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INTERRELATIONS BETWEEN SITUATIONAL AND PERSONAL ANXIETY AND QUALITY OF LIFE DOMAINS

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Abstract

Introduction: *Anxiety is an individual psychological feature of a person, the optimal level of which is adaptive. The quality of life is an integral characteristic of physical, emotional and social functioning of a person, determined by various factors.*

The research presents data on the insufficiently studied complex "quality of life – anxiety".

Material and methods: *The article considers the results of a comprehensive study of anxiety and quality of life. The study was conducted within the framework of a scientific project in 180 respondents aged 16-60 years of both sexes. As a tool for assessing the quality of life of the population, we used a short version of the World Health Organization quality of life-BREF we assessed the anxiety of the population according to Spielberg. Statistical processing and data analysis were carried out using the SPSS 22.0 software package, the significance of differences was assessed by Student's t-test, differences were considered significant at $p<0.05$. Correlation between the level of anxiety and quality of life domains according to World Health Organization quality of life and the assessment of its reliability were determined by the Spearman method and by the Kruskal-Wallis test.*

Results*: An inverse relationship was found for the ratios situational anxiety-mental well-being ($r=-0.370$, $p<0.001$) and situational anxiety-environment ($r=-0.491$, $p<0.001$). Weak negative relationships were also obtained for the remaining ratios, ranging from $r=-0.230$ ($p=0.002$) to $r=-0.284$ ($p<0.001$). For the ratio of personal anxiety-physical well-being, the absence of a significant relationship was revealed ($r=-0.119$ ($p=0.110$). The presence of a direct relationship between situational and personal anxiety is indicated by the obtained correlation coefficient between these indicators - $r=0.610$ ($p<0.001$).*

Conclusion: *The study of correlations between anxiety and quality of life domains indicates the presence of relationships between the indicators, which must be taken into account when developing various preventive measures. A better understanding of the impact on quality of life will lead to increase public awareness of anxiety as serious mental disorders for further research.*

Keywords: *quality of life, domain, situational anxiety, personal anxiety.*

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INTRODUCTION

Anxiety reflects the experience of emotional discomfort and a premonition of imminent danger, a certain level of which in the structure of the psychic is associated with the endocrine and nervous systems [*Dong J et al., 2022*]. Being in a stressful situation, any person is characterized by psycho-emotional stress in varying degrees of severity, which is a natural adaptive reaction of the human body to a significant event for him, but it often goes beyond physiological stress and leads to maladaptation [*Connell J et al., 2012; Dan J et al., 2020; Dan J et al., 2021*]. From a psychological point of view, there are situational and personal anxieties [*Mardiyan M et al., 2017; Abdollahi A et al., 2022*].

Any experience in a person is refracted through the prism of subjectivity. As an objective criterion of subjectivity, the quality of life is considered – an extremely broad, multifaceted approach concept [*Ballesteros-Leiva F et al., 2016; Naunheim M et al., 2018; Jones P, Drummond P, 2021; Razura D et al., 2023; Ibrahim A et al., 2023; O'Dell K, 2024*. Social, hygienic, physical, and psycho-emotional well-being indicators assessment allows us to consider quality of life not only at the individual, but also at the group and population (regional) level in specific environmental conditions. Subjective assessments obtained of survey data'scareful collection from respondents are as reliable as the results of clinical research methods. In this regard, it can be assumed that environmental factors areindirect and anxiety partly affects the assessment of how healthy the environment around residents is.

The purpose of present research was to explore the relationship between situational and personal anxiety and individual criteria of quality of life using the region's example which significant part of the population has been periodically exposed to the post-war period adverse effects, which can be attributed to a situation of increased stress, accompanied by anxiety, a high threat to life and health. This study is being carried out by ourselves for the first time.

MATERIAL AND METHODS

To achieve the goal of the research, the short version of WHO quality of life questionnaire-BREF and the Spielberg situational and personal anxiety questionnaire, adapted in accordance with international standards for the Armenian population, were used. The application of WHO quality of life questionnaire allowed to analyze the features of changes in the main criteria of the quality of life the respondents.

A cross-sectional sample study through survey among 180 the respondents aged 16-60 years was carried for the assessment of quality of life. The study was performed following the Declaration of Helsinki Principles and the written informed consent was given by all participants before enrolment.

