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Socio-Demographic Characteristics of the Psychiatric Population with Comorbid Alcoholism

Ana Miruna DRAGOI[1], Antonia Ioana TRIFU[2], Simona TRIFU[3]

Abstract

The population of Romania ranks 3rd in the world in terms of alcohol consumption, with particularities depending on the environment of origin, cultural level, addiction versus abuse, consumption within the wide limits of normality versus hospitalization in psychiatry. The paper refers to patients consuming alcohol whose main diagnosis is schizophrenia. The cross-sectional study consisted of 88 male subjects with dual pathology, aged between 23 and 80 years. The instruments used in the study were PANSS for psychotic impairment, MAST for measuring alcoholism and for cognitive functioning, Cognitive error questionnaire. The design of the research was observational, transversal. We performed a multiple regression analysis in which the predictor variable was cognitive functioning and the criterion variables were psychotic impairment and alcohol level. We also performed an analysis of ANCOVA variance, having as covariates: age, level of education, the need for antidepressant in treatment, number of hospitalizations, the manner of hospitalization and the environment of origin. The results indicate that alcoholism and general psychopathology (G scale) are predictors for cognitive functioning. A stronger predictor is the level of education, while age and AP are poor predictors. PANSS_P subscale, PANSS_N subscale, AD, hospitalization mode, number of hospitalizations, average are not predictors for cognitive functioning. The cognitive functioning of these patients is caused by alcohol rather than schizophrenia. Patients with a high level of previous education have a richer cognitive reserve that can protect their judgment from cognitive errors and can preserve better their cognitive functioning.

Keywords: alcohol, schizophrenia, level of education, cognition, regression models, social assistance, social support.

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Introduction

Schizophrenia is a mental disorder characterized by a series of positive, negative and / or cognitive symptoms, with the particularity of exposing a high rate of comorbid substance use, in an abusive way. While more than 80% of schizophrenics are smokers, the second substance consumed is alcohol, with dramatic consequences on the frequency and intensity of psychotic episodes and life expectancy.

There are many uncertainties about the causes of the two pathologies, their onset, the implications that the symptoms of one of the pathologies have on the other and especially regarding the establishment of a therapeutic plan. Undoubtedly, however, this comorbidity leads to symptoms of higher intensity, compared to those who are diagnosed with only one of the two mental disorders.

Patients diagnosed with schizophrenia, compared to those without this diagnosis, are more likely to smoke, consume large amounts of alcohol, cannabis or recreational drugs.

The relationship between substance use disorders and schizophrenia has been extensively explored in multiple population studies (Kendler *et al.*, 1996; Anthony, Warner, & Kessler, 1994; Regier *et al.*, 1990). To date, convincing evidence has been found for a dose-dependent causal relationship between substance use disorders and the onset of schizophrenia, if the onset of substance use disorders preceded the onset of schizophrenia (Spies *et al.*, 2006; Tien & Anthony, 1990; Trifu, 2019; Hafner *et al.*, 2002; Zammit *et al.*, 2002). On the other hand, significant predictors of comorbidity of substance use disorders in patients with schizophrenia were: male males, low level of education, previous violent crimes and substance use disorders in the family history (Cantor-Graae, Nordström, & Mc Neil, 2001; Westermeyer, 2006). Patients with schizophrenia and substance use were less likely to adhere to treatment and were more likely to develop side effects (McLaren *et al.*, 2010). However, even during the first episode of schizophrenia, substance users experienced more severe psychotic symptoms and an earlier onset, compared with non-users (Mauri *et al.*, 2006; Picci *et al.*, 2013; Trifu, Delcuescu, & Boer, 2012; Schimmelmann *et al.*, 2012).

In patients with dual diagnoses, high rates of substance use disorders were found among patients' grade I and II relatives, suggesting that genetic risk factors for substance use disorders and an adverse family environment may have contributed. at the onset and severity of the disease (Comtois *et al.*, 2005; Wilson *et al.*, 2013).

There are a number of hypotheses about the causes that cause schizophrenic patients to consume alcohol, among which is the most common belief that: (1) they can more easily overcome the symptoms characteristic of psychotic episodes; (2) are more tolerated if they are perceived as alcohol addicts, compared to when they are diagnosed with schizophrenia; (3) they attribute the degradation of personal functioning to alcohol consumption, which

seems to be a reversible state; (4) attribute aggressive behaviors to alcohol consumption, considering that they are more easily accepted by society.

Alcohol dependence is a key negative prognostic factor in patients diagnosed with schizophrenia, leading to more difficult diagnosis, more hospitalizations and more severe episodes of disease. Recent studies in the literature suggest that this double diagnosis is found in the case of a percentage that varies between 35% and 80% (Leposavic *et al.*, 2015) of the psychiatric population. Differences in epidemiological data stem, among other things, from different diagnostic criteria and different investigative tools used by researchers. The percentages are probably even higher for high-risk groups, such as young people with a violent or homeless history. The prevalence is higher among men. Suicide attempts occur significantly more often in the population of patients with comorbidity schizophrenia - alcoholism, but also in the group of those with cognitive impairment. A 2015 study (Hjorthøj *et al.*, 2015) found that patients diagnosed with alcohol or cannabis dependence had a predisposition to suicide, while people with schizophrenia had chosen a suicide by violent methods.

