European Proceedings of
Social and Behavioural Sciences
EpSBS

www.europeanproceedings.com
e-ISSN: 2357-1330

DOI: 10.15405/epsbs.2020.10.04.39

PRRAEPGDA 2020

Personal and Regulatory Resources in Achieving Educational and Professional Goals in the Digital Age

CONSCIOUS SELF-REGULATION, LEVEL OF ANXIETY IN EATING DISORDERS: A STRUCTURAL MODEL

Tatyana Nikolaevna Banshchikova (a)*, Maksim Leonidovich Sokolovskii (b),
Roman Olegovich Budkevich (c)
*Corresponding author

(a) Federal state autonomous educational istitution of higher education "North-Caucasus federal university", 2, Kulakova prospekt., Stavropol, 355029, Russia, sevkav@mail.ru
(b) Federal state autonomous educational istitution of higher education "North-Caucasus federal university"? 2, Kulakova prospekt., Stavropol, 355029, Russia, msokolovskii@ncfu.ru
(c) Federal state autonomous educational istitution of higher education "North-Caucasus federal university, 1, Pushkina, street, Stavropol, 355017, Russia, budkev@mail.ru

Abstract

Eating disorders are the result of a complex interaction of constitutional, biological, social, and psychological factors. Among the significant psychological factors of eating disorders is personal anxiety. Conscious self-regulation, being a reflexive psychological tool of a person, can act as a mechanism for changing the system of human relations to the order of nutrition. The purpose of this study is to construct an empirical model of the relationship between regulatory and personal predictors of nutritional behavior. The construction and analysis of the model of nutritional behavior regulatory and personal predictors was performed by structural equation modelling (SEM). A high level of personal anxiety acts as a trigger for nutritional behavior "susceptibility to hunger" and "food disinhibition of control". In the model of regulatory and personal predictors of nutritional behavior in a female sample, the relationship between regulatory autonomy (independence) and trait anxiety ($\beta = -0.34$) was obtained. The higher the autonomy in the activity's organization, independence from the opinions and assessments of others, independence from social stigmatization of weight at different stages of nutritional behavior control, the lower the level of personal anxiety. The results obtained demonstrate that individual components of conscious self-regulation can act as a system-forming factor among other significant predictors of nutritional behavior. On the one hand, conscious self-regulation has a direct impact on restrictive nutritional behavior, and students control their weight by applying strategies to restrict food intake. On the other hand, conscious self-regulation can mediate the influence of personal anxiety on nutritional behavior.

Keywords: Conscious self-regulation, student, nutritional behavior, anxiety level, mediator model.

https://doi.org/10.15405/epsbs.2020.10.04.39
Corresponding Author: Tatyana Nikolaevna Banshchikova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

1. Introduction

In the conditions of changing the young people lifestyle rhythmic components, nutrition factors that lead to nutritional behavior adverse changes are transformed. Eating disorders are compounded by perceived weight stigma. In these conditions, psychological resources that prevent the appearance of these disorders, especially the ability to consciously regulate nutritional behavior and overcome the effects of social stigma, are particularly valuable. This problem of eating disorders in recent years has become actively studied not only in medicine, but also in psychology (Malkina-Pyh, 2007; Mandia, 2017; Ovchinnikov et al., 2018; Proskuryakova, 2019; Robitzsch et al., 2020; Sekuła et al., 2019; Tsegaye et al., 2020; Verjans-Janssen et al., 2019).

Modern research confirms the natural correlations between eating disorders and anxiety disorders. However, the nature of this relationship remains open (Barcaccia et al., 2018; Budkevich & Budkevich, 2018; Janjetic et al., 2020). The possibilities of conscious self-regulation as a resource in solving the problem of young people nutritional behavior optimizing have not been studied.

