

MEDICAL UNIVERSITY "PROF. DR. PARASKEV STOYANOV" - VARNA

FACULTY OF MEDICINE DEPARTMENT OF PSYCHIATRY AND MEDICAL PSYCHOLOGY

Borislava Petrova Dimitrova

DYNAMICS OF GENERALIZED EXPECTATIONS IN PATIENTS WITH DEPRESSION

SUMMARY

Of dissertation for conferment of scientific and educational degree of "Doctor" of scientific subject "Medical Psychology"

Scientific supervisors: Prof. Ivan Stoyanov Aleksandrov, PhD, DSc Assoc. Prof. Svetlin Varbanov, MD, PhD

> VARNA 2024



MEDICAL UNIVERSITY "PROF. DR. PARASKEV STOYANOV" - VARNA

FACULTY OF MEDICINE DEPARTMENT OF PSYCHIATRY AND MEDICAL PSYCHOLOGY

Borislava Petrova Dimitrova

DYNAMICS OF GENERALIZED EXPECTATIONS IN PATIENTS WITH DEPRESSION

SUMMARY

Of dissertation for conferment of scientific and educational degree of "Doctor" of scientific subject "Medical Psychology"

Scientific jury:

Assoc. Prof. Vanya Gospodinova Hristova, PhD, PsyD Prof. Velislava Atanasova Chavdarova, PhD, PsyD Prof. Petar Milchev Petrov, MD, PhD, DSc Assoc. Prof. Zlatinka Kostadinova Georgieva, PhD, PsyD Assoc. Prof. Dr. Petar Kirilov Neshev, PhD, PsyD

> VARNA 2024

The dissertation contains 132 pages, includes 42 tables and 2 figures. The bibliography includes 146 titles, of which 22 are in Cyrillic and 124 in Latin.

The dissertation was discussed and directed for public defense by the Department Council of the Department of Psychiatry and Medical Psychology at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna on 06.11.2024.

The public defense of the dissertation will take place on 17.02.2025 from h. on the Webex electronic platform of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna at an open meeting of the Scientific Jury.

The materials for the defense are available in the library of MU-Varna, as well as on the official website of the university.

INTROI	DUCTION	J						5
II. METH	HODOLO	GY OF I	EMPIRICAL F	RESEAR	асн		•••••	7
1. Purpos	se and tasl	ks of the	research					7
2. Hypot	heses							7
3. Metho	ods							8
3.1. Data	collection	n method	ls					8
3.1.1. W	ork card							8
3.1.2. St	udy of the	severity	of depressive	sympton	ms using the Me	ontgomery Asbe	rg Depre	ession Rating
Scale (M	ADRS), 1	.979						8
3.1.3.	Test	for	assessing	the	long-term	motivation	of	individual
behavior	•••••							9
3.1.4. M	ethod for a	assessing	optimism and	negativ	e expectations			9
3.1.5. M	ethod for 1	measurin	g localization	of contro	ol (Rotter Test)			10
3.2. Data	analysis	methods						11
4. Sampl	e descript	ion						12
4.1. Crite	eria for inc	clusion ir	the study	••••••			•••••	12
4.2. Excl	usion crit	eria from	the study	•••••			•••••	12
5. Organ	ization an	d conduc	t of the study					12
6. Limita	tions and	framewo	orks of the stud	y				13
III. RES	ULTS	•••••						15
1. Descri	ptive stat	istics					•••••	15
2. Reliab	oility of the	e scales u	ısed				• • • • • • • • • • • • •	25
3. Correl	ation anal	lysis						26
3.1. Corr	elation an	alysis of	the scales in th	e group	– first stage		•••••	26
3.2. Corr	elation an	alysis of	the scales in the	he group	- second stage		•••••	
3.3. Corr	elation an	alysis of	the scales in th	e group	– third stage		•••••	
4. T – tes	t for com	paring gr	oup means					30
4.1. T – t	est of dep	ression in	ndicators in the	e study g	roup		•••••	
4.2. T−t	est of opti	mism ino	dicators in the	study gro	oup	•••••	•••••	
4.3. T – t	est of indi	cators of	negative expe	ctations	in the studied gr	oup		33
4.4. T – t	est of mot	ivation in	ndicators in the	e studied	group		•••••	35
5. Regres	ssion anal	ysis						36
5.1. Inve	estigating	the influ	uence of the i	ndepend	lent variables:	locus of control	, optimis	sm, negative
expectati	ions, and r	notivatic	on on the depen	dent var	iable depressior	during the first	stage of t	the study36

CONTENTS

5.2. Investigating the influence of the independent variables: optimism, negative expectations and
motivation on the dependent variable depression during the second stage of the study
5.3. Investigating the influence of the independent variables: locus of control, optimism, negative
expectations and motivation on the dependent variable depression during the third stage of the study41
IV. DISCUSSION
1. Data analysis regarding depression: assessment of depression severity with the Montgomery Asberg
Depression Rating Scale (MADRS), 197944
2. Data analysis regarding the localization of control45
3. Data analysis regarding optimism
4. Data analysis regarding negative expectations
5. Data analysis regarding motivation47
6. Correlation analysis
7. T – test for comparing group means at different values of the dependent variable 51
8. Regression analysis
V. CONCLUSIONS
VI. CONCLUSION
VII. CONTRIBUTIONS
PUBLICATIONS RELATED TO THE DISSERTATION

INTRODUCTION

Depression is a socially significant problem affecting millions of people around the world. Depressive disorders are a serious public health problem and are becoming global in scope. Depression is one of the most common mental illnesses (disorders) worldwide, with social significance, which negatively affects all aspects of a person's life, including their loved ones. It has a strong impact on people's daily lives. It reduces a person's quality of life, disrupts their functioning and in some cases leads to disability.

According to a WHO report, depression is the leading cause of disability worldwide, with an impact on life expectancy and a negative impact on professional, social and personal life.

It has a negative impact on interpersonal relationships, professional or school performance, physical health and overall quality of life. It represents a closed cycle, leading to the degradation of personal and environmental space, which supports depression, which in turn worsens the environment and damages the personality.

Results from a number of studies show that there are regulatory mechanisms of the psyche. These are such personality traits that help minimize the negative impact of environmental factors and situations that increase stress levels. Such personality traits are generalized expectations - optimism, negative expectations, localization of control and motivation. They occupy a major place in the structure and process of personality organization and modulate mental processes.

Revealing the main aspects of generalized expectations as a potential mediator function between stable personality characteristics and the dynamics of the course of the depressive episode is of promising importance in supporting the treatment of patients with depression. Therapeutic work with generalized expectations - motivation, optimism, localization of control as regulatory functions supporting mental health could open new opportunities and directions in psychological assistance for prevention, the treatment process, recovery as well as anti-relapse in people with depression.

The negative impact of certain personality traits on mental functioning in patients with depression can be compensated for by supporting the long-term motivation and optimistic expectations of those treated.

The development of this dissertation is an attempt to answer current questions related to the clarification of the causal relationships between depression and regulatory personality variables - generalized expectations and their influence on the specificity and dynamics (transformation) of the disease in the treatment process.

The main goal of the empirical study is to establish the dynamics, specificity and influence of generalized expectations: long-term motivation, optimism, negative expectations and localization of control in the treatment and recovery process in patients with depression. The identified relationships

and causal indicators will outline a research model with potential practical application in clinical and therapeutic work.

The dissertation work follows the generally accepted methodology for formulating the scientific problem.

II. METHODOLOGY OF EMPIRICAL RESEARCH

1. Purpose and tasks of the research

The purpose of the empirical study is to establish the dynamics, specificity and influence of generalized expectations: long-term motivation, optimism, negative expectations and locus of control in the process of treatment and recovery in patients with depression. The identified interrelationships and causal indicators will outline a research model with potential practical application in clinical and therapeutic work.

Achieving the stated goal provokes the solution of the following main research tasks:

1. To investigate the relationships between long-term motivation, generalized optimism expectancy, negative expectations, locus of control and the severity of depression.

2. To analyze the specifics of generalized expectations in patients with depression.

3. To reveal the influence of generalized optimism expectancy on the severity of depression.

4. To reveal the influence of negative expectations on the severity of depression.

5. To reveal the influence of long-term motivation on the severity of depression.

6. To reveal the influence of locus of control on the severity of depression.

7. To investigate the influence of depression at the beginning, during and after treatment on the dynamics and specificity of generalized expectations.

2. Hypotheses

The present empirical study was approached with the following working hypotheses:

2.1. Correlative relationships are assumed between the severity of depression, long-term motivation, generalized optimism expectation, negative expectations and locus of control.

2.2. It is assumed that depression affects the dynamics and specificity of generalized expectations in the treatment process.

2.3. It is assumed that the specific dynamics of generalized expectations affect the change in the severity of depression.

2.4. It is assumed that locus of control remains a stable characteristic in the treatment process in patients with depression.

2.5. The negative impact of depression in the treatment and recovery process can be compensated by supporting long-term motivation, optimistic expectations, locus of control and minimizing negative expectations of those treated.

3. Methods

The study was approved by the Research Ethics Committee at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna with Protocol/Decision No. 142/18.04.2024. All participants were familiar with the procedures and signed an informed consent form.

The data necessary for the purposes of the study were collected following the described sequence of the intended components of the study.

3.1. Data Collection Methods

The following test methodologies were used in the research process:

3.1.1. Work Card

The job card covers the collection of information on demographic indicators: age, gender, marital status, education, employment, work capacity.

3.1.2. Study of the severity of depressive symptoms using the Montgomery Asberg Depression Rating Scale (MADRS), 1979

The Montgomery and Asberg Depression Rating Scale is widely used. The scale was developed in 1978 by European psychiatrists Montgomery and Asberg to measure changes in depressive symptoms as a result of treatment. It is a ten-item diagnostic questionnaire that measures the severity of depression in patients with mood disorders. Each item can be rated from 0 to 6, and the total score on the scale can range from 0 to 60. With a score of 0 to 6 points - Normal degree of expression; remission; absent symptoms; from 7 to 19 points: depression is considered weak/mild; from 20 to 34 points: moderate; and above 35 points: significant (strong), severe depression. Ratings should be based on the assessee's condition as observed over the past week (past 7 days).

