Received: 13 July 2025 / Accepted: 12 October 2025 / Published online: 30 October 2025

DOI 10.34689/SH.2025.27.5.018

UDC 616.89-008.441-053.6:159.9.072(574)

THE RESULTS OF PSYCHOMETRIC SCREENING TO STUDY THE PRESUICIDAL ATTITUDES OF YOUTH AND YOUNG ADULTS IN KAZAKHSTAN

Altynay T. Yeskaliyeva[1], https://orcid.org/0009-0008-6072-9115
Aigulim A. Abetova[1], https://orcid.org/0000-0002-4757-3477
Lazzat M. Zhamaliyeva[2], https://orcid.org/0000-0003-3625-3651
Nabi B. Yessimov[1], https://orcid.org/0000-0001-7827-5125
Rinat H. Muzafarov[1], https://orcid.org/0009-0003-0930-5935
Shaizat M. Tleubayeva[1], https://orcid.org/0000-0003-4141-4464
Dana A. Abetova[3], https://orcid.org/0009-0002-2654-6493
Nurgul A. Abenova[2], https://orcid.org/0000-0003-0395-9025
Shynargul S. Zhakieva[2], https://orcid.org/0000-0002-4183-6723
Sandugash K. Kudaibergenova[1,3], https://orcid.org/0000-0001-9297-8089
Ilshat G. Smolinov [1], http://orcid.org/0000-0002-0450-8691
Gaziz R. Sattarov[1], https://orcid.org/0000-0003-0541-9137
Yerlan B. Sultangereyev[2], https://orcid.org/0000-0002-0610-4906

[1] Republican Scientific and Practical Center of mental Health of the Ministry of Health of the Republic of Kazakhstan, Almaty, Republic of Kazakhstan;
[2] Marat Ospanov West Kazakhstan Medical University, Aktobe, Republic of Kazakhstan;
[3] Al-Farabi Kazakh National University, Almaty, Republic of Kazakhstan;

Abstract

Introduction: The relevance of the study is dictated by the need to develop a methodology for early recognition and study of suicide risk and its prevention. According to the World Health Organization (WHO), Kazakhstan is among the countries with the highest suicide rate in the world. The number of suicidal outcomes is not decreasing, bringing human grief to loved ones and putting a burden on the social and economic development of the country. It is believed that most of the suicides might not have happened if proper interventions had been taken.

The purpose of the study: To identify the underlying mechanisms of suicidal behavior and develop suicide prevention measures among young people in Kazakhstan (18-40 years old).

Methods. Clinical-psychopathological and clinical-dynamic methods; psychometric method - Depression, Anxiety, and Stress Scale and Paykel suicide risk questionnaire, as well as laboratory studies. The study included 100 patients with suicidal tendencies and 100 participants without mental pathology aged 18 to 40 years.

Results: The results obtained indicate that those at risk of suicide, that is, those who are depressed or anxious, as well as those who abuse psychoactive substances, deserve the most attention. In this group of examined individuals, the highest rates of psychometric research and laboratory markers of suicide were revealed.

Conclusions. The most significant is the conduct of screening studies using the DASS scale (Depression Anxiety Stress Scale) and the Paykel Questionnaire (Paykel Suicide Risk Questionnaire) in the future of the study, aimed at further work and offering simple ways to prevent suicide among the country's youth.

Keywords: *suicide, bio-psycho-social model, youth, depression, anxiety, stress, Depression Anxiety Stress Scale (DASS) and the Paykel Suicide Risk Questionnaire.*

For citation:

Yeskaliyeva A.T., Abetova A.A., Zhamaliyeva L.M., Yessimov N.B., Muzafarov R.H., Tleubayeva Sh.M., Abetova D.A., Abenova N.A., Zhakieva Sh.S., Kudaibergenova S.K., Smolinov I.G., Sattarov G.R., Sultangereyev Ye.B. The results of psychometric screening to study the presuicidal attitudes of youth and young adults in Kazakhstan // *Nauka i Zdravookhranenie* [Science & Healthcare]. 2025. Vol.27 (5), pp. 143-152. *doi 10.34689/SH.2025.27.5.018*

Резюме

РЕЗУЛЬТАТЫ БИОПСИХОМЕТРИЧЕСКОГО СКРИНИНГА ПО ИЗУЧЕНИЮ ПРЕСУИЦИДАЛЬНЫХ УСТАНОВОК ЮНОШЕСТВА И МОЛОДЫХ ВЗРОСЛЫХ В КАЗАХСТАНЕ

Алтынай Т. Ескалиева[1], https://orcid.org/0009-0008-6072-9115
Айгулим А. Абетова[1], https://orcid.org/0000-0002-4757-3477
Лаззат М. Жамалиева[2], https://orcid.org/0000-0003-3625-3651
Наби Б. Есимов[1], https://orcid.org/0000-0001-7827-5125
Ринат Х. Музафаров[1], https://orcid.org/0009-0003-0930-5935
Шайзат М. Тлеубаева[1], https://orcid.org/0000-0003-4141-4464
Дана А. Абетова[3], https://orcid.org/0009-0002-2654-6493
Нургуль А. Абенова[2], https://orcid.org/0000-0003-0395-9025
Шынаргул С. Жакиева[2], https://orcid.org/0000-0002-4183-6723
Сандугаш К. Кудайбергенова[1,3], https://orcid.org/0000-0001-9297-8089
Ильшат Г. Смолинов[1], http://orcid.org/0000-0002-0450-8691
Газиз Р. Саттаров[1], https://orcid.org/0000-0003-0541-9137
Ерлан Б. Султангереев[2], https://orcid.org/0000-0002-0610-4906

[1] РГП на ПХВ "Республиканский научно-практический центр психического здоровья" МЗ РК, г. Алматы, Республика Казахстан;
[2] НАО "Западно-Казахстанский медицинский университет имени Марата Оспанова" г. Актобе, Республика Казахстан;
[3] НАО «Казахский национальный университет имени Аль-Фараби», г. Алматы, Республика Казахстан;

Введение: Актуальность исследования диктуется необходимостью разработки методики раннего распознавания и изучения риска суицида и ее превенции. Согласно информации Всемирной организации здравоохранения (ВОЗ) Казахстан входит в число стран с самым высоким уровнем суицидов в мире. Количество суицидальных исходов не снижается, принося человеческое горе близким и накладывая бремя на социально-экономическое развитие страны. Считается, что большая часть самоубийств могла бы и не произойти, если бы были предприняты надлежащие вмешательства.