In an article (Ventriglio *et al.*, 2015) that sought to observe the cognitive functioning of patients with a primary diagnosis of schizophrenia, some of them consuming alcohol and others without consumption, it was observed that the cognitive performance of was affected in both groups compared to healthy controls, but only by 6.2% more among alcoholic patients. Deficits were reported in the field of verbal and working memory, executive functioning, planning, physiognomy recognition.

Both schizophrenia and alcoholism lead to a social withdrawal that generally worsens gradually, to a significant decrease in coping skills or the ability to understand the role that social assistance can play in improving the patient's condition. All this obviously leads to a decrease in quality of life (Bahorik *et al.*, 2017; Trifu *et al.*, 2016).

People with alcohol dependence reported (Carra *et al.*, 2016) several reasons for non-compliance with medication and poorer functioning in the Global Assessment of Functioning (GAF), although not to the global assessment of relational functionality (GARF).

Studies (Bahorik *et al.*, 2017) have sought to see the motivational dimension of schizophrenic patients who use alcohol or other drugs. They concluded that: intrinsic motivation is present to a lesser extent in patients with schizophrenia-alcoholism comorbidity, compared to those who are only alcohol or drug users. Also, the absence of intrinsic motivation leads to substance abuse or the manifestation of risky behavior, regardless of the form it takes and causes a higher number of recurrences. It has been found that patients suffering from schizophrenia will be able to give up these addictive behaviors, if they benefit from an extrinsic motivation. In another recent article, (Subramaniam *et al.*, 2017), it was observed that people who had a job, compared to students, were six times more prone to

dangerous alcohol consumption, while patients who were unemployed were eight times more prone to dangerous alcohol consumption. Those with university and higher education were significantly less likely to engage in hazardous alcohol consumption compared to those with secondary and lower education.

The profile of the patient with schizophrenia and who will develop alcohol dependence seems to be able to be summarized as follows (Leposavic *et al*., 2015): (1) young men with a family history of alcoholism or schizophrenia; (2) young person developed in a conflictive family climate, which did not allow him to develop a type of secure attachment or effective coping strategies; (3) the presence of childhood neurosis can be the "protective factor" for the development of harmful alcohol consumption; (3) higher prevalence among the unmarried: (4) low level of education; (5) previous violent crimes.

Thus, a vicious circle is created, in which alcohol abuse accelerates the appearance or exacerbation of a psychotic episode, and the patient, in his attempt to reduce the positive and negative symptoms, will consume alcohol. In addition, this comorbidity will lead to a significant reduction in the patient's ability to be critical of the disease. In the absence of insight, non-compliance with treatment occurs, patients systematically refusing to follow it, as they do not notice their own pathological behavior. From a medicinal point of view, from a psychiatric perspective, Bratu and Sopterean (2014) concluded that Naltrexone was effective in reducing the global symptoms of alcohol dependence, an idea that has been supported in other studies (Sawicka & Tracy, 2017). This drug also has a role in lowering craving.

Metholodogy

The research was performed on patients admitted to the XV psychiatric ward, within the Psychiatric Hospital. All participants in the group had the main diagnosis of axis I of Schizophrenia. In the evolution of the underlying disease, they associated alcoholism, either addiction or binge drinking.

The group of research participants consists of 88 subjects, men, from urban areas 61 (69.3%) and rural areas 27 (30.7%), aged between 23-80 years, with an average age (M) of 47.20 years and standard deviation (DS) 13.15. They have the level of education: primary 11 (12.5%), professional 16 (18.2%), high school 31 (35.2%), higher 24 (27.3%), postgraduate 6 (6.8%). The research participants are at the first hospitalization, 24 (27.3%) and at several hospitalizations, 64 (72.7). Of the 88, 46 (52.3%) and 42 (47.7%) were hospitalized voluntarily. Variable frequencies are shown in *Tables 1* and *Table 2*.

The inclusion criterion in the study was the reason for hospitalization; more precisely the patients were included in the group due to mental and behavioral manifestations due to alcohol use, in a patient with Schizophrenia. In other words,

the trigger that led to the need for hospitalization in psychiatric services was alcohol consumption and not an exclusive psychotic episode generated by the underlying disease. Another inclusion criterion was gender, only male patients were selected, being a men's clinical ward.

Sampling procedure

The study took place between June and September 2019, in a psychiatric hospital in Bucharest. At the clinic, there were patients who associated uncomplicated withdrawal and / or complicated withdrawal with delirium tremens. The hospitalization period of the patients introduced in the study was between 7 and 21 days. Therefore, the psychological evaluation was performed between the 7th day and the 12th day of hospitalization, when the patients had clarified the field of consciousness and could participate in the interview, respectively they could complete the questionnaires.

The evaluation was performed in the doctor's office and in the psychology office of the department. A complete description of the study was presented to potential participants. Informed written consent was obtained in accordance with research standards for the study of human subjects and the confidentiality of personal data was guaranteed. Hetero-application tests were used and we used the sheet-pencil method.

Measurements, variables and covariates

The variables collected and the questionnaires applied were chosen in accordance with the limits of the previously revised studies. Thus, we define the following psychological dimensions of alcoholism, in accordance with the symptoms explained in the psychological examinations of alcoholic patients admitted to psychiatric wards, dimensions that represent a reflection in the clinical psychology of the main psychiatric diagnoses associated with alcoholism.