The Montgomery Asberg Depression Rating Scale (MADRS), 1979, is widely used in clinical practice and for research purposes. It assumes a normal distribution of depression scores.

3.1.3. Test for assessing long-term motivation of individual behavior

The method for assessing long-term motivation of individual behavior is a self-assessment questionnaire with wide application. It is used in clinical practice and for research purposes.

The tool is used to study motivation, which is operationalized with long-term goals. The questionnaire was constructed and validated by A. Velichkov.

Long-term goals are a necessary condition for organizing and maintaining personal resources. They are directly related to the experiences of mental well-being. These goals are the basis for building personal identity and determining one's own lifestyle. They perform the function of organizing principles that help the individual to put their achievements into a whole. They enable people to make sense of their behavior in a more general semantic framework that is personally accepted and subjectively significant, therefore they have a motivational function.

The method assesses the general effects of formulated long-term goals on subjective experiences and the meaningfulness of one's own existence. With its help, the general state of the motivational attitude towards specific events and relationships is assessed, refracted through their subjective understanding and relation to the more general concept of one's own existence.

The author believes that the presence of sustainable long-term goals finds expression in the subjective experiences of interest in what is happening, internal growth and a sense of meaning in everyday activities.

On this theoretical basis, 10 items were formulated, which form a homogeneous scale with the Cronbach' Alpha coefficient - 0.78.

This scale includes 10 statements that best describe the thoughts and perceptions of the person being studied. The instruction requires the person being studied to describe their thoughts and perceptions by assessing the frequency and intensity of their dominant states on a seven-point scale.

Each question can be scored from 1 to 7, and the total score on the scale can range from 10 to 70.

In this scale, 6 statements are scored directly, and the remaining 4 are recoded. The values of the answers on all items are summed to obtain the total score.

3.1.4. Method for assessing optimism and negative expectations

For the first time, Scheier & Carver, 1985 considered the concept of optimism at a scientific level. They defined optimism as a generalized expectation of obtaining positive results and a predominance of positive events. The construct optimism was introduced into scientific discourse in the search for personality factors that increase resistance to stress and personal regulation. Optimism is considered as an explanatory style, a tendency to build more effective strategies for dealing with problems. The optimistic style has numerous positive advantages: better mental health, longer life,

better resistance to stressful situations, better relationships, focus on one's own efforts, less focus on one's emotions, efficiency in making decisions in difficult life situations, positive rethinking and planning, satisfaction with life, buffers the development of depressive symptoms.

People develop relatively independent of each other expectations with opposite content.

The roots of optimism are in the peculiarities of individual development and upbringing. Negative expectations are secondary – they are formed in adulthood, with the gradual inevitable accumulation of negative life experience.

The method for assessing optimism and negative expectations is a self-assessment questionnaire with wide application. It is used in clinical practice and for research purposes. The questionnaire was constructed and validated by A. Velichkov.

The completed version of the methodology includes 10 items related to optimism and 7 - to negative expectations. The test of the independence of the two scales reports results in the direction of two separate, relatively independent generalized expectations.

The analysis of the psychometric characteristics of the method and the test of construct validity were performed on data from testing 262 individuals of both sexes aged 19 to 55 years.

Significant gender differences were not observed. Comparisons by age groups show that with increasing age there is a tendency towards a decrease in optimism and an increase in negative expectations.

This scale includes 17 statements that describe different attitudes towards things that happen in life. The instruction requires the respondent to carefully read each statement and rate their level of agreement with the content using a five-point Likert scale.

- 1 strongly disagree
- 2 disagree
- 3 partly agree, partly disagree
- 4 agree
- 5 strongly agree

The raw scores on both scales are obtained by summing the responses.

3.1.5. Method for measuring locus of control (Rotter Test)

The construct "locus of control" was introduced by D. Rotter in 1996 in connection with a description of generalized expectations about the sources of causality for obtaining results by the individual. It describes a stable, generalized expectation that operates in a wide range of situations and refers to whether the individual believes that he or she has or does not have power over the events that happen to him or her.

According to Rotter (1966), there are two possible ways of perceiving the causes of a given behavior: Internal control - the causes of a given event, as arising from themselves, i.e., their skills, abilities, knowledge, efforts made and vice versa (external control) perception of given events as a result of luck, chance, coincidence, etc. similar.

The Rotter scale measures whether a person is inclined to attribute responsibility to themselves, instead of other facts and circumstances.

The method for assessing locus of control (LC) is a self-assessment questionnaire with widespread application. It is used in clinical practice and for research purposes.

This questionnaire is designed to reveal the way in which certain events in public and personal life influence people's behavior. The scale includes 20 pairs of statements, respectively indicated by the letters A. and B. The instruction requires the person being examined from each pair to circle the letter in front of that statement (always only one) that he or she considers to best express his or her opinion. Do not choose a statement just because most people would choose it or because you like it better. Do not think too long about the individual statements. There are no right or wrong answers here. Usually the first impression is the best. In the case where both statements are equally acceptable or neither of them corresponds to the opinion of the person being tested, the statement that is closest to your own view should be chosen.

The total score is obtained according to the corresponding key, each corresponding choice receives 1 point.

From 0 to 7 points - Internal locus of control From 8 to 15 points - External locus of control

3.2. Data analysis methods

- Descriptive statistics;
- Assessment of the reliability of self-assessment methodologies;
- Correlation analysis;

• T - test (Student's T-Test) to detect differences in the mean values between variables in different measurements;

• Regression analysis;

The statistical processing of the results was carried out with the statistical package "SPSS -22 - form for expert science".

4. Description of the sample

The planned scientific study was conducted within five months. For a period of (from April 2024 to August 2024), a total of 70 individuals with clinical data on depression were studied. Participants were between the ages of 18 and 65.

The selection of participants in the study was carried out face to face, after conducting a consultation regarding the purpose, tasks, methods, benefits of the study, informing about the essence of the study and signing an informed consent.

The selection of participants was carried out according to the established criteria for inclusion and exclusion in the study.

4.1. Criteria for inclusion in the study

1. Patients over 18 years of age;

2. Patients under 65 years of age;

3. Participants who have been diagnosed with a depressive episode according to the ICD-10 criteria;

4. Participants who have signed an informed consent.

4.2. Criteria for exclusion from the study

1. Patients under 18 years of age;

2. Patients over 65 years of age;

3. Participants who are not diagnosed with a depressive episode according to the ICD-10 criteria;

4. Pregnant women;

5. Participants who refuse to sign an informed consent.

The participants in the study diagnosed with a depressive episode were randomly assigned. Some of them underwent inpatient treatment at the Day Clinic at the Second Psychiatric Clinic, St. Marina University Hospital - Varna and outpatient treatment at the Medical Plus Medical Center - Varna.

5. Organization and Conduct of the Study

The study process goes through three stages: at the beginning, during and at the end of the treatment of the subjects studied.

During the first stage, individuals are examined using the following methods:

1. Filling out a work card with

- the work card with includes collecting information on demographic indicators: age, gender, marital status, education, employment, work capacity.

2. Examining the severity of depressive symptoms using the Montgomery Asberg Depression Rating Scale (MADRS), 1979

3. Filling out the questionnaire for assessing the long-term motivation of individual behavior

4. Filling out the questionnaire for assessing optimism and negative expectations

5. Filling out the questionnaire for measuring locus of control (Rotter Test)

The second stage of the study is conducted approximately two months after the first. During this stage, the following test methods are used:

1. Filling out a work card with in case of a change in some of the data set in it.

2. Examining the severity of depressive symptoms using the Montgomery Asberg Depression Rating Scale (MADRS), 1979

3. Filling out the questionnaire for assessing the long-term motivation of individual behavior

4. Filling out the questionnaire for assessing optimism and negative expectations

The third stage of the study is conducted approximately two months after the second. During this stage, the following test methods are used:

1. Filling out a work card with in case of a change in some of the data set in it.

2. Examining the severity of depressive symptoms using the Montgomery Asberg Depression Rating Scale (MADRS), 1979

3. Filling out the questionnaire for assessing the long-term motivation of individual behavior

4. Filling out the questionnaire for assessing optimism and negative expectations

5. Filling out the questionnaire for measuring locus of control (Rotter Test)

6. Limitations and frameworks of the study

The subjects were diagnosed with a depressive episode according to the criteria of the ICD-10.

The study has limitations regarding the time period of its conduct and the characteristics of the studied sample.

The empirical study was conducted in two bases:

1. Day hospital at the Second Psychiatric Clinic, St. Marina University Hospital - Varna

2. Medical Plus Medical Center - Varna

The instrumental part of the study was carried out within five months. The total number of subjects studied was 70. All participants were previously familiarized with the study procedures and signed an informed consent to participate. The sample was obtained on the basis of randomization and random principle. The subjects studied are from the city of Varna and Varna region. In terms of ethnicity, the sample is not balanced compared to the main population. All these limitations were taken into account when analyzing the results. The study does not claim to be epidemiological in the field of the sought-after issues, but is oriented towards searching for the specific and dominant as an influence and interrelationships in terms of generalized expectations (GE) and depression.

The study was conducted in three stages and with the same subjects. It has a conceptual nature and attempts to create a research design for the issue.

The results for the three stages of the study do not apply beyond the specific moment (situation).

The prospects for this type of research may be oriented towards increasing the sample size and exploring the influence of other latent variables that might be relevant to the problem.

III. RESULTS

1. Descriptive statistics

1.1. Distribution of the studied subjects by age

A total of 70 subjects with depression were studied, with a minimum age of 35 years and a maximum age of 64 years. The average age of the participants was 50.8429 with a standard deviation of 7.30224. The distribution of the age in the group is presented in Table 1.

