

LOCUS OF CONTROL - PREDICTOR OF HEALTH AND SUBJECTIVE WELL-BEING

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ABSTRACT

The article presents results of a study of the relationship 'locus of control - health and subjective well-being. In a heterogeneous sample (N = 239) in the stage of youth (19-30 years) shall be established: locus of control determines 11.56% of the changes in the assessment of health, changes in health contribute to 12.82% of the variation in assessment of happiness and 6.10% in the measurement of life satisfaction. Young people with an internal locus of control are healthier, happier and more satisfied with their lives than those with an external locus of control. In a study of cause - effect relationship is established that internal locus of control determines a healthier lifestyle. Inadequate health care, more severe risk factors (stress, unhealthy diet, inadequate sleep, smoking) among young people with an external locus of control, outline prospects for greater vulnerability of this group of the population of the so called "Diseases of modern society." Most preferred activities of young people beneficial to their health are: walking, relaxation, hobbies and sports, and this is the way to state "flow" (activity of happiness) and highlights the positive experiences in health.

UDC CLASSIFICATION & KEYWORDS

■ 159.98 ■ Locus of control ■ Health ■ Subjective well-being ■ Young people ■ Flow ■

INTRODUCTION

The term "locus of control" was introduced in 1966 by American psychologist J. Rotter as personality construct, that reflects an individual's belief about the source of reinforcement for results obtained from it. Rotter thinks that people who believe that backup depends on their own behavior have an internal locus (location) of control. The obtained results from them are considered as derivatives from their own abilities and actions, which in turn determines the expectation of personal control over what is happening in their lives. People, who are convinced that the backup depends on external forces (fate, luck or the actions of other people) have an external locus of control. They don't make any attempts to change or improve their situation [10,1].

Studies of Rotter and other scientists (Evtimov, I., 2005) show that the locus of control is formed in a social context and the attitude of the parents (carers) to their child has a particular role. If parents are supportive and encourage the achievements of the child, this forms an internal locus of control, which with accumulation of experience acquires resistance to generalized expectation of personal control over life [4,10].

Numerous studies in different samples and cultures establish the influence of this construct on the organization of cognitive processes, emotional reactivity, resistance to stress, motivation and self-regulation of behavior [1,9,10]. Some authors conclude that the fates of people depend mostly on point of control, which they have developed [4].

Our study aims to explore the "locus of control - health and subjective well-being" and mechanisms of influence between these variables. The object of our research are the young people, because this is the period of acquiring autonomy as well as personal responsibility for the choices they made, self-determination, setting life goals and strengthening their identity.

Material and methods

Material: The study was conducted in two large university towns in the Eastern and Western Bulgaria - Varna and Sofia with heterogeneous sample (N = 239) in the stage of youth, formed by: gender (male and female), age (19 - 30 y.), religion (Christian, Muslim and secular) and employment (students, workers and working students). Surveyed students (including those who work and study), are from different universities - Medical University and Medical College - Varna, Technical University and University of Economics - Varna, Varna Free University, College of Tourism - Varna, Rousse University, College of Medicine - Sofia. Employees are involved in the field of services sector and manufacturing - retail outlets, catering establishments, clubs, gyms, beauty centers and working in energetics.

Methods: For the purpose of this study we prepared a self-assessment questionnaire that includes:

1. General information about the respondents (socio-demographic data, self-assessment of health, risk factors and health care);
2. Scale "Localization of control" (about research of locus of control) - based on the original test of Rotter (1966) and adapted to the Bulgarian population by staff of psychologists (Radoslavova, M., Velichkov, A., 2005). The scale contains 20 dichotomous statements, 15 of which are diagnostic and 5 masking. The overall grade is formed as the sum of each matches the key to the test (1 point). General assessments to 7 points are indicative of internal locus of control and higher - from 8 to 15 points - as an external locus of control. The reliability of the scale in our study is high (Cronbach's Alpha is 0.91);

3. The scale "Measures of subjective well-being" - is designed to explore the subjective well-being. The level of happiness and life satisfaction (components of subjective well-being) is determined on a scale from 1 to 7. In testing for stability (test - retest conducted on a sample of 30 people in one month period) Cronbach's Alpha is 0,64. The reliability of the scale in this study is high - Cronbach's Alpha was 0,77.

