



Quality of life and compliance in geriatric patients

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Abstract

Background. Older adults often have several comorbid diseases. In most cases, each condition requires constant pharmacotherapy. On average, the clinical examination of patients aged 60 and older reveals at least four or five different chronic pathological states in various phases and stages. Disease interference changes the classical clinical picture, increases the number of complications and their severity, affects the quality of life and prognosis, as a result - complicated medical diagnostic process and reduced compliance. The presence in the elderly both mental and physical illness significantly affects the quality of life. Psychological interventions aimed at a patient's awareness of the disease and methods of its treatment, the creation of therapeutic alliance and the prevention of self-medication, according to our hypothesis, contributes to compliance and quality of life improvement in polymorbid elderly patients suffering from mental disorders.

Methods. In the study took part 325 patients who underwent inpatient treatment at the gerontopsychiatric department and signed provided informed consent. The study had a design of a randomized controlled clinical trial. Patients were randomized to experimental and control groups in a ratio of 3 to 1 based on age and gender. The study group of 238 people received standard treatment and psychological interventions. A comparison group of 87 people had only standard treatment. Patients were evaluated for quality of life with SF-36 scale and compliance with Morisky Medication Adherence Scale.

Results. We have seen significant intergroup differences on the Morisky Medication Adherence Scale in the baseline period. Consequently, its results were not be taken into account in the final analysis. Before treatment patients' quality of life between the study groups did not differ statistically ($p = 0.317$). After the treatment, a statistically significant difference in life quality between experimental and control groups was found ($p < 0.001$). A strong direct correlation was noted between changes in quality of life in SF-36 scale ($r_s = 0.5$; $p < 0.001$) and clinical treatment group, which included the patient. Patients with a younger age demonstrated a more significant improvement in their quality of life ($r = -0.149$; $p = 0.007$). A greater improvement in life quality was observed in patients with a lower cognitive function deficit in the MMSE score ($r = 0.282$; $p < 0.001$). Among the self-treated patients, there were significant changes in SF-36 score after treatment ($r_s = 0.119$; $p = 0.033$). The obtained data confirm that psychotherapeutic interventions (psychoeducation, compliance therapy, and pharmacomania prevention training) contribute to the life quality improvement of gerontopsychiatric patients.

Conclusion. Usage of the psychotherapeutic program during standard treatment, aimed at the psychoeducation, creation of a therapeutic alliance and the reduction of pharmacomania (especially with regard to self-medication with barbiturates) promoted positive changes in the quality of life in the study sample. Our data confirm the need for interventions designed for improving the quality of life in the polymorbid elderly patients with mental disorders.

Keywords: older adults, quality of life, dementia, schizophrenia, compliance, psychoeducation

1 Background

Progressive aging of the human population is now the major problem of most countries. WHO has projected that by 2050 the number of elderly will reach 2 billion and will exceed the number of children under 14 years [1], [2].

Older adults often have more than one chronic disease. In most cases, each condition requires constant pharmacotherapy. On average, the clinical examination of patients aged 60 and older reveals at least four or five different chronic pathological states in various phases and stages [3]. It makes polymorbid elderly patients seek medical help and apply to doctors of different specialties. Disease interference changes the classical clinical picture, increases the number of complications and their severity, affects the quality of life and prognosis. As a result – obstruction of the medical diagnostic process, and reduced compliance in relations between doctor and patient [4], [5].

The project ZARADEMP on a representative sample of the elderly population (4803 persons aged ≥ 55 years) has tested the hypothesis of a relationship between somatic and mental diseases [6]. Total comorbidity in this study reached 19.9%, and this prevalence was estimated after the exclusion of hypertension from physical illness category. 33.5% of patients from the total sample had disease states without comorbidity. Concomitant diseases showed a positive correlation with age, female sex and low levels of education. The incidence of mental disorders was higher among patients with physical illness than among physically healthy. The frequency of somatic morbidity among psychiatric patients was higher than among mentally healthy individuals. This relationship between somatic and mental disorders remained statistically significant after adjustment for age, sex and education (odds ratio (OR) = 1,61; confidence interval (CI) = 1,38-1,88). Most physical diseases were associated with the presence of a mental disorder, but after adjusting for demographic and certain systemic diseases, the correlation remained statistically significant only for stroke (CVAS) (OR = 1,47; CI = 1,09-1,98) and thyroid disease (OR = 1,67; CI = 1.10-2.54). Authors noted that this was the first study conclusively confirmed the existence of a positive and statistically significant relationship between somatic and psychiatric morbidity in elderly, especially for cerebrovascular and thyroid disease [6].

