

Peculiarities of defense mechanisms and personal maturity in different women's sex-role types with signs of exercise addiction

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Abstract

Introduction: The issue under consideration is the study of gender role traits and protective mechanisms of an addictive personality. These are the characteristics that determine the processes of adaptation, form the adaptive system, and contribute to its subjective comfort. The aim of this research is to analyze the features of psychological protection and personal maturity mechanisms depending on gender types of women with signs of exercise addiction.

Material and methods: To consider the manifestation of this phenomenon, the following psychodiagnostic methods were used: the Life Style Index (LSI), the structural gender-role scale of O.S. Kocharyan, E.V. Frolova, and the “Auto analytical questionnaire of a healthy personality” of V.O. Ananiev. Apart from that, the method of verifying the differences of unrelated samples (Student's *t*-test), correlation analysis (Kendall's τ coefficient), and factor analysis were applied in order to factorize the main data components (Varimax rotation).

Results: The study of the correlations between maturity and the psychological protection mechanisms suggested that personal maturity is mostly associated with the mechanism of denial. Finally, the practical significance of the research lies in forming the empirical basis for further development of the system of psychological support and correction of women with signs of exercise addiction who are identified as psychological targets of influence.

Conclusions: Finally, the practical significance of the research lies in forming the empirical basis for further development of the system of psychological support and correction of women with signs of exercise addiction who are identified as psychological targets of influence.

Key words: psychological adaptation, gender, protective mechanisms, addictive personality, psychological correction.

Introduction

Recent research has shown a noteworthy increase in the number of women with signs of addictive behavior, which is manifested through their dependence on fitness activities (Atroszko *et al.* 2015; Fattore *et al.* 2014). Regarding the rapid development of modern society, its pace and values, it is possible to conclude that the sex-role types of women with addictive behavior are a widespread problem because the concept of sex has become not only purely biological but also social (Haro-González *et al.* 2018; Baños 2020; Di Nicola *et al.* 2017). This characteristic applies not only to “classic” addictions (such as

drug addiction) but also to “new” addictions (primarily, non-chemical ones), which are socially acceptable (Álvarez-García *et al.* 2019; Berengüi *et al.* 2021).

Such conditions do not provoke condemnation from society, which contributes to their rapid development into clinically defined addictive disorders. Many studies single out addiction to physical activity and sports within the scope of non-chemical dependence (Mónok *et al.* 2012; Brunet *et al.* 2021). Accordingly, exercise dependence is recognized as one of the mental disorders included in the Diagnostic and Statistical Manual of Mental Disorders (DSM). This

guide is the result of more than 10 years' efforts by international experts in all aspects of mental health (DSM-5). Nowadays, gender psychology deals with the notion of the individual's social sex and gender roles. Another important issue is protective mechanisms because they are used by individuals to overcome conflicts and stressful situations (Fattore *et al.* 2014).

The classification of gender-role types developed by Bem (1975, 1981) has become widespread in society. He singles out the following ones: masculine, feminine, androgynous and undifferentiated. The androgynous type draws special attention since it characterizes the tendencies of modern society. First of all, most individuals combine the traits of both men and women. For instance, they are persistent and result-oriented; at the same time, they are gentle and receptive. It should be emphasized that the androgynous type is more mature than the other 3 types due to its combination of masculinity and femininity as well as its adaptation abilities. It is worth mentioning that in orthodox psychoanalysis, the defense mechanisms perform the function of protecting the Ego from anxiety and conflicts on the part of the Id and Super-Ego. In contrast, some modern psychoanalysts believe that the psychological protection mechanisms consist in healthy adaptation to the realities of life. The individual prefers those defense mechanisms that become his or her individual style of reducing anxiety. In addition, all protective mechanisms are divided into primary and secondary (Perrotta 2019). The individual uses both of them.