In adolescence, the ability to voluntary mental regulation of biological processes, states, and voluntary activity is actualized. According to Banshchikova and Morosanova's research (2019), self-regulating mechanisms in adolescence are basic for the resilience development, which ensures successful adaptation and readiness to adapt to changes of various types. Such view on the role of nutritional behavior regulation is summarized by Laviano et al. (2018), who proposed to consider regulation as a complex psychological process of reactions in response to various internal and external factors, the ultimate goal of which is to preserve all types of homeostasis, and above all – bioenergetic, ensuring the functioning of not only the body, but also the psyche.

2. Problem Statement

Eating disorders are the result of a complex interaction of constitutional, biological, social, and psychological factors. Research on eating disorders focuses on the role of mental disorders (Chami et al., 2020; Dawson et al., 2018; Palavras et al., 2020; Weiss et al., 2019) and sociocultural factors (Ordaz et al., 2018; Rodgers et al., 2018; 2019, Schaefer et al., 2018; Yamamiya et al., 2016). Currently, there are more and more studies that examine various types of mental self-regulation among the significant factors of nutritional behavior (Annesi et al., 2016; Dohle et al., 2018; Eschenbeck et al., 2016; Kennel, 2018; Menzie et al., 2017).

Conscious self-regulation, being the highest level of mental self-regulation, is a reflexive psychological tool of a person in organizing their activities (Morosanova, 2018), including emotional and nutritional activity. Conscious self-regulation changes the system of human relations to existing situations, to the procedure of nutrition, the choice of products, nutritional conditions, etc. According to the normative model of conscious self-regulation by Konopkin (2011), its components such as: planning goals, modelling significant conditions for aims achievement, programming the sequence and methods of action, evaluating and correcting their results are the operational component of the model. The instrumental component of the model is the regulatory and personal properties: flexibility, independence, etc.

https://doi.org/10.15405/epsbs.2020.10.04.39
Corresponding Author: Tatyana Nikolaevna Banshchikova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

According to research by Russian scientists (Mikhailova et al., 2019), there are three types of nutritional behavior: external, emotional, and restrictive. All these types are commonly referred to as pathological. However, only two of them — the emotional and restrictive type — are considerably represented in certain categories of clinical classifiers. In the presented study, food disinhibition of control and susceptibility to hunger are differentiated into a class of pathological forms of nutritional behavior, while cognitive restraint of eating are classified as non-pathological forms. The basis is the research of Stunkard and Messick (1985), according to which, restraint nutritional behavior is characterized by the fact that a person controls their weight by applying strategies for restricting food intake; emotional eating is a strategy of overeating in response to a negative affect (Turton et al., 2017), the external type is the inability to resist food signals and overeating in response to the taste of food (Mikhailova et al., 2019).

Further research is needed to understand the role of conscious self-regulation in 3 types of nutritional behavior.

3. Research Questions

The presented study considered the following questions: first, are there gender differences in the types of nutritional behavior, severity of personal and situational anxiety, operational and regulatory-personal components of conscious self-regulation? Secondly, how are the components of conscious self-regulation and anxiety related to types of nutritional behavior? Third, which of the components of the model of conscious self-regulation are significant predictors of a particular type of nutritional behavior?

4. Purpose of the Study

The purpose of the study is to test an empirical model of the relationship between regulatory (indicators of conscious self-regulation) and personal (subject's anxiety) predictors of nutritional behavior.

5. Research Methods

The study was conducted on a sample of students of the North Caucasus Federal University and students of the Nevinnomyssk humanitarian and technical Institute in the period from May to November 2019. A total of 51 people, aged 18 to 21, took part in the study. The sample included 10 males and 41 females.

The "style of self-regulation of behavior" questionnaire was used to evaluate regulatory predictors. Morosanova's multi-scale survey method allows to diagnose the degree of development of conscious self-regulation and its individual profiles, the components of which are private regulatory processes: planning, modeling, programming, evaluation of results, as well as flexibility, independence and the overall level of self-regulation (Morosanova & Bondarenko, 2015).

