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DIETING AND HEALTH BEHAVIORS IN RELATION TO HEALTH AND ANXIETY IN PHYSICAL EDUCATION STUDENTS AND THEIR RELATIVES

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Abstract

Healthy appearance is often mistakenly associated with a slim figure and being on a diet is wrongly seen as an indication of taking care of health and the quality of the food consumed. Literature shows that it may not always be the case, due to the anxiety caused by restrictions in the area of eating. Dieting can have multiple negative consequences, anxiety and depression being only two of them. Restricting food intake can also result in eating disorders and health issues as restricting calories in one's diet can lead to nutritional deficiencies.

This paper studies the relationships between dieting and anxiety, dieting and health, dieting and health behaviors, and between health behaviors and health. Research tools include the self-reported measure of health, the General Self Rated Health questionnaire, an anxiety measure, A Brief Measure for Assessing Generalized Anxiety Disorder, and a measure of health behaviors, the Health Behavior Inventory. The study was conducted using a sample of Polish students of physical education and their families.

Results suggest that dieting is indeed connected with higher levels of anxiety. Despite heightened engagement, those who followed a diet did not appear to be healthier than those who did not. At the same time, the reported level of health showed significant correlations with particular health behaviors, such as correct eating habits and positive attitudes toward food.

Key words: *dieting, anxiety, health, health behaviors*

Introduction

A slim figure is usually thought to be connected with good health [1, 2], which is not necessarily true, as many studies report negative effects of trying to achieve a perfect body or bodyweight [2]. One of the reasons is that dieting does not always result in expected weight loss [3]. Instead, dieting can have multiple side effects, like cycles of losing weight and gaining it back, which has been proved to be unhealthy [4, 5]. While increased body weight itself is not a good predictor of CHD, people experiencing bodyweight fluctuations exhibit a higher risk of coronary heart disease [5]. Also, frequent dieting can contribute to the development of eating disorders [6, 7]. Restricting calories may also result in a failure to meet nutritional requirements [3].

There is a convincing amount of research concerning the relationship between dieting and mental issues, such as depression and anxiety [2, 8]. Dieters tend to show signs of lower self-esteem, depressive episodes, and anxiety more often than their non-dieting friends [3, 9]. Anxiety is known to be connected with poor health and mental distress and correlated negatively with health behaviors [10]. The causal link is not established, yet. A high level of anxiety and depression can be a source of binge eating and physical inactivity, but overconcentration on the appearance and eating habits can also be a factor contributing to anxiety and depression. There is an area of research on how a diet itself can increase the odds of depression and anxiety [11].

At the same time dieting is widespread and common. Studies of various sample sizes report that approximately 60% of adults have dieted in their lives and about 20-30% of people are believed to be on a diet at any given time [12, 13]. It is very common to hear "I'm on a diet" from a friend, especially among young adults or in student groups. While dieting can have bad consequences, there is also a big amount of research showing that dieting can be connected with taking care of one's body and paying attention to the nutritional value of food [3], resulting in better health and well-being.

Objective

The main aim of this research project is to study connections between dieting and health and between dieting and anxiety in the Polish sample. It is hypothesized that being on a diet, while improving the physical health of the subjects, will be also correlated with anxiety symptoms. It is also hypothesized that a) dieting will be connected with health behaviors and b) health behaviors would correlate positively with self-reported health (SRH).

Method

Participants

The initial sample consisted of 157 physical education students from the Opole University of Technology and their immediate families. The final sample, after the rejection of incomplete forms, included 143 individuals (86 females, 52 males and two subjects who refused to disclose their genders). The mean age of participants was 30.7 for women (SD = 14.2) and 31.7 for men (SD = 11.4) and ranged from 18 to 72 years in the women's group and from 18 to 60 years in the men's group.

In the whole sample, 35% of the women and 68% of the men declare neither to be on a diet nor to control their food cravings, while the others either try to eat healthy food or follow a specific dietary plan. Vegetarian diets are followed by 10% of the women and 2% of the men surveyed. Clean diets and low calorie diets have been declared by, respectively, 2% and 7% of the women and 2% and 6% of the men. Only 1% of the female subjects use catering services that deliver meals designed by dietician nutritionists. To sum up, 48% of the sample report not being on any diet and the others are trying to eat healthy or lose weight by reducing food intake.

Missing Values Procedure. Missing values were dealt with as follows: if the number of missing values for a participant exceeded 5% in a questionnaire, the subject was excluded from analyses including this measure. For the remaining participants the missing values were substituted with the mean scores for the respective measures.

Procedure

A pen-and-paper method was applied for the collection of the data. The survey began with a description of the procedure, contact information questions, and a consent form. No private data was collected.

The first part of the questionnaire, an inventory sheet, was based on general personal and sociodemographic characteristics of the study groups such as the age, gender, weight, and height. Self-report measures were used for assessment.

Questionnaire packets included the following self-report questionnaires: General Self Rated Health, A Brief Measure for Assessing Generalized Anxiety Disorder, and Health Behavior Inventory. Statistical analyses were conducted using IBM SPSS Statistics 25 software and significance level was set to $p < 0.05$. Results in the range of $0.05 < p < 0.1$ were interpreted as statistical trends.