Цель исследования: Выявление глубинных механизмов суицидального поведения и выработка мер профилактики суицида среди молодежи Казахстана (18–40 лет).

Методы. Клинико-психопатологический и клинико-динамический методы; психометрический метод - Шкала депрессии, тревоги и стресса (Depression, Anxiety, and Stress Scale-21, DASS-21) и опросник суицидального риска Paykel, а также лабораторные исследования. Материалом исследования явились 100 пациентов с суицидальными тенденциями и 100 участников - без психической патологии в возрасте от 18 до 40 лет.

Результаты: Полученные результаты свидетельствуют о том, что наибольшего внимания заслуживают лица с риском суицида, то есть находящееся в состоянии депрессии либо тревоги, а также лица, злоупотребляющие психоактивными веществами. В данной группе исследованных выявлены наивысшие показатели психометрического исследования и лабораторных маркеров суицида.

Выводы. Наиболее значимыми является проведение скрининговых исследований с использованием шкалы DASS (Depression Anxiety Stress Scale) и Опросника Пайкеля (Опросник суицидального риска Paykel) в перспективе исследования, направленная для дальнейшей работы и предлагаются несложные пути профилактики суицидов среди молодежи страны.

Ключевые слова: *суициды, био-психо-социальная модель, молодежь, депрессия, тревога, стресс, шкала DASS (Depression Anxiety Stress Scale) и Опросник суицидального риска Paykel).*

Для цитирования:

Ескалиева А.Т., Абетова А.А., Жамалиева Л.М., Есимов Н.Б., Музафаров Р.Х., Тлеубаева Ш.М., Абетова Д.А., Абенова Н.А., Жакиева Ш.С., Кудайбергенова С. К., Смолинов И.Г., Саттаров Г.Р., Султангереев Е.Б. Результаты биопсихометрического скрининга по изучению пресуицидальных установок юношества и молодых взрослых в Казахстане // Наука и Здравоохранение. 2025. Vol.27 (5), С.143-152. *doi 10.34689/SH.2025.27.5.018*

Түйіндеме

ҚАЗАҚСТАНДАҒЫ ЖАСӨСПІРІМДЕР МЕН ЖАС ЕРЕСЕКТЕРДІҢ ПРЕСУИЦИДТІК КӨЗҚАРАСТАРЫН ЗЕРДЕЛЕУ БОЙЫНША ПСИХОМЕТРИЯЛЫҚ СКРИНИНГТІҢ НӘТИЖЕЛЕРІ

Алтынай Т. Есқалиева[1], https://orcid.org/0009-0008-6072-9115
Айгулим А. Абетова[1], https://orcid.org/0000-0002-4757-3477
Лаззат М. Жамалиева[2], https://orcid.org/0000-0003-3625-3651
Наби Б. Есімов[1], https://orcid.org/0000-0001-7827-5125
Ринат Х. Музафаров[1], https://orcid.org/0009-0003-0930-5935
Шайзат М. Тілеубаева[1], https://orcid.org/0000-0003-4141-4464
Дана Ә. Абетова[3], https://orcid.org/0009-0002-2654-6493
Нұргүл А. Абенова[2], https://orcid.org/0000-0003-0395-9025
Шынаргул С. Жакиева[2], https://orcid.org/0000-0002-4183-6723
Сандуғаш Қ. Құдайбергенова[1-3], https://orcid.org/0000-0001-9297-8089
Ильшат Ғ. Смолинов[1], http://orcid.org/0000-0002-0450-8691
Ғазиз Р. Саттаров[1], https://orcid.org/0000-0003-0541-9137
Ерлан Б. Султангереев[2], https://orcid.org/0000-0002-0610-4906

[1] ҚР ДСМ "Республикалық психикалық денсаулық ғылыми-практикалық орталығы" ШЖҚ РМК, Алматы қ., Қазақстан Республикасы;
[2] "Марат Оспанов атындағы Батыс Қазақстан медицина университеті" КеАҚ, Ақтөбе қ., Қазақстан Республикасы;
[3] "Әл-Фараби атындағы Қазақ ұлттық университеті" КеАҚ, Алматы қ., Қазақстан Республикасы;

Кіріспе: Зерттеудің өзектілігі суицид пен оның алдын алу қаупін ерте тану және зерттеу әдістемесін әзірлеу қажеттілігінен туындайды. Дүниежүзілік денсаулық сақтау ұйымының (ДДҰ) ақпаратына сәйкес, Қазақстан әлемдегі суицид деңгейі ең жоғары елдердің қатарына кіреді. Өз-өзіне қол жұмсау нәтижелерінің саны азаймайды, бұл адамның қайғысын жақындарына әкеледі және елдің әлеуметтік-экономикалық дамуына ауыртпалық түсіреді. Егер тиісті араласулар жасалса, суицидтің көп бөлігі болмауы мүмкін деп саналады.

Зерттеу мақсаты: Суицидтік мінез-құлықтың терең тетіктерін анықтау және Қазақстан жастары (18-40 жас) арасында суицидтің алдын алу шараларын әзірлеу.

Әдістері. Клиникалық-психопатологиялық және клиникалық-динамикалық әдістер; психометриялық әдіс – депрессия, абыржу және стресс шкаласы (Depression, Anxiety, and Stress Scale-21, DASS-21) және Paykel суицид қаупінің сауалнамасы, сондай-ақ зертханалық зерттеулер. Зерттеу материалы суицид тенденциясы бар 100 пациент және 100 қатысушы болды - 18 бен 40 жас аралығындағы психикалық патологиясыз.

Нәтижелер: Нәтижелер өз-өзіне қол жұмсау қаупі бар, яғни депрессия немесе абыржу жағдайында, сондай-ақ нашақорлықпен ауыратын адамдарға көп көңіл бөлінетінін көрсетеді. Зерттелгендердің осы тобында психометриялық зерттеудің және суицидтің зертханалық маркерлерінің ең жоғары көрсеткіштері анықталды.