TFEQ (Stunkard & Messick, 1985) is a tool for studying nutritional behavior. It consists of 51 items to assess the cognitive and behavioral aspects of nutrition: restriction (or cognitive control of eating behavior is the tendency to limit food intake to control weight and body size), factor 1, 20 items;

https://doi.org/10.15405/epsbs.2020.10.04.39
Corresponding Author: Tatyana Nikolaevna Banshchikova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

disinhibition of control'. (episodes of loss of control over nutritional behavior), factor 2, 16 items; susceptibility to hunger (an internal sense of the power of hunger and craving for food), factor 3, 15 items.

To assess the levels of anxiety: state and trait anxiety had used "Scale of assessment of the level of reactive and personal anxiety". This is a Russian version of the State-Trait Anxiety Inventory (STAI) developed by Charles D. Spielberger (USA), and adapted for the Russian sample by Hanin and Spielberger (1983). Personal anxiety characterizes a stable tendency to perceive a large range of situations as threatening, to respond to such situations with a state of anxiety. Reactive anxiety is characterized by tension, anxiety, and nervousness. Very high reactive anxiety causes attention disorders, sometimes a violation of precise coordination. Very high personal anxiety is directly correlated with the presence of neurotic conflict, with emotional and neurotic breakdowns, and with psychosomatic diseases. The rating scale consists of 2 parts that separately evaluate reactive (or state anxiety, items # 1-20) and personal (or trait anxiety, items # 21-40) anxiety.

Mathematical and statistical data processing was performed in the SPSS environment using classical methods of mathematical analysis: Spearman correlation coefficient (r), as well as structural equation modelling (SEM) methods.

6. Findings

At the first stage, the arithmetic mean values of indicators of nutritional behavior, anxiety indicators and components of conscious self-regulation, their differences in gender aspect were calculated (table 1). At the second stage, the rank order correlations of these variables were established (table 2). At the third stage, the empirical model of relations between conscious self-regulation, anxiety and nutritional behavior features was invented.

Significant differences in the average values of indicators of nutritional behavior in women and men were not found. There were no statistically significant differences between women and men in indicators of conscious self-regulation. Anxiety as a natural and mandatory characteristic of a person can be personal and situational (reactive or state). State anxiety corresponds to a moderate level, both in women and men. Significant differences were found in the indicator "trait anxiety". Indicators of trait anxiety in women have a high level of severity. The level of trait anxiety reflects the individual predisposition of the subject to anxiety (Spielberger, 1983). The increased level of personal anxiety in women suggests a tendency to perceive a fairly wide range of objectively safe situations as dangerous and threatening.

Table 1. Comparative characteristics of female and male samples.

Features	**Women**	**Men**	**p**
	Arithmetic	**Means**	
Nutritional behavior assessment			
Cognitive control of eating behavior	47.5	44.0	0.33
Disinhibition of control	33.0	31.1	0.72
Susceptibility to hunger	32.8	31.1	0.59
Anxiety features			

https://doi.org/10.15405/epsbs.2020.10.04.39
Corresponding Author: Tatyana Nikolaevna Banshchikova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Reactive (state) anxiety	36.6	35.7	0.78
Personal (trait) anxiety	**45.1**	**38.8**	**0.05**
Conscious self-regulation			
Planning	5.5	5.5	0.92
Modelling	5.1	5.3	0.79
Programming	5.7	6.0	0.71
Evaluation of results	5.2	5.0	0.75
Flexibility	6.2	5.6	0.55
Independence	5.2	5.3	0.86
General level of self-regulation (GLS-R)	28.0	27.5	0.73

Chronic negative influence (through the autonomic nervous system) on various phases of the digestive process creates situations of eating disorders.

The analysis of correlations between subjective indicators of nutritional behavior, conscious self-regulation and types of anxiety has established the presence of positive, statistically significant correlations between:

- the indicator of conscious self-regulation "modeling", "evaluation of results" and cognitive restrictions of nutrition;

- personal anxiety and susceptibility to hunger;

- personal anxiety and uncontrolled eating (food disinhibition).

Consciousness of external and internal significant conditions for achieving the goal in weight control (modeling), the formation of subjective criteria for evaluating the results of their behavior in achieving the goal (evaluation of results) allow young people to establish cognitive, adequately aware restrictions in eating (table 2).