Psychometric instruments

General Self Rated Health (GSRH). GSRH is a self reported measure of physical health which consists of only one item and has two versions, yet, proven to be a valid and reliable measure [14]. In the standard version participants are asked to rate their health on a scale from 1 (poor) to 5 (excellent). The comparative version asks participants to assess their health in comparison to other people their age. Both versions were used in this research. Reliability measured by correlation of both items (standard and comparative) is $r = .74$, $p < .001$, which is a good result [15].

A Brief Measure for Assessing Generalized Anxiety Disorder (GAD-7). GAD-7 is a 7-item scale for assessing generalized

anxiety disorder (GAD) constructed by Spitzer, Kroenke, Williams, and Löwe [16]. Participants were asked to answer the question "Over the last two weeks, how often have you been bothered by the following problems?" on a scale from 0 (not at all) to 3 (nearly every day). The total score obtained by addition reflects the presence of a generalized anxiety disorder when it exceeds 10 points [16]. Exemplary problems included in the scale include "excessive worry about different things" and "having trouble relaxing". The internal consistency reported by the authors was very high (α = .92).

The Polish version of the scale was obtained from the University of East Anglia website. Health Behavior Inventory (Inwentarz Zachowań Zdrowotnych). The Health Behavior Inventory, a Polish scale by Juczyński [17], consists of 24 items describing several types of behaviors connected with health that build four scales: a) Correct eating habits, b) Preventive behaviors, c) Positive attitude toward food, and d) Health practices. Answers are indicated on a five-point scale from almost never to almost always. The higher the score, the greater the intensity of a specific type of behavior. The internal consistency (α) for the whole scale is high and equals .85 [17].

Results

Prior to conducting analyses aimed at testing these hypotheses, normality assumptions were checked for the data. Most of the variables showed non-normal distributions with a high value of negative skewness. For this reason, nonparametric tests were used in further analyses.

Firstly, anxiety levels were compared between the group of participants on a diet (as reported by themselves) and the non-dieting group, using the Mann-Whitney's U Test. The dieting group turned out to have significantly higher levels of anxiety symptoms (*Me* = 6.00) than the non-dieting group (*Me* = 4.00), Z = -2.37; p = 0.018.

Those two groups were also compared in health, however, the results did not show any differences between dieting and non-dieting samples with reference to the levels of health as rated by the participants and as compared (also by the participants themselves) with other people their age. The means and medians for both groups are presented in table 1 along with the test results.

Table 1. Health comparisons for dieting and non-dieting participants

	Group	*n*	*M*	*SD*	*Me*	*Z*	*p*
Health	Dieting	74	3.31	0.78	3.00	-0.37	0.709
	Non-dieting	69	3.35	0.87	3.00		
Health in comparison to other people in one's age	Dieting	74	3.32	0.92	3.00	-0.89	0.373
	Non-dieting	69	3.25	0.74	3.00		

Table 2. Health behaviors comparisons for dieting and non-dieting participants

	Group	*n*	*M*	*SD*	*Me*	*Z*	*p*
General score	Dieting	74	83.55	13.60	83.50	-4.46	< 0.001
	Non-dieting	69	72.54	12.71	72.00		
Correct eating habits	Dieting	74	22.23	4.72	22.00	-6.61	< 0.001
	Non-dieting	69	16.20	4.46	16.00		
Preventive behaviors	Dieting	74	20.11	5.15	20.50	-2.91	0.004
	Non-dieting	69	17.58	4.38	18.00		
Positive attitude toward food	Dieting	74	21.36	4.13	21.00	-1.74	0.082
	Non-dieting	69	20.06	3.79	21.00		
Health practices	Dieting	74	19.85	4.04	20.00	-1.44	0.150
	Non-dieting	69	18.70	4.12	19.00		

The next comparison concerned health behaviors and showed that dieting people exhibit higher levels of health behaviors than non-dieting people and they differ for particular health behaviors such as correct eating habits and preventive behaviors. Complete results are presented in table 2.

At the final stage, health behaviors were correlated with the health of the participants. Self-reported health correlated positively but weakly with a positive psychological attitude towards food ($\rho = 0.17$; $p = 0.037$). It also showed a statistical trend in the case of healthy eating attitudes ($\rho = 0.15$; $p = 0.071$). When it comes to health as compared to that perceived in other people, it vaguely correlated with eating habits ($\rho = 0.20$; $p = 0.018$) and with positive attitudes towards food ($\varrho = 0.19$; $p = 0.024$). There was also a statistical trend observed in the general score ($\rho = 0.15$; $p = 0.072$).

Discussion

The study had several aims, the major one being the investigation of the link between dieting and higher levels of anxiety, as shown in several studies [3, 18]. The research on a Polish sample of physical education students and their families showed that people following a certain diet or trying to eat healthy foods exhibit a higher levels of anxiety than those who do not keep restrictive diets. These findings confirm the results obtained in the cited studies.