Қорытындылар. Одан әрі жұмыс істеуге бағытталған зерттеу перспективасында DASS (Depression Anxiety Stress Scale) шкаласын және Пайкель сауалнамасын (Paykel суицид қаупінің сауалнамасы) пайдалана отырып, скринингтік зерттеулер жүргізу аса маңызды болып табылады және ел жастары арасында суицидтің алдын алудың қарапайым жолдары ұсынылады.

Түйінді сөздер: *суицид, био-психо-әлеуметтік модель, жастар, депрессия, абыржу, стресс, DASS (Depression Anxiety Stress Scale) шкаласы, Пайкель сауалнамасы (Paykel).*

Дәйексөз үшін:

Есқалиева А.Т., Абетова А.А., Жамалиева Л.М., Есімов Н.Б., Музафаров Р.Х., Тілеубаева Ш.М., Абетова Д.Ә., Абенова Н.А., Жакиева Ш.С., Құдайбергенова С. К., Смолинов И.Ғ., Саттаров Г.Р., Султангереев Е.Б. Қолқамықын сегменті окклюзиясы бар науқастарды хирургиялық емдеудің асқынуларының алдын алу жөніндегі шаралардың тиімділігін бағалау // Ғылым және Денсаулық сақтау. 2025. Vol.27 (5), Б. 143-152. *doi 10.34689/SH.2025.27.5.018*

Introduction

The relevance of the study is dictated by the need to develop a methodology for early recognition and study of suicide risk and its prevention. According to the information of the World Health Organization (WHO), Kazakhstan is among the countries with the highest suicide rate in the world. The number of suicidal outcomes is not decreasing, bringing human grief to loved ones and putting a burden on the social and economic development of the country. It is believed that most of the suicides might not have happened if proper interventions had been taken [1, 2].

Suicide is formed by a number of interacting cultural, social, psychological, biological, and situational factors combined with mental disorders, which act as the main risk factor. National suicide studies show that suicidal behavior varies in different countries [3, 4].

Difficulties in regulating emotions are recognized as one of the reasons specific to adolescents and young people. Research focuses mainly on personality, while the theoretical foundations emphasize the role of emotions, relationships, community, and society [5]. In a systematic review, it was shown that difficulties in regulating emotions are associated with suicidal behavior (thoughts and attempts) in both adults and adolescents [6], however, other researchers report conflicting impact results on suicide attempts [7].

A large number of recent studies have revealed neurobiological mechanisms of suicide [8-10]. Important biomedical features identified by other authors also included malnutrition, alcohol consumption, smoking, sleep, exercise, markers of hypothalamic-pituitary-thyroid axis activity, and others [11, 4].

Scientific studies suggest a link between the intensity of suicidal behavior and changes in the concentration of certain biochemical parameters, including oxidative stress. The general oxidative status and the Index of oxidative stress can increase in parallel with the severity of suicidal behavior [12-16].

Patients with depressive disorders are particularly prone to suicide risk. Severe depression, severity of hopelessness, along with a history of suicide attempts, suicidal thoughts, and psychotic symptoms predicted subsequent suicide attempts and death by suicide [17-19].

Clinically significant symptoms of depression and anxiety are widespread among young people (according to various estimates, about 24% and 4-49%, respectively), suicidal thoughts from 2 to 12% [20-25], however, the review did not include people with medical problems.

Thus, numerous studies of the prevalence of suicidal outcomes and pre-suicidal states in many countries of the world and Kazakhstan have different limitations, either in terms of the characteristics of participants, or assessment tools, etc., therefore, they give contradictory results. Figures reflecting the number of suicides are usually underestimated due to the ineffectiveness of epidemiological surveillance systems, the misuse of suicide among accidental deaths, and the criminalization of suicide in some countries. In an effort to make suicide prevention strategies effective and culturally acceptable, it is important to study the underlying mechanisms, reliable indicators, and risk factors of suicidality in order to develop effective interventions, prevention, and rehabilitation programs.

Aim:

Identification of the underlying mechanisms of suicidal behavior and development of suicide prevention measures among the youth of Kazakhstan (18-40 years old).

Tasks:

1. Identification of new psychosocial suicide risk factors and their interrelationships.

2. Study of psychological suicide risk factors and their interrelationships.

3. Study of peripheral inflammatory markers of suicidal behavior and parameters of oxidative stress, with a focus on specific suicidal outcomes, their relationship with other clinical, demographic and psychosocial determinants for predicting suicide-related phenotypes.

Research design: A qualitative research was conducted using focus groups with 200 participants. The study was conducted in the period from January to June 2025 on the basis of the Republican State Enterprise on the right of economic management “Republican Scientific and Practical Center for Mental Health” of the Ministry of Health of the Republic of Kazakhstan and Municipal State Enterprise on the right of economic management “Mental Health Center” of the Almaty City Health Department.

Research materials

Inclusion and exclusion criteria: voluntary consent, age of participants from 18-40 years, absence of acute psychopathology.

1st group. With suicidal tendencies (with suicide attempt and/or suicidal thoughts) - 30 participants.

The 2nd group. People at risk group (stress, depression, anxiety, substance abuse and personality disorders) - 70 participants.

The 3rd group. Control group (without mental pathology) - 100 participants.

Research methods

I. Clinical and psychopathological method.

II. The clinical and dynamic method.

III. The psychrometric method.

b) Paykel Suicide Risk Questionnaire, which is a tool for assessing suicidal thoughts and behavior.

IV. Laboratory studies.

The results of the study:

An analysis of the social and demographic characteristics of the study participants showed that among the 30 surveyed individuals in the 1st group (n=14 female (43.8%) and n=18 (56.2% male), the ratio of female and male was presented in statistically comparable values. Among the 70 examined individuals in the 2nd group (n=51 females (2.9%) and n=19 (27.1%) males), the female sex ratio was significantly higher statistically ($p<0.005$) than the male sex. Among the 100 examined individuals in the 3rd group (n=61 females and n=39 males), the ratio of female participants was significantly higher statistically ($p<0.005$) than male.