Table 2. Correlations between nutritional behavior features and components of conscious self-regulation and anxiety (rank order correlation coefficients)

	Nutritional behavior features		
	Cognitive control of eating behavior	**Disinhibition of control**	**Susceptibility to hunger**
Trait anxiety		0.32*	0.32*
Modeling	0.37*		
Evaluation of results	0.25		

Note: *$p \leq 0.05$; $p \leq 0.1$

For physiological adaptation to new conditions of life, young people use a wide range of various aids. Thus, food is used by them as an addictive agent, which can get them away from the traumatic subjective reality. At the moment of fear, anxiety during exam sessions, irritation, dissatisfaction, failure or other emotional distress situations, when it is not possible to express emotions through arbitrary behavior, there is a need to "eat" the resulting discomfort, unconsciously creating a situation of comfort and security.

This fact actualizes the request for research of internal psychological resources that will help reduce the risks of eating disorders in a situation of increased anxiety.

https://doi.org/10.15405/epsbs.2020.10.04.39
Corresponding Author: Tatyana Nikolaevna Banshchikova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

The construction and analysis of a generalized model of regulatory and personal predictors of nutritional behavior was performed by structural equation modeling (SEM) using the computer program SPSS AMOS 25. Figure 1 shows the resulting empirical model. It includes two independent variables: the self-regulation indicator "modeling" and the indicator "trait anxiety" (trait_anx), as well as three dependent variables: cognitive restrictions (cogn_contr), food disinhibition of control (disinhib), and susceptibility to hunger (sucsept_t_h).

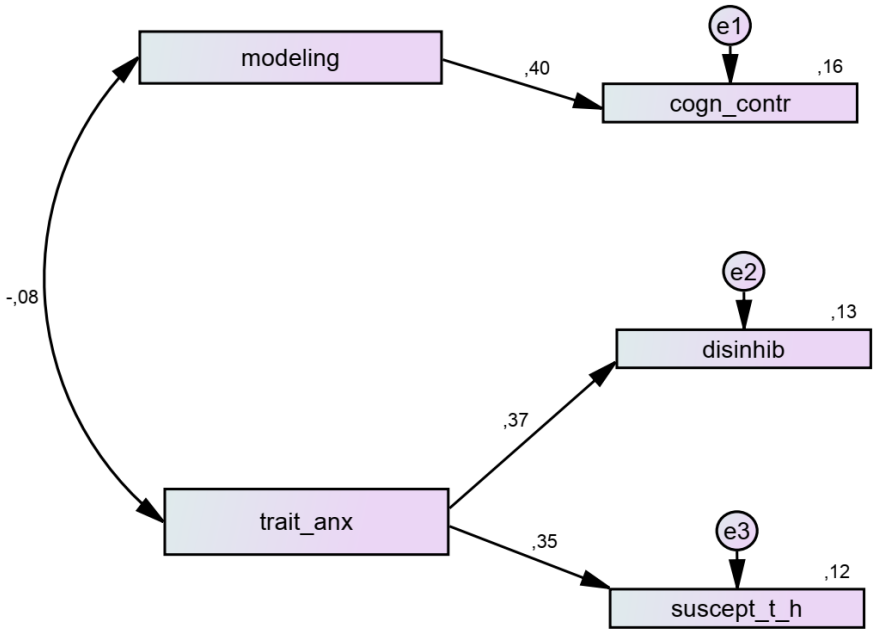

Figure 1. Generalized model of nutritional behavior regulatory and personal predictors

SEM allowed us to build a model of nutritional behavior regulatory and personal predictors, taking into account the direction of cause-and-effect relationships. According to this model, restrictive nutritional behavior is associated with the regulatory process "modeling". By highlighting significant conditions in the current situation, students are able to control their weight by applying strategies to limit food intake. Personal anxiety in students acts as a trigger for external (susceptibility to hunger) and emotional (food disinhibition) types of nutritional behavior. The higher the level of personal anxiety, the higher the probability of developing pathological forms of nutritional behavior.