Definition of similar indicators is important for the

Ukrainian older patients' population. According to statistics from Ukrainian Ministry of Health, mental illness is the 7th leading cause of disability in the elderly, 11% of people over age 60 need a qualified mental health care. Half of all patients receiving long-term psychiatric treatment are over 65 years old. Approximately one-fifth of patients who first came to the psychiatric hospital are older than 65 years [2].

The presence in the elderly both mental and physical illness significantly affects the quality of life. In the meta-analysis of studies on the relationship between somatic and psychiatric comorbidity in patients with somatic diseases (metabolic, respiratory, musculoskeletal, cardiovascular, gastrointestinal disorders, cancer, etc.) taking into account quality of life. The systematic review included 481 studies, of which 45 were included in the final analysis. In total were recorded significant negative correlation between comorbidity and quality of life. This is mainly related to somatic and psychiatric comorbidity: 70.3% on the psychosocial aspects of quality of life and 100% on the quality of life in general [7]. A similar systematic review (7291 reviewed studies and 65 in the final analysis) aimed to examine the association between comorbid mental disorders and quality of life in patients with chronic medical states (diabetes, coronary heart disease, asthma, chronic back pain and colorectal cancer). In persons with combined physical illness and mental disorder was noted significantly decrease in quality of life in general ($d = -1,10$; 95% CI = -1.34 to -0.86) and its physical ($d = -0,64$; 95 % CI = -0.74 to -0.53) and psychosocial component ($d = -1,18$; 95% CI = -1.42 to -0.95) compared with individuals without mental disorders. This result highlights the importance of identifying and treating mental disorders related in physically ill patients [8].

Elderly patients are among the leading medication consumers. Therefore, one of the most important tasks in geriatrics is the development of an efficient and safe approach for management of elderly with comorbid diseases and, at the same time, avoidance of polypharmacotherapy whenever possible [9].

According to observations, to achieve sufficient adherence in elderly patients with mental disorders is more complicated task than in young and middle age patients. Elderly patients with mental health problems more often in comparison to others don't have a critical attitude to their state [10]. They often perceive an attempts to provided medical assistance as violence and cause active resistance. Moreover, these patients more often are subjects to self-medication, e.g.,

barbiturates. The reluctance of treatment may be associated with the delusional interpretation of events, such as prescribing a drug, that can be perceived as "poisoning" to obtain property. Depressed elderly patients cannot take medicine not only because of the lack of criticism but also through a severe motor retardation, caused by a mental condition, and age-related changes in the body. In diseases involving the development of dementia (atrophic processes, vascular brain damage, etc.), the possibility of therapeutic collaboration is very low because of impaired memory, reasoning, and reduced criticism [7], [8].

Patients' persuasion to take medications independently during the exacerbation of psychosis or other mental illness is a difficult task, so treatment is carried out in the hospital. Once improvement of criticism contributes to the formation of the therapeutic alliance, patients begin to take medications on their own and continue treatment as outpatients. However, outpatient therapeutic cooperation can also be short-term. It can be associated with the development of side effects that are particularly difficult tolerated by elderly patients at home, with fear that prolonged treatment can damage the health [11]. This, as a result, can lead to repeated hospitalizations.

Self-medication and failure to comply with doctor's recommendations by elderly patients contribute to serious health consequences such as lack of therapy efficacy, multiple drug regimen revision by a physician, side effects of medications, disappointment by the treatment results. Poor adherence is one of the primary risk factor for reduction of therapeutic effects, development of complications, which leads to a decrease in quality of life and increase of treatment cost [12], [9]. Psychotherapeutic interventions aimed at a patient's awareness of his disease and its treatment, the creation of therapeutic alliance and the prevention of self-medication, according to our hypothesis, can help to improve compliance and quality of life in polymorbid elderly patients suffering from mental disorders [12].

2 Materials and methods

The study sample comprised of 325 patients who underwent inpatient treatment at the Gerontopsychiatric Department of the Mariupol Psychiatric Hospital and signed an informed consent. Most prevalent diagnoses were dementia and schizophrenia. The study had a design of a randomized

controlled clinical trial. Randomization was performed by a computer program. Patients were randomized to the experimental and control groups in a ratio of 3 to 1 based on age and gender. Consequently, they are representative of these indicators.

