

The effectiveness of psychological interventions in improving quality of life and satisfaction with treatment in the elderly with mental disorders and multimorbidity

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Background. The state of polymorbidity is common for the elderly patients. Older adults with mental illness often suffer from several somatic diseases. The mutual influence of these diseases changes the classical clinical picture, the nature of their course, increases the number of complications and their severity, worsens the quality of life and prognosis. As a result, the healing process is complicated; compliance and patient's satisfaction decreases. Individuals with polymorbidity are prone to non-compliance with medical recommendations, self-treatment and passive relationships in the medical process.

Aim. To determine the impact of psychotherapy on the life quality and medical care satisfaction in elderly patients with mental disorders and polymorbidity.

Methods. In a randomized controlled trial, participated 325 elderly patients with mental disorders and polymorbidity. The control group (n=87) received standard medical care; intervention group (n=238) in addition to standard care was involved in a psychotherapeutic program. It consisted of psycho-education, compliance therapy, and self-medication prevention training. Patients were assessed with SF-36, PSQ, MMAS, and MMSE scale. The statistical processing of the results was carried out using the SPSS program.

Results. After the treatment was noted significant improvement in patients' satisfaction with treatment (PSQ score), regardless of its volume (8.32 points; $p < 0.001$). Changes in PSQ in the intervention group were significantly more pronounced compared to control group relative to the comparator group (3.63 points; $p < 0.001$). A more significant improvement in the quality of life due to inpatient treatment was demonstrated by younger patients ($r = -0.149$; $p = 0.007$), in those with a lower deficit in cognitive functioning ($r = 0.282$; $p < 0.001$). Increased satisfaction with the medical care was directly correlated with number of drugs in the constant treatment scheme ($r = 0.121$; $p = 0.029$) and inversely - with additional periodic dosing ($r = -0.134$; $p = 0.015$).

Conclusion. The study showed that psychological interventions are effective in improvement of the quality of life and patient's satisfaction by treatment.

Background

The state of polymorbidity for nearly half a century has attracted the attention of many researchers. The simultaneous presence of several diseases in the patient, partly unrelated pathogenetic mechanisms [1](#), significantly complicates the process of supervision and increases the burden of

illness for the patient, his/her family and the health system in general. The presence of polymorbidity forces patients to seek care in doctors of various specialities, which, in turn, raise the problem of excessive pharmacotherapy in the form of polypragmasia and polypharmacy 2.

As the average age increases, there can be seen an increase in the number of people being affected by chronic diseases (somatic and mental) and disability due to oncological, cardiovascular, pulmonary, cerebrovascular diseases, fractures and their consequences, dementia, etc. The presence of several conditions in one person and their progression largely depends on the constitutional neurosomatic vulnerability and allostatic load of the external and internal environmental factors, primarily periodic acute or chronic stress situations. With age, the phenomenon of polymorbidity becomes more prevalent and intensive, especially among elderly patients 3.

The vast majority of scientific studies on polymorbidity were performed on samples of primary network patients with somatic pathology 2. But broad investigations of comorbid physical and mental pathology also have taken place in the field of neuroscience. The studies on the schizophrenia, bipolar affective disorder, depressive and anxiety disorders, cognitive impairments have shown a presence of a positive statistically significant relationship between them and psychiatric illness, especially in the elderly 2. Moreover, trials in the field of psychoendoneuroimmunology revealed many complex links between physical and mental conditions 4.

Compliance is one of the leading factors that influence treatment results in elderly with comorbid conditions. In the study led by Pagès-Puigdemont N. (2016) participated 36 patients aged 39-90 years (mean age 65 years) with the average number of concomitant diseases estimated at 2.3 (range 1-7). The study has identified main modifiers of therapeutic behavior: expectations about the health of patients, the relationship between the patient and the doctor, the motivation of patients and their perception of disease control. It is essential that the participants of the study wanted more self-participation in the decision-making process regarding their treatment and health in general, receiving more information about their illness and medicine. They also wanted individualized care that should be based on their preferences and personal and emotional peculiarities 5.

The mutual influence of diseases changes the classical clinical picture, the nature of the course, increases the number of complications and their severity, worsens the quality of life and prognosis, as a result - complicates the medical and diagnostic process, dramatically reduces the patient's satisfaction with medical care. Individuals with polymorbidity are prone to non-compliance with medical recommendations, self-treatment and subject-object passive relationships in the medical process 2, 6.