Based on the data obtained (statistically significant differences in the level of personal anxiety in men and women), it was suggested that the model of regulatory and personal predictors of nutritional behavior in women has its own particularities (figure 2). Three nutritional behavior features were used as dependent variables, and characteristics of conscious self-regulation and anxiety were used as independent variables.

https://doi.org/10.15405/epsbs.2020.10.04.39
Corresponding Author: Tatyana Nikolaevna Banshchikova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

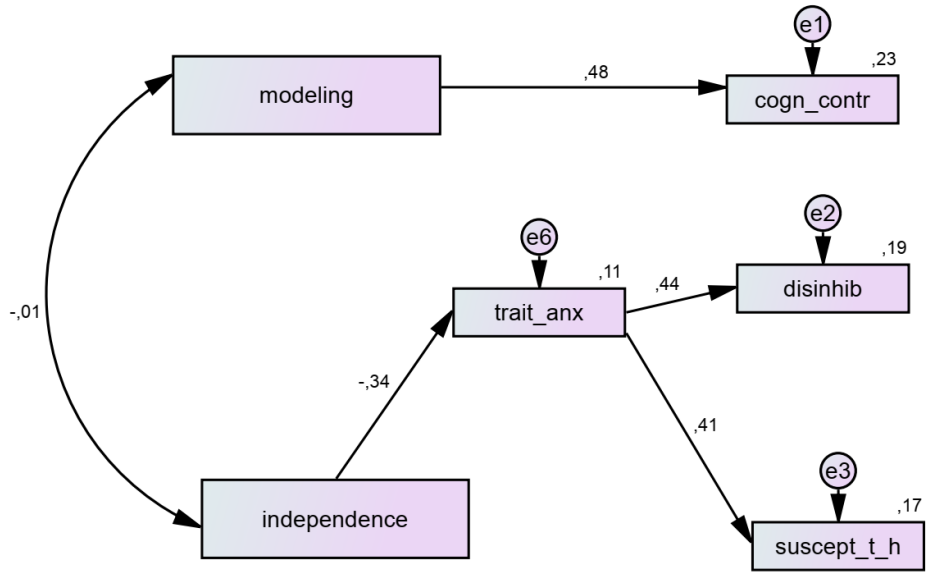

Figure 2. Model of regulatory and personal predictors of female nutritional behavior

The resulting model allows us to establish the particularities of women's nutritional behavior. As in the general model, "modeling" (the indicator of conscious self-regulation) has a direct impact on nutritional behavior with cognitive restrictions on food consumption to control weight and body size. Subjects with high level of the "modeling" scale are able to identify significant conditions both in the current situation and in the long-term future, which allows them to build a program of actions to control food consumption.

A high level of trait anxiety is associated with conditionally pathological forms of nutritional behavior – disinhibition of control (overeating in response to a negative affect) and susceptibility to hunger (inability to resist food signals, overeating in response to the taste of food). Anxiety negates the ability to adequately assess events, construct an adequate reality of the world around subjects and to make the right decisions. The results obtained are confirmed by the results of similar studies (Miller-Matero et al., 2014; Opolski et al., 2015).

The model shows the relationship between regulatory autonomy (independence) and trait anxiety (β = - 0.34). The higher the autonomy in their activity's organization, independence from the opinions and assessments of others, independence from social stigmatization of weight at different stages of nutritional behavior control, the lower the level of personal anxiety. A lower level of anxiety releases resources for a more complete perception and assessment of the external and internal situation, for controlling nutritional behavior. Mechanisms of influence of regulatory processes and regulatory-personal properties on food behavior remain insufficiently studied and require further research.