Table 1

Number (N)	70
Mean	50,8429
Standard Deviation	7,30224
Minimum	35,00
Maximum	64,00

Age distribution in the group

The graphic representation of the age distribution is shown in Figure 1. It is evident that it is close to normal and this makes the sample relevant for generalizing trends related to the general population (Fig. 1.).

From the graphic distribution of age, it is observed that the age of the surveyed individuals predominates between 40 and 60 years (Fig. 1.).



Fig. 1. Age distribution in the group

1.2. Distribution of the surveyed individuals by gender

Of the 70 individuals included in the study, the number of women surveyed was predominant -40, compared to that of men -30. (Table 2).

Table 2

Gender	Frequency (N)	Percentage (%)
Men	30	42,9
Women	40	57,1
Total	70	100

Gender distribution in the group

Expressed in percentage terms, the share of women participating was 57.1%, and men participating was 42.9% (Fig. 2).



Fig. 2. Pie chart of gender distribution in the study sample

1.3. Distribution of the surveyed individuals by marital status

Of the 70 surveyed individuals, 32 are married, 14 are single, 17 are divorced, and 7 are widowed (Table 3). The distribution shows that two relatively equivalent groups in number are distinguished – married and a group comprising individuals who, for some reason, do not have a family.

Table 3

Marital status	Frequency (N)	Percentage (%)
Married	32	45,7
Single	14	20,0
Divorced	17	24,3
Widower	7	10,0

Distribution by marital status in the group

1.4. Distribution of respondents by education

The distribution of the total sample according to education is presented in Table 4. It is evident that 31 of the surveyed individuals have completed higher education. There are 37 individuals with completed secondary education, and 2 with primary education. The distribution shows that the majority of the individuals in the sample have completed secondary and higher education, only 2 have primary education (Table 4).

Table 4

Education	Frequency (N)	Percentage (%)
Primary	2	2,9
Secondary	37	52,9
Higher	31	44,3

Distribution by education in the group

1.5. Distribution of the surveyed individuals by employment

Of the 70 surveyed individuals, 37 are employed and 33 are unemployed (Table 5). The distribution shows that two relatively equivalent groups are distinguished, comprising those who are unemployed and those who are employed.

Table 5

Distribution by employment in the group

Employment	Frequency (N)	Percentage (%)
Not working	33	47,1
Working	37	52,9

- 1.6. Distribution of the study sample according to the severity of depressive symptoms assessed using the Montgomery Asberg Depression Rating Scale (MADRS), 1979
 - 1.6.1. Distribution of the study sample according to the severity of depression first stage of the study

Table 6 presents the distribution of individuals with depression according to the severity of depressive symptoms at the first stage of the study. The scale was successfully administered to all individuals with depression during the first stage of the study. The summarized results are presented in Table 6. It can be seen that at the first stage, individuals with mild depression were 14 (20%), while individuals with moderate and severe depression were 44 (62.9%) and 12 (17.1%), respectively.

Depression severity	Frequency (N)	Percentage (%)
Mild depression (7 points – 19 points)	14	20,0
Moderate depression (20 points – 34 points)	44	62,9
Severe depression (over 35 points)	12	17,1
Total	70	100,0

Distribution of individuals in the group according to the severity of stage I depression

1.6.2. Distribution of the study sample according to the severity of depression – second stage of the study

Table 7 presents the distribution of individuals with depression according to the severity of depressive symptoms in the second stage of the study. The scale was successfully administered to all individuals with depression during the second stage of the study. The summarized results are presented in Table 7. It can be seen that in the second stage, individuals with mild depression were 42 (60%), while individuals with moderate and severe depression were 27 (38.6%) and 1 (1.4%) respectively (Table 7). In the second stage, patients with mild depression increased and patients with moderate and severe depression increased and patients with moderate and severe depression decreased, compared to the data from the first stage.

Table 7

Distribution of individuals in the group according to the severity of stage II depression

Depression severity	Frequency (N)	Percentage (%)
Mild depression (7 points – 19 points)	42	60.0
Moderate depression (20 points – 34 points)	27	38.6
Severe depression (over 35 points)	1	1.4
Total	70	100,0

1.6.3. Distribution of the study sample according to the severity of depression – third stage of the study

Table 8 presents the distribution of individuals with depression according to the severity of depressive symptoms at the third stage of the study. The scale was successfully administered to all individuals with depression during the third stage of the study. The summarized results are presented in Table 8. It can be seen that at the third stage, individuals with normal depression were 39 (55.7%), individuals with mild depression were 19 (27.1%), while individuals with moderate depression were 12 (17.1%) (Table 8). At the third stage, patients with normal and mild depression predominated, and patients with moderate depression decreased.

Table 8

Depression severity	Frequency (N)	Percentage (%)
Normal depression $(0-6)$	39	55,7
Mild depression $(7 - 19)$	19	27,1
Moderate depression $(20 - 34)$	12	17,1
Total	70	100,0

Distribution of individuals in the group according to the severity of stage III depression

1.7. Distribution of individuals in the group according to the type of control localization during the first and third stages of the study

Of the 70 individuals included in the study, the number of individuals with an external locus of control was predominant – 51, compared to those with an internal locus of control – 19 during the first stage of the study. Accordingly, during the third stage of the study, the number of individuals with an external locus of control again predominated – 37, compared to those with an internal locus of control -33 (Table 9).

Table 9

Distribution of individuals in the group according to the type of control localization during the first and third stages of the study

Localization of	First	stage	Third stage	
control	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
External	51	72,9	37	52,9
Internal	19	27,1	33	47,1
Total	70	100	70	100

It was assumed that locus of control is a stable characteristic over time, and for this reason its study was conducted in the first and third stages.

1.8. Estimated mean values for the MADRS depression scale score at the three stages of the study

The mean scores on the scale (MADRS), 1979 – for the three stages of the study are shown in Table 10.

The scale was successfully administered to all individuals with depression during the first stage of the study. Table 10 shows that the maximum score on the scale in the group (n=70) was 44, and the minimum score – 12. The mean score of depression for the study sample was 27.3429, with a standard deviation of 7.97802 (Table 10).

The scale was successfully administered to all individuals with depression during the second stage of the study. Table 10 shows that the maximum score on the scale in the group (n=70) was 36, and the minimum score -7. The mean score of depression for the study sample was 17.6000, with a standard deviation of 8.11047. At the second stage of the study, a decrease in the mean value of depression (17.6000) was reported compared to the first stage (27.3429) (Table 10).

The scale was successfully administered to all individuals with depression during the third stage of the study. Table 10 shows that the maximum score on the scale in the group (n=70) was 26, and the minimum score was 2. The mean value of depression for the studied sample was 9.8857, with a standard deviation of 7.35742. At the third stage of the study, a decrease in the mean value of depression (9.8857) was reported compared to the second stage (17.6000) (Table 10).

Table 10

Stages of the study	First stage	Second stage	Third stage
Number (N)	70	70	70
Mean	27,3429	17,6000	9,8857
Standard Deviation	7,97802	8,11047	7,35742
Minimum	12,00	7,00	2,00
Maximum	44,00	36,00	26,00

Group averages for the MADRS depression score for the three stages of the study

1.9. The localization of control was assessed at the first and third stages of the study

The average values of the score on the Locus of Control scale – for the first and third stages of the study are shown in Table 11.

The scale was successfully administered to all individuals during the first stage of the study. Table 11 shows that the maximum score on the scale in the group (n=70) is 15, and the minimum score -2. The average value of the locus of control for the studied sample is 9.1857, with a standard deviation of 3.07535 (Table 11).

The scale was successfully administered to all individuals during the third stage of the study. Table 11 shows that the maximum score on the scale in the group (n=70) is 15, and the minimum score – 3. The average value of the locus of control for the studied sample is 8.6286, with a standard deviation of 2.77239. At the third stage, a decrease in the average value of the control localization (8.6286) was reported compared to the first stage (9.1857) (Table 11).

Table 11

Average values of control localization in the first and third stages of the study

Stages of the study	First stage	Second stage
Number (N)	70	70
Mean	9,1857	8,6286
Standard Deviation	3,07535	2,77239
Minimum	2,00	3,00
Maximum	15,00	15,00

It was assumed that locus of control is a stable characteristic over time, and for this reason its study was conducted only during the first and third stages.

1.10. Estimated optimism at the first, second and third stages of the study

The average scores on the optimism scale – for the three stages of the study, are shown in Table 12.

The scale was successfully administered to all individuals during the first stage of the study. Table 12 shows that the maximum score on the scale in the group (n=70) is 47, and the minimum score -12. The average score of optimism for the studied sample is 31.8714, with a standard deviation of 9.16186 (Table 12).

The scale was successfully administered to all individuals during the second stage of the study. Table 12 shows that the maximum score on the scale in the group (n=70) is 47, and the minimum score -15. The average score of optimism for the studied sample is 33.4286, with a standard deviation of 7.49410. In the second stage of the study, an increase in the average value of optimism (33.4286) was reported compared to the first stage (31.8714) (Table 12).

The scale was successfully administered to all individuals during the third stage of the study. Table 12 shows that the maximum score on the scale in the group (n=70) was 45, and the minimum score was 20. The average optimism value for the studied sample was 35.2286, with a standard deviation of 6.73337. At the third stage of the study, an increase in the average optimism value (35.2286) was reported compared to the second stage (33.4286) (Table 12).

Table 12

Stages of the study	First stage	Second stage	Third stage
Number (N)	70	70	70
Mean	31,8714	33,4286	35,2286
Standard Deviation	9,16186	7,49410	6,73337
Minimum	12,00	15,00	20,00
Maximum	47,00	47,00	45,00

Average optimism values in the first, second and third stages of the study

1.11. Negative expectations assessed at the first, second and third stages of the study

The average values of the assessment on the negative expectations scale - for the three stages of the study, are shown in Table 13.

The scale was successfully administered to all individuals during the first stage of the study. Table 13 shows that the maximum score on the scale in the group (n=70) is 35, and the minimum score -10. The average value of negative expectations for the studied sample is 23.7000, with a standard deviation of 5.01693 (Table 13).