The exclusion criteria were as follows: absence of acute chronic diseases or exacerbation during the survey period. Six groups were formed by age and gender of 30 people each: boys aged 17-21 and girls aged 16-20, men aged 22-35 and women aged 21-35 (the first mature age), men aged 36-60, and women aged 36-55 (second adulthood).

As a research tool, an adapted version of the WHO quality of life-BREF questionnaire wasused, which includes four domains – physical and mental health, social relations, and the environment. Processing data was carried out according to the instructions of the working group on the quality of life of WHO [*WHO, 2012*]. World Health Organization Quality-of-Life Scale is a brief test for the assessment of quality of life developed by the WHO. The questionnaire consists of 26 statements, the test also contains parameters for assessing general health (question 1, 2). The statements of the test are grouped according to four components of quality of life (Table 1), each of which is evaluated within 35, 30, 15 and 40 points, respectively. Higher scores indicates higher levels of quality of life.

The components can also be evaluated as qualitative indicators finding modified indicators from the standard rating scale of 4-20 and 0-100 scales.

The results by domains are presented as transformed values on a scale from 0 to 100 points. In accordance with the instructions, the first (subjective assessment of the quality of life) and the second answers (subjective assessment of the state of health) of the questionnaire'questions were taken separately into account.

The degree of situational and personal anxieties was determined by Spielberg's tests, consisting of 40 statements, 20 of which relate to the determination of the level of situational, and the remaining 20 – personal anxities. The test questionnaire contains 2 tables: situational /at the moment/ and individual anxieties.

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TABLE 1:

Components of the WHO quality of life –BREF

Quality of laife domains	Assertions	Number of questions
Physical health	Pain	3
	Energy	10
	Sleep	16
	Mobility	15
	Activity	17
	Addiction to drugs	4
	Work	18
Psychological health	Positive emotions	5
	Thinking	7
	Self-esteem	19
	Appearance	11
	Negative emotions	26
	Faith, religion	6
Social relations	Relationships	20
	Support	22
	Sexual activity	21
Family environment	Security	8
	Family atmosphere	23
	Finance	12
	Serving	24
	Awareness	13
	Rest	14
	Environment	9
	Transport	25

The levels of situational and personal anxieties were calculated using the following formulas:

situational = E1 – E2 + 50,

where E1 – the sum of the numbers crossed out on the form by scale points 3, 4, 6, 7, 9, 12, 13, 14, 17, 18; E2 – the sum of the remaining crossed out digits points 1, 2, 5, 8, 10, 11, 15, 16, 19, 20.

personal = E1 – E2 + 35,

where E1 – the sum of the numbers crossed out on the form by scale points 22, 23, 24, 25, 28, 29, 31, 32, 34, 35, 37, 38, 40; E2 – the sum of the remaining numbers by points 21, 26, 27, 30, 33, 36, 39.

The level of anxiety was assessed using the following key: up to 30 points – low level, from 31 to 44 points – moderate level, 45 points and above – high level.

After checking the completeness and quality of the replenishment, questionnaires were processed for the survey participants. The generally accepted methods of analysis of the collected data were used with the construction of analytical tables and graphs. Statistical processing and data analysis were carried out using IBM SPSS Statistics software package (Version 22.0). For quantitative variables, the mean value and the standard error of the mean were calculated. As methods of statistical inference parametric and non-parametric methods were used depending on the type of distribution of values. Student's t-test for independent groups was used in case of normal distribution, and Kruskal – Wallis test for comparison of >2 groups in case of asymmetric distribution. The Kruskal-Wallis method is based on calculating the H-criterion:

$$H=\frac{12}{N(N+1)}\sum_{i=1}^{m}\frac{R_i^2}{n_i}-3(N+1)$$

where n_i – number of observational studies in the group i, $N = \sum_{i=1}^{m} n_i$ – the total number of observational studies in all m groups, R_i – sum of ranks of observational studies in a group i.

Differences were considered significant in case of $p<0.05$. To identify the strength of association between the level of anxiety and quality of life Spearman correlation analysis was performed.

Pearson's correlation coefficient is calculated using the formula:

$$r=\frac{\sum(x-\bar{x})(y-\bar{y})}{[\sum(x-\bar{x})^2\times\sum(y-\bar{y})^2]^{-0.5}}$$

where x and y – are values of height and weight for each women observed, x and y - are mean values of height and weight correspondingly.