7. Conclusion

The study did not establish significantly significant gender differences in the types of nutritional behavior, indicators of conscious self-regulation. The results suggest that individual components of conscious self-regulation may act as a system-forming factor among other significant predictors of nutritional behavior. On the one hand, conscious self-regulation has a direct impact on restrictive

nutritional behavior, and students control their weight by applying strategies to restrict food intake. On the other hand, conscious self-regulation can mediate the influence of personal anxiety on nutritional behavior. The analysis of the regulatory characteristics of nutritional behavior can become the basis for psychological tools development for reducing anxiety and forecasting eating disorders]

Acknowledgments

The work was carried out with the financial support of the Russian Foundation for basic research, project no. 19-013-00568 A.

References

Annesi, J. J., Mareno, N., & McEwen, K. L. (2016). Mediation of self-regulation and mood in the relationship of changes in high emotional eating and nutritional behaviors: Moderating effects of physical activity. *Scandinavian Journal of Psychology, 57*(6), 523–534. https://doi.org/10.1111/sjop.12327

Banshchikova, T. N., & Morosanova, V. I. (2019). Mediatornai͡a rol′ akkul′turat͡sionnykh ustanovok vo vzaimosvi͡azi komponentov osoznannoĭ samoreguli͡at͡sii i sot͡siokul′turnoĭ adaptat͡sii [The relationship between conscious self-regulation and socio-cultural adaptation of foreign students]. *World of Science. Pedagogy and Psychology, 7*(6). https://mir-nauki.com/PDF/61PSMN619.pdf

Barcaccia, B., Balestrini, V., Saliani, A. M., Baiocco, R., Mancini, F., & Schneider, B. H. (2018). Dysfunctional eating behaviors, anxiety, and depression in Italian boys and girls: the role of mass media. *Revista Brasileira de Psiquiatria, 40*(1), 72–77. https://doi.org/10.1590/1516-4446-2016-2200

Budkevich, R. O., & Budkevich, E. V. (2018). Anxiety, sleep self-assessment, cortisol and saliva antioxidants in students with occasional experience of shift work. *Zhurnal Nevrologii i Psikhiatrii Im. S.S. Korsakova, 118*(4), 21-25. https://doi.org/10.17116/jnevro20181184221

Chami, R., Treasure, J., Cardi, V., Lozano-Madrid, M., Eichin, K. N., McLoughlin, G., & Blechert, J. (2020). Exploring changes in event-related potentials after a feasibility trial of inhibitory training for bulimia nervosa and binge eating disorder. *Frontiers in Psychology, 11.* https://doi.org/10.3389/fpsyg.2020.01056

Dawson, L., Baudinet, J., Tay, E., & Wallis, A. (2018). Creating Community - The Introduction of Multi-Family Therapy for Eating Disorders in Australia. *Australian and New Zealand Journal of Family Therapy, 39*(3), 283–293. https://doi.org/10.1002/anzf.1324

Dohle, S., Diel, K., & Hofmann, W. (2018). Executive functions and the self-regulation of eating behavior: A review. *Appetite, 124,* 4–9. https://doi.org/10.1016/j.appet.2017.05.041

Eschenbeck, H., Heim-Dreger, U., Steinhilber, A., & Kohlmann, C.-W. (2016). Self-regulation of healthy nutrition: automatic and controlled processes. *BMC Psychology, 4*(1). https://doi.org/10.1186/s40359-016-0108-5

Hanin, Y. L., & Spielberger, C. D. (1983). The development and validation of the Russian Form of the State-Trait Anxiety Inventory. *Series in Clinical & Community Psychology: Stress & Anxiety, 2,* 15–26. Retrieved from https://psycnet.apa.org/record/1984-13878-001

Janjetic, M. A., Rossi, M. L., Acquavía, C., Denevi, J., Marcolini, C., & Torresani, M. E. (2020). Association between anxiety level, eating behavior, and nutritional status in adult women. *Journal of the American College of Nutrition, 39*(3), 200–205. https://doi.org/10.1080/07315724.2019.1633970

Kennel, J. (2018). Health and wellness coaching improves weight and nutrition behaviors. *American Journal of Lifestyle Medicine, 12*(6), 448–450. https://doi.org/10.1177/1559827618792846