The scale was successfully administered to all individuals during the second stage of the study. Table 13 shows that the maximum score on the scale in the group (n=70) is 33, and the minimum score -10. The average value of negative expectations for the studied sample is 21.3571, with a standard deviation of 4.98704. At the second stage of the study, a decrease in the average value of negative expectations (21.3571) was reported compared to the first stage (23.7000) (Table 13).

The scale was successfully administered to all individuals during the third stage of the study. Table 13 shows that the maximum score on the scale in the group (n=70) was 30, and the minimum score was

8. The average value of negative expectations for the studied sample was 18.6000, with a standard deviation of 4.39499. At the third stage of the study, a decrease in the average value of negative expectations (18.6000) was reported compared to the second stage (21.3571) (Table 13).

Table 13

Stages of the study	First stage	Second stage	Third stage
Number (N)	70	70	70
Mean	23,7000	21,3571	18,6000
Standard Deviation	5,01693	4,98704	4,39499
Minimum	10,00	10,00	8,00
Maximum	35,00	33,00	30,00

Average values of negative expectations in the first, second and third stages of the study

1.12. Motivation assessed at the first, second and third stages of the study

The average scores on the motivation scale – for the three stages of the study, are shown in Table 14.

The scale was successfully administered to all individuals during the first stage of the study. Table 14 shows that the maximum score on the scale in the group (n=70) is 58, and the minimum score -10. The average value of motivation for the studied sample is 40.5571, with a standard deviation of 13.13656 (Table 14).

The scale was successfully administered to all individuals during the second stage of the study. Table 14 shows that the maximum score on the scale in the group (n=70) is 63, and the minimum score -17. The average value of motivation for the studied sample is 43.7143, with a standard deviation of 12.65958. At the second stage of the study, an increase in the average value of motivation (43.7143) was reported compared to the first stage (40.5571) (Table 14).

The scale was successfully administered to all individuals during the third stage of the study. Table 14 shows that the maximum score on the scale in the group (n=70) was 63, and the minimum score was 17, and no change was reported in the maximum (63) and minimum (17) scores from the second stage of the study. The average value of motivation for the studied sample was 48.1571, with a standard deviation of 10.56469. At the third stage of the study, a significant increase in the average value of motivation (48.1571) was reported compared to the second stage (43.7143) (Table 14).

Stages of the study	First stage	Second stage	Third stage
Number (N)	70	70	70
Mean	40,5571	43,7143	48,1571
Standard Deviation	13,13656	12,65958	10,56469
Minimum	10,00	17,00	17,00
Maximum	58,00	63,00	63,00

Average motivation values at the first, second and third stages of the study

2. Reliability of the scales used in the study

The reliability coefficient of the self-assessment methods used, Cronbach's alpha, was calculated. Table 15 shows that the scales used during the three stages of the study have a high reliability coefficient.

Table 15

Cronbach's alpha value of the assessment scales used during the first, second and third stages of the study

Cronbach's Alpha (Cronbach's alpha)	Scales
Locus of control stage one	0,71
Locus of control stage three	0,86
Optimism – stage one	0,85
Negative expectations – stage one	0,72
Motivation – stage one	0,78
Optimism – stage two	0,84
Negative expectations – stage two	0,72
Motivation – stage two	0,79
Optimism – stage three	0,88
Negative expectations – stage three	0,74
Motivation – stage three	0,83

The Cronbach's alpha values indicate high internal consistency of the scales used in the study. The data from the present study correspond with the results of the methodologies and their validation (Radoslavova and Velichkov, 2005). 3. Correlation analysis

In order to search for correlations between the main groups of indicators examined within the study, namely the results of the scales (MADRS), 1979, Locus of Control-Total Score, Optimism, Negative Expectations and Motivation, in the entire sample, a Pearson correlation analysis was performed.

3.1. Correlation analysis of the scales in the group - first stage

Table 16 shows the correlations between the scales in the group at the first stage of the study. There are significant correlations and a high level of significance of the correlation between all scaled values:

• between the total score on the depression scale and motivation (high degree of correlation).

As the severity of depression increases, motivation decreases – negative correlation $r = -,764^{**}$; p < 0,001;

• between the total score on the depression scale and locus of control (LOC) (high degree of correlation).

As the severity of depression increases, the values of locus of control increase – there is a positive correlation $r = .717^{**}$; p<0,001;

• between the total score on the depression scale and optimism (high degree of correlation).

As the total score on the depression increases, optimism decreases – there is a negative correlation $r = -563^{**}$; p<0,001;

• between the total score on the depression scale and negative expectations (high degree of correlation).

With increasing severity of depression, an increase in negative expectations is observed - there is a positive correlation $r = .506^{**}$; p<0.001 (Table 16).

Table 16

		Depression	General LK	Optimism	Negative expectations	Motivation
	Pearson Correlation	1	,717**	-,563**	,506**	-,764**
Depression	Sig. (2-tailed)		,000	,000	,000	,000
	Ν	70	70	70	70	70

Correlation analysis of the scales in the group - first stage

	Pearson Correlation	,717**	1	-,513**	,368**	-,722**
General LK	Sig. (2-tailed)	,000		,000	,002	,000
	Ν	70	70	70	70	70
	Pearson Correlation	-,563**	-,513**	1	-,438**	,589**
Ontinion	Sig. (2-tailed)	,000	,000		,000	,000
Optimism	Ν	70	70	70	70	70
	Pearson Correlation	,506**	,368**	-,438**	1	-,526**
Negative expectations	Sig. (2-tailed)	,000	,002	,000		,000
1	Ν	70	70	70	70	70
	Pearson Correlation	-,764**	-,722**	,589**	-,526**	1
Motivation	Sig. (2-tailed)	,000	,000	,000	,000	
	Ν	70	70	70	70	70

Note: Significant correlations are shown:

** - significant at the p < 0.001; * - significant at the p < 0.05.

3.2. Correlation analysis of the scales in the group – second stage

It is interesting whether this connection will be maintained in the second stage of the study. It was assumed that the localization of control is a stable characteristic over time and for this reason its study was conducted in the first and third stages and is not included in the correlation analysis of the second stage of the study.

The results of the analysis are presented in Table 17. There are significant correlations and a high level of significance of the correlation between:

• between the total score on the depression scale and motivation (high degree of correlation).

When the severity of depression decreases, motivation increases - negative correlation

r = -,832**; p<0,001;

• between the total score on the depression scale and negative expectations (high degree of correlation).

When the severity of depression decreases, a decrease in negative expectations is observed – there is a positive correlation $r = ,520^{**}$; p<0,001;

• between the total score on the depression scale and optimism (high degree of correlation). As the total depression score decreases, optimism increases – there is a negative correlation $r = -,659^{**}$; p<0,001 (Table 17).

It is evident that the connectivity between the scales is much higher compared to that of the first stage of the study (Table 17).

Table 17

		Depression	Optimism	Negative expectations	Motivation
	Pearson Correlation	1	-,659**	,520**	-,832**
Depression	Sig. (2-tailed)		,000	,000	,000
	Ν	70	70	70	70
	Pearson Correlation	-,659**	1	-,480**	,689**
Optimism	Sig. (2-tailed)	,000		,000	,000
	Ν	70	70	70	70
	Pearson Correlation	,520**	-,480**	1	-,571**
Negative expectations	Sig. (2-tailed)	,000,	,000		,000
	Ν	70	70	70	70
	Pearson Correlation	-,832**	,689**	-,571**	1
Motivation	Sig. (2-tailed)	,000	,000	,000	
	Ν	70	70	70	70

Correlation analysis of the scales in the group - second stage

Note: Significant correlations are shown:

** - significant at the p < 0.001; * - significant at the p < 0.05.

3.3. Correlation analysis of the scales in the group – third stage

Table 18 shows the correlations between the scales in the group at the third stage of the study. Again, there are significant correlations and a high level of significance of the correlation between all scaled values:

• between the total score on the depression scale and motivation (high degree of correlation).

When the severity of depression decreases, motivation increases – negative correlation $r = -,839^{**}$; p<0,001;

• between the total score on the depression scale and locus of control (LOC) (high degree of correlation).

When the severity of depression decreases, the values of locus of control decrease – there is a positive correlation $r = .718^{**}$; p<0,001;

- between the total score on the depression scale and optimism (high degree of correlation).
- When the total score on the depression decreases, optimism increases there is a negative correlation $r = -,670^{**}$; p<0,001;
- between the total score on the depression scale and negative expectations (high degree of correlation).
- With a decrease in the total depression score, a decrease in negative expectations is observed there is a positive correlation $r = ,667^{**}$; p<0,001 (Table 18).

It is evident that the connectivity between the scales is again much higher compared to that of the second stage of the study (Table 18).

Table 18

		Depression	General LK	Optimism	Negative expectations	Motivation
	Pearson Correlation	1	,718**	-,670**	,667**	-,839**
Depression	Sig. (2-tailed)		,000	,000	,000	,000
	Ν	70	70	70	70	70
	Pearson Correlation	,718**	1	-,564**	,540**	-,700**
General LK	Sig. (2-tailed)	,000		,000	,000	,000
	Ν	70	70	70	70	70
	Pearson Correlation	-,670**	-,564**	1	-,554**	,700**
Optimism	Sig. (2-tailed)	,000	,000		,000	,000
	Ν	70	70	70	70	70
	Pearson Correlation	,667**	,540**	-,554**	1	-,676**
Negative expectations	Sig. (2-tailed)	,000	,000	,000		,000
1	Ν	70	70	70	70	70
	Pearson Correlation	-,839**	-,700**	,700**	-,676**	1
Motivation	Sig. (2-tailed)	,000	,000	,000	,000	
	Ν	70	70	70	70	70

Correlation analysis of the scales in the group - third stage

Note: Significant correlations are shown:

** - significant at the p < 0.001; * - significant at the p < 0.05.

4. T – test for comparing group means

In order to search for the degree of difference between the main indicators examined in the three stages of the study, namely the results of the MADRS scales used, Optimism, Negative Expectations and Motivation, in the studied group, a T-test was performed.