There are several views on understanding the concept of maturity (Maslow and Frager 1987; Erikson 1968). Some scholars believe that this is only a stage in human development. However, others point out that maturity does not depend on a person's age but on the level of his intellectual, emotional, and volitional development. Most theoretical approaches are based on the assumption that personal maturity should be accompanied by a high level of self-awareness and the desire for self-realization (Maslow and Frager 1987). The problem of addiction to sports has also become relevant. For example, the American Society of Sports Medicine convened a group of experts consisting of physicians and psychoanalysts to create a rigorous description and develop the best practices for the prevention and treatment of mental health problems in athletes. Furthermore, special emphasis is placed on combating fitness addictions in different women's sex-role types, including those related to eating behavior/eating disorders and

dependence on excessive physical activity, which leads to specific mental health disorders (Chang *et al.* 2020).

In recent decades, numerous studies of different aspects of exercise addiction have been carried out (Szabo *et al.* 2018; Kovacsik *et al.* 2019; Simón-Grima *et al.* 2019; Nogueira *et al.* 2018; Simón-Grima *et al.* 2021). Thus, according to Egorov and Szabo (2013), the definition of "exercise addiction" was first used by Baekeland in his research of the effects of exercise deprivation on sleep patterns. Baekeland found that the athletes who trained 5-6 times a week refused to interrupt their training program for a month, while the athletes who trained 3-4 times a week during deprivation showed obvious withdrawal symptoms (Savina 2016). Also, Szabo argues that the most common symptoms of withdrawal in sports addiction are guilt, depression, excitability, anxiety, tension, stress, and ideational immobility (Juwono and Szabo 2020; Szabo 1998). However, there is no generally accepted definition of sports addiction. Its description includes behavioral (e.g., training frequency), psychological (e.g., pathological attachment) and physiological (e.g., tolerance) factors (Griffiths *et al.* 2005).

The most widely accepted definition of exercise addiction was proposed by Veale (1991). He suggested a set of criteria for the diagnosis of this dependence, based on the DSM-IV criteria for chemical abuse, which include both biomedical (tolerance, withdrawal symptoms) and psychosocial (violation of social and professional functioning) angles. Therefore, according to Veale (1995), exercise addiction is described as a multidimensional maladaptive pattern of training that leads to clinically significant deterioration or malaise. It is expressed in uncontrolled, excessive sports and manifested by the following symptoms: physiological (tolerance/cancellation) and psychological (anxiety/depression).

Gender role traits and protective mechanisms of personality are the characteristics that affect the psychological adaptation, form the adaptive system and determine its subjective comfort. In modern society, the gender role transformation is associated with such an important gender-role characteristic as maturity (Kocharyan *et al.* 2009; McWilliams 2011). However, the connection between gender roles and maturity needs further study. Sex-role formations are not situational but cross-situational and total. Consequently, they are the core of the personality structure because they determine psychological and psychosomatic health as well as social self-realization. The individual not only accepts gender norms,

values and cultural attitudes but also undergoes a specific process of psychosexual development, including a gender-role one (Burlachuk *et al.* 2007; Kocharyan *et al.* 2009).

The aim of this research is to study the features of defense mechanisms and personal maturity depending on gender types in women with signs of exercise addiction.

Material and methods

In accordance with the purpose and objectives of the study, a research sample was formed. Based on informed consent in compliance with the principles of bioethics and deontology, a psychodiagnostic study of 41 females with signs of sports addiction aged 18 to 27 years (mean age 24.6) without comorbid mental pathology was conducted. The criteria for exclusion from the study were as follows: the lack of informed consent; the presence of mental or acute psychotic disorders in the anamnesis at the time of examination; and the existence of severe somatic diseases, which could affect the women's mental state.

The contingent of the research sample was homogeneous in terms of basic indicators, which makes it possible to consider the results of the study representative of the general population. To ensure a high degree of homogeneity, the study groups were composed on the basis of gender and age characteristics, housing features, socio-economic, medical and social conditions. The study was conducted in several stages, as follows:

1. At the first stage, the analytical study of the state of the researched problem in theoretical and applied dimensions was carried out. Furthermore, theoretical provisions of the research were selected and substantiated. The purpose and objectives of the study and its conceptual provisions were formulated. Moreover, a representative sample was formed, which allowed us to generalize the research results to the whole population. In addition, a set of valid and reliable psychodiagnostic methods was established.
2. The second stage was dedicated to forming the experimental base of the study. Qualitative and quantitative analyses of protective mechanisms and personal maturity in different gender role types of women with signs of exercise addiction were performed. The systematization, interpretation and generalization of the obtained results were carried out.