Drug compilation is an important aspect of patient care that is essential for achieving clinical goals. In 2003 WHO had published "Attitude for Long-Term Treatment" report, where was emphasized that increase in adherence to treatment might have a much more pronounced impact on the populational health than the improvement of any particular treatment 7. On the contrary, failure to abide by treatment recommendations results in poor clinical outcomes, increased morbidity and mortality, and unnecessary health care costs. It is expected that by 2020 the number of non-communicable and psychiatric illnesses will exceed 65% of the total burden of disease. On the other hand, approximately 50-60% of patients, especially those with chronic conditions, do not comply with the prescribed treatment regimen 8, 9.

An additional risk factor for elderly patients with mental disorders and polymorbidity is the use of potentially inappropriate drugs. Self-treatment among the elderly in general is a serious public health problem, as it goes hand in hand with an increase in morbidity and mortality, which entails high costs for the healthcare system.

According to the study conducted by Vieira de Lima T.J. et al. (2013), among elderly patients on a daily basis, 82.6% received at least one drug without a doctor appointment, most often 26.5% antipsychotics and 15.1% analgesics. Of all used drugs, 32.4% were self-medication, with 29.7% of them being drugs that the elderly should avoid, regardless of their condition, 1.1% were unacceptable drugs for the elderly with certain diseases or syndromes, and 1.6% - medicines that should be used with caution. In multivariate analysis, the authors identified the factors associated with self-medication: polypharmacy ($p = 0.0187$), cerebrovascular disease ($p = 0.0036$), mental disorders ($p < 0.0001$) and dependence ($p = 0.0404$) [10](#).

Another study showed that in France more than 20% of hospitalizations of the elderly are because of medications side effects, of which 50% could be prevented [11](#). Moreover, up to 70% of psychotropic drugs in psychiatric hospitals were administered without taking into consideration the state of the patient's somatic health. At the same time, pharmacological recommendations for the elderly after discharge from a psychiatric hospital contained significantly fewer potentially susceptible medications compared with admission ($p < 0.001$) [12](#). Consequently, the problem of inappropriate pharmacotherapy in the hospital and the problem of self-treatment are indeed significant for elderly patients, especially for those with mental disorders and polymorbidity [13](#).

The assessment of the quality of life in recent years also becomes more important in world medical practice as an indicator of the patient's general condition, treatment effectiveness, and prognostic criterion for the disease. In the elderly, a subjective assessment of the quality of life affects the course of somatic and mental disorders [14](#).

Indeed, in old age, quality of life determines the outcome of treatment and the disease prognosis. Satisfaction with the quality of life in the elderly and aged is the result of a dynamic process of interaction between objective and subjective assessments of physical and mental health. Quality of life satisfaction cannot be reduced to the biomedical parameters of a person at a certain time. It is the biopsychosocial approach to the quality of life that determines its dependence not only on the state of health but also on the patient's assessment of his lifestyle, useful social activity and the availability of support from others. Difficulties in everyday functioning, lack of adaptation to environmental changes, the presence of cognitive deficits and affective disorders also have significant impact to the deterioration of the quality of life in elderly [14](#).

It is important that the quality of life in an elderly patient is largely determined by the degree of his independence from third-party care, the ability to manage his own life. From this, it follows that the quality of life in such patients depends not only on the number and severity of diseases, but on the biopsychosocial available resource base, coping strategies and problem-solving skills, and active participation in the treatment process.

International experience suggests increasing the expectations of patients about the quality of medical care in proportion to the increase in the level of development of the country as a whole and the health care system in particular [15](#). In most industrialized countries, the level of satisfaction with medical care is high - about 90% in Sweden and Switzerland, about 70% in the UK, Germany, Spain, and Slovenia. At the same time, about 70% of surveyed patients in Italy and Poland negatively assessed the experience of the receiving medical care. The quality of medical care and its accessibility was influenced by patient satisfaction with medical assistance; independence of the patient in making decisions about his or her health; availability of medical information [15](#). At the same time, the paternalism in the patient-physician relationship remains widespread, which determines the passive role of the patient in the medical process. Patient assessment of nature of these relationships depends not only on the doctor's ability to correctly diagnose and prescribe treatment but also on his ability to offer psychological support. The study showed [15](#) that patients in European countries are concerned about the gradual displacement of trust by the pragmatism of doctors to a medical care, which reduced the level of satisfaction of patients as a whole.