Another reason for conducting this study was to check the connection between dieting and physical health. While being on a diet did not appear to be directly connected to health in any significant way, dieting people perform more health behaviors and health behaviors correlate positively with health. Said relationships apply primarily to healthy eating habits and preventive behaviors.

To conclude, it is important to stress that dieting does not necessarily make people feel healthier; contrarily, the opposite seems quite likely. Restricting oneself can be the source of great anxiety and, in consequence, may disturb one's physical and mental health.

There are several limitations to this study. Being purely correlational, it does not offer any causal explanations. Using acquired data one can not hypothesize about the mutual relationship between health and anxiety. Longitudinal studies of anxiety levels during dieting are needed. Furthermore, this study does not check for other explanations of the relationships between dieting and anxiety and between dieting and health, like mediators or moderators. New studies should be done controlling for more variables that could account for the occurrence of these effects. Also, the tools used to determine if one is dieting or not and to measure the subjects' health were far from perfect. Using one-item scales has several disadvantages [19]. Finally, simple self-reports are not highly reliable when it comes to the determination of the fact of dieting or not dieting. There are a number of possible interpretations of dieting [20], all of which should be taken into account in the efforts to provide a more precise definition of dieting for future analyses.

BIBLIOGRAPHY

1. Wright J., O'Flynn G., Macdonald D. Being fit and looking healthy: Young women's and men's constructions of health and fitness. *Sex Roles* 2006; 54(9-10): 707–716.
2. Mann S., Harmer H. Can health and wellbeing come in all shapes and sizes? Dieting: The Big Con. a harm minimisation program. *Australian Journal of Primary Health* 2002; 8(2): 39–47.
3. French S. A., Jeffery R. W. Consequences of dieting to lose weight: effects on physical and mental health. *Health Psychology* 1994; 13(3): 195–212.
4. Lissner L., Andres R., Muller D. C., Shimokata H. Body weight variability in men: metabolic rate, health and longevity. *International Journal of Obesity* 1990; 14(4): 373–383.
5. Lissner L., Odell P. M., D'Agostino R. B., Stokes III J., Kreger B. E., Belanger A. J., Brownell K. D. Variability of body weight and health outcomes in the Framingham population. *New England Journal of Medicine* 1991; 324(26): 1839–1844.

6. Wilson G. T. Relation of dieting and voluntary weight loss to psychological functioning and binge eating. *Annals of Internal Medicine* 1993; 119: 727–730.
7. Rand C. S., Kuldau J. M. Restrained eating (weight concerns) in the general population and among students. *International Journal of Eating Disorders* 1991; 10(6): 699–708.
8. Kenardy J., Brown W. J., Vogt E. Dieting and health in young Australian women. *European Eating Disorders Review: The Professional Journal of the Eating Disorders Association* 2001; 9(4): 242–254.
9. French S. A., Story M., Downes B., Resnick M. D., Blum R. W. Frequent dieting among adolescents: psychosocial and health behavior correlates. *American Journal of Public Health* 1995; 85(5): 695–701.
10. Strine T. W., Chapman D. P., Kobau R., Balluz L. Associations of self-reported anxiety symptoms with health-related quality of life and health behaviors. *Social Psychiatry and Psychiatric Epidemiology* 2005; 40(6): 432–438.
11. Aucoin M., Bhardwaj S. Generalized anxiety disorder and hypoglycemia symptoms improved with diet modification. *Case Reports in Psychiatry* 2016; 7165425.
12. Fairburn, C. G., Brownell, K. D. (eds.). *Eating disorders and obesity: A comprehensive handbook.* New York: Guilford Press, 2005.
13. Jeffery R. W., Adlis S. A., Forster J. L. Prevalence of dieting among working men and women: The healthy worker project. *Health Psychology* 1991; 10(4): 274–281.
14. DeSalvo K. B., Jones T. M., Peabody J., McDonald J., Fihn S., Fan V., He J., Muntner P. Health care expenditure prediction with a single item, self-rated health measure. *Medical Care* 2009; 47(4): 440–447.
15. DeSalvo K. B., Fisher W. P., Tran K., Bloser N., Merrill W., Peabody, J. Assessing measurement properties of two single-item general health measures. *Quality of Life Research* 2006; 15(2): 191–201.
16. Spitzer R. L., Kroenke K., Williams J. B., Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine* 2006; 166(10): 1092–1097.
17. Juczyński Z. *Narzędzia pomiaru w promocji i psychologii zdrowia.* Warszawa: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, 2001.
18. Pidgeon A., Harker R. A. Body-focused anxiety in women: Associations with internalization of the thin-ideal, dieting frequency, body mass index and media effects. *Open Journal of Medical Psychology* 2013; 2(4): 17–24.
19. Diamantopoulos A., Sarstedt M., Fuchs C., Wilczynski P., Kaiser S. Guidelines for choosing between multi-item and single-item scales for construct measurement: a predictive validity perspective. *Journal of the Academy of Marketing Science* 2012; 40(3): 434–449.
20. Alix Timko C., Perone J., Crossfield A. Are you currently on a diet? What respondents mean when they say "yes". *Eating Disorders* 2006; 14(2): 157–166.

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