To establish the presence and severity of clinical manifestations of the exercise addiction, such technique to detect sports (exercise) disorders for non-SPORT-UDIT professionals as "Test to detect disorders related to exercise (fitness) SPORT-UDIT (version "self-report") for non-professionals" No. 71312 from 30.12.2016 (Markova and Savina 2017) was used. In addition, in order to study the patterns of the defense mechanisms and personal maturity manifestation in gender-role types of women with signs of exercise addiction, we used the following psychodiagnostic methods:

1. The Life Style Index (LSI; Plutchik, Kellerman, Conte). The LSI allowed us to diagnose the system of psychological defense mechanisms, identifying both the leading and the basic mechanisms and assessing the degree of their tension. The respondents have to answer "yes" or "no" to the 92 proposed statements. The method explores nine defense mechanisms such as displacement, regression, substitution, negation, projection, compensation, overcompensation, rationalization, and general tension of protection. The authors of the methodology claim that general tension of protection, exceeding the 50% limit, reflects the actual existence of unresolved personality's external and internal conflicts.
2. The structural gender-role scale (Kocharyan *et al.* 2009) was applied to diagnose the model and the type of the structural organization of an individual's gender sphere. This technique has a set of interdependent masculine and feminine qualities. The subjects are offered 50 statements that are psychological adjectives. They should mark them from 1 to 5 depending on the extent the adjective characterizes their personalities. The method examines 4 sex-role types (masculine, feminine, androgynous, undifferentiated) and 3 gender-role models (androgynous, continuum-adjunctive and continuum-alternative). However, this study aimed to investigate 4 sex-role types.
3. The "Auto analytical questionnaire of a healthy personality" (V.O. Ananiev) was used to diagnose personal maturity. The respondents are offered a set of 40 statements to which they should answer "yes" or "no". The author ranks the total amount of points obtained in several steps: from 40 to 70 points means a low level of personal maturity, which may be manifested in various infantile forms of behavior and self-doubt; from 70 to 100 points is average maturity, characterized by gradual personal

growth; and from 100 to 120 points indicates a mature personality.

In addition, mathematical processing was performed using the following methods of mathematical statistics (SPSS Statistics 21):

- methods of verifying the differences of unrelated samples (Student's *t*-test),
- the method of multidimensional statistics – correlation analysis (Kendall's τ coefficient),
- factor analysis was used to factorize the data main components (Varimax rotation).

Results

As the research results show, various data on the degree of mutual influence of defense mechanisms and sex-role features of women with signs of exercise addiction were obtained. The generalized correlation diagram is presented in Figure 1. Accordingly, the regression mechanism correlates with substitution, projection and hypercompensation, which indicates the individual's immaturity. This trend is also confirmed by the inverse correlation of the

mechanism of regression and maturity. Thus, it is possible to assume that there is a tendency to avoid anxiety by moving to earlier stages of libido. These defense mechanisms are classified as "infantile" mechanisms of psychological protection (Table 1).

The mechanism of hypercompensation correlates with regression, substitution, and projection. They belong to the "infantile" defenses, which is also confirmed by the fact that it has an inverse correlation with maturity. The hypercompensation is a consequence of the general immaturity of psychological protection mechanisms. It can be considered one of the forms of protection against an inferiority complex. These mechanisms are classified as "infantile" psychological defense mechanisms (Table 1). Above-mentioned characteristics are present in an immature person. This study found most correlations between "infantile" defense mechanisms. A link between regression, substitution, negation, and hypercompensation was observed. These mechanisms are classified as "infantile" defenses. At the same time, compensation, ra-