4.1. T - test of depression indicators in the study group

When conducting the T-test, the mean values of the results of the scale used (MADRS), in the studied group (n = 70), revealed significant differences between the values of the severity of depression assessed by MADRS during the three stages of the study (Table 19). The correlation relationships showing the degree of connectivity of the scaled values during the three stages of the study for the entire sample (n = 70) are presented in Table 20. All pairs of indicators have a high degree of connectivity and a high level of significance of the correlation (Table 20).

Table 19

	Mean	Number (N)	Standard	Standard Error Mean
First stage	27 3429	70	7 97802	95356
1 1151 5460	27,3727	/0	7,97002	,75550
Second stage	17,6000	70	8,11047	,96939
Second stage	17,6000	70	8,11047	,96939
Third stage	9,8857	70	7,35742	,87938
First stage	27,3429	70	7,97802	,95356
Third stage	9,8857	70	7,35742	,87938

Descriptive statistics of depression indicators when conducting the T-test for the study group

	Number (N)	Coeff. correlation (r)	Sig. (p)
First Stage & Second Stage	70	,928	,000
Second Stage & Third Stage	70	,933	,000
First Stage & Third Stage	70	,823	,000

Degree of correlation between depression scales in the T-test for the study group

To explain the dynamics, respectively the difference between the studied quantities, the results of the scale used during the first, second and third stages of the study were compared for the entire sample. The results of the T-test for the severity and significance of the differences between the indicators in the studied group are presented in Table 21. Statistically significant differences are observed in the results of the depression indicator. The most significant is the difference between the first and third stages of the study of depression (t = 31.715, p = .000) (Table 21). The depression indicator assessed during the first stage of the study (first stage = 27.3429) has a higher absolute mean value than that during the third stage of the study (third stage = 9.8857) (Table 19).

Table 21

	Paired Differences					t	df	Sig. (2- tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				unou)
				Low	High			
First stage - Second stage	9,74286	3,05830	,36554	9,01363	10,47208	26,654	69	,000
Second stage - Third stage	7,71429	2,92487	,34959	7,01688	8,41170	22,067	69	,000
First stage - Third stage	17,45714	4,60525	,55043	16,35906	18,55522	31,715	69	,000

T-test - degree of severity and significance of differences in depression scales in the study group

4.2. T – test of optimism indicators in the study group

A T-test was performed on the results of the optimism scale used during the three stages of the study. The descriptive statistics of the scale values are presented in Table 22. It is evident that the degree of difference is most significant between the first and third stages of the study (Table 22).

Table 22

	Mean	Number (N)	Standard deviation	Standard Error Mean
First stage	31,8714	70	9,16186	1,09505
Second stage	33,4286	70	7,49410	,89572
Second stage	33,4286	70	7,49410	,89572
Third stage	35,2286	70	6,73337	,80479
First stage	31,8714	70	9,16186	1,09505
Third stage	35,2286	70	6,73337	,80479

Descriptive statistics of optimism indicators when conducting the T-test for the studied group

The correlation relationships showing the degree of connectivity of the studied variables during the three stages of the study for the entire sample (n = 70) are presented in Table 23. All pairs of indicators have a high degree of connectivity and a high level of significance of the correlation (Table 23).

Table 23

	Number (N)	Coeff. correlation (r)	Sig. (p)
First Stage & Second Stage	70	,898	,000
Second Stage & Third Stage	70	,933	,000
First Stage & Third Stage	70	,865	,000

Degree of correlation between optimism scales in the T-test for the studied group

The results of the T-test for the severity and significance of the differences between the scaled values in the studied group are presented in Table 24. Statistically significant differences are observed in the results of the optimism indicator. The most significant is the difference between the first and third

stages of the optimism study (t = -5.915, p = .000) (Table 24). The optimism indicator assessed during the first stage of the study (first stage = 31.8714) has a lower absolute mean value than that during the third stage of the study (third stage = 35.2286) (Table 22).

Table 24

	Paired Differences				t	df	Sig. (2- tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				unou)
				Low	High			
First stage - Second stage	-1,55714	4,09891	,48991	-2,53449	-,57979	-3,178	69	,002
Second stage - Third stage	-1,80000	2,70051	,32277	-2,44391	-1,15609	-5,577	69	,000
First stage - Third stage	-3,35714	4,74887	,56760	-4,48947	-2,22481	-5,915	69	,000

T-test - degree of severity and significance of differences in optimism scales in the study group

4.3. T - test of indicators of negative expectations in the studied group

A T-test was performed on the negative expectations scale values across the three stages of the study. The descriptive statistics of the scale values are presented in Table 25. It is evident that the degree of difference is most significant between the first and third stages of the study (Table 25).

Table 25

Descriptive statistics of the indicators of negative expectations when conducting the T-test for the studied group

	Mean	Number (N)	Standard deviation	Standard Error Mean
First stage	23,7000	70	5,01693	,59964
Second stage	21,3571	70	4,98704	,59607
Second stage	21,3571	70	4,98704	,59607
Third stage	18,6000	70	4,39499	,52530
First stage	23,7000	70	5,01693	,59964
Third stage	18,6000	70	4,39499	,52530

The correlation relationships showing the degree of connectivity of the studied variables during the three stages of the study for the entire sample (n = 70) are presented in Table 26. All pairs of indicators have a high degree of connectivity and a high level of significance of the correlation (Table 26).

Table 26

	Number	Coeff.	Sig. (p)
	(N)	correlation (r)	
First Stage & Second Stage	70	,741	,000
Second Stage & Third Stage	70	,847	,000
First Stage & Third Stage	70	,726	,000

Degree of correlation between the negative expectations scales in the T-test for the studied group

The results of the T-test for the severity and significance of the differences between the scaled values in the studied group are presented in Table 27. Statistically significant differences are observed in the results of the negative expectations indicator. The most significant is the difference between the first and third stages of the study of negative expectations (t = 12.084, p = .000) (Table 27). The negative expectations indicator, assessed during the first stage of the study (first stage = 23.7000), has a higher absolute mean value than that during the third stage of the study (third stage = 18.6000) (Table 25).

Table 27

T-test – degree of severity and significance of differences on the negative expectations scales in the study group

		Pair	ed Differe	nces		t	df	Sig. (2-
	Mean	Std.	Std.	95% Co	onfidence			tailed)
		Deviatio	Error	Interva	l of the			
		n	Mean	Diffe	erence			
				Low	High			
First stage -	2,34286	3,59906	,43017	1,48469	3,20102	5,446	69	,000
Second stage								
Second stage -	2,75714	2,65633	,31749	2,12376	3,39052	8,684	69	,000
Third stage								
First stage -	5,10000	3,53102	,42204	4,25806	5,94194	12,084	69	,000
Third stage								

4.4. T – test of motivation indicators in the studied group

When conducting the T-test, the mean values of the results of the used motivation scale in the studied group (n = 70) revealed significant differences between the motivation values during the three stages of the study (Table 28). It is evident that the degree of difference is most significant between the first and third stages of the study (Table 28).

Table 28

	Mean	Number	Standard	Standard Error
		(N)	deviation	Mean
First stage	40,5571	70	13,13656	1,57012
Second stage	43,7143	70	12,65958	1,51311
Second stage	43,7143	70	12,65958	1,51311
Third stage	48,1571	70	10,56469	1,26272
First stage	40,5571	70	13,13656	1,57012
Third stage	48,1571	70	10,56469	1,26272

Descriptive statistics of motivation indicators when conducting the T-test for the studied group

The correlation relationships showing the degree of connectivity of the studied variables during the three stages of the study for the entire sample (n = 70) are presented in Table 29. All pairs of indicators have a high degree of connectivity and a high level of significance of the correlation (Table 29).

Table 29

Degree of correlation between the motivation scales in the T-test for the studied group

	Number	Coeff.	Sig. (p)
	(N)	correlation (r)	
First Stage & Second Stage	70	,807	,000
Second Stage & Third Stage	70	,874	,000
First Stage & Third Stage	70	,800	,000

The results of the T-test for the severity and significance of the differences between the scaled values in the studied group are presented in Table 30. Statistically significant differences are observed in the results of the motivation indicator. The most significant is the difference between the first and third stages of the motivation study (t = -8.073, p = .000) (Table 30). The motivation indicator assessed during the first stage of the study (first stage = 40.5571) has a lower absolute mean value than that during the third stage of the study (third stage = 48.1571) (Table 28).

Table 30

		Paired Differences					df	Sig. (2-
	Mean	Std.	Std.	95% Co	nfidence			tailed)
		Deviatio	Error	Interva	l of the			
		n	Mean	Diffe	rence			
				Low	High			
First stage -	-3,15714	8,02466	,95913	-5,07056	-1,24373	-3,292	69	,002
Second stage								
Second stage -	-4,44286	6,16826	,73725	-5,91363	-2,97209	-6,026	69	,000
Third stage								
First stage -	-7,60000	7,87658	,94143	-9,47811	-5,72189	-8,073	69	,000
Third stage								

T-test - degree of severity and significance of differences in motivation scales in the studied group

5. Regression analysis

In order to search for cause-effect relationships between the studied parameters - severity of depression, locus of control, optimism, negative expectations and motivation - regression analysis was applied. An assessment of the influence of several independent variables on the dependent variable - depression was sought.

The statistical test of the three stages of the study was performed with ANOVA.

5.1. Investigating the influence of independent variables on the dependent variable during the first stage of the study

The analysis involved one dependent variable and four independent variables. The dependent variable was the depression indicator. The independent variables were: locus of control, optimism, negative expectations, and motivation (Table 31).