Psychotic dimension (consistent with the association of psychiatric diagnoses such as: Complicated withdrawal with delirium tremens, Acute psychotic disorder induced by alcohol consumption, Psychotic disorder that persists for several months after withdrawal). This included the survey on: (1) maintaining confusion, disorientation, difficult testing of reality; (2) Insufficient understanding of their situation; (3) feeling unreal and unlikely.

The apathico-abulia dimension (associated with the psychiatric diagnosis of Organic Personality Disorder). Thus, we checked whether the participants associate the inability to carry out any socially useful activity (professional abandonment, lack of work, lack of concerns for the future, lack of curiosity, insight, pathology on the field of involvement of the will).

Depressive dimension (associated with Major Depressive Episode, Major Depressive Disorder, Recurrent Depressive Disorder). We checked whether

patients are associated with: (1) guilt, guilt, remorse; (2) risk of suicide; (3) risk of prolonged depressive episodes; (4) the need to combine therapeutic regimens that include dual antidepressants and SSRI type, possibly with the inclusion of antipsychotic.

The dimension of psychopathy (where the main component is the involvement of the other in the dynamics of addiction pathology). We searched: (1) if family pathology is associated; (2) the importance of the other in the dynamics of relapse and in the administration of medication; (3) if the profile of addiction is played in other areas and more in the psychological than physical space

Behavioral dimension (association of mental and behavioral disorders due to alcohol use, association of personality structures of explosive impulsive type, excitable, loaded with indices of brain microorganism, aggression, hostility, pathology of acting-out with short-circuiting the field of consciousness and mental deficiency). We checked whether patients: (1) associates consumption "in binge"; (2) had more than three hospitalizations (relapses) during a year; (3) had hospitalizations made through the Emergency Room; (4) are inclined to discontinue treatment immediately after discharge.

Amnestic dimension (corresponding to the diagnosis of Korsakoff Syndrome, incipient cognitive impairment, Alcoholic dementia). We have searched for: (1) association of fixation amnesia; (2) association of conspiracies; (3) association of disorientation; (4) inability to regain the level of functioning reached before the last hospitalization; (5) cognitive impairment; (6) personality degradation; (7) lack of involvement in personal hygiene; (8) the need to involve the family in care.

The size of the somatic sequelae of alcoholism (association of toxic ethanolic hepatopathy, association of alcoholic polyneuropathy, size of somatic degradation per global). We have searched: (1) somatic degradation; (2) indifference to the degradation of the body's functioning; (3) the association of apathy-abulia that goes as far as affective indifference towards oneself; (4) the category of those most willing to maintain abstinence (and due to the late involvement of families).

Cognitive dimension (assessed by cognitive functioning questionnaires). Two types of measurements were used: binary type (with yes / no answers) and clinical scales whose result is scoreable. The psychological instruments used were: MAST scale, HAM-D depression scale, PANSS scale (where we measured the positive dimension, the negative dimension and the general dimension), the WHOQOL quality of life scale, the MMSE score, the cognitive error questionnaire, the absurd story test , the hostility questionnaire (of which only three scales were used: negativity, resentment, indirect hostility. An introductory questionnaire was added for the factual data that highlighted: age, level of education, background. Comorbidities were also noted associated.

The aspects that were listed in binary are: the presence of hospitalizations in psychiatric services with a history, the presence of hereditary-collateral history, the presence of mental and behavioral disorders at hospitalization due to alcohol use, the presence of alcohol relapses, interpersonal self-care, social support, a job, the association of forensic complications, the association of social stress, the ability to financially plan life, motivation, the presence of hypnotic disorders, the presence of satellite anxiety, the presence of guilt-guilt-remorse, the risk of suicide, the risk of prolonged depression, the association antidepressant in treatment, the presence of binge use, the presence of confusion, temporal-spatial disorientation, difficult testing of reality and feelings of the unreal and improbable, the presence of hallucinations, the association of antipsychotics in treatment, the presence of delusional ideas, professional abandonment, absence of doubt the presence of worries about the future, the presence of concerns for the future, the presence of curiosity, the presence of fixation amnesia, the presence of conspiracies, cognitive impairment, personality impairment, involvement in personal hygiene, the presence of family support, the presence of blackouts, antidementia association, hospitalizations Police Room, risk of non-compliance with treatment, presence of family pathology, association of other addictions (tobacco, cannabis), somatic degradation, self-indifference, impairment of biological medical tests (blood count, liver tests (TGO, TGP, GGT)), bilirubin, amyl-asemia, association of toxic hepatopathy, association of severe polyneuropathy, association of seizures).

Research design

The research took place in a natural environment and was an observational, cross-sectional study. The database was processed in SPSS. For the present paper, we have reduced ourselves to fewer variables, presenting the following experimental design: (1) The dependent variable (predictor) of the research is represented by the cognitive functioning; (2) The independent variable (criterion) is represented by the level of Psychotic Impairment and Alcoholism registered by the subjects participating in the study and other variables (demographic variables, variables related to medication and hospitalization). As tools we used for the predictor the Cognitive Error Questionnaire (CFQ) and for the Psychotic Impairment Scale (PANSS) criterion and the Alcohol Screening Test (MAST).

Results

The frequency and percentage for the data collected are shown in the following tables.