Test Ho: $\rho = 0$ where ρ is the true population correlation coefficient.The test is performed by calculating the statistic:

$$t=r\times\frac{n-2}{(1-r^2)^{-0.5}}$$

Pearson's chi-square (χ^2) is the test statistic for the chi-square test of independence:

$$\chi^2=\sum\frac{(O-E)^2}{E}$$

where: O- observed frequencies (frequencies of

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each combinations of data values in a sample), E - expected frequencies (frequencies that we would expect for each combination of data values in a sample), Calculation of the degree of freedom (df) as (r-1)×(c-1), Comparison of $\chi 2$ value with tabled value, conclusion.

RESULTS

Based on the data obtained from the research, the features of quality of life indicators in samples of different gender and ages [*Mardiyan M et al., 2023*] were studied. Physical health indicators of the respondents, converted to a scale from 0 to 100 points, varied in the range of 50.23-59.93 points, for mental health – from 59.67 to 69.63 points, for social relations and the environment – from 61.30-78.80 and 52.67-68.60 points, respectively.

Analysis of the results are relative to each other based on the average score obtained for the transformation of the indicators on a scale from 0 to 100 points which showed that the lowest score of physical health was 54.6 points. The highest value is typical for social relations, it was equal to 70.5 points. An intermediate value was determined for the mental health and environment, which is respectively amounted to 66.1 and 62.3 points. Subjective assessment of health quality of life was equal– 3.6 points.

The analysis of the obtained data on the anxiety of the respondents revealed that the average for situational was 43.56±1.57 points, and for personal – 46.14±1.46 points. According to the level of situational and personal anxieties, all respondents were divided into 3 groups – with low, moderate, and high levels of anxiety, and the association between anxiety level and quality of life was explored (Table 2).

Ascan be seen, the observed pattern of decrease in the level of individual quality of life domains is mostly significant (p<0.001), except the relationship between physical well-being and personal anxiety Kruskal-Wallis test H=2.865, p=0.239).

Pairwise comparison of groups showed that in individuals with a high level of situational anxiety the scores for individual domains of quality of life are significantly lower compared to those with low quality of life (in terms of physical well-being U=45.035, p=0.004; in terms of mental well-being U =48.994, p=0.002; social relations U=31.577, p=0.046; environmental U=86.372, p<0.001) and moderate anxiety (physical well-being U=24.816, p=0.002; mental well-being U=36.455, p<0.001; for social relations U=22.110, p=0.005; for the environment U=41.727, p<0.001). The study participants with moderate level of situational anxiety have significantly lower score of the environment domain compared to participants with low anxiety (U=44,644, p=0.005).

A pairwise comparison for association between domains of quality of life and personal anxiety level showed that in individuals with a high personal anxiety level (Table 3), scores for all quality of life domains, except social relations and physical well-being, are also significantly lower compared to respondents as with low personal anxiety (for mental well-being U=54.571, p=0.037; for the environment U=73.703, p=0.005), aswell as with mod-

TABLE 2

The ratio of individual spheres of quality of life with different levels of situational and personal anxiety

Anxiety level	Characteristics											
	Physical well-being			Ment al well-being			Social relationships			Environment		
	M±m	P	χ^2	M±m	P	χ^2	M±m	p	χ^2	M±m	P	X^2
Situational Anxiety												
Low	60.00±1.30	0.001	14.34	72.50±1.73	0.001	24.82	75.42±4.19	0.009	9.50	78.67±2.10	0.001	44.42
Moderate	56.38±0.97			69.81±1.10			73.73±1.69			66.68±1.34		
High	51.65±1.24			60.72±1.47			66.10±1.90			54.78±1.66		
Personal anxiety												
Low	59.50±4.13	0.239	2.87	76.75±4.70	0.006	10.39	78.25±9.47	0.007	9.96	78.00±3.00	0.001	16.14
Moderate	55.42±1.06			68.55±1.20			74.11±1.83			65.53±1.70		
High	53.60±1.10			63.35±1.34			67.02±1.65			58.78±1.46		

NOTE: M±m – arithmetic mean ± standard error of the mean, p – p-value for Kruskal-Wallis test.

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erate anxiety (for mental well-being U=41.727, p<0.001; for social relations U=23.878, p=0.002; for environment U=21.109, p=0.006).

