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## **THE ESTRANGEMENT OF ADOLESCENTS AND PARENTAL INVOLVEMENT AS A MODERATOR OF THE RELATIONSHIP BETWEEN STRESS AND SELF-HARMING BEHAVIOR**

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*Relevance of the problem.* In recent years, the problem of self-harm among minors has become more and more worrying in Ukrainian society. An analysis of the literature has shown that there are currently insufficient data on the moderating role of alienation and parental involvement in the relationship between stress and adolescent self-harming behavior.

*Research sample and Methodology.* To study the effect of moderation on the part of alienation of senior students and parental involvement on the impact of stress on self-harming behavior.

The total sample of the study was 589 people, which included adolescents aged 14-18 years. The study was conducted in secondary schools in Odessa. The following methods were used: a scale of actions on self-harming (Gratz) (psychometrically justified for our study) and a scale of parental involvement (psychometrically justified for our study). Our study also examined the objective and subjective feelings of stress and the objective and subjective feelings of adolescent loneliness. Mathematical and statistical methods: correlation nonparametric analysis (Kendall's  $\tau_b$  criterion), moderation analysis, calculation of internal consistency by Cronbach's  $\alpha$  criterion, regression analysis.

*Results.* During the study, a psychometric adaptation of the scale of self-harming behavior was performed, which had a sufficient level of internal consistency. There is a direct relationship between the objective ( $\beta = 0.273$ ;  $p < 0.001$ ) and subjective feelings of stress ( $\beta = 0.249$ ;  $p < 0.001$ ) with the self-harming behavior of adolescents. It was found that parental involvement had a protective effect on the influence of subjective stress on self-harm behavior ( $\beta = 0.322$ ;  $p < 0.05$ ). The moderating effect of subjective feelings of loneliness on the relationship between subjective

stress ( $\beta = 0.351$ ;  $p < 0.05$ ) and objective stress ( $\beta = 0.435$ ;  $p < 0.01$ ) with self-harming behavior is proved.

**Keywords:** adolescents, stress, alienation, parental involvement, self-harming behavior.

### **Відчуженість підлітків та батьківська залученість як модератори взаємовідношень між стресом та поведінкою самоушкодження**

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Актуальність проблеми. В останні роки в українському суспільстві все частіше викликає занепокоєння проблема самоушкоджень серед неповнолітніх. Аналіз літератури показав, що на даний момент недостатньо даних стосовно модеруючої ролі відчуженості та батьківської залученості во взаємостосунках між стресом та поведінкою самоушкодження підлітків.

Мета. Вивчення ефекту модурації з боку відчуженості старших школярів та батьківської залученості на вплив стресу на поведінку самоушкодження.

Методи. Загальна вибірка дослідження становила 589 осіб, до якої увійшли підлітки 14-18 років. Дослідження проводилося в середніх навчальних закладах міста Одеси. Було використано наступні методики: шкалу дій із самоушкодження (К.Л. Гратц) (психометрично обґрунтовану для нашого дослідження) та шкалу батьківської залученості (психометрично обґрунтовану для нашого дослідження). Також в нашому дослідженні було проаналізовано питання стосовно об'єктивного та суб'єктивного відчуття стресу та об'єктивного і суб'єктивного відчуття самотності підлітків. Математико-статистичні методи: кореляційний непараметричний аналіз (критерій  $\tau_b$  Кендалла), аналіз модурації, розрахунок внутрішньої узгодженості за критерієм  $\alpha$  Кронбаха, регресійний аналіз.

Результати дослідження. У ході дослідження проведено психометричну адаптацію шкали поведінки самоушкодження, яка мала достатній рівень внутрішньої узгодженості. Встановлено прямо пропорційний зв'язок між об'єктивним ( $\beta = 0,273$ ;  $p < 0,001$ ) та суб'єктивним відчуттям стресу ( $\beta = 0,249$ ;  $p < 0,001$ ) з поведінкою самоушкодження підлітків. Виявлено, що батьківська залученість

надавала протективну дію на вплив суб'єктивного стресу на поведінку самоушкодження ( $\beta = 0,322$ ;  $p < 0,05$ ). Доведено модеруючий ефект суб'єктивного відчуття самотності на взаємовідносини між суб'єктивним стресом ( $\beta = 0,351$ ;  $p < 0,05$ ) та об'єктивним стресом ( $\beta = 0,435$ ;  $p < 0,01$ ) з поведінкою самоушкодження.