Types of variables included in the regression analysis in the first stage of the study

Independent variables	Dependent variable
Locus of control	
Optimism	Depression
Negative expectations	
Motivation	

The influence of the independent variables (locus of control, optimism, negative expectations and motivation) on the dependent variable (depression) for the first stage of the study was investigated. The results show:

• The multiple correlation coefficient between the independent variables and the dependent (depression) is R = .814, i.e. nearly 80% of the variations in the severity of depression during the first stage of the study could be explained by the influence of these variables: locus of control, optimism, negative expectations and motivation.

• The proportion of the variation in the dependent variable that is explained by the independent variables is $R^2 = .663$, which is a very good result.

The model and the results are presented in Tables 32 and 34

Table 32

Regression analysis: model for the first stage of the study

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,814ª	,663	,642	4,77026

a. Independent variables: Motivation, Negative Expectations, Optimism, Locus of Control General

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	2912,675	4	728,169	32,000	,000 ^b
1	Residual	1479,097	65	22,755		
	Total	4391,771	69			

b. Independent variables: Motivation, Negative Expectations, Optimism

Table 34 presents the results regarding the severity and degree of influence of the independent variables on the dependent variable.

Regarding the severity of influence (t) of the independent variables on the dependent variable (depression), the results show:

- Motivation has the highest weight of influence on depression (t = -3.353) and with the highest degree of significance (p = .001).
- Locus of control is the next in weight of influence on depression
- (t = 3.126) and with a high degree of significance (p = .003).
- Negative expectations have a low weight of influence on depression
- (t = 1.511) and with a non-significant degree of significance (p = .136).
- Optimism has the lowest weight of influence on depression (t = -1.118) and with a non-significant degree of significance (p = .268).

Table 34

Power of action of the independent variables on the dependent variable during the first stage of the study

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		
	(Constant)	27,203	7,003		3,884	,000
1	Locus of control general	,855	,274	,330	3,126	,003
	Optimism	-,089	,080	-,103	-1,118	,268

Negative expectations	,207	,137	,130	1,511	,136
Motivation	-,241	,072	-,397	-3,353	,001

5.2. Investigating the influence of independent variables on the dependent variable during the second stage of the study

For the purposes of the analysis, it was assumed that locus of control as an independent variable is a relatively stable characteristic over time and for this reason it was not included in the second stage of the study. The analysis includes the influence of optimism, negative expectations and motivation on depression (Table 35).

Table 35

Types of variables included in the regression analysis in the second stage of the study

Independent variables	Dependent variable	
Optimism	•	
Negative expectations	Depression	
Motivation		

The influence of the independent variables (optimism, negative expectations and motivation) on the dependent variable (depression) was investigated during the second stage of the study. The results revealed:

• The multiple correlation coefficient between the independent variables and the dependent variable (depression) for the second stage of the study is R = .841 and is better than that calculated for the first stage (R = .814).

• The proportion of the variation in the dependent variable that is explained by the independent variables is $R^2 = .708$, which is a very good result.

The model and the results are presented in Tables 36 and 38

Table 36

Table 37

Регресионен анализ: модел за втория етап от изследването

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,841ª	,708	,694	4,48285

a. Independent variables: Motivation, Negative Expectations, Optimism

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	3212,468	3	1070,823	53,286	,000 ^b
1	Residual	1326,332	66	20,096		
	Total	4538,800	69			

b. Independent variables: Motivation, Negative Expectations, Optimism

Table 38 presents the results of the analysis of the power of action of the independent variables (optimism, negative expectations and motivation) on the dependent variable (depression) for the second stage of the study.

Regarding the weight of influence (t) of the independent variables on the dependent (depression), the results show:

• Motivation is a main variable that influences the variations of depression. Motivation has the greatest weight of influence on depression (t = -7.051), and the highest degree of significance (p = .000).

• Optimism has a small weight of influence on depression (t = -1.663), and the degree of significance is low (p = .101).

• Negative expectations have a negligible weight of influence on depression (t = .563), the degree of significance is insignificant (p = .576) (Table 38).

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		
	(Constant)	41,175	5,038		8,174	,000
	Optimism	-,167	,101	-,154	-1,663	,101
1	Negative Expectations	,075	,133	,046	,563	,576
	Motivation	-,448	,064	-,699	-7,051	,000

Power of action of the independent variables on the dependent variable during the second stage of the study

5.3. Investigating the influence of independent variables on the dependent variable during the third stage of the study

The analysis includes one dependent variable and four independent variables. The dependent variable is the depression indicator. The independent variables are: locus of control, optimism, negative expectations and motivation (Table 39).

Table 39

Independent variablesDependent variableLocus of controlDepressionOptimismDepressionNegative expectationsMotivation

Видове променливи включени в регресионния анализ на третия етап от изследването

The influence of the independent variables (locus of control, optimism, negative expectations and motivation) on the dependent variable (depression) for the third stage of the study was investigated. The results show:

• The multiple correlation coefficient between the independent variables and the dependent variable (depression) for the third stage of the study is R = .869 and is better than that calculated for the second stage (R = .841).

• The proportion of the variation in the dependent variable that is explained by the independent variables is $R^2 = .756$, which is a very good result.

The model and the results are presented in Tables 40 and 42

Table 40

Table 41

Regression analysis: model for the third stage of the study

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,869ª	,756	,741	3,74586

a. Independent variables: Motivation, Negative Expectations, General Locus of Control, Optimism

ANOVA^a

F Model Sum of Squares df Mean Square Sig. 50,298 705,760 ,000^b Regression 2823,041 4 Residual 912,045 65 14,031 3735,086 69 Total

b. Independent variables: Motivation, Negative Expectations, General Locus of Control, Optimism

Table 42 presents the results in terms of the weight and degree of influence of the independent variables on the dependent variable.

Regarding the weight of influence (t) of the independent variables on the dependent variable (depression), the results show:

• Motivation has the greatest weight of influence on depression (t = -4.689), and the highest degree of significance (p = .000).

• Locus of control is the next in terms of weight of influence on depression (t = 2.560), and the degree of significance is satisfactory (p = .013).

• Negative expectations have a small weight of influence on depression (t = 1.668), and the degree of significance is low (p = .100).

• Optimism has the smallest weight of influence on depression (t = -1.245), and the degree of significance is insignificant (p = .218).

Table 42

Power of action of the independent variables on the dependent variable during the third stage of the study

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		
	(Constant)	21,693	6,511		3,332	,001
	Locus of control general	,593	,232	,223	2,560	,013
1	Optimism	-,119	,096	-,109	-1,245	,218
	Negative expectations	,236	,142	,141	1,668	,100
	Motivation	-,356	,076	-,511	-4,689	,000

IV. DISCUSSION

1. Analysis of data regarding depression: assessment of depression with the Montgomery Asberg Depression Rating Scale (MADRS), 1979

All subjects participating in the study were assessed for clinically significant symptoms of depression according to the ICD-10 criteria for a depressive episode. Depression was assessed with the MADRS scale in three stages.

The scale was successfully administered to all subjects during the three stages of the study.

The results of the first stage of the study show that all subjects had clinical data for depression, with pronounced depressive symptoms for more than two weeks and a total score on the MADRS scale above 7 points.

The average values of the assessment on the scale (MADRS), 1979 show different dynamics in the results between the three stages of the study.

At the first stage of the study, the maximum score on the scale in the group (n=70) was 44, and the minimum score -12. The average depression score for the studied sample was 27.3429.

At the second stage of the study, a decrease in the maximum score on the scale was reported - 36, as well as in the minimum score - 7. At the second stage of the study, a decrease in the average depression score (17.6000) was reported compared to the first stage (27.3429).

The results of the third stage of the study reported a significant improvement. The maximum score on the scale was 26, and the minimum score - 2. At the third stage of the study, a decrease in the average depression score (9.8857) was reported compared to the second stage (17.6000).

This dynamics of the results is also demonstrated in the distribution of the studied individuals according to the severity of depression. At the first stage of the study, the largest share of individuals with moderate depression was 62.9%. The next largest proportion is the proportion of people with mild depression – 20%, and the smallest is the proportion of people with severe depression – 17.1%. In the second stage of the study, an improvement in the severity of depression was observed. Patients with mild depression increased significantly – 60%, patients with moderate depression decreased – 38.6%, and a significant decrease was reported in patients with severe depression – only 1.4%. In the third stage, people with normal depression were (55.7%), people with mild depression were (27.1%), while people with moderate depression were (17.1%). In the third stage, patients with normal and mild depression prevailed, and patients with moderate depression decreased.

2. Analysis of data regarding locus of control

The assessment of locus of control was carried out using a method for measuring locus of control (Rotter Test). The Rotter scale measures whether a person is inclined to attribute responsibility to themselves, instead of other external factors, facts and circumstances. The method for assessing locus of control (LC) is a self-assessment questionnaire.

It was assumed that locus of control is a stable characteristic over time and for this reason its study was conducted only during the first and third stages.

Of the 70 individuals included in the study, during the first stage of the study, the number of individuals with an external locus of control prevailed -51, compared to those with an internal locus of control -19. Accordingly, during the third stage of the study, the number of individuals with an external locus of control again prevailed -37, compared to those with an internal locus of control -33. The most characteristic of the first stage of the study is an external locus of control.

The result in the third stage is impressive, where the number of individuals with internal locus of control almost doubled -33 compared to their number in the first stage of the study -19.

It is interesting to note that there is a trend for dynamics in the locus of control only in one direction: from external (LOC) to internal (LOC) with the decrease in the severity of depression. A trend for dynamics in the other direction from internal (LOC) to external (LOC) is not observed for the studied sample.

Minimal dynamics is observed in the results of the average values of the scale used for the localization of control. During the first stage of the study, the maximum score on the scale in the group (n=70) was 15, and the minimum score was 2. The average value of the localization of control for the studied sample was 9.1857.

During the third stage of the study, the maximum score on the scale in the group (n=70) was again 15, and the minimum score was 3. The average value of the localization of control for the studied sample was 8.6286. At the third stage, a decrease in the average value of the localization of control (8.6286) was reported compared to the first stage (9.1857).