To identify the strength of association between the studied indicators, we also determined the correlation between the level of anxiety and WHO quality of life domains using the Spearman method (Table 3).

As can be seen, the negative correlation was found between situational anxiety and mental well-being (r=-0.370, p<0.001) and situational anxiety and environment (r=-0.491, p<0.001). The absence of a significant relationship was found between personal anxiety and physical well-being (r=-0.119, p=0.110). The correlation coefficient between situational and personal anxieties was 0.610 (p<0.001) which indicates the presence of a direct relationship between these indicators.

DISCUSSION

Along with testing quality of life and anxiety, tracking the relationships between these indicators plays an important role in identifying the response of the human body to environmental factors [*Dryman T et al., 2016; González-Blanch C et al., 2018; Taylor M. et al.,2021*]. The revealed correlations should be taken into account not only for the organization of medical and social services, but also for the development of strategic measures directed to the improvement of the quality of life of the population [*Comer J et al., 2011; Majali S, 2020*]. The relative distribution of quality of life on individual scales of the questionnaire depends on numerous factors, including anxiety, which indicates the existence of patterns in the formation of individual quality of life indicators and their relationship to each other [*Eng W et al., 2005; Wilmer M et al., 2021*]. The obtainedresults consider the use of methods for the correlation assessment of quality of life and anxiety in solving the problems of preventive medicine in various regions. Based on the analysis, we believe that such studies can be used to identify negative and positive factors in the conditions of human life, as well as to improve measures to maintain and promote health by medical professionals. The proposed components in the structure of quality of life and anxiety can serve as a scientific and practical basis for further research, as well as for evaluating the effectiveness of medical, preventive, and social programs.

TABLE 3

Correlations between the level of anxiety and quality of life domains according to WHO quality of life

Quality of life domains	Situational anxiety		Personal anxiety	
	r	p	r	p
Physical well-being	-0.282	<0.001	-0.119	>0.001
Mental well-being	-0.370	<0.001	-0.232	<0.001
Social relations	-0.230	<0.001	-0.235	<0.001
Environment	-0.491	<0.001	-0.284	<0.001

NOTES: *Situational anxiety, Personal anxiety- r=0.610, p<0.001. r - correlation according to the Pearson method, p- p-value*

The study indicates the predominance of weak correlation between quality of life and anxiety. The most vulnerable are associations between situational anxiety (a condition generated by a situation of an objectivethreat person at a certain point in time and is associated with external factors that cause a “vital” or social threat) and mental well-being (appearance, negative and positive feelings, self-esteem, spirituality/religion/personal beliefs, thinking/learning/memory/concentration), of situational anxiety and environment (financial resources, freedom, and physical security, health, and social care, home environment, opportunity to acquire new information and skills, participation in leisure activities and recreational opportunities, environment (pollution/noise/climate), transport).

The least vulnerable was the association between personal anxiety (a stable individual characteristic that reflects the subject’s tendency to anxiety) and physical well-being (activity in everyday life, dependence on drugs (medications), energy and fatigue, mobility, pain and discomfort, sleep and rest, work capacity). It should be mentioned that social relations included personal relationships and social support. Along with this, situational and personal anxieties are closely interconnected. This picture indicates the presence of serious causal relationships between the studied indicators, which is most relevant for unfavorable regions. The effective implementation can seriously affect the state of certain areas of the quality of life of the population.

Considering to the foregoing, the proposed recommendations include, on the one hand, measures aimed primarily at neutralizing high personal anxi-

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ety and at maintaining an average level of situational anxiety to improve the quality of life of the population, in particular, mental well-being and the environment, as well as to maintain a normal level of personal anxiety; on the other hand, the development and implementation of a plan to improve the level of mental well-being and the environment of the population in order to reduce the of situational anxiety and, in turn, the personal anxiety. This strategy is feasible with an emphasis on specifying actions, responsible persons, and control mechanisms; conducting special training for all involved personnel; the need to establish effective communication with the public.

CONCLUSION

The study of correlations between anxiety and quality of life domains indicates the presence of relationships between the indicators, which must be taken into account when developing various preventive measures. A better understanding of the impact on quality of life will lead to increase public awareness of anxiety as serious mental disorders for further research.

Ethics approval and consent to participate. *According to the Yerevan State Medical University's Ethics Guidelines, no ethical approval was required and no personal identifiers of any sort were included. 22.09.2022 N1-1/22.*

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