The material is processed with a statistical computer program SPSS v. 15.0. We have used the following analysis:

- Variation analysis - Research both the central tendency and the variability of quantifiable evidence by the average and standard deviation.
- Structural analysis - to characterize the structure of the population surveyed.
- Benchmarking - T - test, χ^2 , to assess the statistical hypothesis.
- Correlation analysis - to explore the relationships between phenomena.
- Graphical analysis - to illustrate the phenomena studied (line, column, curly diagrams).

Results and Discussion

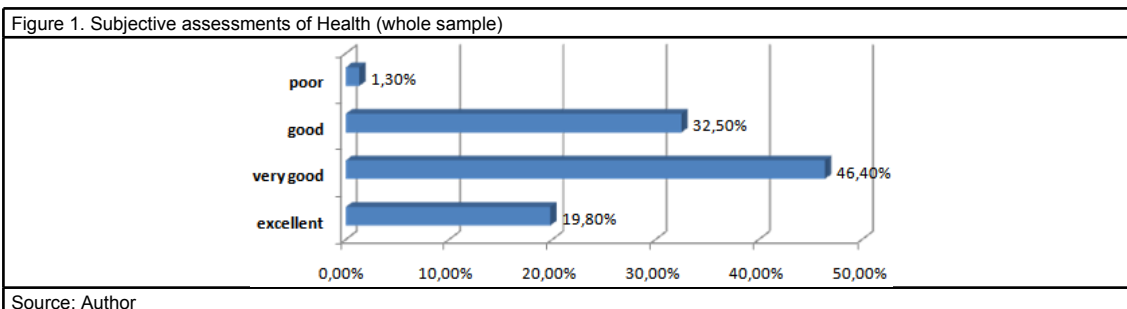
After diagnosing the locus of control of the entire sample we found: 90 participants (45.00% male and 55.00% female) have an internal locus of control, and 149 (30.30% male and 69.70% female) - an external locus of control. The average age of the respondents with an internal locus of control is $23,11 \pm 3,48$, and those with an external locus of control - $22,51 \pm 3,36$. The distribution of respondents by socio-demographics and locus of control is presented in Table. 1 (in the study, persons with an internal locus of control are labeled as "internal LC", while those with an external locus of control - "external LC").

Factor		Total	Internal LC	External LC
Gender	Men	90/ 37,70 %	34/ 45,00 %	56/ 30,30 %
	Women	149/ 62,30 %	56/ 55,00 %	93/ 69,70 %
Age	Average age	22,81 \pm 3,43	23,11 \pm 3,48	22,51 \pm 3,36
	19 - 21	108/ 45,40 %	50/ 42,00 %	58/ 48,70 %
	22 - 24	57/ 23,90 %	26/ 21,80 %	31/ 26,10 %
	25 - 27	34/ 14,30 %	22/ 18,50 %	12/ 10,10 %
	28 - 30	39/ 16,40 %	21/ 17,60 %	18/ 15,10 %
Religion	Christian	151/ 63,40 %	73/ 61,30 %	78/ 65,50 %
	Muslim	25/ 10,50 %	12/ 10,10 %	13/ 10,90 %
	Non-religious	62/ 26,10 %	34/ 28,60 %	28/ 23,50 %
Employment	Students	119/ 49,80 %	59/ 49,20 %	60/ 50,40 %
	Working students	60/ 25,10 %	24/ 20,00 %	36/ 30,30 %
	Workers	60/ 25,10 %	37/ 30,80 %	23/ 19,30 %

Source: Author

Correlation "locus of control - health"

