljstva životom (SWLS) korištena je među aktivnim i neaktivnim (HP, NCDs) pojedincima. Kvantitativne varijable predstavljene su kao srednja vrijednost standardne devijacije i opsega. Pearsonov hi-kvadrat test korišten je za utvrđivanje razlika između aktivnih i neaktivnih unutar svake populacijske skupine. Otkrili smo da je najniža razina LS-a predstavljena od neaktivnih ljudi s NCDs-om s  $20.8 \pm 7.8$  bodova, ukazujući da ta grupa ima neutralan LS. S druge strane, najviši LS viđen je kod aktivnih HP, koji su postigli  $24.4 \pm 7.4$  bodova, ukazujući da je ova grupa imala prosječan LS blizu najboljeg rezultata LS-a. Štoviše, otkrili smo da LS rezultati (cjelokupni, kao i u obračunu) između aktivnih i neaktivnih stanovnika nisu bili značajni u HP skupini, no u skupini ljudi s NCDs-om, cjelokupni rezultati, kao i u obračunu, pokazuju visoke značajne razlike u LS-u između aktivnih i neaktivnih sudionika. Ova procjena psihometrijskih svojstva SWLS-a pokazuje da je to prikladan alat za procjenu LS-a stanovništva bez obzira na zdravstveni status. Rezultati našeg istraživanja potvrdili su da redovito sudjelovanje u sportu značajno povećava razinu LS-a, osobito kod stanovnika s NCDs-om.

**Ključne riječi:** zdravlje, hipokineza, način života i zadovoljstvo životom, tjelesna aktivnost

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