The study group (n=238) received standard treatment and psychological interventions. The program of psychological treatment consisted of three parts: informative, motivating and reflective. It included a combination of psychoeducation, compliance therapy, and pharmacomania prevention training. A comparison group (n=87) received only standard treatment. Patients were evaluated for quality of life with SF-36 scale and compliance level with Morisky Medication Adherence Scale.

3 Results

3.1 Baseline characteristics

Following a randomization, the study group and the comparison group were additionally evaluated for their representativeness by the main features.

As can be seen from Table 1, the overall quality of life in the groups did not differ significantly, making possible a conduction of variance analysis to determine the effectiveness of psychological interventions in the improvement of the quality of life for the studied sample.

Some differences were observed for certain subscales. Thus, in the main group, the indicators of physical ($p < 0.001$) and role functioning due to the physical condition ($p = 0.002$) were significantly better, and, on the contrary, in the comparison group were noted a significantly higher baseline scores on the vitality ($p = 0.010$), social functioning ($p = 0.038$) and mental health ($p < 0.001$) (Table. 1). But the overall SF-36 score didn't differ significantly between groups.

We have seen significant intergroup difference on the Morisky Medication Adherence Scale. Consequently, since the scores for this scale are significantly different, its results will not be taken into account in the final analysis (Table 2).

3.2 Changes during the study, analysis of variance

We have evaluated overall shifts in the quality of life in geriatric patients during the treatment process, as well as differences between experimental and control groups.

So, when evaluating the mean scores of all patients included in the study, we noted a significant improvement in the quality of life. On the SF-36 scale, it was 24.65 points with statistically significant difference in comparison to baseline score ($p < 0.001$) (Table 3).

Table 1: Baseline characteristics of quality of life (SF-36) and their differences between groups.

SF-36 subscales	Control group	Study group	P
Physical functioning	53,592	38,793	<0.001
Role functioning due to physical condition	15.805	26.576	0.002
Pain	63.000	65.660	0.310
General health	38.356	41.466	0.464
Vitality	28.736	24.891	0.010
Social functioning	30.799	26.471	0.038
Role functioning due to emotional state	10.341	10.217	0.959
Mental health	40.448	32,000	<0.001
Overall quality of life	33.32	34.65	0.317

* As seen from the source data, the total quality of life in the groups did not differ significantly

Table 2: Initial indicators on Morisky Medication Adherence Scale and their differences between groups

Scale	Control group, score	Study group, score	P
Morisky Medication Adherence Scale	2.60	3.12	0.007

*Significant intergroup difference on baseline Morisky Medication Adherence Scale score.

Prior to treatment patients' quality of life between the study groups did not differ statistically ($p = 0.317$). But at the end of the treatment was noted the statistically significant difference in the quality of life between the study and control group (63.00 vs. 47.86; $p < 0.001$). During the treatment in control group, overall SF-36 score improved by 14.55, while in psychological interventions group – by 28.35 points with a statistical significant intergroup difference (Table 4).

Changes in the quality of life in patients in the control group, who received standard treatment averaged at 14.5 points, and in patients in the main group who received additional psychotherapy - 28.35 points. The intergroup difference was highly significant ($p < 0.001$), which fully confirms the effectiveness of the psychotherapeutic program, consisting of psychoeducation, compliance therapy, and pharmacomania prevention training, in improving the quality of life (Table 5).

3.3 Changes during the study, correlation analysis

We also noticed that changes in quality of life on the SF-36 scale during the treatment were significantly correlated with age, but the correlation strength was weak ($r = -0.149$; $p = 0.007$). These data mean that patients with a younger age demonstrated a more substantial improvement in the quality of life. In addition, changes in SF-36 score significantly directly correlated with the overall score on the MMSE scale; the correlation strength was weak ($r = 0.282$; $p < 0.001$). It indicates that more improvement in the quality of life was observed in patients who scored more on MMSE and, accordingly, had a lower cognitive deficiency. The number of concomitant illnesses, duration and intensity of smoking, as well as the number of drugs taken daily or periodically by the patient, did not have a significant effect on changes in the quality of life during treatment (Table 6).

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 the clinical treatment group in favor of the experimental group. These results were confirmed by the data of the dispersion analysis, where more pronounced improvement was observed in psychotherapeutic interventions group (psychoeducation, compliance therapy, and pharmacomania prevention training).

Despite the fact that the total number of drugs taken

daily or periodically by the patient did not have a significant effect on quality of life changes during treatment, among patients who self-treated, there were more pronounced changes in quality of life on the SF-36 scale after treatment ($r_s = 0.119$; $p = 0.033$).