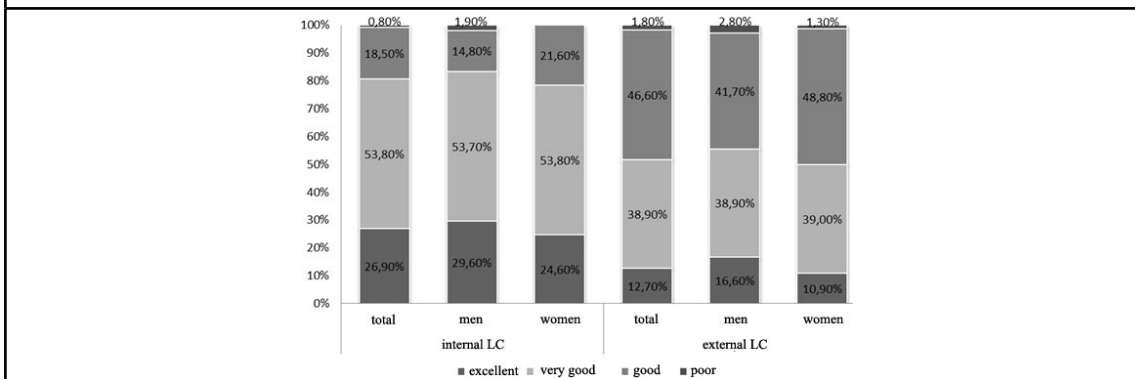
The results of the study of subjective assessments of health among the respondents indicate that the amount of participants, defining their health as "very good" is the highest percentage - 46.40%. In "good" health are 32.50%, in "excellent" health - 19.80% and only 1.30% in "poor" (Figure 1).



In correlation analysis of the "locus of control - a subjective assessment of health" was found moderate dependence $r = -0,34$ ($p < 0,001$) and a significant difference $\chi^2 = 23,57$ ($p < 0,001$) between subjective assessments of the health of young people with an internal locus of control and those with an external locus - Figure 2.

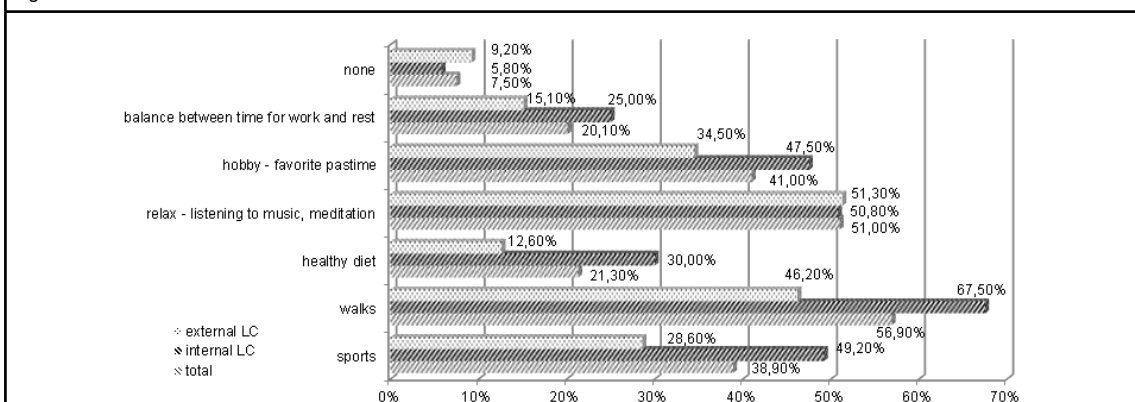
As shown in Figure 2, young people with internal locus of control have higher subjective assessments of their health: the majority - 53,80%, determine their health as "very good", while the majority of the group with an external locus of control - 46,60% rate their health as "good." Subjective assessment of "excellent health" have 26,90% of the surveyed with an internal locus against 12,70% of those with an external locus. Significant difference is observed in regard to subjective assessment of "bad health": The percentage of young people with an internal locus that have given this assessment is 0,80%, while the amount of young people with an external locus is more than twice higher -1,80%. It is striking that the influence of gender on the subjective assessment of health is negligible, unlike the type of locus of control.

Figure 2. Self-assessments of health according to locus of control and gender



Source: Author

Figure 3. Health care and locus of control



Source: Author

Locus of control and health care

We found that internal locus of control determines higher levels of health, but the purpose of our study goes beyond this border, with the idea to reveal causal relationships, i.e. how locus of control as characteristic and generalized expectation of personality influences behavior of human. We studied casual behavior of "health care" by six factors, we included as a factor - "no" care. The last factor is included in order to test to what extent health is perceived as an asset and resource, whose development requires maintenance and care.

Results of the study showed that young people in general mostly often include in their daytime routine walking, relaxation, hobbies and sports. Significantly less presence have health care such as healthy diet and balance between time for work and rest (Figure 3). This means that health care is determined by the interest of the young person to the selected activity.