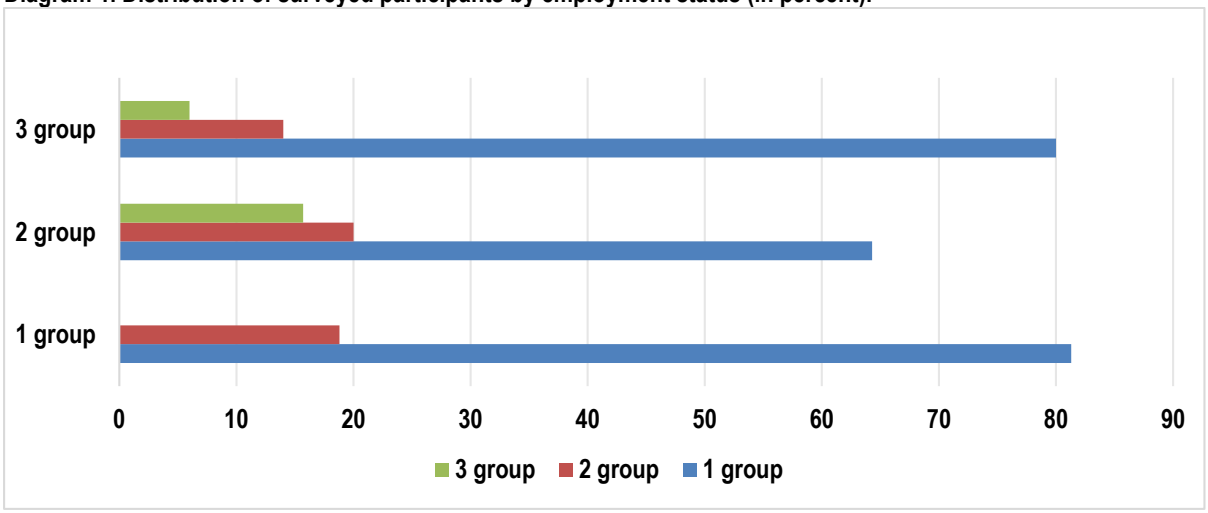
According to the data obtained, the average age of the surveyed in group 1 was 25.41 ±: from 16 to 18 years - 25%, n=8), from 19 to 25 years - 28.1%, n=9, and 46.9%, n=15 - were from 26 to 40 years old. The majority of the surveyed in the 2nd group were between the average age of 26 and 40 years (70%, n=49), from 19 to 25 years, 30%, n=21. The majority of the surveyed in the 3rd group were between the average age of 26 and 40 years (64%, n=64), from 19 to 25 years 35%, n = 35, only 1% - from 16 to 18

years. The Kruskal-Wallis criterion does not detect significant differences in all samples.

By the time of the survey, the majority of participants in group 1 had an average level of education: n=14 (43.8%), the rest n=7 (21.9%) had higher education and n=11 (34.4%) had incomplete secondary education. The majority of the participants in the 2nd group had a higher level of education: n=46 (65.7%), one third of the participants - n=24 (34.3%) - had secondary education. The vast majority of participants - n=90 (90%) of the control group had higher education, and only 10% (n=10) had secondary education. Pearson Chi-squared = 0.000 with a minimum estimated number of 1.74. The significance level of this relationship corresponds to $p<0.05$.

The distribution of the surveyed participants by education is shown in the diagram 1.

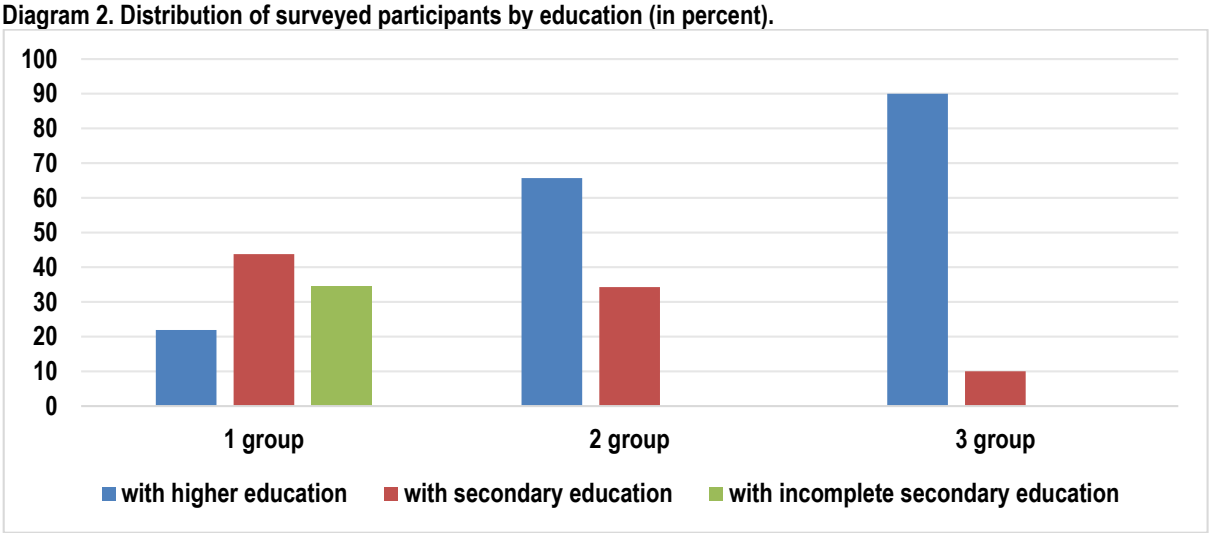
Diagram 1. Distribution of surveyed participants by employment status (in percent).



The analysis of the marital status of the surveyed persons showed that the majority of the participants from the 1st group were maladapted in family terms. Only 18.8% had their own family (were married), more than half of the surveyed persons (65.6%) did not marry (were single or unmarried), 15.6% were already divorced. The majority of the surveyed persons from the 2nd group were also maladapted in family terms. Only 27.1% had their own family (were married), and two thirds (72.7%) did not marry (were single or unmarried). Among the participants of the 3rd group, half (47%) had their own family (were married), and half of the surveyed persons (52%) were not married (were single or unmarried), only 1% were already divorced. Pearson Chi-squared = 0.000 with a minimum estimated number of 0.95. The significance level of this relationship corresponds to $p=0.05$.

The data on the marital status of the examined patients are shown on the diagram 2.