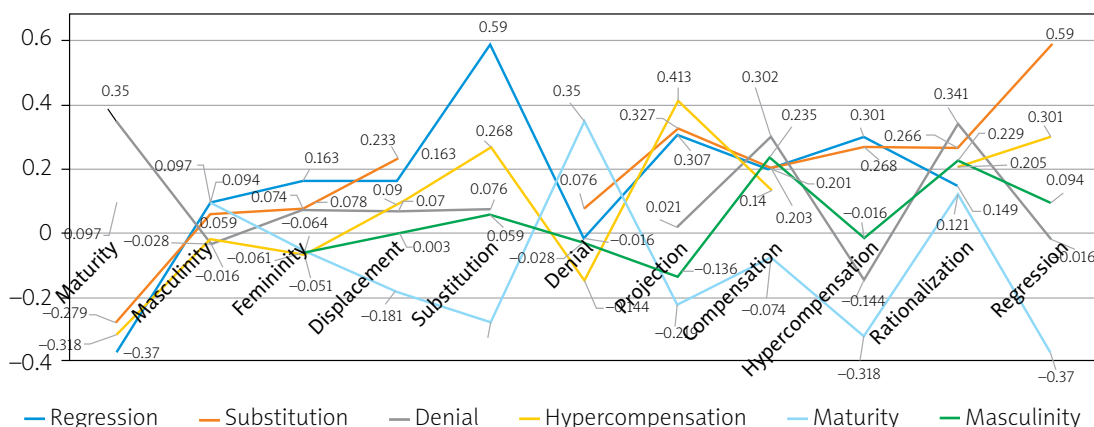


Fig. 1. The interdependence of defense mechanisms and sex-role features in women with signs of exercise addiction

Table 1. Factor structure of psychological defense mechanisms of women with signs of exercise addiction

Mechanism	Factors	
	"Infantile" defense mechanisms	"Masculine" defense mechanisms
Regression	0.838*	0.149
Substitution	0.783*	0.225
Projection	0.700*	0.088
Hypercompensation	0.681*	-0.031
Maturity	-0.738*	0.376
Denial	-0.165	0.750*
Compensation	0.297	0.707*
Rationalization	0.156	0.744*
Masculinity	-0.059	0.400*

The table includes variables that carry a significant factor load.

tionalization, and denial are considered to be “masculine” defenses.

This research permitted us to characterize the relationship between masculinity and compensation as the fact that individuals with high masculinity tend to use mainly the mechanism of compensation. Thus, compensation was attributed to the masculine mechanisms of psychological protection (Table 1). It should be noted that compensation correlates with denial and rationalization. Thus, masculine individuals can take on the properties, virtues, values, and behavioral characteristics of another person. This often happens when it is necessary to avoid conflict with this person and increase feelings of self-sufficiency. It is possible that the masculine type may have partially underestimated self-esteem or an excessive desire to be recognized as socially important persons by other people.

Apart from that the analysis found a discrepancy between McWilliam’s (2011) understanding of the primary and secondary defense mechanisms and the data obtained from the research. These views differed in the understanding of negation. Thus, in this study it is attributed to mature or “masculine” defense mechanisms, while in McWilliam’s study it belongs to the primary ones. There is also a difference between the understanding of regression and substitution. They are classified as secondary defense mechanisms, although in this study they form a group of primary “infantile” protections. However, to explain these results, further research is needed.

Based on the obtained results, it is possible to state that maturity is associated with the mechanism of denial. A mature person denies some frustrating and alarming circumstances or any inner impulse. The indicators of regression, substitution and hypercompensation are inversely related to maturity. This fact suggests that these psychological protection mechanisms are most often used by immature individuals, which is visualized in society in forms of infantile behavior. The next stage of the research was to conduct a factor analysis to classify the protection mechanisms, categorize masculinity and femininity into groups, and identify mature and infantile groups of protection. Accordingly, all protective mechanisms were divided into 2 groups – “Infantile” defense mechanisms and “Masculine” defense mechanisms – which are directly related to maturity. The analysis results are shown in Table 1.