**Ключові слова:** підлітки, стрес, відчуженість, батьківська залученість, поведінка самоушкодження.

**Introduction.** In adolescence, a global restructuring of the body, puberty, occurs biologically, therefore this period is also called the puberty period of development. After the period of birth and infancy, puberty is the third period of childhood, when the body faces a new large physiological leap in quantitative and qualitative growth and a sharp restructuring of most organs and systems. In this puberty restructuring, which is expressed in the transformation of the child's body into a mature one, the leading place is occupied by changes in the reproductive and endocrine systems. The processes of puberty associated with a holistic restructuring of the child's body, most of its organs and systems, and in particular the nervous system and psyche. At the same time, the emotional background of the child is characterized by instability (Adolescent Medicine, 2006; Guidelines. Provision of medical and social services to children and youth based on a friendly approach, 2008).

One of the reasons for negative emotional experiences among adolescents is a violation of parent-child relationships. After analyzing individual scientific studies, it can be argued that in most cases, adolescents do not receive mutual understanding from their parents. Parents very often impose their thoughts and behaviors. Dominant negative experiences at psycho-emotional level lead the adolescent to persistent negative manifestations of the emotional sphere and, as a result, to chronic stress (Balakireva, Bondar, Artyukh, 2011).

In the study of A. Dmitrenko (2012), devoted to the study of the phenomenon of loneliness, you can see that there is a correlation between experiencing loneliness and a low level of emotional stability. It is explained by the fact that a tendency to sensuality, quick fatigability, low resistance to stress, a quick change of

interests, high fatigue, irritability, cause a person to experience such a psychological state as loneliness. It is also possible that emotional stability plays a large role in the life of schoolchildren, and emotional instability conditions the experience and the emergence of a state of loneliness. Since the level of emotional stability is associated with the type of human nervous system, the type of nervous system significantly affects the level of loneliness.

The main reason for interpersonal conflicts involving adolescents is the contradiction between the attitude of an adult to a child as a child and the adolescent's ideas about the degree of his or her own adulthood. A child's protest arises in the form of disobedience, rudeness, stubbornness, aggressiveness. These manifestations were also present in previous age-related crises. However, in adolescence they have a particularly bright, deep character, as the adolescent's opportunities in activity and behavior expand. With an inadequate response of adults to a conflict with a teenager, he or she becomes estranged, uncontrolled, uncontrollable, refuses to communicate (Ergakova 2013). G. Zilboorg saw the source of loneliness in childhood. On the one hand, the child receives love, learns what joy and pleasure are, but on the other hand, he or she is an unprotected weak being who is forced to wait for its needs to be satisfied from others. These factors are the cause of the individual's orientation toward alienation, hostility, and loneliness in its future life (Mironets, 2012).

In recent years, the problem of self-harm among minors has been causing increasing concern in Ukrainian society (Fialka, Zakomorny, 2017). The pathological course of the age crisis of the adolescent period leads to a crisis state that is characterized by intense negative emotions and can contribute to the behavior of self-harm (Fedoseeva, 2016).

The problem of self-harm behavior is one of the most relevant in the field of mental health in adolescence. In a number of countries, it is one of the leading causes of hospitalization. It is believed that the average rate of behavior of self-harm is 10% -13%. Moreover, among European adolescents, girls on average are three times more likely to talk about cases of self-harm than boys (O'Connor,

Rasmussen, Hawton, 2014). At the same time, a meta-analysis by a group of scientists from the University of Queensland Australia showed that the prevalence of non-suicidal self-harm among adolescents is 17.2%, and this study was conducted among adolescents without mental illness (Swannell, 2014). Unfortunately, along with a large number of works devoted to the problem of suicide, special domestic literature practically does not pay attention to the problem of non-suicidal auto-aggressive behavior, and the brief information that exists is dissolved in information about the phenomenon of suicide and related behavioral phenomena (Bondarchuk, 2014).