Table 1. Education level and residential place for the subjects in the study

Education level	Frequency	Percent
gymnasium	11	12.5
professional	16	18.2
high school	31	35.2
university	24	27.3
post-university	6	6.8
Total	88	100.0
Residential place	Frequency	Percent
rural	27	30.7
urban	61	69.3
Total	88	100.0

Table 2. Type and number of hospital admissions

Hospital admission			Admissions		Age	
	Frequency	Percent	Frequency	Percent	M	SD
nonvoluntary	42	47.7	24	27.3	47.2	13.15
voluntary	46	52.3	64	72.7		
Total	88	100.0	88	100.0		

Alcoholism (MAST), psychotic impairment (PANSS), demographic variables, medication-related variables, and type of hospitalization are predictors of cognitive functioning (Cognitive Error Questionnaire)

Descriptive indicators are presented in Table 3: number of subjects (N), maximum values (Max), minimum (Min), averages (M), standard deviations (SD), symmetry indicators (standard error skewness - E_std) and vaulting (kurtosis with standard error - E_std) for tests.

Table 3. Descriptive indicators for the three tests

	N	Min	Max	M	SD	Symmetry Statistic	E_std	Flattening Statistic	E_std
Cognitive errors	88	10	96	57.53	22.79	-.296	.257	-.724	.508
PANSS (P)	88	9	48	27.97	10.15	.299	.257	-.595	.508
PANSS (N)	88	20	46	34.70	8.12	-.307	.257	-1.261	.508
PANSS (G)	88	18	110	69.24	18.48	-.120	.257	-.218	.508
MAST	88	16	88	44.68	12.23	.966	.257	1.508	.508

All variables analyzed have a normal distribution. The absolute skewness coefficient is <1 (Morgan *et al.*, 2001) or the values of the indicators of symmetry (Skewness) and flattening (Kurtosis) are within the limits considered normal (according to Kline, 2011: do not exceed the value 3 for skewness and 8 for kurtosis).

The fidelity of the tests used takes into account the internal consistency and stability over time of the results obtained are presented in *Table 4*.

Table 4. Number of items, Cronbach's alpha coefficient and correlations between test-retest at 6 months for the tests used

Test	Number of items	Cronbach's alpha	Test- retest Pearson correlation
CFQ	25	0.89	.891**
PANSS (P)	7	0.74	.766**
PANSS (N)	7	0.70	.754**
PANSS (G)	16	0.77	.706**
MAST	24	0.83	.775**

The internal consistency of the tests is high (Cronbach's alpha> 0.7), the correlations between test-retest are high (r> 0.7). To determine whether cognitive functioning (measured by the cognitive error questionnaire) is differently influenced by alcoholism (measured by MAST), psychotic impairment (measured by PANSS), demographic variables, and medication-related variables and how it was hospitalized. a multiple linear regression analysis having as variable the cognitive errors.

The variable cognitive error was included in the regression analysis as a dependent variable and were suddenly introduced as predictive variables: MAST, PANSS_P, PANSS_N, PANSS_G, AP, AD, hospitalization mode, number of hospitalizations, level of schooling, medium, age. As a method I choose the Backward analysis method, the method that will ultimately provide the correct

statistical model, will try in turn all possible models, including all variables, eliminating one by one those that are not relevant (variables that are correlated with other variables in model). 7 models were generated and are presented in table 5.

Table 5. Model Summary of the influence of independent variables on the variable dependent on cognitive errors

Model	R	R-squared	R-squared adjusted	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.691[a]	.477	.401	17.644	.477	6.298	11	76	.000
2	.690[b]	.477	.409	17.533	.000	.036	1	76	.850
3	.690[c]	.476	.416	17.424	.000	.038	1	77	.845
4	.689[d]	.474	.421	17.345	-.002	.277	1	78	.600
5	.686[e]	.471	.425	17.293	-.004	.530	1	79	.469
6	.677[f]	.458	.418	17.388	-.012	1.890	1	80	.173
7	.667[g]	.445	.411	17.503	-.014	2.089	1	81	.152

a.Predictors: (Constant), Age, AP, Education level, Hospitalizations, AD, PANSS_P, MAST, Environment, Modality, PANSS_G, PANSS_N
b. Predictors: (Constant), Age, AP, Education level, Hospitalizations, AD, PANSS_P, MAST, Environment, Hospital_admission_modality, PANSS_G
c. Predictors: (Constant), Age, AP, Education level, AD, PANSS_P, MAST, Environment, Hospital_admission_modality, PANSS_G
d. Predictors: (Constant), Age, AP_on_admission, Education_level, AD_on_admission, PANSS_P_i, MAST_i, Hospital_admission_modality, PANSS_G
e. Predictors: (Constant), Age, AP, Education level, PANSS_P, MAST, Hospital_admission_ modality, PANSS_G
f. Predictors: (Constant), Age, AP, Education level, PANSS_P, MAST_i, PANSS_G
g. Predictors: (Constant), Age, AP, Education level, MAST, PANSS_G
h. Dependent Variable: Cognitive failures

In *Table 5* we follow the value of adjusted R^2 which will indicate the relevance of the model. The highest value will indicate the best model. It is 0.425 in model 5.

