

ORIGINAL PAPER

ORYGINALNY ARTYKUŁ NAUKOWY

**HEALTH-PROMOTING LIFESTYLE PROFILE II: A TRANSITION MODEL
AMONG FUTURE SOCIAL SCIENCES EXPERTS IN ROMANIA**

**PROFIL PROZDROWOTNEGO STYLU ŻYCIA II: MODEL TRANSFORMACJI
WŚRÓD PRZYSZŁYCH SPECJALISTÓW W DZIEDZINIE NAUK SPOŁECZNYCH
W RUMUNII**

Simona Bostan^{1(A,B,C,D,E,F,G)}, **Mihaela Gavrilă-Ardelean**^{2(A,B,C,D,E,F,G)},

Liviu Gavrilă-Ardelean^{3(A,B,C,D,E,F,G)}

¹Paracelsus Health Academy, Passau, Germany

²Faculty of Educational Science, Psychology and Social Work, "Aurel Vlaicu" University of Arad,
Romania

³Faculty of Dental Medicine, Western University Vasile Goldiș of Arad, Romania

Bostan S, Gavrilă-Ardelean M, Gavrilă-Ardelean L. Health-promoting lifestyle profile II: a transition model among future social sciences experts in Romania. Health Prob Civil. <https://doi.org/10.5114/hpc.2024.135778>

Tables: 4

Figures: 0

References: 29

Submitted: 2024 Jan 6

Accepted: 2024 Feb 26

Address for correspondence / Adres korespondencyjny: Mihaela Gavrilă-Ardelean, Faculty of Educational Science, Psychology and Social Work, “Aurel Vlaicu” University of Arad, Bd. Revoluției no. 77, 310130 Arad, Romania, e-mail: miha.gavrila@yahoo.com, phone: +40-257-283010
ORCID: Mihaela Gavrilă-Ardelean <https://orcid.org/0000-0002-0321-6953>, Liviu Gavrilă-Ardelean <https://orcid.org/0000-0001-8003-8866>

Copyright: © John Paul II University in Białą Podlaska, Simona Bostan, Mihaela Gavrilă-Ardelean, Liviu Gavrilă-Ardelean. This is an Open Access journal, all articles are distributed under the terms of the Creative Commons AttributionNonCommercialShareAlike 4.0 International (CC BY-NC-SA 4.0) License (<http://creativecommons.org/licenses/by-nc-sa/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material, provided the original work is properly cited and states its license.

Summary

Background. Nowadays, obesity has become a public health problem that requires a multidisciplinary approach in prevention and therapy. In this context, the research aims to highlight some aspects that can be used in the management of obesity prevention, starting from personal motivation as a determining factor of individuals' behaviors.

Material and methods. The objective of this study was to apply, using a pioneering method, the previously existing instrument “Health-Promoting Lifestyle Profile II” among students within the field of social sciences from Romanian universities (496 respondents). The statistical program used for the analysis of the results was SPSS statistics v26.

Results. The results revealed correlations between the Body Mass Index profile of respondents, their motivation, nutritional habits, adoption of a healthy lifestyle, and participation in health courses.

Conclusions. The study provided conclusions supported by the results, as well as implications for practice. Statistically, the newly constructed concept of motivation was found to be related to the overall score of healthy lifestyle, and nutrition.

Keywords: healthy lifestyle, Body Mass Index, social sciences, motivation, nutrition

Streszczenie

Wprowadzenie. We współczesnym świecie problem otyłości stał się wyzwaniem dla zdrowia publicznego, a jego rozwiązanie wymaga zastosowania interdyscyplinarnego podejścia obejmującego profilaktykę oraz leczenie. Badania dotyczące tego zagadnienia mają na celu zwrócenie uwagi na szereg aspektów, które mogą okazać się ważne z punktu widzenia profilaktyki otyłości, począwszy od osobistej motywacji jako czynnika determinującego zachowania jednostek.

Material i metody. Celem badań było wykorzystanie pionierskiej metody, aby spopularyzować istniejące już narzędzie „Profil prozdrowotnego stylu życia II” wśród studentów rumuńskich uczelni wyższych studiujących nauki społeczne (496 respondentów). W celu analizy wyników wykorzystano program statystyczny SPSS statistics v26.

Wyniki. Uzyskane wyniki umożliwiły wykazanie korelacji pomiędzy wskaźnikiem masy ciała respondentów, ich motywacją, nawykami żywieniowymi, zdrowym stylem życia oraz uczestnictwem w kursach dotyczących zdrowia.