Konopkin, O. A. (2011). *Psikhologicheskie mekhanizmy reguli͡at͡sii dei͡atel'nosti [Psychological mechanisms of activity regulation]*. Lenand

Laviano, A., Marrón, A. E., & García, M. P. M. (2018). Hunger regulation, anorexia and weight loss. In *Nutrición en gastroenterología: Aspectos clínicos y dietéticos* (pp. 43-46). AM Editores. https://www.researchgate.net/publication/330764474_Hunger_regulation_Anorexia_and_weight_loss

Malkina-Pyh, I. G. (2007). *Terapiia pishchevogo povedeniia* [Eating behavior therapy]. Ėksmo. https://readli.net/terapiya-pishhevogo-povedeniya

Mandia, A.-M. (2017). Successful eating self-regulation: a social cognitive perspective. *New Trends and Issues Proceedings on Humanities and Social Sciences, 2*(6), 19–23. https://doi.org/10.18844/gjhss.v2i6.1426

Menzie, A., Rune, K. T., Mueller, M., & Lovell, G. P. (2017). Using technology to enhance self-regulation of eating behavior. *Journal of Food and Nutritional Disorders, 6*(3). https://doi.org/10.4172/2324-9323.1000229

Mikhailova, A. P., Ivanova, D. A., & Shtrakhova, A. V. (2019). Issues of qualification and psychological assessment of eating behavior under normal and disordered conditions. *Bulletin of the South Ural State University, Series "Psychology", 12*(1), 97–117. https://doi.org/10.14529/psy190110

Miller-Matero, L. R., Armstrong, R., McCulloch, K., Hyde-Nolan, M., Eshelman, A., & Genaw, J. (2014). To eat or not to eat; is that really the question? An evaluation of problematic eating behaviors and mental health among bariatric surgery candidates. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity, 19*(3), 377–382. https://doi.org/10.1007/s40519-014-0118-3

Morosanova, V. I. (2018, October 06-07). Current trends in the study of conscious self-regulation in education and professional identity. *Proceedings of the V International conference 'Personal resource of human agency at work in changing Russia', 1,* 9-16. https://doi.org/10.30888/978-5-6041451-4-2.1.1

Morosanova, V. I., & Bondarenko, I. N. (2015). *Diagnostika samoregulyatsii cheloveka [Diagnostics of self-regulation of human].* Kogito-Tsentr. http://biblioclub.ru/index.php?page=book&id=430548

Opolski, M., Chur-Hansen, A., & Wittert, G. (2015). The eating-related behaviours, disorders and expectations of candidates for bariatric surgery. *Clinical Obesity, 5*(4), 165–197. https://doi.org/10.1111/cob.12104

Ordaz, D. L., Schaefer, L. M., Choquette, E., Schueler, J., Wallace, L., & Thompson, J. K. (2018). Thinness pressures in ethnically diverse college women in the United States. *Body Image, 24,* 1–4. https://doi.org/10.1016/j.bodyim.2017.11.004

Ovchinnikov, A. A., Sultanova, A. N., Sicheva, T. U., & Tomilova, U. A. (2018). Psychological predicates of eating disorders in adolescents. V.M. Bekhterev Review of Psychiatry and Medical Psychology, *2*, 80–84. https://doi.org/10.31363/2313-7053-2018-2-80-84

Palavras, M. A., Hay, P., Mannan, H., da Luz, F. Q., Sainsbury, A., Touyz, S., & Claudino, A. M. (2020). Integrated weight loss and cognitive behavioural therapy (CBT) for the treatment of recurrent binge eating and high body mass index: a randomized controlled trial. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity.* https://doi.org/10.1007/s40519-020-00846-2

Proskuryakova, L. A. (2019). Eating disorders and the risk of their development in students according to the level of personal anxiety. *Bulletin of Kemerovo State University, 21*(1), 121–129. https://doi.org/10.21603/2078-8975-2019-21-1-121-129