Table 6. ANOVA analysis of variance for each regression model on the influence of independent variables on the dependent variable

Model		Sum of squares	Degree of freedom	Mean square	F	p.
1	Regression	21565.123	11	1960.466	6.298	.000[a]
	Residual	23658.775	76	311.300		
	Total	45223.898	87			
2	Regression	21553.942	10	2155.394	7.012	.000[b]
	Residual	23669.955	77	307.402		
	Total	45223.898	87			
3	Regression	21542.182	9	2393.576	7.884	.000[c]
	Residual	23681.715	78	303.612		
	Total	45223.898	87			
4	Regression	21458.130	8	2682.266	8.916	.000[d]
	Residual	23765.768	79	300.833		
	Total	45223.898	87			
5	Regression	21298.823	7	3042.689	10.174	.000[e]
	Residual	23925.075	80	299.063		
	Total	45223.898	87			
6	Regression	20733.736	6	3455.623	11.429	.000[f]
	Residual	24490.161	81	302.348		
	Total	45223.898	87			
7	Regression	20102.131	5	4020.426	13.123	.000[g]
	Residual	25121.766	82	306.363		
	Total	45223.898	87			

As seen in *Table 6*, the coefficients F are significant (at $p < .001$) in all 7 regression models, so all models are efficient in prediction. The highest value has the model 7, $F = 13.12$, $p<0.001$

We have chosen the model 7 as the most suitable one.

Table 7. Regression model chosen based on ANOVA analysis

Model	R	R-squared	R-squared adjusted
7	.667[g]	.445	.411

Model 7 explains 41.1% of the variation of cognitive functioning ($R^2_{adj} = 0.411$), the overall effect being high (Labar, 2008, *apud* Cohen, 1988).

Table 8. Standardized Beta Coefficients indicating a significant influence of independent variables on the dependent variable (cognitive errors)

Model 7	Non-standardized coefficients		Standardized coefficients	t	p	95.0% confidence interval for B		Correlations		
	B	Std. Error	Beta			Inferior limit	Superior limit	Zero-order	Partial	Part
(Constant)	-32.52	12.02		-2.71	.008					
MAST	.56	.16	.301	3.34	.001	.440	.346	.275	.440	.346
PANSS_G	.23	.10	.187	2.12	.037	.329	.228	.174	.329	.228
AP	15.42	6.18	.234	2.49	.015	.401	.266	.205	.401	.266
Education level	7.24	1.68	.354	4.29	.000	.345	.428	.353	.345	.428
Age	.29	.14	.168	1.99	.049	.207	.215	.164	.207	.215

a. Dependent Variable: Cognitive_errors

Table 8 shows for model 7 and for each independent variable the standardized and non-standardized regression coefficients, the standard error of the non-standardized coefficients, the t tests for testing the null hypothesis according to which the non-standardized coefficients are zero, the zero-order correlations, partial and semi-partial.

The highest share of the three variables of model 7 is the level of schooling followed by alcoholism (MAST). The effect size indicators for each of the five variables of model 7 are rsp = 0.43 for schooling, rsp = 0.35 for MAST, rsp = 0.27 for AP, rsp = 0.23 for PANSS_G, rsp = 0.22 for age, the effects being of average level (schooling , MAST) and weak (AP, PANSS_G, age).

Following the presentation and analysis of the table with the β coefficients of the regression equation as well as of their statistical significance, the corresponding multiple regression equation is the following:

$$Y = a + b1 * X1 + b2 * X2 + b3 * X3 + b4 * X4 + b5 * X5$$

Cognitive errors = -32.53 + 0.56 * MAST + 0.23 * PANSS_G + 15.43 * AP + 7.24 * Schooling + 0.29 * age.

Another condition that must be met for the application of multiple regression is that the errors (residues) be normally distributed (indicated by *Figure 1*).

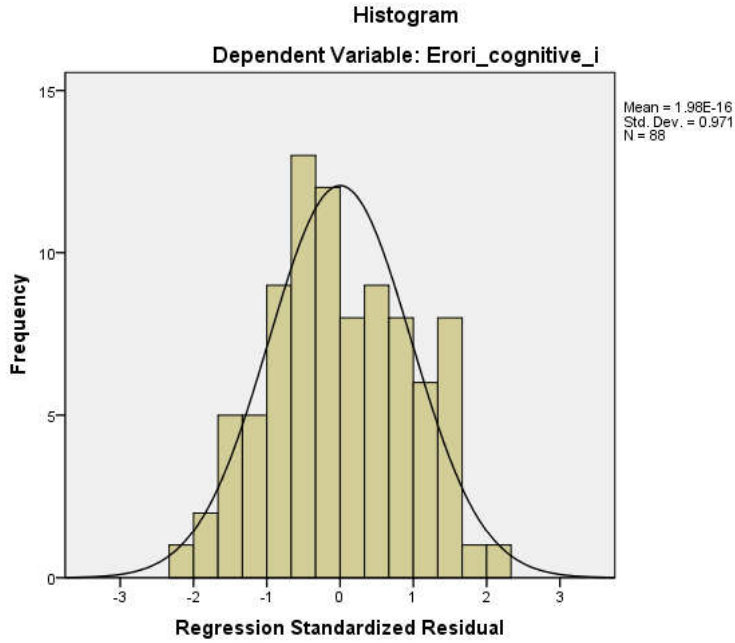

Figure 1. Distribution of errors on multiple regression

Figure 1 verifies the normalization of the standardized residue distribution by comparison with the deviations from the normal curve. We notice that the condition of normality of the waste distribution is fulfilled. *Figure 2*, the graphical representation of the correlation of the data predicted by the independent variables (test scores) and the measured ones that represent the performances for the criterion.