Wnioski. Rezultatem badań są wnioski poparte danymi, które mogą przełożyć się na praktykę. Z punktu widzenia statystyki nowa koncepcja motywacji okazała się być powiązana z ogólnym wskaźnikiem zdrowego stylu życia i odżywiania.

Słowa kluczowe: zdrowy styl życia, wskaźnik masy ciała, nauki społeczne, motywacja, odżywianie

Introduction

Body Mass Index (BMI) is a biological index with a health screening value, which divides a person's weight by their height (in squared meters) [1]. The Global BMI Mortality Collaboration group conducted a meta-analysis across four continents correlating BMI with mortality [2]. An initial study suggested that obesity levels compared to normal weight, as defined by the World Health Organization (WHO), are not associated with higher mortality from all causes of death, due to the reverse causality effects of smoking or other associated chronic diseases, which can themselves affect BMI [3].

The Global BMI Mortality Collaboration conducted a second study based on a meta-analysis of data from approximately 10.6 million adults participating in 239 studies. The study sample included over a quarter of non-smokers or individuals who did not suffer from associated chronic diseases (over 37%). They were monitored for a period of 5 years. The conclusions of the prospective study, published in *The Lancet*, were that the BMI weight groups influence mortality from all causes, by increasing the risk of civilization diseases [4].

Increasing BMI correlates with an increased risk of health problems. The greater the deviation of Body Mass Index from the ideal range, the greater the risk. Body Mass Index is useful for calculating the number of kilograms to be lost or gained and the recommended calories to maintain the desired weight. BMI values are interpreted in relation to age, gender, muscle mass (practicing a sport), race, smoking, etc. [5]. The American Association of Clinical Endocrinologists (AACE) defines obesity as a globally increasing disease requiring complex, multidisciplinary therapy [5]. The results of studies by the Global BMI Mortality Collaboration help guide international public health policies.

Obesity has become a global public health problem since the last century in accordance with scientific studies [6-9]. In the current context of the increasing prevalence of

obesity in the world, issues arise related to health costs and public disease management strategies, which are beyond the medical implications of a patient's personal health, as is shown by the WHO Consultation on Obesity (1999) and the World Health Organization (2000) [10].

Unhealthy eating behaviors constitute a global lifestyle problem with long-term repercussions, as shown by cohort studies and dietary guidelines [3,4,6]. They can be intervened upon through education, creating a health-promoting culture [11]. Healthy lifestyle education courses aid in improving health behaviors by helping individuals to acquire health-related competencies. This has been demonstrated by studies conducted across various communities [11].

An experimental pilot study conducted on a professional community of construction workers by the research team from the Department of Health and Physical Education at the Education University of Hong Kong, in collaboration with the Department of Building and Real Estate at the Polytechnic University of China, showed that the 36 construction apprentices who voluntarily participated in a nutritional education course improved their dietary behavior regarding the consumption of fresh fruit. The consumption of fresh fruit increased on average from 1.42 to 1.72 post-intervention and to 1.94 at the 3-month follow-up. Vegetable consumption increased on average from 1.67 initially to 1.97 post-intervention and to 2.19 at the 3-month follow-up [12].

Motivation is a notion that was introduced in the field of psychology at the beginning of the 20th century and shows the dynamics of human behavior as the result of the process of awareness of a need, acquired or innate, conscious or unconscious, being behind all our actions and decisions, and this is why it was named or recognized as an internal cause of the behavior of the human species [13,14]. This is intrinsic motivation. Motivation can also be

triggered by factors originating from an individual's external environment – extrinsic motivation [15].

Aim of the work

The present study seeks to highlight some aspects that can be used in the management of a healthy life and prevention of obesity, starting from personal motivation as a determinant of an individual's healthy behaviors.

The objective of this study was to apply, using a pioneering method, the previously existing instrument “Health-Promoting Lifestyle Profile II” among current Bachelor’s, Master’s and PhD students within the social sciences: sociology, psychology, education, anthropology and social assistance. The sample was extracted from Romanian universities (N= 496), assuring a $\pm 3.54\%$ error for a 95% confidence level.

The “Health-Promoting Lifestyle Profile II” instrument was created by the research team of Susan Walker [16-19].