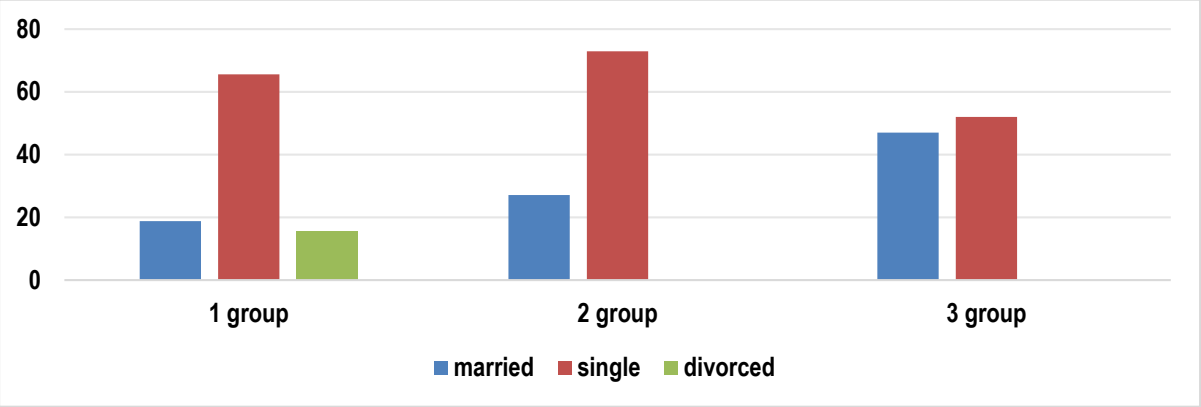
Diagram 2. Distribution of surveyed participants by education (in percent).



It was revealed that the majority of participants from the 1st group were employed: the main part of the surveyed people (n=26, 81.3%) were employed, and only n=6, 18.8% were students. The majority of the 2nd group were also employed: the main part of the surveyed people (n=45, 64.3%) were employed, n=14, 20% were students and 15.7% were unemployed. Among the participants of the 3rd group were employed: the main part of the surveyed people (n=80, 80%) were employed, n=14, 14% were students and n=6 - 6% were unemployed. Pearson chi-squared = 0.035 with a minimum estimated number of 2.69. The significance level of this relationship corresponds to $p<0.05$.

The data on the employment status of the surveyed persons are shown in the diagram 3. (Appendix 3).

Diagram 3. Distribution of surveyed participants by marital status (in percent).



Analysis of laboratory data showed that there was no significant difference in the indicators in all groups of some parameters. The difference was revealed in the study of cholesterol in venous blood (total). Thus, the majority (31.3% (n=10) of the surveyed people in the 1st group showed a decrease in cholesterol levels. In the examined patients of the 2nd group, an increase in the blood level was shown in almost a third (28.6%) of the examined people (n=20) and a decrease in the level in only a small number (8.6%) of the examined people (n=6). In the examined patients of the group 3, it showed an increase in the level of only 19 participants (19%) and a decrease in the level of only 12 (12%).

An insignificant difference in the study of platelets was found. Thus, a small number of the surveyed people in the 1st group showed changes: an increase in the level of only 9.4% (n=3) and 6.3% (n=2) of the surveyed persons showed a decrease in the level. In the surveyed people of the group 2, an increase in the level of almost a third of the surveyed persons (31.4%) and a decrease in the level of only a small number of the surveyed people (2.9%) was shown. In the examined patients of the group 3, it showed an increase in the level of only 24% and a decrease in the level of only 1%.

The difference in the study of hemoglobin was revealed. Thus, the examined patients of the group 1 showed an increase in the level of only 9.4% and 12.5% of the examined people showed a decrease in the level. In the examined patients of the group 2, it showed an increase in the level of almost a third of the surveyed persons (31.4%) and a decrease in the level of a small number of the surveyed people (15.7%). In the examined patients of the group 3, it showed an increase in the level of only 10% and a decrease in the level of only 14%.

Differences in the study of the color indicator were found. Thus, in the examined people of the group 1, it showed a decrease in the level of 34.4%. In the examined people of the group 2, it showed a decrease in the level of 28.6%. In the examined people of the group 3, it showed a decrease in the level of only 4%.

An insignificant difference was revealed in the study of HCT (hematocrit). Thus, in the examined people of the group 1, it showed an increase in the level of 21.9%. In the examined people of the group 2, it showed an increase in the level of 12.9%. In the examined patients of the group 3, it showed an increase in the level of only 4%.

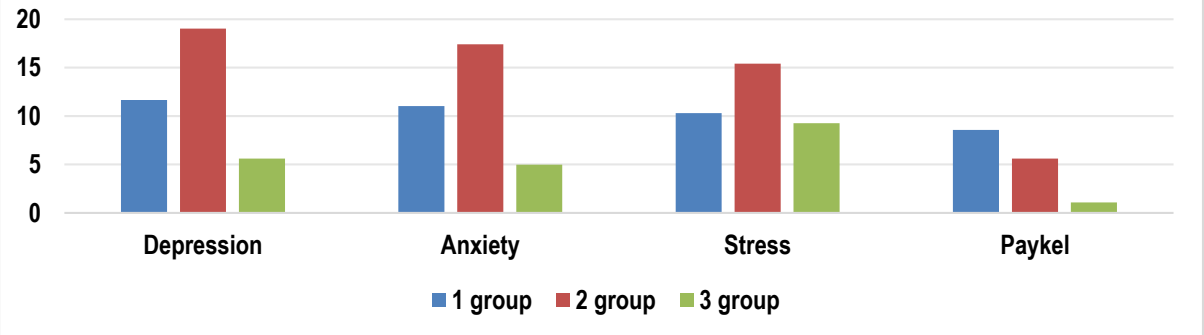
Analysis of the results of the psychometric study showed that in group 1 there was a significant correlation at 0.05 with moderate levels of depression, anxiety, stress on the DASS D scale (11.66 points)-Rs=0.479, DASS T (11.03 points) - Rs=0.599, DASS With (10.31 points)-Rs=0.428, which correlates with the result of the Pikel questionnaire (8.56 points)-Rs=1,000. The correlation is significant at 0.05 (two-way).

In group 2, there was a statistically significant association with high or moderate levels of depression, anxiety, and stress on the scale of DASS D (19.03 points) - Rs=0.610, DASS T (17.40 points)-Rs=0.231, DASS C (15.40 points)-Rs=0.430, which correlates with the result of the Pikel questionnaire (5.61 points). The correlation is significant at 0.05 (two-way).