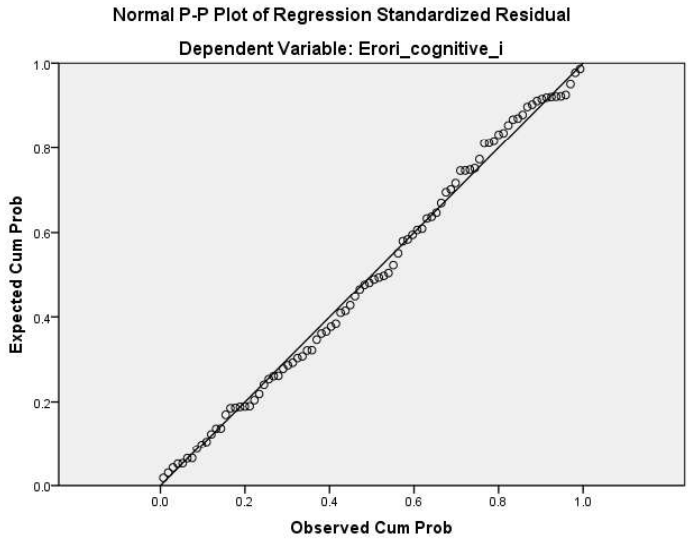

Figure 2. Corelation of predicted data and measured ones

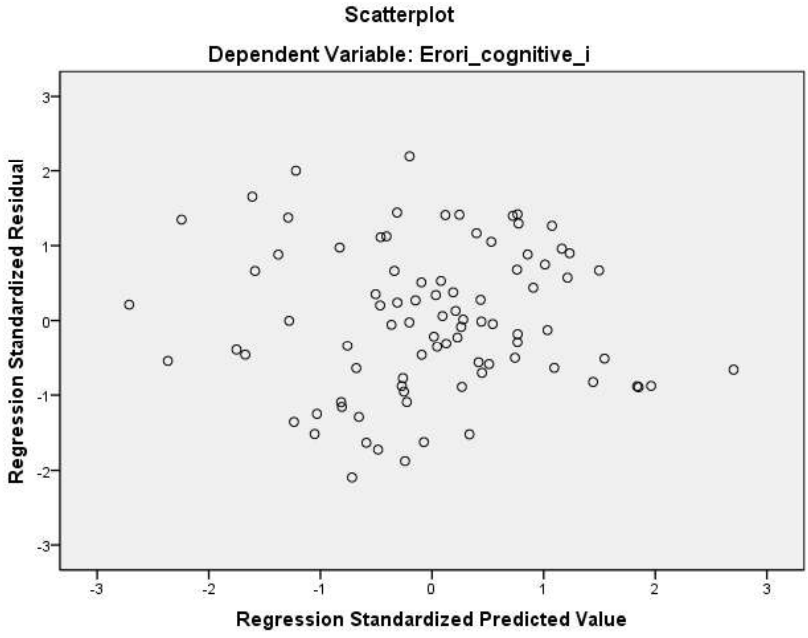

Figure 3. Representation of scatter plot between criterion values and those of predictors

We check the existence of influential cases by inspecting Cook's distance. As the value obtained is 0.014 (<1) it results that there are no influential cases (Field, 2000).

The conclusions of the regression model are: (1) Alcoholism and general psychopathology (G scale) are predictors of cognitive functioning; (2) A stronger predictor is the level of schooling while age and AP are poor predictors; (3) PANSS_P subscale, PANSS_N subscale, AD, hospitalization mode, number of hospitalizations, average are not predictors for cognitive functioning.

Cognitive errors and level of education

Study participants have a level of education: primary 11 (12.5%), professional 16 (18.2%), high school 31 (35.2%), university 24 (27.3%), postgraduate 6 (6.8%). For the analysis we established three groups: Gymnasium (primary, professional), secondary (high school), higher (university, postgraduate).

Descriptive indicators are presented in table 8: number of subjects (N), maximum values (Max), minimum (Min), averages (M), standard deviations (DS), symmetry indicators (standard error skewness - E_std) and vaults (standard error kurtosis - E_std) for the cognitive error test.

Table 9. Descriptive indicators for the CFQ questionnaire

Education levels	N	Min	Max	M	SD	Symmetry Statistic	E_std	Flattening Statistic	E_std
CFQ _ gymnasium	27	10	96	64.11	21.76	-.697	.448	.257	.872
CFQ _ high school	31	15	94	60.84	21.82	-.318	.421	-.284	.821
CFQ _ university	30	12	86	48.20	22.36	.015	.427	-1.224	.833

To test the difference in cognitive errors between the three groups we used ANCOVA analysis of variance, the covariance being age.

The analyzed variables have a normal distribution. The absolute skewness coefficient is less than 1 (Morgan *et al.*, 2004). The homogeneity condition of the variances is satisfied, the Levene test indicating: F (2.85) = 0.565, p = .570.