There are several reasons for performing the research. First, there have not been any records about previous application of the instrument and publicly promoting the results for Romanian social profile students. From a sample perspective, Romania is a unique case, having gained its freedom from communism in 1989. This political change has had a significant impact on dietary behaviors, as the population has only recently been exposed to the global dietary model. Secondly, by applying the instrument to future social sciences experts, we can determine the challenges, knowledge and behavioral gaps [20,21]. Since the work of social sciences experts directly impacts large segments of the population, it is essential to determine the possible needs of future training in alimentation and lifestyle positive models [22-24].

Material and methods

From a methodological point of view, some general characteristics of the sample are essential: the sample is dominated by females (over 80%), as this profession is dominated at national levels by this gender, the rural (almost 45%) and urban (over 55%) distribution of the respondents respects the general national distribution, and the general distinction between Bachelor's (over 75%) vs Master's and PhD program (over 75%) students respects the general proportion in the selected universities.

Some minor innovations have been brought to the general standard instrument in order to bring additional data and a new perspective:

- the Body Mass Index (BMI) of the respondents;
- a new item if they have previously attended a training course on healthy lifestyle skills (testing the educational background of a healthy lifestyle);
- one additional composite dimension representing motivation based on six items describing autonomy, competence in life management and the feeling of belonging (9. Read or watch TV programs about improving your health; 45. Participate in educational programs on personal health care; 24. You feel content and at peace with yourself; 30. Work to achieve your long-term life goals; 13. Maintain meaningful and satisfying (quality) relationships with others; 31. You touch and are touched in spirit by the people you care about).

In the following section, statistical tools will be presented. Statistical analysis uses digital tools and classic analysis programs in the field of social and medical sciences [25,26].

The statistical analyses were performed using IBM SPSS statistics v26 and covers the following statistical procedures: frequencies, ANOVA mean variance test, Pearson's correlation, Spearman's correlation, multiple regression analysis and Pearson's Chi square test [26].

ANOVA is a non-parametric test that compares the differences (variance) of the recorded means between groups and the level of probability that the recorded differences are due to chance or not. An F-value with statistical significance implies that observed differences between variables, calculated using factorial laws, are unlikely to be due to chance [25]. It was used to compare means among the different groups of our sample to identify significant differences.

Pearson's Correlation is a method of calculating linear correlation for data organized in a continuum having limits between -1 (negative correlation) and +1 (positive correlation). The value of the correlation coefficient expresses the strength of the correlation [26]. This was used to evaluate how the different dimensions are correlated based on the mean scores.

Spearman's Rank Correlation is a method of calculating linear correlation for answers organized in an interval (rank) form having limits between -1 (negative correlation) and +1 (positive correlation). The correlation's strength is expressed by its value [26]. This was used to compare the individual answers of respondents using the five-step scale of the instrument.

Chi square test is a type of nonparametric technique used to evaluate hypotheses concerning the structure of the complete frequency distribution [25]. This was used to assess if there are significant differences between the observed percentage distribution related to expected distribution in order to validate hypothesis.

Regression analysis is a statistical method used to determine the optimal fitting straight line for a dataset, known as the regression line [25]. This was used to test the exact contribution of multiple independent variables towards the dependent variable based on a dimension's average scores.

Results

BMI profile of respondents

The general BMI findings show significant differences between females and males based on the ANOVA test, assuming that a male's weight has proportionally more muscle mass compared to females.

Another surprising factor is that respondents coming from a rural area have a higher average BMI (24) compared to the urban respondents (23). Although both levels correspond to a normal weight, the difference is significant. This information needs to be put in the context of a Romanian rural profile, dominated by agricultural self-sufficient practices in all households, thus contributing to nutrition practices.

Motivation dimension

Motivation scale construct

Motivation includes 3 dimensions: autonomy, competence in life management and feeling of belonging. For each of these dimensions, two items from an initial questionnaire were selected, to create the Motivation Scale Score (based on mean), as follows:

- autonomy: 9. Read or watch TV programs about improving your health; 45. Participate in educational programs on personal health care;
- competence in life management: 24. You feel content and at peace with yourself; 30. Work to achieve your long-term life goals;

- feeling of belonging: 13. Maintain meaningful and satisfying (quality) relationships with others; 31. You touch and are touched in spirit by the people you care about.

By having a four-step increasing scale to analyze the frequency of a health promoting lifestyle, the theoretical mean is considered to be 2.5, meaning that everything above this threshold is a positive behavior, and everything below is a lesser behavior.