Satisfaction of patients with mental disorders by quality of medical care is given more and more

attention in scientific research. Experts from the Cooperative Group, based on the experience of the 5-year observation period, have noted that understanding the needs of patients by assessing their satisfaction contributes to the active participation of patients in the treatment process, increasing its overall effectiveness. The results of the study revealed potential benefits in using feedback with patients suffering from severe enduring mental illness. The authors noted an increase in the overall level of satisfaction by medical care to 56%, but not the patients' involvement in the treatment process [16](#).

Lack of information and the continued exclusion from the decision-making process on treatment are the most frequent complaints of patients with mental health problems. The authors noted that increasing awareness of patients about the disease reduces concern about treatment, increases its effectiveness and quality of life [17](#).

Another study highlighted the key factors of satisfaction of inpatients suffering from depressive and stress-related disorders. The most prominent influence had the work of nurses and doctors, the comfort of the ward, volume and quality of psychotherapeutic care, physician's ability to empathy and his willingness to inform the patient about the disease and its treatment [18](#), [19](#).

Promoting independence is essential at all stages of therapy for dementia [20](#), [24](#). Despite the fact that the level of independence decreases with the progression of the stage of dementia, it is vital to maintain a balance between care of the patient and his productivity, leisure, social and spiritual activity in order to ensure a sufficient quality of life and well-being [20](#), [21](#), [23](#).

Psychotherapeutic intervention aimed at a patient's awareness of his disease and its methods of treatment, the creation of a therapeutic alliance and the prevention of self-medication, according to our hypothesis, contributes to the improvement of compliance, quality of life and satisfaction with the medical assistance of polymorbid patients, who suffer from mental disorders [22](#), [24](#).

R. Kemp et al. [25](#) developed a method of compliance therapy based on the cognitive-behavioral approach in conjunction with a motivational interview and focused on increasing the critical attitude to the disease and improving the quality of compliance with therapeutic recommendations. Subsequently, this method was further improved and continued within the Innovative Care for Chronic Conditions project [26](#). We used this technique as a prototype for the development of the psychotherapeutic program, applied in this study.

Thus, the purpose of the study was to determine the impact of psychotherapy on the quality of life and the satisfaction by medical care for elderly patients with mental disorders and polymorbidity.

Materials and methods

The study sample consisted of 325 patients with polymorbidity treated at the Gerontopsychiatric Department of the Mariupol Psychiatric Hospital. The study had a randomized design. Randomization was performed using a computer program. Patients were randomized assigned to the intervention or control group at a 3:1 ratio. Thus into the final analysis were included 238 patients from the intervention and 87 from the control group.

The patients from both groups received treatment in accordance to the standards of therapy for primary and clinically relevant concomitant diseases, but those from the experimental groups were involved in the psychological interventions program, which comprised of three parts: informational, inductive and reflexive. It included a combination of psychoeducation, compliance therapy and pharmacovigilance prevention training.

In all patients, the level of polymorbidity was determined by the Cumulative Illness Rating Scale for Geriatrics (CIRS-G). The medication load (daily, periodic, self-medication), and the degree of

satisfaction with the provision of medical care were evaluated by the Patient Satisfaction Questionnaire (PSQ). For the assessment of the quality of life and compliance were used the SF-36 and Morisky Medication Adherence Scale (MMAS), respectively.

Results

Changes in satisfaction with medical care, ANOVA

According to the results of the assessment of satisfaction by medical care, we identified the following features of gerontopsychiatric patients. For the whole sample of surveyed patients, regardless of the volume of provided inpatient care, there was a major improvement in patient satisfaction with the provision of assistance as a whole. On a PSQ scale, it was 8.32 points with statistically significant reliability ($p < 0.001$) (Table 1).