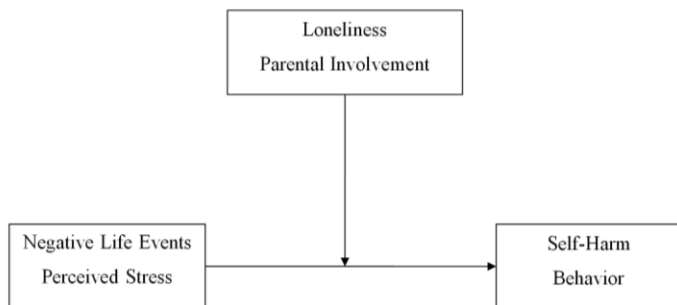
Recently, in the study of psychological phenomena that our publication is devoted to, more attention is paid to moderation models. Thus, L. Elledge et al. (2019) studied the relationship between victimization by bullying and internalization of stress, suicidal behavior and drug use among adolescents in Jamaica: Moderating effect of parental involvement. N. Dowling et al. (2017) investigated the intergenerational imitation of gambling addiction and established the moderating role of parental behavior. We have already studied the previously moderating effect of parental involvement in the relationship between negative life events and the psychological well-being of adolescents (Ukhanova, 2015).

The **aim** of the study was to study the moderating effect of alienation of adolescents and parental involvement on the impact of objective and subjective stress on the behavior of self-harm among senior school students.

**Research methods.** The total sample of the study was 589 people. The study was conducted in secondary schools in the city of Odessa (a total of 10 secondary schools). The average age of the respondents was 14.866 years ( $SD = 1.107$  years). Educational institutions of various types were encompassed: comprehensive schools (secondary schools), a gymnasium, a lyceum, a college and a boarding school. The following methods were used: the scale of actions for self-harm (K. Gratz) (psychometrically justified for our study) and the scale of parental involvement (psychometrically justified for our study) (Ukhanova, 2018). Also in our study,

questions were analyzed regarding the objective and subjective feelings of stress and objective and subjective feelings of loneliness among adolescents. The following mathematical and statistical methods were used: correlation nonparametric analysis (Kendall's  $\tau$  coefficient  $\tau_b$ ), moderation analysis, calculation of internal consistency according to the Cronbach's alpha, regression analysis.

**Results.** We hypothesized that objective and subjective stress can influence the behavior of self-harm among senior school students. In turn, the alienation of adolescents and parental involvement can change this influence, making it stronger or weaker (Fig. 1).



*Fig. 1. A model of the moderating effect of parental involvement and detachment on the effects of objective and subjective stress on adolescent self-harm behavior.*

Using mathematical terminology, we consider objective and subjective stress as predictors, self-harm behavior as a criterion variable and estrangement of adolescents, and parental involvement as moderators. When analyzing moderation effects, only statistically significant effects were described ( $p < 0.05$ ).

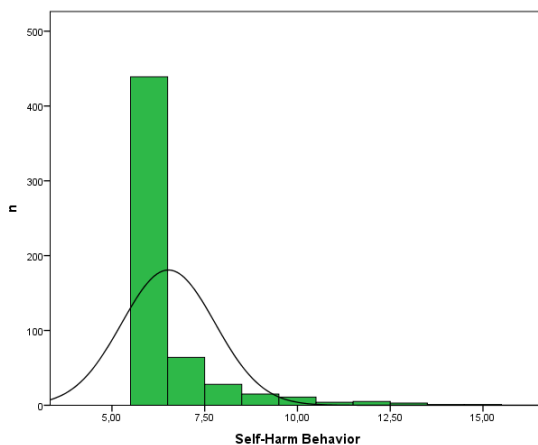
At the first stage of the study, using the Kendall rank correlation coefficient (Kendall, 1938), a statistically significant directly proportional relationship between the objective parameter and the subjective stress sensation parameter ( $\tau_b = 0.228$ ;  $p < 0.001$ ). For these purposes, we studied the attitude of adolescents to the statement “I feel stress”, as a parameter of the objective feeling of stress and assessment of total stress (the number of stressful life events over the past 6 months), as a parameter of subjective

stress. Objective stress means that a teenager did experience stressful events for six months. Subjective stress, in turn, is a teenager's sensation, which may or may not have a real basis.