Analysis of the motivation dimension starts from the average of 6 component questions. In this case, the newly constructed indicator has an average of 2.54.

The distribution of the average indicates a high level of performance in the field of belonging (items 31, 13) or life management (items 30, 24) and is low in the field of autonomy (items 9, 45).

BMI, motivation and healthy lifestyle

If we compare the averages obtained on the types of BMI categories, we notice the lowest average motivation score is on the subsample of people suffering from obesity, while the highest average motivation score is seen in respondents with normal weight. The general differences are randomized (Table 1).

Table 1. Motivation scores distribution based on Body Mass Index

Body Mass Index	N	Mean	Std. deviation	Std. error	95% confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
Underweight	53	2.5220	0.43979	0.06041	2.4008	2.6432	1.33	3.33
Normal weight	294	2.5658	0.45066	0.02628	2.5140	2.6175	1.33	3.67
Overweight	104	2.5433	0.42760	0.04193	2.4601	2.6264	1.67	3.50
Obesity	45	2.4704	0.51283	0.07645	2.3163	2.6244	1.33	3.50
Total	496	2.5477	0.45030	0.02022	2.5080	2.5874	1.33	3.67

Notes: N – number; Std. – standard.

Furthermore, the general relation between the variables can be translated into a multiple regression equation, where the healthy lifestyle scale is the dependent variable, while the motivation, spiritual development and interpersonal relationship scales are predictors. The general model is valid (ANOVA test $F=394.532$; $p=0.000$), while the Adj. R^2 shows that 70.5% of the healthy lifestyle score is generated by the variance of the predictors (Table 2).

Table 2. Motivation model summary based on R correlation

Model Summary ^b									
Model	R	R square	Adjusted R square	Std. error of the estimate	Change statistics				
					R square change	F change	df1	df2	Sig. F change
1	0.840 ^a	0.706	0.705	0.19577	0.706	394.532	3	492	0.000

Notes: Std. – standard; Sig. – significance, R – Pearson; a. predictors: (constant), score – interpersonal relationships (based on mean), Score – spiritual development (based on mean), score – motivation (based on mean); b. dependent variable: score – healthy lifestyle (based on average).

The general multiple regression model is supported by all the identified components based on their significance, while motivation has the biggest positive impact on the overall equation ($B=0.329$) (Table 3).

Table 3. Motivation regression model coefficients

Coefficients ^a						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	Constant	0.514	0.058	-	8.850	0.000
	Score – spiritual development (based on mean)	0.222	0.027	0.320	8.120	0.000
	Score – motivation (based on mean)	0.329	0.034	0.412	9.665	0.000
	Score – interpersonal relationships (based on mean)	0.150	0.026	0.198	5.759	0.000

Notes: Std. – standard; Sig. – significance; a. dependent variable: score – healthy lifestyle (based on average).

Motivation, age and participation in training course on healthy lifestyle

The general behavioral transition model is supported by the age segmentation of the sample, which incorporates different behaviors patterns. One of the patterns can be seen in the Motivation scale, which shows increasing motivation levels as age increases. Running the ANOVA test of variance indicates a statistically significant threshold such that the recorded differences are not due to chance.

In-depth analysis of the causes of this variation using the Post Hoc Scheffe test shows that the model is statistically significant, and this is due to the differences between the average of the 18-22 years of age subgroup compared to the average of those over 28 years of age, showing a clear generational gap (Table 4).

Table 4. Scheffe test – post hoc analysis

Dependent variable: Motivation (based on mean)						
Scheffe						
(I) age ranges (years)	(J) age ranges (years)	Mean difference (I-J)	Std. error	Sig.	95% confidence interval	
					Lower bound	Upper bound
18-22	23-27	0.00318	0.05578	0.998	-0.1338	0.1401
	over 28	-0.14043*	0.05120	0.024	-0.2661	-0.0147
23-27	18-22	-0.00318	0.05578	0.998	-0.1401	0.1338
	over 28	-0.14361	0.06676	0.100	-0.3075	0.0203
over 28	18-22	0.14043*	0.05120	0.024	0.0147	0.2661
	23-27	0.14361	0.06676	0.100	-0.0203	0.3075

Notes: Std. – standard; Sig. – significance.

From a behavioral perspective, 123 respondents had attended a training course on healthy lifestyle skills. Those who participated in these courses had a much higher mean score regarding the Motivation dimension (2.7) than those who did not participate in the courses (2.49). The participation of students in courses leads to high averages in the Motivation dimension.