In group 3, there was a statistically significant association with low or no depression, anxiety, or stress on the scale of DASS D (5.61 points) - Rs=0.454, DASS T (4.98 points)-Rs=0.335, DASS C (9.26 points) -Rs=0.419, which correlates with the result of the Pikel questionnaire (1.08 points). The correlation is significant at 0.05 (two-way).

The distribution of psychometric research data by group is shown on the diagram 4.

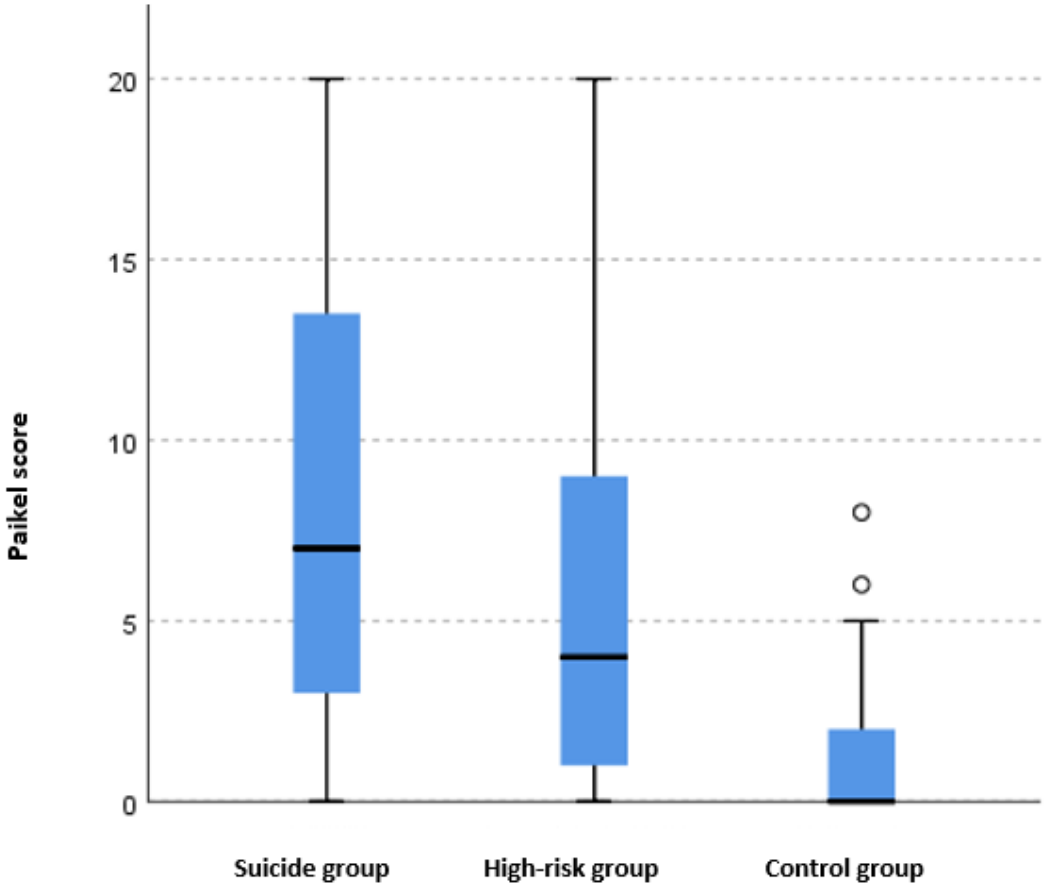
Diagram 4. Distribution of psychometric research data (in points).



When testing the null hypothesis in pairs with the Bonferroni correction for several trials, it was found that group 1 and group 2 have the same distributions. A comparison of group 1 with group 3 showed a score of 0.063 with a significance level of 0.05, which corresponds to $p<0.05$.

The Kraskell Wallis criteria for the results of a psychometric study is shown in the diagram 5.

Diagram 5. Kruskal-Wallis test for independent samples.



Discussion:

An analysis of the social and demographic characteristics of the participants showed that in all groups the ratio of female and male was represented in statistically comparable values. According to the data obtained, the average age of the surveyed people in all groups was in the statistically comparable values of -25.41 ±. The Kruskal-Wallis criterion does not detect significant differences in all samples.

There were differences in the level of education. So, if the majority of participants in the 1st group had an average level of education, the majority of participants in the 2nd and 3rd groups had a higher level of education. An analysis of the marital status of the surveyed persons showed that most of the participants from the 1st and 2nd groups were maladapted in family terms. Only a small part of the participants had their own family (were married), more than half of the surveyed people did not marry (were single or unmarried), while half of the participants in the 3rd group had their own family (were married). The study of labor adaptation showed that the majority of participants from groups 1 and 3 were employed: the majority of those surveyed people were employed, while two thirds of the participants in group 2 were employed.

Thus, the data obtained indicate that the group of surveyed people with suicide attempts is dominated by people aged 25.41 ±, with an average level of education, employed, maladapted in family terms, the sex ratio is equivalent.

The group of surveyed people at risk of suicide was dominated by individuals aged 28.51 ±, with a higher level of education, maladapted in labor and family terms - underemployed and unmarried, the sex ratio is equivalent.

The control group was also dominated by people aged 27.92 ±, had mostly a higher level of education, adapted to family and work status with an equal ratio of female and male sexes.

Analysis of laboratory data showed that there are some differences between the groups. Thus, in the examined people of the group 1, a decrease in the level of the color indicator was shown in 34.4%; a decrease in the level of cholesterol in the venous blood (total) in the majority (31.3%) of the examined people; a uniform platelet count; a decrease in the level of the color indicator in a third of the examined persons (34.4%).

In the examined individuals of the group 2, an increase in platelet levels was shown in almost a third of the examined people (31.4%); an increase in cholesterol levels in almost a third of the examined people (28.6%); a

decrease in the color index in 28.6% of the examined persons. The Kruskal-Wallis test does not detect significant differences in the first two samples.

In the examined patients of the group 3, a decrease in the level of the color indicator was shown in only 4%; an increase in cholesterol in 19%; an increase in platelet levels in 24% and a decrease in the level of the color indicator in only 4%. The Kraskal-Wallis criterion reveals significant differences when comparing the 3rd group with the 1st and 2nd groups.