Table 10. Analysis of unifactorial variance of the scores of the cognitive error questionnaire according to the level of schooling, having the age covariant - Tests of Between-Subjects Effects

Dependent Variable: Cognitive _errors						
Source	Sum of Squares	df	Mean Square	F	p	ηp (partial eta)
Corrected Model	6695.97[a]	3	2231.99	4.866	.004	.148
Intercept	8803.81	1	8803.81	19.194	.000	.186
Age	2575.73	1	2575.73	5.616	.020	.063
Level of education	4760.69	2	2380.34	5.190	.007	.110
Error	38527.92	84	458.66			
Total	336519.00	88				
Corrected Total	45223.89	87				
a. R Squared = .148 (Adjusted R Squared = .118)						

In the main table of the ANCOVA technique (*Table 10*) for each of the variance sources are displayed: the sum of the squares, the degrees of freedom (df), the square mean (a measure of variance), the test values, the significance thresholds p (Sig.), effect size (Partially Square Age). The table note represents the coefficients R2 and R2 adjusted for the explanatory model based on the regression method.

The results of the ANCOVA test show that the subjects from the three groups obtain significantly different results [F (2.84) = 5.19, p = 0.007] for the level of studies. The magnitude of the effect of the level of studies on cognitive errors is large (partial square eta_η2p is 0.110) (Bakeman, 2005). And for the covariant, the results of the ANCOVA test show that the subjects from the three groups obtain significantly different results [F (2.84) = 5.62, p = 0.02] for age. The magnitude of the effect of age on cognitive failure is average (partial square eta_η2p is 0.063).

The level of cognitive errors has a lower value (means better) in subjects with university studies (M = 48.20, SE = 22.36) compared to subjects with high school education (M = 60.84, SD = 21.83) and compared to those with secondary education (M = 64.11, SD = 21.76).

Table 11. Averages and variance indicators, adjusted and unadjusted, for cognitive errors, for each level of the schooling variable, controlling the age level

		Non-adjusted			Adjusted	
Education level	N	M	SD		M	SE
University	30	48.20	22.36		47.31[a]	3.93
High school	31	60.84	21.83		61.91[a]	3.87
Gymnasium	27	64.11	21.76		63.87[a]	4.12
Total	88	57.53	22.79			

We notice that there is a small difference between unadjusted averages and adjusted averages (where I have age control). At the university level, the average is higher at unadjusted (48.20) than at unadjusted (47.31), as well as at the gymnasium level (64.11 compared to 63.87). At the high school level, the average is lower at unadjusted (60.84) compared to adjusted (61.91). We will check the difference between the three groups by applying the Gabriel post hoc test (without covariant).

Table 12. Comparisons between groups (Gabriel test)

	high school	university
gymnasium	3.27	15.91*
high school	-	12.64

The only significant difference in cognitive error is between the "middle school" group and the "upper" group. The effect size is large (d = 0.72). Although the difference is not significant between the "university" group and the "high school" group, the effect size is above average (d = 0.57) (Popa, 2008).

Table 13. Gabriel test

Education level	N	Subset	
		1	2
university	30	48.20	
high school	31	60.84	60.84
gymnasium	27		64.11
p		.089	.920

Figure 4, performance dynamics in the cognitive error questionnaire obtained following the ANCOVA analysis and highlights the evolutionary stage of performance from middle school to high school and the optimum stage of performance increase from high school to higher education.

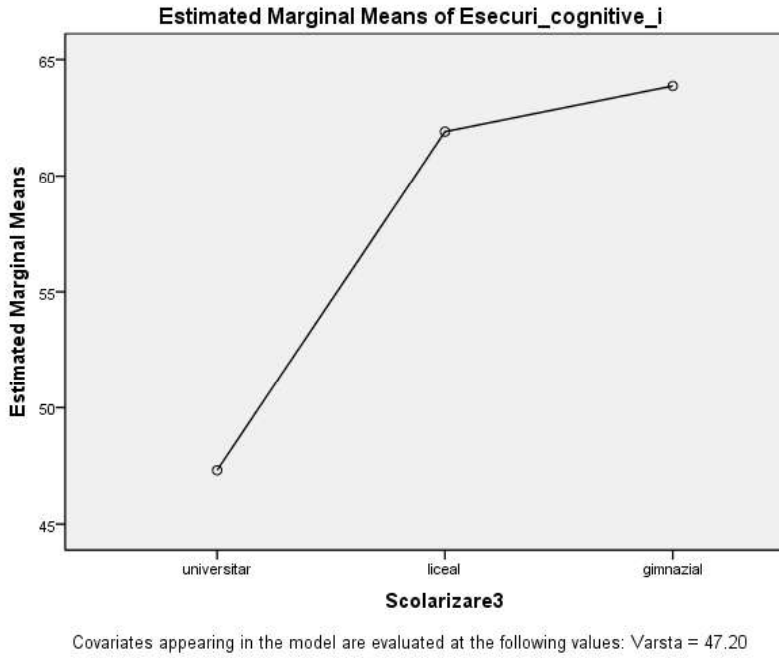

Figure 4. Performance dynamics in the cognitive eror questionnaire

Discussion

It is a cross-sectional observational study and not a longitudinal one in which to note if the patient is compliant with the background antipsychotic treatment, possibly with mood stabilizer or other adjacent anticraving medication, to what extent these schizophrenics would resort to alcohol in the same pattern to decrease internal tension. Consequently, we could not notice whether their rate of cognitive impairment is due to poor control of the underlying disease or association with acute alcohol consumption. Also due to the experimental design of transversal observational type, we could not observe if in the absence of exacerbation of alcohol consumption these patients associate cognitive deficits of the same intensity.