Further segmentation of those that participated in healthy lifestyle courses shows that the average age was 26.6, which is higher than for those who did not participate (2.84). In order to consolidate the model, a cross-tabulation operation was performed, showing that if we report the answers for each segment group dichotomically, the highest participation ratio was within the group over 28 years of age (37.6%). There was also a significant relationship between the two variables based on Pearson's Chi square test ($2, N=496 = 11.397, p < 0.005$). This shows that the over 28 years of age segment is more likely to have attended training courses on healthy lifestyle skills. This gap should be narrowed, as there is a real need for future young professionals to be also trained in this field.

Motivation and nutrition

Another pattern that can be observed is the relation between the Motivation dimension and the nutrition aspect, as we wanted to check if they are enforcing each other.

Overall, there is a moderate positive correlation between the two indicators based on Pearson's correlation ($r(494)=0.454, p=0.01$ level (2-tailed)). This shows that increased motivation scores are positively correlated with increased nutrition scores in a bilateral way.

Furthermore, checking the general relation between the variables based on regression, the general model is valid (ANOVA test $F=128.072; p=0.000$), while the Adj. R^2 shows that 20.4% of the nutrition score variability is generated by the variance of motivation (predictor).

The general regression model shows, based on coefficients, that for each increase by one point in motivation, there is an average increase of 0.422 in nutrition ($B=0.422$).

Based on the existence of 2-tailed correlation, the opposite is also valid from a regression point of view. Thus, if we switch the model and consider the motivation score as being dependent on the nutrition score variability, the model is still significant, while the

regression shows that for each increase by one point in the nutrition score, there is an average increase of 0.488 in motivation ($B=0.488$).

It can be stated that nutrition and motivation mutually enforce each other, but general nutrition has a slightly higher impact on motivation than vice versa.

The overall challenge is when correlating the motivation average score with individual responses for each nutritional daily behavior. The motivation average score has been recoded into a three-step scale corresponding to: reduced performance (1-1.99 mean), average performance (2-2.99 mean) and increased performance (3-4 mean).

Based on Spearman's correlation, there are positive correlation coefficients, albeit weak, between Motivation performance and the following nutritional habits:

- 38. Eat only 2-3 servings from the groups each day: meat, poultry, fish (90-100 g/portion: 1/2 small steak or 4 slices of sausage, etc.), legumes (1/2 cup/portion), eggs (1 egg/portion), nuts, seeds (30 g/portion) ($r(494)=0.264, p=0.01$ level (2-tailed));
- 20. Eat 2-4 portions (150-250g/day) of fruit every day (1 portion = 1 medium-sized fruit) ($r(494)= 0.253, p=0.01$ level (2-tailed));
- 26. Eat 3-5 servings (250-400 g/day) of vegetables every day ($r(494)=0.248, p=0.01$ level (2-tailed));
- 44. Read labels to identify the nutrients, fat and sodium content of packaged foods ($r(494)=0.247, p=0.01$ level (2-tailed)).

Discussion

All the other nutritional habits are still correlated and significant, but their connection is weak. This means that there is a possible gap between punctual nutritional habits and overall motivation, which may endanger the general correlation model between overall

motivation and overall nutrition. In the long term, this relation could be unsustainable, and thus the need to provide future social experts with tools and knowledge regarding nutrition.

The results are in accordance with other studies carried out in Romania. A study conducted on a sample of 278 individuals from the Romanian social workers' community, regarding the profile of a health-promoting lifestyle combined with job satisfaction, indicates that the physical and mental lifestyle of social workers is healthy, ranging from a moderate to high level, and is directly proportional to professional satisfaction [27].

The motivation concept also has a clear relation with BMI, showing a decreasing tendency of average motivation scores as BMI increases. Based on the ANOVA test, it cannot be stated if BMI is affecting motivation or vice versa, but the scores show significant variability. There is a need to corroborate this type of score with medical data and see if the general metabolic condition affects individual motivation due to some other imbalances related to mineral absorption, quality of food, etc.

This aspect is further complemented by the finding that the motivation dimension and the nutrition scores are correlated and enforce each other in a significant way. Since nutrition has a higher role in motivation than vice versa, a possible correlation with additional medical data could unveil more on this matter. The role of medical and nutritional data and habits could show where the imbalances reside and what is precisely generating a decrease in motivation and if there is a chemical and absorption component related to this.