Evaluation	Average	Standard deviation	Difference	95% trusted interval	Statistical significance
PSQ-9 before treatment	59.93	9.138	-8.32	-9.14...-7.50	<0.001
PSQ-9 after treatment	68.25	7.762			

Table 1. Total PSQ score and changes during treatment. * On average, comparing the sample as a whole, there was a significant improvement in patient satisfaction with care. The score on PSQ scale between the baseline and end of treatment reduced by 8.32 points with a statistically significant difference ($p < 0.001$).

95% of gerontopsychiatric patients indicated an increase in satisfaction with the treatment by 12.5-15.2% regardless of its volume, which in our opinion emphasizes the increased need of these patients in any medical care.

The intragroup difference in PSQ baseline scores between the intervention and control group was insignificant (61.55 vs. 59.33; $p = 0.052$, respectively). According to the analysis of variance (ANOVA), changes in PSQ score during treatment for significantly more pronounced in the intervention group compared to the control group (9.29 vs. 5.66; $p < 0.001$) (Table 2). Such difference confirms the hypothesis of the study that psychotherapeutic interventions (psychosocial education, complication therapy, pharmacovigilance training) can improve patient's satisfaction with the treatment.

Evaluation	Group	N	Mean	Standard deviation	95% CI	P
PSQ baseline	Control	87	61.55	9.528	59.52-63.58	0.052
	Intervention	238	59.33	8.938	58.19-60.47	
PSQ end of treatment	Control	87	67.21	8.087	65.48-68.93	0.145
	Intervention	238	68.63	7.762	67.40-69.09	
PSQ improvement	Control	87	5.66	8.264	3.89-7.42	<0.001
	Intervention	238	9.29	6.941	8.41-10.18	

Table 2. The PSQ baseline, endpoint scores and its improvement during the treatment in study groups (ANOVA). * Intergroup difference in PSQ baseline and endpoints was unreliable.

Evaluation of adherence to treatment revealed significant differences between groups on baseline MMAS scores. Thus, in the intervention group, compliance with the MMAS scale was significantly higher by 0.52 points than in the control group before treatment ($p = 0.007$). These data mean that we were not able to rely on the results of the dispersion analysis on the effect of psychological interventions on the change in compliance in our sample.

Correlational analysis of main study outcomes

According to the correlation analysis, it was determined that changes in the quality of life score of SF-36 during treatment were significantly correlated with age, the correlation strength was weak ($r = -0.149$; $p = 0.007$). Thus, patients with a younger age demonstrated a more significant improvement in the quality of life due to inpatient treatment. Changes in quality of life on the scale of SF-36 were significantly correlated with the total MMSE scale score, the correlation strength was weak ($r = 0.282$; $p < 0.001$). Hence, greater improvement in quality of life was found in patients with a lower cognitive deficit (higher MMSE scores).

PSQ score changes during the treatment directly correlated with the total number of drugs taken by the patient continuously ($r = 0,121$; $p = 0.029$) and were inversely correlated with the number of medications taken by the patient periodically ($r = -0.134$; $p = 0.015$). That is, an increase in satisfaction with the provision of medical care was associated with more drugs in the permanent treatment scheme and the avoidance of additional periodic dosing (Table 3).

Index	Changes in SF36	Changes in PSQ	Changes in MMAS
	Correlation coefficient, r (p)		
Age	-0.149 (0.007)*	-0.10 (0.860)	0.004(0.940)
Number of concomitant diseases	0.68 (0.222)	-0.048 (0.388)	-0.004(0.941)
Smoking rate, (pack-year)	-0.67 (0.229)	-0.006 (0.919)	-0.102(0.066)
Number of medications, total	0.87 (0.119)	0.16 (0.775)	-0.032(0.565)
Number of medications, periodically	0.079(0.157)	-0.134(0.015)*	0.061(0.273)
Number of medications, daily	0.032(0.563)	0.121(0.029)*	-0.082(0.143)
Total MMSE score	0.282(<0.001)*	0.058(0.301)	-0.023(0.686)

Table 3. Pearson correlation between changes in quality of life/satisfaction with treatment and various indicators.

We have seen a direct correlation of average strength ($r_s=0,226$; $p<0,001$) between changes in satisfaction with the treatment (PSQ score) and the treatment group assigned (without or with a psychotherapeutic component). Also, a strong direct correlation was noted between changes in quality of life on the SF-36 scale ($r_s=0,5$; $p<0,001$) and assigned treatment group. Thus, these results have confirmed the data obtained by dispersion analysis on the effectiveness of psychotherapeutic interventions in improving the quality of life and satisfaction with provided medical care.