In a comparative analysis we found that young people with an internal locus of control take better care of their health than those with an external locus of control. In everyday life of most of the surveyed with an internal locus are included: walking - 67.50%, relax - 50.80%, sports - 49.20%, hobbies - 47.50%. About healthy diet report 30.00%, and the balance of the time between work and rest - 25.00%. The percentage of respondents that do not take any care of their health is low (Figure 3) - 5.80 %. For young people with an external locus of control activities that benefit the health most often are: relaxation - 51.30%, walking - 46.20% and hobby - 34.50%. A smaller percentage of those involved in sports - 28.60%, and those who properly allocate time between work and rest - 15.10%. About healthy diet report only 12.60% and 9.20% are not taking any care for their health (Figure 3).

Comparing the normal mode of the two groups, we found that people with external locus of control are "passive" in their health care, both in terms of preferred activities for the benefit of both health and health awareness as a resource.

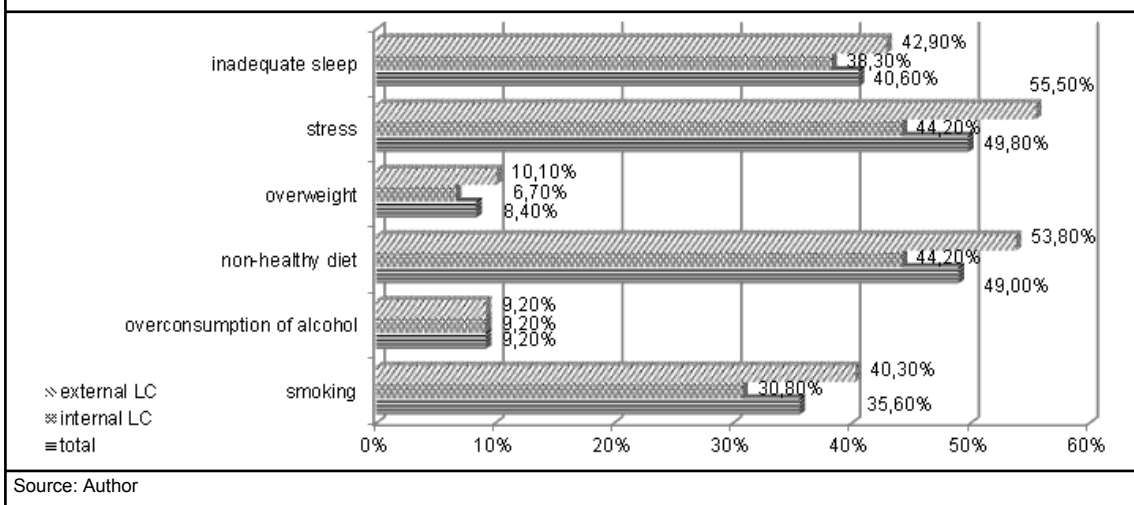
Locus of control and health risk factors

Studied health risk factors are in the basis of so called "Diseases of modern society" (cardiovascular disease, cancer, diabetes, and other concerns.) - cause of malfunctioning and prematurely shorten the life [12] We found that the risk factors for health among young people, the highest share was : stress - 49.80%, unhealthy diet - 49.00%, inadequate sleep - 40.60% and smoking - 35.60%. Least developed risk factors are obesity and alcohol abuse. These results indicate that the modern young man is busy and has a vibrant lifestyle.

An important feature is that here locus of control has influence - risk factors are more developed with young people with an external locus of control - Figure 4.

The analysis of the results obtained so far shows that locus of control has an important prognostic significance for human health. Inadequate health care and more severe risk factors among young people with an external locus of control, define tendency for higher predisposition to diseases of this group of the population.

Figure 4. Locus of control and risk factors for health



Effects of locus of control on subjective well-being (happiness and satisfaction from life)

Subjective well-being reflects the assessment of a person's life as a whole. This assessment has emotional and cognitive component and global levels is associated mostly with the level of happiness and life satisfaction [11]. Although this generalized level concepts happiness and life satisfaction are very similar in our research done in the country, 84% of young adults

(N = 100) believe that these concepts are not identical and have different averages: 4.70 of happiness; 5.07 for life satisfaction, measured on a 7-point scale (Popova, S., 2012) [8]. Life satisfaction is more "earthly", more measurable category, and its assessment in young people is based mostly on personal achievements. Happiness is superior summarizing the emotional category, refracted through individual paradigms, values, needs and circumstances of the individual.