Robitzsch, A., Schweda, A., Hetkamp, M., Niedergethmann, M., Dörrie, N., Herpertz, S., Hasenberg, T., Tagay, S., Teufel, M., & Skoda, E.-M. (2020). The impact of psychological resources on body mass index in obesity surgery candidates. *Frontiers in Psychiatry, 11*. https://doi.org/10.3389/fpsyt.2020.00649

Rodgers, R. F., Berry, R., & Franko, D. L. (2018). Eating disorders in ethnic minorities: An update. *Current Psychiatry Reports, 20,* 90. https://doi.org/10.1007/s11920-018-0938-3

Rodgers, R. F., Donovan, E., Cousineau, T. M., McGowan, K., Yates, K., Cook, E., Lowy, A. S., & Franko, D. L. (2019). Ethnic and racial diversity in eating disorder prevention trials. *Eating Disorders, 27*(2), 168–182. https://doi.org/10.1080/10640266.2019.1591824

Schaefer, L. M., Burke, N. L., Anderson, L. M., Thompson, J. K., Heinberg, L. J., Bardone-Cone, A. M., Neyland, M. K. H., Frederick, D. A., Anderson, D. A., Schaumberg, K., Nerini, A., Stefanile, C., Dittmar, H., Klump, K. L., Vercellone, A. C, & Paxton, S. J. (2018). Comparing internalization of appearance ideals and appearance-related pressures among women from the United States, Italy, England, and Australia. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity, 24*(5), 947–951. https://doi.org/10.1007/s40519-018-0544-8

Sekuła, M., Bonieka, I., & Paśnik, K. (2019). Assessment of health behaviors, nutritional behaviors, and self-efficacy in patients with morbid obesity. *Psychiatria Polska, 53*(5), 1125–1137. https://doi.org/10.12740/pp/onlinefirst/81182

Spielberger, C. D. (1983). Kon͡tseptual′nye i metodologicheskie problemy issledovaniia͡ trevogi [Conceptual and methodological problems in the study of anxiety]. In Y. L. Hanin (Ed.) *Stress i trevoga v sporte* [Stress and anxiety in sports] (pp. 12-24). Fizkul′tura i sport.

Stunkard, A. J., & Messick, S. (1985). The three-factor eating questionnaire to measure dietary restraint, disinhibition and hunger. *Journal of Psychosomatic Research, 29*(1), 71–83. https://doi.org/10.1016/0022-3999(85)90010-8

Tsegaye, A., Kökönyei, G., Baldacchino, A., Urbán, R., Demetrovics, Z., & Logemann, H. N. A. (2020). The psychological basis of obesity. In T. A. Mahmood, & F.A. Cheervenak (Eds), *Obesity and Obstetrics* (2nd ed., pp. 37-44). Elsevier. https://doi.org/10.1016/b978-0-12-817921-5.00004-7.

Turton, R., Chami, R., & Treasure, J. (2017). Emotional eating, binge eating and animal models of binge-type eating disorders. *Current Obesity Reports, 6*(2), 217–228. https://doi.org/10.1007/s13679-017-0265-8

Verjans-Janssen, S., Van Kann, D., Kremers, S., Vos, S., Jansen, M., & Gerards, S. (2019). A cross-sectional study on the relationship between the family nutrition climate and children's nutrition behavior. *Nutrients, 11*(10), 2344. https://doi.org/10.3390/nu11102344

Weiss, L., Katzman, M., & Wolchik, S. (2019). Bulimia nervosa: Definition, diagnostic criteria, and associated psychological problems. In *Understanding Eating Disorders: Anorexia Nervosa, Bulimia Nervosa and Obesity* (pp. 161-180). Taylor and Francis. https://doi.org/10.4324/9781315820378-11

Yamamiya, Y., Shimai, S., Schaefer, L. M., Thompson, J. K., Shroff, H., Sharma, R., & Ordaz, D. L. (2016). Psychometric properties and validation of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4) with a sample of Japanese adolescent girls. *Body Image, 19*, 89–97. https://doi.org/10.1016/j.bodyim.2016.08.006