Further, using a simple linear regression, the relationship between the objective and subjective feelings of stress and the behavior of self-harm of senior school students was analyzed. The self-harming behavior parameter included the following questions: "Have you ever intentionally cut your wrists, hands or other parts of your body, pushed sharp objects under your skin, such as needles, spikes, staples (not counting tattoos, piercings, needles used for drug injections) )? "; "I deliberately burned myself with a cigarette, lighter or match"; "I deliberately cut out words, pictures, patterns or something else on my skin, scratched myself to scars or to blood"; "Have you ever intentionally interfered with the healing of your wounds or delivered blows to the occurrence of wounds?"; "Have you ever intentionally hit your head or beat yourself to bruises?"; "Have you ever intentionally inflicted on yourself the above injuries that led to hospitalization or were sufficient to seek medical help?" Then, on the basis of questions, a psychometric scale was formed and its reliability was assessed for internal consistency using the Cronbach's alpha. For the scale of behavior of self-harm, Cronbach's alpha was sufficient and amounted to  $\alpha = 0.657$ . The following descriptive statistics were typical for this scale: average value - 6.520 points, standard deviation - 1.259 points, median - 6,000 points, asymmetry - 3.307, excess - 12.516 (Fig. 2).

So on the histogram of the distribution of the values of the scale of behavior of self-harm, we see both expressive asymmetry and excess.

Using the regression criterion, we established a directly proportional relationship between the objective feelings of stress and the behavior of self-harm of adolescents ( $\beta = 0.273$ ;  $p < 0.001$ ).



*Fig 2. A histogram of the distribution of the values of the scale of behavior of self-harm.*

We also found a directly proportional statistically significant correlation between the subjective feeling of stress and the behavior of self-harm ( $\beta = 0.249$ ;  $p < 0.001$ ). Next, we analyzed the moderating effect of parental involvement on the effects of objective and subjective stress on the behavior of self-harm among adolescents. The parental involvement scale was already psychometrically justified by us earlier (Ukhanova, 2018). The moderating effect of parental involvement of the influence of subjective stress on the behavior of self-harm ( $\beta = 0.322$ ;  $p < 0.05$ ) was established (Fig. 3).



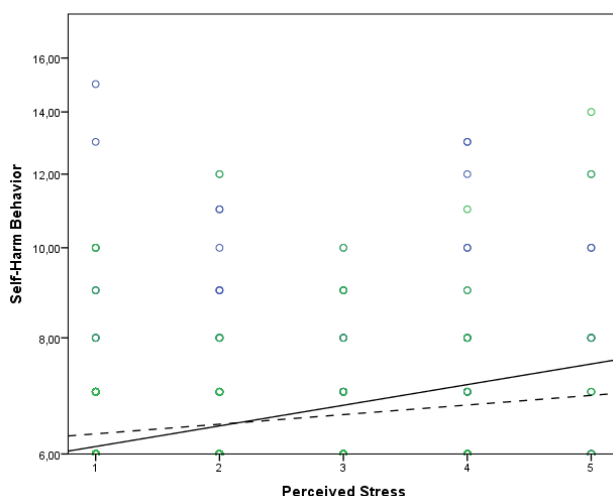


Fig. 3. Moderating effect of parental involvement in the correlation between subjective stress and adolescent self-harm behavior.

Note 1: On the subjective stress scale: 1 never, 2 rarely, 3 - sometimes, 4 - often, 5-always.

Note 2: solid line - high level of parental involvement; intermittent - low level of parental involvement.

Using mathematical terminology, we consider objective and subjective stress as predictors, self-harm behavior as a criterion variable and estrangement of adolescents, and parental involvement as moderators. When analyzing moderation effects, only statistically significant effects were described ( $p < 0.05$ ).