This study found an average level of happiness for the whole sample was $4,95 \pm 1,06$, and average life satisfaction was $5,27 \pm 1,23$ (measured on a 7-point scale of Likert type). In 2 and Table 3 are shown the average levels of "happiness" and "life satisfaction" as locus of control and socio-demographic characteristics of the respondents.

From the results we can see that every group of respondents with an internal locus of control are happier and more satisfied than those with an external locus of control. Established moderate correlation $r = -0,32$ ($p < 0,001$) and a significant difference ($t = 3,73$; $p < 0,001$) in the level of happiness as the locus of control of the surveyed. The average score for happiness of people with internal locus is $5,19 \pm 0,97$, which is higher than the assessment of happiness of people with an external locus $4,70 \pm 1,08$. The correlation between locus of control and life satisfaction is weaker $r = -0,25$ ($p < 0,001$), but also determines a significant difference ($t = 2,91$; $p < 0,01$) in the assessments of satisfaction in favor of internal locus of control ($5,50 \pm 1,18$), compared to external locus ($5,04 \pm 1,25$).

Obviously, the belief in personal control results in higher levels of happiness and life satisfaction. People with an internal locus of control believe that life is what you make of it, and that means taking personal responsibility and behavioral targeting. Many researchers are unitary in their opinion that the goals give direction and meaning to life [2, 3, 5, 7]. This is the path to happiness, which requires perseverance and will. Achieving the goal brings satisfaction, more confidence and is associated with the development of the personality. We found that 26.32% of the changes in the assessment of happiness due to changes in satisfaction.

Relationship "locus of control - health - subjective well-being."

As we found the correlation of locus of control with health and happiness is inversely moderate and lower inversely with life satisfaction (table 4). This means that higher values characteristic of an external locus of control, leading to a low level of health, happiness and life satisfaction, and vice versa.

While calculating the coefficient of determination we found that the influence of locus of control over health assessment is 11.56%, on the level of happiness - 10.05%, and on life satisfaction - 6.30%.

Health is in a moderate, proportional relationship with happiness 0.358 (**) and a low correlation with life satisfaction 0.247 (**). This means that with an increase in subjective health assessments, happiness and satisfaction assessments increase. We found that changes in the assessment of health 12.82% determined by changes in the valuation of happiness, and 6.10% in the measurement of life satisfaction.

Our study shows that people with an internal locus of control are healthier, happier and more satisfied with life. But what are the mechanisms of influence in the "health - subjective well-being"? Within our study we investigated the effects of a healthy lifestyle - it is linked to better health, and therefore with greater happiness and fulfillment. But this argument is not sufficient. One can take care and have a healthy body, but not to feel happy and satisfied. Another factor of influence, we found, as a link between health and happiness are the preferred activities for the benefit of health: walking, relaxing (music and meditation), hobbies and sports. The choice of these activities is driven by domestic interests and needs of the young

Table 2. Average score for "happiness" of participants distributed to socio - demographic and locus of control (benchmarking).				
Factor		Happiness	Internal LC	External LC
Gender	Men	4,71 ± 1,06	4,97 ± 0,90	4,31 ± 1,17
	Women	5,10 ± 1,03	5,38 ± 0,99	4,87 ± 1,00
Age	19 - 21	5,02 ± 1,05	5,31 ± 0,91	4,77 ± 1,11
	22 - 24	4,63 ± 1,11	4,79 ± 1,12	4,48 ± 1,11
	25 - 27	5,13 ± 0,95	5,16 ± 0,93	5,07 ± 1,03
	28 - 30	5,09 ± 1,03	5,52 ± 0,88	4,59 ± 0,98
Religion	Christian	5,03 ± 1,05	5,26 ± 0,89	4,82 ± 1,15
	Muslim	4,84 ± 1,12	5,10 ± 1,37	4,59 ± 0,78
	Secular	4,81 ± 1,05	5,11 ± 1,01	4,43 ± 1,00
Employment	Students	4,95 ± 1,16	5,31 ± 1,04	4,62 ± 1,20
	Working students	4,72 ± 1,06	4,94 ± 1,01	4,57 ± 1,08
	Workers	5,10 ± 0,69	5,13 ± 0,80	5,05 ± 0,51