The first factor of “infantile” defense (33.49% of the total variance) included a positive value of regression, substitution, projection and hyper-

compensation. The maturity entered the table of infantile defenses with a negative value. Thus, it is possible to assert that the use of these women’s protective mechanisms indicates personal immaturity. The second factor of “masculine” defense (16.98% of the total variance) included denial, compensation, rationalization, as well as masculinity and maturity. Thus, masculinity has the characteristics of a mature personality. This can be explained by the fact that perhaps a person with high masculinity needs to confirm for himself the whole level of self-esteem, self-sufficiency, preservation of social prestige and social acceptance. That is, for masculine individuals it is important to be recognized by the society.

The described protective mechanisms are related to masculinity, which indicates the significant role of this gender-role formation in functioning of the protective personality structures. The present research found that these protective mechanisms are associated with personal maturity of girls. The obtained results of the factor analysis once again confirm the conclusions concerning the assignment of protective mechanisms to the “infantile” and “masculine” groups. Thus, maturity is associated with the mechanism of denial. That is, in the majority of cases, mature individuals try to avoid stressful situations by denying them and recognizing them as impossible. It should also be noted that the less mature a person is, the more he or she resorts to regression, substitution, projection and hypercompensation in order to overcome anxiety.

The procedure of assigning coefficients of value to the subjects by factors was carried out, after which the groups of these coefficients were compared according to Student’s *t*-test. As a result of comparison by first factor “infantile” defense mechanisms no significant differences were found between the groups. The results of the comparison by second factor “masculine” defense mechanisms are presented in Table 2.

The most pronounced masculine defense mechanisms are in the androgynous type of group 1 because the androgynous type is a combination of high values of masculinity and femininity. It indicates that it is women with androgynous type who have chosen masculine mature defenses. The results of the correlation and factor analysis suggest that individuals with high rates of masculinity and femininity, i.e., androgynes, use sufficiently mature masculine defense mechanisms (Table 1). Likewise, in the analysis of androgynous and feminine types, the compensation mechanism is higher in the an-

Table 2. Comparison of the studied groups by factor "masculine" defense mechanisms

Studied group	Group 1. Androgynous type	Group 2. Masculine type	Group 3. Feminine type	Group 4. Undifferentiated type
Group 1. Androgynous type	–	2.34*	3.18**	3.58**
Group 2. Masculine type	2.34*	–	0.95	1.13
Group 3. Feminine type	3.18**	0.95	–	0.16
Group 4. Undifferentiated type	3.58**	1.13	0.16	–

* $p < 0.05$, ** $p < 0.01$

androgynous type. It indicates a stable and a high ability of androgynous individuals to use this defense mechanism and possibly choose compensation as a fundamental protection mechanism against traumatic situations. That is, this points to the ability of androgynes to compensate for their shortcomings and problems by transferring the traits of other people. Individuals with more pronounced masculinity tend to attribute their thoughts and behaviors to others, thereby removing from themselves and transferring to others their unacceptable thoughts or behavior.

Discussion

The aim of the research was to study the features of psychological defense mechanisms and personal maturity mechanisms depending on gender types of women with signs of exercise addiction. The dependence on physical activity is a growing problem for experts in various fields and a concern for scientists because it has serious consequences for the individual's psyche. Understanding the aspects related to the behavior of physical activity is quite relevant for the mental health and psychological well-being of the individual in society (Dumitru and Dumitru 2018). Moreover, excessive physical activities can become an addiction known as one of the mental illnesses. The combination of physical activity and healthy eating habits has the potential to have a positive effect on health. However, both practices can also lead to pathological behavior, such as exercise addiction (EA) and nervous orthorexia (ON), thus creating negative consequences. Currently, there are very few studies that analyze the relationship between these two phenomena. Therefore, this research aims to fill this gap.

Personal maturity is considered a mechanism of psychological protection depending on the gender role types of women. The results of this study showed that regression, substitution and hypercompensation are inversely related to maturity, which suggests that these mechanisms of

psychological protection are most often used by immature individuals. This is visualized in society in the form of infantile behavior. A study conducted at the Department of Psychology (Brazil) came to the conclusion that the pathology of individuals and their tendency to addiction are characteristic of people who use less mature defense mechanisms (Carvalho *et al.* 2018).