The weak backward correlation was noticed between the marital status and changes in the PSQ scale ($r_s=-0,122$; $p=0,028$). The self-treatment in the elderly was inversely correlated with changes on PSQ scale, but directly - with changes in the quality of life (SF-36 total core). In both cases, the correlation strength was very weak (respectively $r_s=-0,115$; $p=0,038$ and $r_s=0.119$; $p=0,033$). It should be noted that among patients who were prone to self-treatment, there were significant changes in the quality of life on the scale of SF-36 after treatment, but at the same time, there were fewer changes in satisfaction with PSQ (Table 4).

Index	Changes in SF36	Changes in PSQ	Changes in MMAS
	Correlation coefficient, rs (p)		
Sex	0.065(0.243)	0.036(0.513)	0.034(0.547)
The nature of labor (mental/physical)	-0.092(0.099)	0 (1)	0.025(0.653)
Marital status (married or single)	0.031(0.579)	-0.122(0.028)*	-0.073(0.19)
Self-treatment (yes or no)	0.119(0.033)*	-0.115(0.038)*	0.009(0.867)
Schizophrenia/Dementia	-0.063(0.304)	-0.005(0.933)	0.030

Index	Changes in SF36	Changes in PSQ	Changes in MMAS
	Correlation coefficient, rs (p)		
Group (intervention/control)	0.500(<0.001)	0.226(<0.001)*	0.046(0.409)

Table 4. Spearman's correlation between changes in quality of life/satisfaction with treatment and various dichotomous indicators.

Regarding self-treatment, it was inversely correlated with changes in the PSQ and directly - with changes in the SF-36. The correlation strength was very weak (-0.115 and 0.119) respectively. Among patients who applied self-medication, there were more significant changes in SF-36 after the treatment but, at the same time, the PSQ score was lower.

Discussion

The analysis has shown a significant improvement in patient satisfaction for the entire sample, regardless of the volume of provided inpatient care. These data are similar to those of M. Crosier's study on the potential benefits of using feedback with patients suffering from severe permanent mental illness. The increased need for elderly patients with mental disorders and polymorbidity in obtaining any medical care, regardless of its volume, indicates positive changes in satisfaction by 12.5-15.2% in 95% of the sample.

Statistically significant changes in the PSQ score during the treatment in the intervention compared to control group can be considered as a confirmation of our hypothesis that psychotherapeutic interventions (psychosocial education, complicating therapy, pharmacovigilance training) improve patient satisfaction with treatment.

The improvement of the quality of life was inversely associated with age and cognitive deficit. We found that an increase in satisfaction with medical care was directly associated with a number of medications in the permanent treatment regimen ($r = 0.121$; $p = 0.029$) and inversely - with additional periodic dosing ($r = -0.134$; $p = 0.015$). In our opinion, such results are reflecting the influence if pharmacotherapy regimen optimization.

Additionally, we found that single people were more sensitive to changes in treatment satisfaction compared to married patients. Such data could be interpreted as their more significant involvement in the therapeutic process and a partial restoration of the communicative skills during hospitalization.

Among patients who were prone to self-treatment, there were noted significant changes in the quality of life after the treatment ($rs=0.119$; $p=0,033$), but fewer changes in the satisfaction with medical care ($rs=-0,115$; $p=0,038$). Thus, optimization of pharmacotherapy in the hospital and reduction of self-treatment significantly contributed to the improvement if the quality of life. At the same time, fewer changes in the satisfaction of medical care in patients who tend to self-treatment could be explained by a subjective reduction in independence in the drugs administration and a certain delay of psychological interventions effects.

Conclusion

The study showed that psychological interventions are effective in improvement of the quality of life and patient's satisfaction by treatment. These findings are consistent with our hypothesis that psychotherapy, aimed at an increase in patient's knowledge of his disease and its methods of treatment, the creation of a therapeutic alliance and the prevention of self-medication can contribute to improving the health care for elderly with multimorbidity suffering from mental disorders.

Additional information

Competing interests

The authors declare that no competing interests exist.

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