Source: Author

Table 3. Average score for "life satisfaction" of participants distributed to socio -demographic and locus of control (benchmarking).				
Factor		Life satisfaction	Internal LC	External LC
Gender	Men	5,07 ± 1,39	5,38 ± 1,36	4,61 ± 1,32
	Women	5,38 ± 1,12	5,59 ± 1,01	5,23 ± 1,18
Age	19 - 21	5,41 ± 1,23	5,74 ± 1,06	5,12 ± 1,29
	22 - 24	5,00 ± 1,31	5,23 ± 1,33	4,81 ± 1,27
	25 - 27	5,21 ± 1,20	5,23 ± 1,06	5,16 ± 1,46
	28 - 30	5,38 ± 1,14	5,62 ± 1,28	5,11 ± 0,90
Religion	Christian	5,26 ± 1,21	5,45 ± 1,13	5,07 ± 1,25
	Muslim	5,20 ± 1,58	5,42 ± 1,88	5,00 ± 1,29
	Secular	5,32 ± 1,17	5,62 ± 1,02	4,96 ± 1,26
Employment	Students	5,28 ± 1,32	5,55 ± 1,22	5,02 ± 1,36
	Working students	5,16 ± 1,21	5,42 ± 1,25	5,00 ± 1,17
	Workers	5,32 ± 1,09	5,43 ± 1,09	5,13 ± 1,09

Source: Author

Table 4. Correlation between happiness, life satisfaction, locus of control and health			
	Happiness	Life satisfaction	Locus of Control
Happiness			
Life satisfaction	0,513(**)		
Locus of control	-0,317(**)	-0,251(**)	
Health	0,358(**)	0,247(**)	-0,340(**)

** Correlation is significant at the 0.01 level (2-tailed).

Source: Author

person. When the activity is motivating, interesting and challenging, it engages and leads to a state of "flow." Phenomenon of "flow" is studied in the late 60's of the last century by M. Chiksentmihali psychologist from the University of Chicago and is described as a state of complete mental, experiencing joy and satisfaction with the activity. Additional benefits are that you forget everyday worries and problems, is making sense of productivity. Prof. S. Lyubomirsky - at the University of California - USA, describes "flow" as "activities of happiness", and according to H. Gardner, a psychologist at Harvard, "flow" and the positive conditions that accompany it, are one of the healthiest ways training and achieve mastery in any skill or knowledge [7,6]. The conclusion is that positive experiences lead to higher levels of satisfaction and happiness.

Conclusion

The results of the research allow us to say that locus of control has important prognostic implications for health and subjective well-being. Strongest is the influence of locus of control on health - 11.56%. Slightly less but also significantly is the influence on the level of happiness - 10.05% and 6.30% on life satisfaction. We found that internal locus of control determines higher levels of health, happiness and life satisfaction. Conviction of personal control and personal responsibility is manifested in the behavioral level in a well organized and healthier lifestyle. Young people with an external locus of control have lower subjective assessments of health, they are "passive" in caring for the health and awareness as a value and are most exposed to the influence of risk factors: stress, poor diet, inadequate sleep, smoking. These risk factors are often at the root of many major diseases, characteristic of modern society. If we add that changes in health contribute to 12.82% of the change in the assessment of happiness, and 6.10% in the assessment of life satisfaction, the prognosis cannot be called optimistic because it seems to be a vicious circle.

We report as positive found from studies fact that health care as a conscious choice is dictated by the interest of the young person selected to work in favor of health. Regardless of the locus of control, most young people prefer activities in favor of health are: walking, relaxation (listening to music, meditation), hobbies and sports. The positive influence of these activities should not be overlooked because they emphasize on the role of intrinsic motivation and the basic needs of man as a person and not just a human organism. Therefore, when we talk about health, you should consider all aspects: physical, mental, social and spiritual.

The influence of locus of control proves convincingly that the individual has the potential for higher levels of health and subjective well-being. The key is in self-acceptance, self-responsibility and resources, goals and purpose in life. Social conditioning of the construct gives hope that the situation can be improved by targeting practical application in the area of upbringing of children, education, self-improvement and health promotion.

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