4 Discussion

Mental disorders among the elderly population are one of the main social problems because of their high frequency of occurrence and high somatic comorbidity. In addition,

the prognosis of comorbid diseases usually is poor. Studies indicate that there is a strong and complex relationship between somatic diseases, mental disorders and older age, which makes geriatric medicine more laborious and more expensive than conventional one [12], [9]. It is emphasized that mental health is crucial because of the importance of functional independence and a decent quality of life in elderly patients [13], [10].

The data obtained in our study confirm the low quality of life in older adults suffering from comorbid psychiatric and somatic disorders. The most vulnerable components were the overall quality of life, role functioning due to the

Table 3: Total scores on the SF-36 scale in the entire sample and changes during treatment

Score	Mean	Standard deviation	Difference	95% Confidence interval	Statistical significance
SF-36 before interventions	34.2924	10.58508	24.65815	23.35-25.97	<0.001
SF-36 after intervention	58.9506	13.29373			

* on average across the sample was noted significantly improve in quality of life.

Table 4: Baseline and final (after treatment) quality of life (SF-36) in the treatment group.

Indicator	Group	Number of patients	Mean	Standard deviation	95% Confidence interval	Con-	P
SF-36 baseline	Control	87	33.32	12.77	30.60-36.04	0.317	
	Psychological interventions	238	34.65	9.67	33.41-35.88		
SF-36 end of treatment	Control	87	47.86	11.81	45.35-50.38	<0.001	
	Psychological interventions	238	63.00	11.37	61.55-64.46		
SF-36 changes	Control	87	14.55	10.85	12.23-16.86	<0.001	
	Psychological interventions	238	28.35	10.17	27.06-29.65		

Table 5: Changes in the quality of life, the difference between the end of treatment and baseline. Analysis of variance (ANOVA).

Group	Number of patients	Mean	Standard deviation	95% Confidence interval	P
Control	87	14.55	10.85	12.23-16.86	0.001
Psychological interventions	238	28.35	10.17	27.06-29.65	

* Highly significant intergroup difference ($p < 0.001$)

physical and emotional state, vitality and social functioning. Staying on stationary treatment has statistically significantly contributed ($p < 0.001$) to an improvement in the quality of life of gerontopsychiatric patients, regardless of the amount of received treatment.

The practical feasibility of providing thematic psychoeducational and psychotherapeutic programs for elderly patients with mental disorders has been shown in many studies. The authors noted the need for interventions aimed at quality of life improving in elderly patients with mental disorders [4], [11], [7].

In our study, it was shown that changes in the quality of life in the study group (patients treated with standard therapy and psychotherapeutic interventions) were twice higher compared to patients receiving standard treatment (control group) ($p < 0.001$). Intervention efficacy predictors were younger patient age, lower cognitive functioning and the ten-

dency to self-treatment before hospitalization.

5 Conclusion

Consequently, applying the psychotherapeutic program to gerontopsychiatric patients, aimed at obtaining sufficient information about their diseases and their treatment, creation of a therapeutic alliance and the reduction of pharmacomania (especially with regard to self-medication with barbiturates) was associated with positive changes in the quality of life during treatment. These data confirm the need for interventions intended for improving the quality of life in polymorbid elderly patients with mental disorders.

Table 6: Pearson correlation between changes in quality of life/satisfaction with treatment and various characteristics.

Characteristics	Change in SF-36 The correlation coefficient, r (significance (p))
Age	-0.149 (0.007)*
Number of comorbidities	0.68 (0.222)
The level of smoking (a pack-years)	-0.67 (0.229)
Number of drugs taken by the patient, overall	0.87 (0.119)
Number of drugs that the patient receives periodically	0.079 (0.157)
Number of drugs taken by patient on daily basis	0.032 (0.563)
Total MMSE score	0.282 (<0.001) *

*Statistically significant correlation.

Table 7: Spearman correlation between changes SF-36 scores with treatment and various dichotomic characteristics.

Characteristics	Change in SF-36 The correlation coefficient, r (significance (p))
Gender	0.065 (0.243)
Nature of work (mental / physical)	-0.092 (0.099)
Marital status (married / single or married / single)	0.031 (0.579)
Self-treated (yes or not)	0.119 (0.033) *
Schizophrenia / dementia	-0.063 (0.304)
Group (study / comparison)	0.500 (<0.001)

* Statistically significant difference.

Competing interests

The author declares that no competing interests exist.

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