An analysis of the results of the psychometric study showed that when testing the null hypothesis in pairs with the Bonferroni correction for several trials, it was found that group 1 and group 2 had the same distributions. A comparison of group 1 with group 3 showed a score of 0.063 with a significance level of 0.05, which corresponds to $p<0.05$.

Conclusions

1. The group of surveyed people with suicide attempts is dominated by people aged 25.41 ±, with an average level of education, employed, maladapted in family terms, the sex ratio is equivalent. The group of those surveyed at risk of suicide was also dominated by people aged 28.51 ±, with a higher level of education, maladapted in labor and family terms - underemployed and unmarried, the sex ratio is equivalent. The control group was also dominated by people aged 27.92 ±, had mostly a higher level of education, adapted to family and work status with an equal ratio of female and male sexes.

2. In group 1, a strong correlation was found with moderate levels of depression, anxiety, and stress on the DASS scale, which correlates with the results of the Pikel questionnaire. In group 2, there was a statistically significant association with high or moderate levels of depression, anxiety, and stress on the DASS scale, which correlates with the results of the Pikel questionnaire. In group 3, there was a statistically significant association with low or no depression, anxiety, or stress on the DASS scale, which correlates with the results of the Pikel questionnaire.

3. A significant difference in the study of laboratory parameters is revealed: in the examined individuals of the group 1, it showed a decrease in the level of the color indicator, a decrease in the level of cholesterol in the venous blood (total) and platelets in the majority of the examined people.

In the examined people of the group 2, an increase in platelet levels was shown in almost a third of the examined persons, an increase in cholesterol levels in almost a third of the examined individuals, and a decrease in platelet levels. In group 3, there was a statistically insignificant association with cholesterol levels and an increase in platelet levels, but a significant association with a decrease in the color index (only 4%).

Conclusion

The conducted research is evidence-based regarding the bio-psycho-social risk factor of suicide. The results obtained indicate that those at risk of suicide, i.e. those who are depressed or anxious, as well as those who abuse psychoactive substances, deserve the most attention. As in this group of the studied, the highest indicators of psychometric research and laboratory markers of suicide were revealed. In general, the result obtained correlates with the conclusions of other scientists. The most significant is the conduct of screening studies using the DASS and Pikel scale in the research perspective, aimed at further work and offering simple ways to prevent suicide among young people.

This research was conducted as part of the scientific and technical program "Presuicidal Attitudes as an Integrated Indicator and Target of Monitoring: A Population Study of Adolescents and Young Adults in Kazakhstan", supported by program-target funding for 2024–2026 (IRN BR24993083).

Source of funding

The research and publication of the article were carried out at the personal expense of the authors.

Conflict of interest

The authors of this article confirmed the absence of a conflict of interest.

This material has not been published in other publications and is not under review by other publishers.

Literature:

1.WHO. Suicides in the world in 2019 (2021). Available at: https://www.who.int/ru/news-room/fact-sheets/detail/suicide (as of May 27, 2024).

2.*Abetova A.A.* “Prevention of autoaggressive behavior” // Psychiatry, psychotherapy and narcology, 2011, pp. 11-17.

3.*Abetova A.A.* “Some aspects of suicidal behavior in narcological and psychosomatic disorders” // Psychiatry, psychotherapy and narcology - 2010, pp. 15-18.

4.*Altynbekov K.S., Negay N.A., Abetova A.A.* Methodology and results of the national study on the use of psychoactive substances among young people in the Republic of Kazakhstan // Bulletin of KazNMU, 2021. №4. pp. 193-201.

5. *Abetova A.A.* «Application of methods of crisis psychocorrection in a psychiatric hospital” - methodological recommendations, 2011, p. 35.

6. *Abetova A.A.* “Providing psychotherapeutic assistance in crisis situations and suicidal behavior” - methodological recommendations, 2011, p. 20.

7. *Peterson C., Miller G.F., Barnett S.B.L., Florence C.* Economic cost of injury—United States, 2019. Morb. Mortal. Wkly. Rep. 2021; 70: 1655.

8. *An S, Lim S, Kim HW, Kim HS, Lee D, Son E, Kim TW, Goh TS, Kim K, Kim YH.* Global prevalence of suicide by latitude: A systematic review and meta-analysis. Asian J Psychiatr. 2023 Mar;81:103454. doi: 10.1016/j.ajp.2023.103454. Epub 2023 Jan 7. PMID: 36634498; PMCID: PMC9822839.

9. *Tio ES, Misztal MC, Felsky D.* Evidence for the biopsychosocial model of suicide: a review of whole person modeling studies using machine learning. Front Psychiatry. 2024 Jan 11;14:1294666. doi: 10.3389/fpsyt.2023.1294666. PMID: 38274429; PMCID: PMC10808719.

10. *Rodríguez-Otero J.E., Campos-Mouriño X., Meilán-Fernández D., Pintos-Bailón S., Cabo-Escribano G.* Where is the social in the biopsychosocial model of suicide prevention? International Journal of Social Psychiatry. 2022;68(7):1403-1410. doi:10.1177/00207640211027210

11. *Colmenero-Navarrete L., García-Sancho E., Salguero J.M.* Relationship Between Emotion Regulation and Suicide Ideation and Attempt in Adults and

Adolescents: A Systematic Review. Arch Suicide Res. 2022 Oct-Dec;26(4):1702-1735. doi: 10.1080/13811118.2021.1999872. Epub 2021 Nov 25. PMID: 34821201.

12. *Rogante E., Cifrodelli M., Sarubbi S., Costanza A., Erbuto D., Berardelli I., Pompili M.* The Role of Emotion Dysregulation in Understanding Suicide Risk: A Systematic Review of the Literature. Healthcare (Basel). 2024 Jan 10;12(2):169. doi: 10.3390/healthcare12020169. PMID: 38255058; PMCID: PMC10815449.

13. *Posamentier, J., Seibel, K., & DyTang, N.* (2023). Preventing Youth Suicide: A Review of School-Based Practices and How Social–Emotional Learning Fits Into Comprehensive Efforts. Trauma, Violence, & Abuse, 24(2), 746-759. https://doi.org/10.1177/15248380211039475

14. *Liu X.Q., Wang X.* Adolescent suicide risk factors and the integration of social-emotional skills in school-based prevention programs. World J Psychiatry. 2024 Apr 19;14(4):494-506. doi: 10.5498/wjp.v14.i4.494. PMID: 38659598; PMCID: PMC11036461.