For now, based on current nutritional habits, it cannot be stated where the gap is: the protein servings, vegetables or fruit?

Conclusions

From a statistical point of view, the newly built concept of motivation is clearly related to the overall score of healthy lifestyle as a whole. The overall score of the motivation dimension contributes more to the healthy lifestyle score than the spiritual dimension or interpersonal relationships.

Within its structure, the best descriptors of motivation based on the testing sample are competence in life management and the feeling of belonging. The autonomy component is lacking due to the low level of relevant content available on the market. This emphasizes the need for clear policies supporting education related to the healthy lifestyle components that apply to future social sciences experts [28].

Since the statistics show a clear generational gap between the 18-22 years of age segment versus those over 28 years of age regarding participation in training courses, the policies must address the lack of knowledge and available resources starting from basic university education.

This fact correlates with the findings of other studies, such as the one conducted by Tabrizi et al. [11], who conducted a review on key factors affecting health-promoting behaviors. They showed that health education for educators, through participation in courses promoting a healthy lifestyle, influences the health-promoting behaviors of their students and increases their responsibility for health. The same study emphasizes the importance of community support in developing a culture of health [11]. This highlights the need for training towards a culture of a healthy lifestyle for social work students by introducing health courses within their specialization.

Recommendations

The study data can be used to stimulate healthy eating behaviors to prevent obesity, as a public health problem, in young people [29].

Disclosures and acknowledgements

The authors declare no conflicts of interest with respect to the research, authorship, and/or publication of this article. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. Artificial intelligence (AI) was not used in the creation of the manuscript.

Special thanks to Gloria Gavrilă-Ardelean, a student at the Faculty of Medicine and Pharmacy, Victor Babes University of Medicine and Pharmacy in Timisoara, for the English translation.

References:

1. Bailey A. What Is Body Mass Index (BMI)? [Internet]. Verywell Health. 2022. [access 2023 Nov 15]. Available from: <https://www.verywellhealth.com/body-mass-index-bmi-5210240>.
2. Shmerling RH. How useful is the Body Mass Index (BMI)? [Internet]. Boston: Harvard Health. Harvard Health Publishing; 2023 May 5 [access 2024 Feb 12]. Available from: <https://www.health.harvard.edu/blog/how-useful-is-the-body-mass-index-bmi-201603309339>

3. World Health Organization. *Diet, nutrition, and the prevention of chronic diseases: Report of a WHO study group* [Internet]. Geneva: World Health Organization; 1990 [access 2023 Apr 25]. Available from: [https://apps.who.int/iris/bitstream/handle/10665/39426/WHO_TRS_797_\(part1\).pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/39426/WHO_TRS_797_(part1).pdf?sequence=1).
4. Global BMI Mortality Collaboration, Di Angelantonio E, Bhupathiraju SN, Wormser D, Gao P, Kaptoge S, et al. Body-mass index and all-cause mortality: individual-participant-data meta-analysis of 239 prospective studies in four continents. *The Lancet* 2016; 388(10046): 776-786. [https://doi.org/10.1016/S0140-6736\(16\)30175-1](https://doi.org/10.1016/S0140-6736(16)30175-1)
5. Apovian C. Obesity medicine: a new specialty in medicine or a focus in endocrinology? Nutrition is the real subspecialty in medicine. *Endocrine Practice*. 2012; 18(5): 649-650. <https://doi.org/10.4158/endp.18.5.y43467v45h52rk2u>
6. Ardelean MG. retrospective demographic study of deaths from cardiovascular diseases – heart attack – in Arad, Between 2000 and 2006. *Procedia – Social and Behavioral Sciences*. 2015; 180: 1386-1390. <https://doi.org/10.1016/j.sbspro.2015.02.282>
7. James WPT. WHO Recognition of the global obesity epidemic. *International Journal of Obesity*. 2008; 32(S7): S120-6. <https://doi.org/10.1038/ijo.2008.247>.
8. Williams EP, Mesidor M, Winters K, Dubbert PM, Wyatt SB. Overweight and obesity: prevalence, consequences, and causes of a growing public health problem. *Current Obesity Reports*. 2015; 4(3): 363-370. <https://doi.org/10.1007/s13679-015-0169-4>
9. World Health Organization. Regional Office for Europe. WHO European Regional Obesity Report 2022 [Internet]. Geneva: World Health Organization. Regional Office for Europe; 2022 [access 2023 Oct 9]. Available from: <https://iris.who.int/handle/10665/353747>