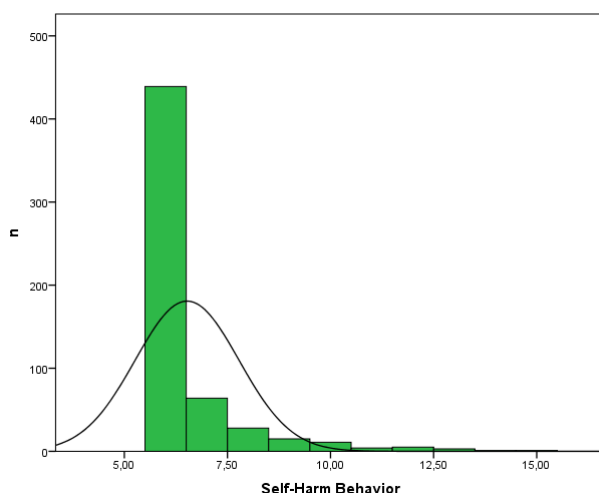
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teenager indeed faced stressful events for six months. Subjective stress, in turn, is a teenager's sensation, which may or may not have a real basis.

Further, using a simple linear regression, the correlation between the objective and subjective feelings of stress and the behavior of self-harm of senior school students was analyzed. The self-harming behavior parameter included the following questions: "Have you ever intentionally cut your wrists, hands or other parts of your body, pushed sharp objects under your skin, such as needles, spikes, staples (not counting tattoos, piercings, needles used for drug injections) )? "; "I deliberately burned myself with a cigarette, lighter or match"; "I deliberately cut out words, pictures, patterns or something else on my skin, scratched myself to scars or to blood"; "Have you ever intentionally interfered with the healing of your wounds or delivered blows to the occurrence of wounds?"; "Have you ever intentionally hit your head or beat yourself to bruises?"; "Have you ever intentionally inflicted on yourself the above injuries that led to hospitalization or were sufficient to seek medical help?" Then, on the basis of questions, a psychometric scale was formed and its reliability was assessed for internal consistency using the Cronbach's alpha. For the scale of behavior of self-harm, Cronbach's alpha was sufficient and amounted to  $\alpha = 0.657$ . The following descriptive statistics were typical for this scale: average value - 6.520 points, standard deviation - 1.259 points, median - 6,000 points, asymmetry - 3.307, excess - 12.516 (Fig. 2).

So, we see both expressive asymmetry and excess on the histogram of the distribution of the values of the scale of behavior of self-harm.

Using the regression criterion, we established a directly proportional correlation between the objective perception of stress and the behavior of self-harm among adolescents ( $\beta = 0.273$ ;  $p < 0.001$ ). We also found a directly proportional statistically significant correlation between the subjective perception of stress and the behavior of self-harm ( $\beta = 0.249$ ;  $p < 0.001$ ).

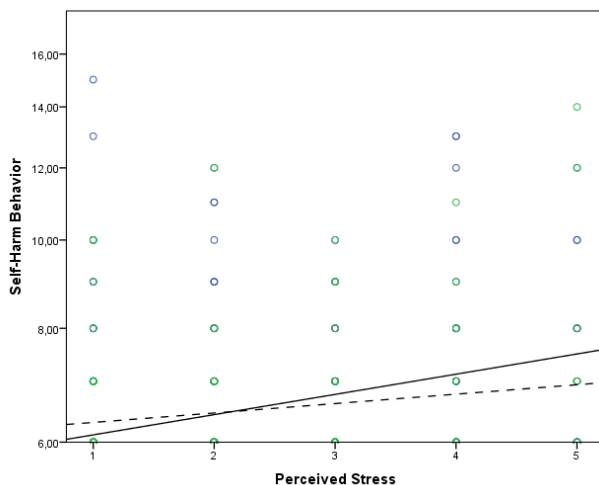


*Fig. 2. A histogram of the distribution of the values of self-harm scale of behavior.*

Next, we analyzed the moderating effect of parental involvement on the effects of objective and subjective stress on the behavior of self-harm among adolescents. The parental involvement scale was already psychometrically justified by us earlier (Ukhanova, 2018). The moderating effect of parental involvement of the influence of subjective stress on the behavior of self-harm ( $\beta = 0.322$ ;  $p < 0.05$ ) was established (Fig. 3).