The presented results provoke the following conclusions:

- the severity of depression affects the localization of control;

- people with an external locus of control are more likely to develop depression and there is a relationship between external localization of control and depression;

- with an increase in the severity of depression, the value on the localization of control scale increases and vice versa;

- with a decrease in the severity of depression, the dynamics in the localization of control is recorded only in one direction from external (LOC) to internal (LOC).

The results of the study correspond to the data from the reviewed literature.

3. Data analysis regarding optimism

The assessment of optimism was carried out using a method for assessing optimism and negative expectations at the three stages of the study. The method for assessing optimism and negative expectations is a self-assessment questionnaire, constructed and validated by A. Velichkov.

The scale was successfully administered to all individuals during the three stages of the study.

At the first stage of the study, the maximum score on the scale in the group (n=70) was 47, and the minimum score -12. The average value of optimism for the studied sample was 31.8714, with a standard deviation of 9.16186.

At the second stage of the study, the maximum score on the scale in the group (n=70) was 47, and the minimum score – 15. The average value of optimism for the studied sample was 33.4286, with a standard deviation of 7.49410. At the second stage of the study, an increase in the average value of optimism (33.4286) was reported compared to the first stage (31.8714).

At the third stage of the study, the maximum score on the scale in the group (n=70) was 45, and the minimum score was 20. The average value of optimism for the studied sample was 35.2286, with a standard deviation of 6.73337. At the third stage of the study, an increase in the average value of optimism (35.2286) was reported compared to the second stage (33.4286).

It is noteworthy that at the third stage of the study, the average value of optimism on the scale was the highest. The highest minimum score was reported, and the maximum hardly changed during the three stages of the study.

The data from the presented results for the studied sample related to optimism are also confirmed by the data in the studied literature. At the beginning of a depressive episode, there is a decline in optimism levels and vice versa, with a decrease in the severity of depression, optimism increases.

Many studies on optimism and depression show a negative correlation between this expectation and depressive disorders.

In relation to improving treatment: optimism as a positive psychological phenomenon for the occurrence of positive events and favorable outcomes, can positively influence the effectiveness of treating depression. Optimists are more motivated to engage in therapeutic processes and may have better results from psychotherapy and medication.

Individuals with higher levels of optimism may be less susceptible to relapses of depression. Their optimism helps them overcome difficulties, build positive attitudes about the future and maintain a more stable mood and positive emotions. 4. Data analysis regarding negative expectations

The assessment of negative expectations was carried out using: a method for assessing optimism and negative expectations at the three stages of the study. The questionnaire was constructed and validated by A. Velichkov.

The scale was successfully administered to all individuals during the three stages of the study.

The results of the first stage of the study show that the maximum score on the scale in the group (n=70) is 35, and the minimum score -10. The average value of negative expectations for the studied sample is 23.7000, with a standard deviation of 5.01693.

During the second stage of the study, the maximum score on the scale in the group (n=70) is 33, and the minimum score -10. The average value of negative expectations for the studied sample is 21.3571, with a standard deviation of 4.98704. At the second stage of the study, a decrease in the average value of negative expectations (21.3571) was reported compared to the first stage (23.7000).

During the third stage of the study, the maximum score on the scale in the group (n=70) was 30, and the minimum score -8. The average value of negative expectations for the studied sample was 18.6000, with a standard deviation of 4.39499. At the third stage of the study, a decrease in the average value of negative expectations (18.6000) was again reported compared to the second stage (21.3571).

A significant decrease in the values of the maximum (30) and minimum scores from the third (8) stage was observed compared to those from the first stage of the study, respectively maximum (35) and minimum (10).

At the beginning of depression, higher values on the scale for negative expectations were reported, and vice versa, with improvement in depression, negative expectations decreased.

The presented results, related to the presence of negative expectations in the clinical picture of depression in the studied sample, are also confirmed by the data in the literature.

Affective states such as depression can be a source of negative thoughts and expectations as well as increase attitudes about the probability of the occurrence of negative and undesirable events and outcomes.

Data from a longitudinal study shows that negative expectations predispose to the development of a more intense stress response to events and situations and the development of persistent stress states such as depression.

5. Data analysis regarding motivation

The assessment of motivation was carried out through a test for assessing the long-term motivation of individual behavior. The method is a self-assessment questionnaire with wide application

in clinical practice and for research purposes. The questionnaire was constructed and validated by A. Velichkov.

The tool is used to study motivation, which is operationalized by setting long-term goals. Goals are an internal regulator of behavior. Long-term goals allow for a comprehensive understanding of behavior in more general semantic frameworks that are personally accepted and subjectively significant and therefore have a motivational function.

The scale was successfully administered to all individuals during the three stages of the study. The results of the first stage of the study show that the maximum score on the scale in the group (n=70) is 58, and the minimum score is 10. The average value of motivation for the studied sample is 40.5571, with a standard deviation of 13.13656.

During the second stage of the study, the maximum score on the scale in the group (n=70) was 63, and the minimum score -17. The average value of motivation for the studied sample was 43.7143, with a standard deviation of 12.65958. At the second stage of the study, an increase in the average value of motivation (43.7143) was reported compared to the first stage (40.5571).

During the third stage of the study, the maximum score on the scale in the group (n=70) was 63, and the minimum score -17. The average value of motivation for the studied sample was 48.1571, with a standard deviation of 10.56469. At the third stage of the study, a significant increase in the average value of motivation (48.1571) was reported compared to the second stage (43.7143). No change was reported in the maximum and minimum scores on the scale compared to the second stage of the study.

In the dynamics of the presented results, the significant increase in motivation with decreasing values on the depression scale and conversely decreased motivation at the beginning of the depressive disorder are striking.

The data from the results of the conducted study are confirmed by the data in the literature. Long-term goals are directly related to the experiences of mental well-being and are a necessary condition for organizing and maintaining personal resources. The presence of long-term goals gives the person a meaning of existence, thereby increasing their endurance to loads and making them more resistant to stress. Setting long-term goals and the presence of meaning determine high levels of motivation.

In the context of depression, motivation tends to be significantly affected, this often leads to a reduced or complete lack of motivation to engage in daily tasks, set long-term goals, or participate in activities that were enjoyable and meaningful before the illness.

Patients with depression often report a complete lack of motivation, experiencing a pervasive feeling of apathy, hopelessness, constant fatigue, and lack of energy. They may find it challenging to initiate and maintain activities, even those they previously found enjoyable and meaningful. Tasks that seem simple and doable to a healthy person may be difficult, if not impossible, for people with depression.

The concept of "motivational deficits in depression" refers to the reduced motivation and difficulty in initiating and maintaining goal-directed behavior that is often observed in patients with depression. This phenomenon has been widely studied and documented in the scientific literature. Motivational deficits—defined as the inability to initiate action, mobilize effort, and persist in those actions—have been demonstrated in research from a variety of perspectives.

6. Correlation analysis

The correlation analysis of the studied indicators was carried out in order to show the connection between the variables. The presence of correlation between the individual variables is a significant and essential factor, without which the data from the study should be attributed to chance. Within the framework of the present study, significant correlations are observed between all variables, on the basis of which logically justified statements about the relationships between them can be made. The Pearson correlation coefficient used is consistent with the metric characteristics of the scales.

At the first stage of the study, significant correlations and a high level of significance between all scaled values were established in the entire sample. The correlations between the results of the scales used (MADRS), 1979, Locus of Control - total score, Optimism, Negative Expectations and Motivation are arranged in order of significance as follows:

• between the total score on the depression scale and motivation (high degree of correlation).

As the severity of depression increases, motivation decreases – negative correlation r = -,764**; p<0,001;

• between the total score on the depression scale and locus of control (LOC) (high degree of correlation).

As the severity of depression increases, the values of locus of control increase – there is a positive correlation $r = .717^{**}$; p<0.001;

• between the total score on the depression scale and optimism (high degree of correlation).

As the total score on the depression increases, optimism decreases – there is a negative correlation $r = -,563^{**}$; p<0,001;

• between the total score on the depression scale and negative expectations (high degree of correlation).

As the severity of depression increases, an increase in negative expectations is observed – there is a positive correlation $r = ,506^{**}$; p<0,001;

In the second stage of the study, it was assumed that locus of control is a stable characteristic over time, and for this reason its study was conducted in the first and third stages and is not included in the correlation analysis of the second stage of the study.

There are significant correlations and a high level of significance of the correlation between:

• between the total score on the depression scale and motivation (high degree of correlation). When the severity of depression decreases, motivation increases – negative correlation $r = -,832^{**}$; p<0,001;

• between the total score on the depression scale and negative expectations (high degree of correlation).

When the severity of depression decreases, a decrease in negative expectations is observed – there is a positive correlation $r = ,520^{**}$; p<0,001;

• between the total score on the depression scale and optimism (high degree of correlation).

As the total depression score decreases, optimism increases – there is a negative correlation $r = -,659^{**}$; p<0,001;

In the second stage of the study, the correlation between the scales is much higher compared to that in the first stage of the study.

At the third stage of the study, there are again significant correlations and a high level of significance of the correlation between all scaled values:

• between the total score on the depression scale and motivation (high degree of correlation).

When the severity of depression decreases, motivation increases - negative correlation

r = -,839**; p<0,001;

• between the total score on the depression scale and locus of control (LOC) (high degree of correlation).

When the severity of depression decreases, the values of locus of control decrease – there is a positive correlation $r = .718^{**}$; p<0.001;

• between the total score on the depression scale and optimism (high degree of correlation).

When the total score on the depression decreases, optimism increases – there is a negative correlation $r = -,670^{**}$; p<0,001;

• between the total score on the depression scale and negative expectations (high degree of correlation).

When the total depression score decreases, a decrease in negative expectations is observed - there is a positive correlation $r = .667^{**}$; p<0.001;

At the third stage of the study, the correlation between the scales is again much higher compared to that of the second stage of the study.