15. *Hocaoglu C.* Editorial: The neurobiology of suicide: the 'suicidal brain'. Front Psychiatry. 2023 Jun 9;14:1215902. doi: 10.3389/fpsyt.2023.1215902. PMID: 37363164; PMCID: PMC10289149.

16. *Abou Chahla M.N., Khalil M.I., Comai S., Brundin L., Erhardt S., Guillemin G.J.* Biological Factors Underpinning Suicidal Behaviour: An Update. Brain Sci. 2023 Mar 16;13(3):505. doi: 10.3390/brainsci13030505. PMID: 36979315; PMCID: PMC10046421.

17. *Yang W., Wang X., Kang C., Yang L., Liu D., Zhao N., Zhang X.* Establishment of a risk prediction model for suicide attempts in first-episode and drug naïve patients with major depressive disorder. Asian J Psychiatr. 2023 Oct;88:103732. doi: 10.1016/j.ajp.2023.103732. Epub 2023 Aug 11. PMID: 37586124.

18. Comprehensive mental health action plan 2013-2030. Geneva: World Health Organization; 2022. License: CC BY-NC-SA 3.0 IGO.

19. *Adilbek S.A.* Features of suicides in Central Kazakhstan / S. A. Adilbek // Innovations. Science. Education. – 2021. – № 28. – pp. 1337-1346. – EDN QWIOFQ.

20. *Nizamudin M.A., Khon N.N., Garber A.I., Sklyar S.V.* The relationship of individual and personal characteristics with indicators on the Beck scales in adolescents with suicidal thoughts//Psychology and sociology series. №4 (87). 2023 https://bulletin-psysoc.kaznu.kz 31 МРНТИ 15.81.61 https://doi.org/10.26577/JPsS.2023.v87.i4.04

21. *Yessimov N.B., Izmailova N.T.* Integration of primary health care with psychiatric and narcological services // Bulletin of KazNMU. Almaty, 2019. №2. pp. 210-213.

22. Kustubayeva, A.; Kamzanova, A.; Kudaibergenova, S.; Pivkina, V.; Matthews, G. Major depression and brain asymmetry in a decision-making task with negative and positive feedback //Symmetry. – 2020. – Т. 12. – №. 12. – С. 2118. https://doi.org/10.3390/sym12122118

23. Zhamaliyeva L.M., Zhamankulova D.G., Abenova N.A., Koshmaganbetova G.K. Educational Intervention Effects on Depression and Anxiety in Patients after Myocardial Infarction: A Randomized Controlled Trial // Journal of Cardiovascular Development and Disease 2023;10:267. https://doi.org/10.3390/jcdd10070267.

24. Temirkhanov A., Zhamaliyeva L. Age-Related Differences in Depression: Insights from the PHQ-9 Screening Tool// Collection of materials of the III International Scientific and Practical Conference «Residency in family medicine: achievements, problems and prospects», May 18-19, 2023

25. Temirzakova D., Zhamaliyeva L. High stress levels among women in Kazakhstan: a pilot study// Collection of materials of the III International Scientific and Practical Conference «Residency in family medicine: achievements, problems and prospects», May 18-19, 2023

Information about the authors:

Yeskaliyeva Altynay Tukenovna, RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, Almaty, Republic of Kazakhstan. Cell phone: +77018082576. Email address: Altynai_eskalieva @mail.ru. ORCID ID: https://orcid.org/0009-0008-6072-9115.

Abetova Aigulim Abdurasulovna, Candidate of Medical Sciences, Master of Social Sciences in Psychology, Head of the Department of the RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, psychiatrist, adult, child of the highest category. Cell phone: +7777 742 78 63. Email address: aigul-abetova@mail.ru. ORCID iD https://orcid.org/0000-0002-4757-3477

Zhamaliyeva Lazzat Manbetzhanovna – Project Manager. Candidate of Medical Sciences, Associate Professor, Professor of the Department of General Medical Practice, Non-profit Joint-Stock Company “Marat Ospanov West Kazakhstan Medical University”. ORCID ID 0000-0003-3625-3651

Yessimov Nabi Bolatovich, PhD, MBA, Deputy General Director of the RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, psychiatrist of the highest category. ORCID iD 0000-0001-7827-5125

Rinat Husainovich Muzafarov – Head of the Department of International Cooperation and Public Relations at the RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, psychiatrist, adult, child of the highest category. ORCID iD https://orcid.org/my-orcid?orcid=0009-0003-0930-5935

Tleubayeva Shayzat Mukhametkairovna, RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, Pavlodar, psychiatrist, adult, child of the highest category. ORCID iD 0000-0003-4141-4464

Abetova Dana Auezovna, Master of Social Knowledge in Psychology, RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, Junior Researcher. ORCID iD: 0009-0002-2654-6493
Abenova Nurgul Abdullayevna, Non-profit Joint-Stock Company “Marat Ospanov West Kazakhstan Medical University”, Vice-rector for educational work, ORCID iD: 0000-0003-0395-9025
Zhakiyeva Shynargul Sagidullivna, Non-profit Joint-Stock Company “Marat Ospanov West Kazakhstan Medical University”. Assistant Professor of the Department of General Medical Practice.
Kudaibergenova Sandugash Kansarovna, Senior Lecturer at the Department of General and Applied Psychology of the Kazakh National University named after al-Farabi. ORCID iD 0000-0001-9297-8089
Smolinov Ilshat Gayratzhanovich, RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, Junior Researcher.
Sattarov Gaziz Rustamovich, RSE on the REM "Republican Scientific and Practical Center of Mental Health" of the Ministry of Health of the Republic of Kazakhstan, Junior Researcher.
Sultangereyev Yerlan Bahytovich, Non-profit Joint-Stock Company “Marat Ospanov West Kazakhstan Medical University”, recearcher, ORCID iD: 0000-0002-0610-4906

Contact Information
Nurgul Abdullayevna Abenova, PhD in Medicine, Associate Professor, Vice-Rector for educational work, Non-Profit Joint Stock Company "West Kazakhstan Marat Ospanov Medical University", Aktobe, Kazakhstan.
Postal address: 68 Maresyev Street, Aktobe 030019, Republic of Kazakhstan
E-mail: nurgul_abenova@mail.ru
Phone: +7 (701) 5500410