We have analyzed the moderating effect of estrangement on the impact of objective and subjective stress on the behavior of self-harm among adolescents. As an estrangement, we considered the parameters of objective loneliness and subjective loneliness of adolescents. The statement "Usually I am alone. I'm mostly left to my own devices" we attributed to the parameter of objective loneliness. The statement "The feeling of loneliness in the last 12 months" we attributed to the parameter of subjective loneliness. Under objective loneliness we mean that a teenager is really in a certain isolation from his or her intrafamily and extra-familial

surroundings. In turn, subjective loneliness is a teenager's perception, which may or may not have any real basis.



*Fig. 3. Moderating effect of parental involvement on the correlation between subjective stress and adolescents self-harm behavior.*

*Note 1: On the subjective stress scale: 1 never, 2 rarely, 3 - sometimes, 4 - often, 5-always.*

*Note 2: solid line - high level of parental involvement; intermittent - low level of parental involvement.*

The moderating effect of subjective loneliness on the correlation between objective stress and self-harm behavior has been established ( $\beta = 0.435$ ;  $p < 0.01$ ) (Fig. 4).

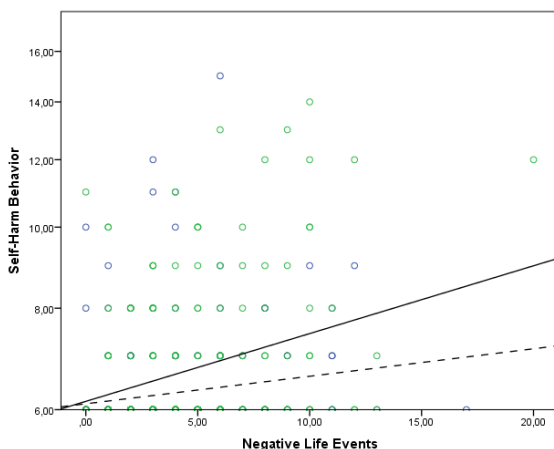


Fig. 4. Moderating effect of the subjective perception of loneliness on the correlation between objective stress and adolescents self-harm behavior.

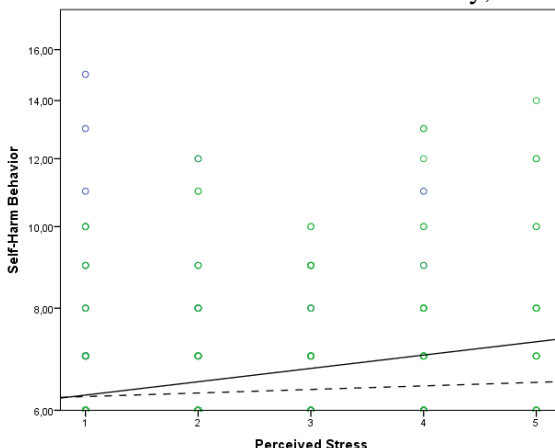
Note 1: On the subjective stress scale: 1 never, 2 rarely, 3 - sometimes, 4 - often, 5-always.

Note 2: solid line - high level of parental involvement; intermittent - low level of parental involvement.

Also moderating effect of the subjective perception of loneliness on the correlation between subjective stress and self-harm behavior ( $\beta = 0.351$ ;  $p < 0.05$ ) was discovered (Fig. 5).

**Discussion.** Thus, we established a directly proportional correlation between the objective perception of stress and the behavior of self-harm among adolescents. We also revealed a directly proportional statistically significant correlation between the subjective perception of stress and the behavior of self-harm. So adolescents who experienced stress, as a coping strategy, turned to auto-aggressive actions, that is, to the behavior of self-harm. In our opinion, this can be explained by the lack of reflection and introspection among adolescents and instead by a direct response. P. Stallard and colleagues (2013) in their study among risk factors of self-harm behavior among adolescents also highlighted stress factors,

as well as perfectionism, low self-esteem, impulsivity, difficulties with verbal expression of emotions (alexithymia), homosexual orientation, problems with the law, violence committed against him or her, bullying, self-harm behavior among family members and friends, the burden of mental disorders in the family, social isolation.