10. WHO. Obesity: preventing and managing the global epidemic: report of a WHO consultation [Internet]. Geneva: World Health Organization; 1999 [access 2023 Oct 10]. Available from: <https://iris.who.int/handle/10665/42330>
11. Tabrizi JS, Doshmangir L, Khoshmaram N, Shakibazadeh E, Abdolahi MH, Khabiri R. Key factors affecting health promoting behaviors among adolescents: a scoping review. *BMC Health Serv Res.* 2024; 24: 58-67. <https://doi.org/10.1186/s12913-023-10510-x>
12. Chung LMY, Chung JWY, Chan APC. Building healthy eating knowledge and behavior: an evaluation of nutrition education in a skill training course for construction apprentices. *International Journal of Environmental Research and Public Health.* 2019; 16(23): 4852-4866. <https://doi.org/10.3390/ijerph16234852>
13. Cofer CN, Appley MH. *Motivation: theory and research.* New York: Wiley; 1964.
14. Ryan R. *The Oxford handbook of human motivation.* Oxford: Oxford University Press; 2019. <https://doi.org/10.1093/oxfordhb/9780190666453.001.0001>
15. Weiner B. *Human motivation.* New York: Psychology Press; 2013. <https://doi.org/10.4324/9780203772218>
16. Walker SN, Hill-Polerecky DM. Psychometric evaluation of the Health-Promoting Lifestyle Profile II. Unpublished manuscript. Omaha: University of Nebraska Medical Center; 1996.
17. Walker SN, Volkan K, Sechrist KR, Pender NJ. Health-promoting life styles of older adults. *Advances in Nursing Science.* 1988; 11(1): 76-90. <https://doi.org/10.1097/00012272-198810000-00008>
18. Walker SN, Kerr MJ, Pender NJ, Sechrist KR. A Spanish language version of the Health-Promoting Lifestyle Profile. *Nursing Research.* 1990; 39(5): 268-273. <https://doi.org/10.1037/t40814-000>

19. Walker SN, Sechrist KR, Pender NJ. The Health-Promoting Lifestyle Profile. *Nursing Research*. 1987; 36(2): 76-81. <http://dx.doi.org/10.1097/00006199-198703000-00002>
20. Swami V, Tudorel O, Goian C, Barron D, Vintila M. Factor structure and psychometric properties of a Romanian translation of the Body Appreciation Scale-2. *Body Image*. 2017; 23: 61-68. <https://doi.org/10.1016/j.bodyim.2017.08.001>
21. Waller PR, Crow C, Sands D, Becker H. Health related attitudes and health promoting behaviors: differences between health fair attenders and a community comparison group. *American Journal of Health Promotion*. 1988; 3(1): 17-32. <https://doi.org/10.4278/0890-1171-3.1.17>
22. Popp LE. Difficulties and opportunities of the spiritual dimension in globalisation. *Revista de Cercetare și Intervenție Socială*. 2012; 36: 197-223.
23. Sitaru A, Cheveresan A, David VL, Susan R, Susan M, Stoian D, et al. Nicotine activity on healthy oral cells and pharyngeal tumor cells. *Revista de Chimie*. 2019; 70(10): 3719-3721. <https://doi.org/10.37358/RC.19.10.7632>
24. White JL. Educational innovations. Wellness Wednesdays: health promotion and service learning on campus. *Journal of Nursing Education*. 1999; 38(2): 69-71. <https://doi.org/10.3928/0148-4834-19990201-06>
25. Gravetter FJ, Wallnau LB, Forzano LAB, Witnauer JE. *Essentials of statistics for the behavioral sciences*. 10th ed. Boston, Ma: Cengage Learning; 2021.
26. Levin J, Alan FJ. *Elementary statistics in social research*. London: Pearson Education Group; 2002.
27. Stoicov IA. Lifestyle profile and professional satisfaction of social services workers. *Social Work Review*. 2023; 4: 55.
28. Sârbu EA, Marici M, Bostan S, Gavrila-Ardelean L. Physical and recreational activities, sedentary screen time, time spent with parents and drug use in adolescents.

International Journal of Environmental Research and Public Health. 2023; 20(2):
1434. <https://doi.org/10.3390/ijerph20021434>

29. Anomaly J. Is obesity a public health problem?. Public Health Ethics. 2012; 5(3): 216-
221. <https://doi.org/10.1093/phe/phs028>

ONLINE FIRST