These results prove that the selected scales are not isolated from the overall concept and behave in a coherent manner, exhibiting the qualities of a test battery for assessing the influence of the affective and sensory components of depression on the dynamics of generalized expectations. These statements were set as a hypothesis in the theoretical model, but their empirical verification categorically confirmed the initial assumptions.

The presence of correlations between the studied indicators does not prove the presence of causal (casual) relationships between them. The correlation only shows that variations in one variable are accompanied by variations in the other variable. The causal relationships between the variables in the present study will be proven by means of regression analysis. The results of the correlation analysis show that the highest degree of correlation for the three stages of the study is between the total depression score and motivation, as well as between the total depression score and the localization of control during the first and third stages of the study. This trend is maintained between the depression scale and the optimism and negative expectations scales throughout the three stages of the study, again with a high degree of correlation.

The results of the correlation analysis allow the following conclusions to be drawn:

1) the selected and theoretically justified scales correspond to a common model in the study of patients with depression;

2) the selected scales exhibit the character of a test battery for the study of patients with clinically pronounced depression;

3) the scales exhibit high sensitivity and can be used to monitor the dynamics of the symptoms of treated patients with depression.

7. T - test for comparing group means at different values of the dependent variable

In order to search for differences between the main variables examined by means of the scales used in the study (MADRS), 1979, Locus of Control - total score, Optimism, Negative Expectations and Motivation in the three stages of the study, a T-test was performed. It was assumed that locus of control is a stable characteristic over time and for this reason its study was conducted only during the first and third stages.

When conducting the T-test, the mean values of the results of the scale used (MADRS), in the studied group (n = 70), revealed significant differences between the values of the severity of depression assessed by means of MADRS during the three stages of the study. A similar trend was observed for the

values of optimism, negative expectations and motivation during the three stages of the study. The most significant difference between the first and third stages of the study was the severity of depression (t = 31.715, p = .000). The depression severity indicator, assessed during the first stage of the study (first stage = 27.3429), has a higher absolute mean value than that during the third stage of the study (third stage = 9.8857). The trend for the optimism, negative expectations and motivation indicators is similar, but not with such a degree of difference as for the depression indicator. The severity of the difference between the first and third stages of the study for optimism is (t = -5.915, p = .000); for negative expectations (t = 12.084, p = .000) and for motivation (t = -8.073, p = .000). The severity of the difference between MADRS – first stage and MADRS – third stage is the highest.

The correlation relationships showing the degree of connectivity of the scaled values on the scales during the three stages of the study for the entire sample (n = 70) show that all pairs of indicators have a high degree of connectivity and a high level of significance of the correlation.

The results of the analysis data confirm two of the hypotheses set in the theoretical model, namely:

1). The specific dynamics of generalized expectations affects the change in the severity of depression;

2). Depression affects the dynamics and specificity of generalized expectations.

8. Regression analysis

In order to find causal relationships between the studied parameters in the group, a regression analysis was performed. The influence of four independent variables was assessed: locus of control, optimism, negative expectations and motivation on the dependent variable – depression.

The results for the first stage of the study show that nearly 80% of the variations in the severity of depression during the first stage of the study could be explained by the combined influence of the four variables: locus of control, optimism, negative expectations and motivation. The strongest influence on depression is motivation, followed by that of locus of control. Optimism and negative expectations have a negligible influence.

This trend is maintained for the second stage of the study. For the purposes of the analysis, it was assumed that locus of control as an independent variable is a relatively stable characteristic over time and for this reason it was not included in the second stage of the study. The analysis includes the influence of the independent variables optimism, negative expectations and motivation on depression. The multiple correlation coefficient between the independent variables and the dependent variable in the second stage is a better result compared to that calculated for the first stage. Therefore, the combined influence of optimism, negative expectations and motivation largely explains the variations in the severity of depression. Motivation turns out to be the main variable influencing the variations in the

severity of depression. Motivation has the greatest weight of influence on depression. Optimism has a small weight of influence on depression. Negative expectations have a negligible influence.

The results of the third stage of the study show that nearly 87% of the variations in the severity of depression during the third stage of the study could be explained by the combined influence of the four variables: locus of control, optimism, negative expectations and motivation. The multiple correlation coefficient between the independent variables and the dependent variable during the third stage is a better result compared to that calculated for the second stage. Therefore, the combined influence of locus of control, optimism, negative expectations and motivation largely explain the variations in the severity of depression. Motivation is the main variable influencing the variations in the severity of depression. Motivation has the greatest influence on depression, followed by that of locus of control. Negative expectations have a weak influence on depression. Optimism has a negligible influence.

Several causal relationships are derived from the regression analyses performed. The strongest influence on depression is motivation and locus of control, compared to optimism and negative expectations, which have a weak, even insignificant influence. What explains the severity of depression in the first stage of the study is motivation and locus of control. The most characteristic of the first stage is an external locus of control and reduced motivation. In the second stage, the following is observed: with a decrease in the severity of depression, motivation increases. In the third stage of the study, significant causal relationships have motivation and locus of control.

V. CONCLUSIONS

Based on the analysis of the results obtained from the selected quantitative methods for studying patients with depression, the following conclusions can be drawn, relevant to the goals and objectives of the present study.

1. The test methods included in the proposed battery – MADRS, a method for assessing the localization of control (Rotter test), a method for assessing optimism and negative expectations and a test for assessing the long-term motivation of individual behavior, are interconnected, exhibit high sensitivity and can be used to study and dynamically monitor generalized expectations in patients with depression.

2. The dynamics of generalized expectations are taken into account: localization of control, optimism, negative expectations and long-term motivation in the process of treating depression.

3. The data from the presented results of the conducted study determine motivation as the main variable influencing depression.

4. Localization of control is the next variable having a strong influence on depression.

5. Negative expectations and optimism are the next variables that influence depression.

6. The combined influence of the four variables in the present study – locus of control, optimism, negative expectations and motivation largely explain the variations in the severity of depression.

7. A change in generalized expectations is reported during the treatment of depression:

• With increasing severity of depression, a decrease in motivation is reported and, respectively, with decreasing severity of depression, motivation increases;

• With increasing severity of depression, high values of locus of control (external locus) are reported, with decreasing severity of depression, the values of locus of control also decrease;

• With increasing severity of depression, optimism decreases and, respectively, with decreasing severity of depression, optimism increases;

• With increasing severity of depression, negative expectations increase, respectively, with decreasing severity of depression, negative expectations decrease.

8. The data from the presented results report dynamics of the generalized expectation of localization of control in only one direction from external (LOC) to internal (LOC) with a decrease in the severity of depression.

9. The assumption in the theoretical model of the present study that locus of control remains a persistent feature in the treatment process in patients with depression was partially confirmed.

10. The identified interrelationships and causal indicators outline a research model with potential practical application in clinical and therapeutic work.

11. Restoring and supporting long-term motivation, optimistic expectations, locus of control and minimizing negative expectations of those treated can compensate for the negative impact of depression in the treatment process.

VI. CONCLUSION

Patients with depression are characterized by decreased motivation, external locus of control, decreased optimism, and increased negative expectations. With a decrease in the severity of depression, a reduction in negative expectations, an increase in optimism and motivation are observed, and dynamics in the localization of control are observed. Motivation is the main variable influencing the severity of depression, followed by localization of control, negative expectations, and optimism. Depression turns out to be a source with a strong influence on the dynamics and specificity of generalized expectations: localization of control, optimism, negative expectations, and long-term motivation. Dynamics in the localization of control is reported only in one direction: from external (LOC) to internal (LOC) with a decrease in the severity of depression. Depression can be considered at three levels: as an episode, as a variable, and as a source of specific generalized expectations. Tracking the dynamics of generalized expectations in the process of treating depression is a central concept in individualized approaches to managing depressive symptoms.

VII. CONTRIBUTIONS

1. Conceptualization and construction of a model for studying the dynamics of generalized expectations in patients with depression.

2. Proposing a battery of test methods for assessing and dynamically monitoring generalized expectations in patients with depression.

3. Construction of a conceptual model for studying the interrelationships between generalized expectations and the dynamics of the course of a depressive episode.

4. Psychological work aimed at supporting and optimizing generalized expectations may be a prospect for further research in the field of the issue.

PUBLICATIONS RELATED TO THE DISSERTATION

1. Dimitrova, B., Petkova, P. (2022) Descriptive aspects of generalized expectations in depressive disorders. Proceedings of Applied Psychology and Social Practice, XXI International Scientific Conference: "Applied Psychology: Opportunities and Prospects", VSU "Chernorizets Hrabar", University of Varna, pp. 342-356, ISSN 1314-0507

2. Petkova, P., Dimitrova, B. (2022) Contemporary theoretical analysis of behavioral models. Specificity of the gambling behavior model. Proceedings of Applied Psychology and Social Practice, XXI International Scientific Conference: "Applied Psychology: Opportunities and Prospects", VSU "Chernorizets Hrabar", University of Varna, pp. 328-341, ISSN 1314-0507

3. Dimitrova, B. (2023) Relationship between motivation and depression. Awareness of illness (INSIGHT) and motivation in depression. Collection of papers, XXII International Scientific Conference: "Applied Psychology: Opportunities and Perspectives", VFU "Chernorizets Hrabar", UI Varna, pp.219-237, ISSN 1314-0507

4. Dimitrova, B. (2023) The relationship between optimism and depression: the contribution of psychological factors to optimal functioning and possibilities for prevention, X Jubilee International Congress of Psychology "Challenges to Modern Psychology", collection of abstracts, 3-5 November 2023 - Sofia, Sofia University "St. Kliment Ohridski", Society of Psychologists in the Republic of Bulgaria, Sofia, pp. 202-203, ISBN 978-619-90786-3-1

5. Dimitrova, B. (2024) Specifics of generalized expectancy locus of control in developing effective strategies and interventions for the prevention of depression. Electronic journal of VFU "Chernorizets Hrabar" - Varna, "e-Journal VFU", section "Psychology and Social Activities" issue 22/2024, pp. 336-348, ISSN 1313-7514