The present research identified most correlations between "infantile" defense mechanisms. A link between regression, substitution, negation, and hypercompensation was identified. These mechanisms are classified as "infantile" protections, while compensation, rationalization, and denial are considered to be "masculine" defenses. At the same time, McWilliams (2011) refers regression to secondary defense mechanisms. In contrast, in this study the regression mechanism is placed in the first group of "infantile" defenses. She also classifies the mechanism of displacement in secondary defense mechanisms. However, in the present research, displacement is not attributed to any of the groups according to the results of the analysis.

Moreover, the analysis demonstrates that the mechanism of denial correlates with maturity. There is also a direct link with compensation and rationalization. It can be argued that these mechanisms are quite mature and used by a mature person, which is confirmed by the fact that such a person is not looking for direct ways to escape from the traumatic reality, i.e., does not detach from reality. On the contrary, he or she tries to keep in touch with reality, is included in it, although distorting the reality to preserve their self-esteem. These mechanisms were classified as "masculine" defense mechanisms.

This analysis and attribution of the objection to the "masculine" mature defenses did not agree with the views of McWilliams (2011) because she argues that this defense mechanism is one of the primary ones. There are also studies that show that those who tend to use immature defense mechanisms are also most likely to have

pathological personality traits and, therefore, may be prone to addiction (Carvalho *et al.* 2018). It should also be noted that in the analysis of androgynous and feminine types, the compensation mechanism is higher in the androgynous type, which indicates a stable and high ability of androgynous individuals to use this protection mechanism and, perhaps, the choice of compensation as a fundamental protection mechanism against traumatic situations.

It is worth mentioning that a detailed analysis of research on sports addiction was conducted in 2018 (Nogueira *et al.* 2018). It confirmed that excessive exercise can contribute to addiction and health problems. Most studies have reported no age or gender differences in exercise among those who do endurance sports. However, obsessive passion and devotion to sports can be a harbinger of exercise dependence. This study results provide some evidence that such a problem exists and the impact of masculinity in women with signs of fitness addiction on their psychological maturity is quite relevant today. Although there are numerous studies that analyze the dependence on physical activity (Mónok *et al.* 2018; Brunet *et al.* 2021; Dumitru and Dumitru 2018), only a few of them investigate possible gender differences inherent in this process.

Conclusions and recommendations

Nowadays, the psychology of sex is developing rapidly. Bem's classification of sex-role types into masculine, feminine, androgynous, and undifferentiated is widespread. There are different data on the maturity and the adaptation of different types but this aspect has not yet been fully explored. The protective mechanisms allow the modern individual to adapt to living conditions. However, there are many views on the nature and the functions of defense mechanisms. As for the maturity, most scholars agree that personal maturity does not depend on the individual's age. This allows one to dwell upon the question of protective mechanisms from the point of view of whether a mature person always uses only the secondary protection mechanisms and whether it is possible to use primary mechanisms.

The "infantile" protections include regression, projection substitution, and hypercompensation. In "infantile" defenses, there is feedback on maturity, which allows them to be attributed to immature defense mechanisms. At the same time, "masculine" defense mechanisms include denial, compensation, and rationalization related

to each other and to personal maturity, which permits them to be characterized as mature defense mechanisms. The mature defense mechanisms are associated with masculine sex-role formations, which indicates the influence of masculinity in women with signs of fitness addiction on the psychological maturity formation. The androgynous type, unlike undifferentiated and feminine ones, uses compensation more often. Besides, this type resort to rationalization more frequently than undifferentiated one. Furthermore, the masculine type, compared to the feminine one, tends to use the projection mechanism. Apart from that, "masculine" mechanisms of psychological protection, which are associated with personal maturity, are most mature in women with signs of androgynous fitness addiction. This fact reveals the adaptability of androgynous sex formation to modern life. However, sex-role types did not differ in the factor of "infantile" defenses.

The practical significance of these research results is to create an empirical basis for further development of a system of psychological support and correction of women with signs of exercise addiction. These group of women will be considered the identified psychological targets of influence. Thus, the identified patterns should be taken into account when developing specific measures of psychotherapy and psychoprophylaxis for this contingent, which constitutes a future study objective.

Disclosure

The authors declare no conflict of interest.

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