*Fig. 5. Moderating effect of the subjective perception of loneliness on the correlation between objective stress and adolescents self-harm behavior.*

*Note 1: On the subjective stress scale: 1 never, 2 rarely, 3 - sometimes, 4 - often, 5-always.*

*Note 2: solid line - high level of parental involvement; intermittent - low level of parental involvement.*

As a result of the analysis of the moderating effect of parental involvement on the correlation between subjective stress and the behavior of self-harm among adolescents, we found that in families with a high degree of parental involvement, children felt subjective stress, less often showed self-harm behavior. If parental involvement was low, the severity of self-harm behavior increased among children which demonstrated subjective stress. In the study dedicated to the characteristics of relationships with parents of adolescents

practicing self-harm A. Makarenko, N. Kalaitan and T. Starovoit (2019) also demonstrated the correlation between teenage-parent relationships and auto-aggressive behavior. Among adolescents practicing self-harm, they found a violation of emotional regulation, which is a consequence of violations in the emotional regulation of their parents, as well as specific interactions of parents with a child, reduced to ignoring the child and pseudo-cooperation. It was also determined that parents of these children practice such educational measures in relation to the teenager as punishment, shame, giving the teenager feelings that he does not experience. ignoring the interests and hobbies of children. Parents of adolescents practicing self-harm were also characterized by insufficiently effective control of emotions and motives, the prevalence of primitive needs and drives, a high level of anxiety and conflict.

Further, we established the moderating effect of the subjective perception of loneliness on the correlation between objective stress and the behavior of self-harm. This means that adolescents with a low level of subjective perception of loneliness who felt objective stress were less likely to exhibit self-harm behavior. If adolescents felt subjective loneliness and experienced objective stress, the severity of self-harm behavior increased. P. Moran et al. (2012) in their study also found that the behavior of self-harm among children and adolescents under 14 years old was associated with negative cognitive style, symptoms of depression and lack of social support.

As a result of the analysis of the influence of the subjective perception of loneliness on the correlation between subjective stress and the behavior of self-harm among adolescents, it was found that in the case of an increased level of subjective perception of loneliness among adolescents, the behavior of self-harm turned out to be subjective stress more often. Respondents with a low level of subjective perception of loneliness who felt subjective stress were less likely to turn to self-harm behavior. We can see similar data in the study of A. Rakhimkulova (2016). A tendency to self-harm indicates an acute reaction to stressful events among adolescents and high levels subjectively perceive stress ( $\chi^2 = 12.644$ ,  $p = 0.002$ ). Among other things, acute perception of stressful events correlates

with negative feelings such as loneliness ( $P = 0.45$ ), irritability ( $P = 0.42$ ), sadness ( $P = 0.40$ ).

Thus, the use of moderation models made it possible to establish that parental involvement may have the protective effect of subjective stress on adolescents self-harm behavior. At the same time, the subjective perception of loneliness among adolescents under stress can contribute to the behavior of self-harm.

**Conclusions.** Thus, we conducted a research aimed at studying the effect of moderation of estrangement of senior school students and parental involvement on the impact of objective and subjective stress on the behavior of self-harm. In the course of the research, we carried out a psychometric adaptation of the scale of behavior of self-harm, which had a sufficient level of internal consistency. We have analyzed the correlation of respondents' answers to the question about the objective and subjective perception of stress, the objective and subjective perception of loneliness and self-harm behavior of adolescents. We found a directly proportional correlation between the objective ( $\beta = 0.273$ ;  $p < 0.001$ ) and the subjective perception of stress ( $\beta = 0.249$ ;  $p < 0.001$ ) with the behavior of self-harm of adolescents. The study revealed that parental involvement had a protective impact on the effect of subjective stress on the behavior of self-harm ( $\beta = 0.322$ ;  $p < 0.05$ ). Also the moderating effect of the subjective perception of loneliness on the correlation between subjective stress ( $\beta = 0.351$ ;  $p < 0.05$ ) and objective stress ( $\beta = 0.435$ ;  $p < 0.01$ ) with the behavior of self-harm was revealed. Consequently, the use of moderation models made it possible to establish that parental involvement can have a protective effect of the influence of subjective stress on the behavior of self-harm of adolescents. At the same time, the subjective perception of loneliness of adolescents under stress can contribute to the behavior of self-harm. The results of this study can be used in pedagogical and psychological practice to form healthy behavior among adolescents.

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