The areas to be studied for future research remain: the connection between non-voluntary hospitalization and the expression of the hostile-aggressive potential

at hospitalization; apatho-abulia depressive dimension and cognitive errors, motivational deficits associated with dual diagnosis, impairment of quality of life. The literature discusses suicide attempts of patients with comorbidities, but this is a limitation of our study, that we did not have a large number of patients with suicidal concerns and / or suicide attempts, and the attending physician administered sedative antidepressant for most patients (except 8 subjects) throughout the hospital stay, so that during testing patients were protected from the expression of affections and feelings in this area. For a more in-depth study of this dimension, a comparison between two groups of equal patients (with AD medication versus without AD medication) would have been necessary.

Future research in the field of psychiatry doubled by neuropsychological assessments of finesse could also discuss the evaluation of cognitive functioning of these patients under antidementia (in clinical practice Memantine is used for the patients with schizophrenia to increase cognitive function and prevent disorganization of thinking, thereof). Given the significant impairment of quality of life in patients with schizophrenia-alcoholism comorbidity, it is important to evaluate them judiciously both somatically (with specialized investigations targeted at organs at risk of being affected by the complications of alcoholism) and a meticulous detail on mental functions and processes with an inventory of the degree of damage to each psychological dimension (depressive, apathetic-abulia, motivational-volitional, amnestic, behavioral-violent, psychotic, risk of suicide).

We consider that psychopharmacology has evolved a lot with state-of-the-art antipsychotics that aim to cancel the negative phenomenology of schizophrenia and reduce the dimension of disorganized thinking. Thus, the patient with schizophrenia can receive for the underlying disease injectable medication deposit once a month (Abilify Maintena, Xeplion, Trevicta, Zypadera) and will become more compliant with the idea of receiving anticraving medication for the pathology of alcoholism one tablet a day (Naltrexone and Acamprosate).

Conclusion

We start from the idea that the subjects present at the time of hospitalization comorbid pathology both from the spectrum of schizophrenia and alcoholism. Because our research focused on investigating the cognitive functioning of these patients and the desire to find out how much of its impairment is influenced by alcoholism and how the evolution of schizophrenia as a background disease, the first conclusion reveals that the cognitive functioning of these patients has as a cause of alteration alcohol rather than schizophrenia. In other words, the higher the MAST score at hospitalization, the more impaired their cognitive functioning (MAST score is a significant strong predictor).

From the point of view of schizophrenia, referring to the modern three-dimensional model (positive symptomatology, negative symptomatology and the

scale of general symptomatology that subsumes multiple associated psychiatric symptoms), we observed that the PANSS-G subscale is a stronger statistical predictor in terms of cognitive functioning of patients with comorbidity schizophrenia-alcoholism, than the negative and positive subscales of the same instrument. From a medical point of view, the result could be commented as follows: given that all patients were already known to be diagnosed with schizophrenia, from the first day of hospitalization they were given antipsychotic treatment so that on days 7-10 when it was done assessment, hallucinations, and delusional ideas could be partially remedied, as the negative symptoms were less pronounced given that patients were cared for during hospitalization. Also, regarding the negative dimension and the idea that this would be a lower predictor of cognitive functioning compared to the PANSS-G scale, this may be due to the pharmacologist's pharmacological choice (all patients were treated with atypical antipsychotics, not with classical neuroleptics, psychopharmacology emphasizing the importance of atypical antipsychotics in adjusting cognitive function, in restoring hypothetical-deductive reasoning, in clarifying logical thinking and eliminating errors or deficits in sensation of causality. superior analysis, synthesis, anticipation, sequencing, planning, feedback.

We consider it necessary to detail the PANSS-G scale which came out as a high predictor of cognitive functioning. The increase of the PANSS-G scale can be attributed to the particularities of the items. It is natural for alcoholic schizophrenics to have high somatic concerns given that many of them associate polyneuropathy, hepatopathy or may have had seizures strictly during weaning. Also, depression and guilt, along with diminished instinctual control are items related in our case to the feelings of shame and guilt of alcoholics, which overlaps with autistic concerns, motor inhibition and lack of judgment and criticism of their own condition of schizophrenia. Schizophrenics are prone to active social avoidance and lack of cooperation anyway given the unusual content of their thinking (even in residual periods), which is compounded by an attention deficit, but social avoidance will increase through comorbidity with alcoholism, as alcoholism involves loneliness, solitary consumption (specific to schizophrenia), increased internal tension and disturbances of will.

The level of education is considered the strongest predictor of cognitive functioning even if the patients in the study group presented two psychiatric diagnoses (alcoholism and schizophrenia), each of them involving years of cognitive impairment and personality degradation. In schizophrenia disorder is well known the theory of drift down - the prevalence of schizophrenia is the same, 1% in all social classes, from intellectuals to subcultural environments, during at least 10 years of evolution of this disease, patients with schizophrenia will descend from high social classes to lower social classes. Despite this theory, the schizophrenic managed to acquire more cognitive acquisitions before the onset of the disease (managed to graduate from college, managed to have several years of work experience, managed to establish social support networks and interactions

in environments institutional institutions) and the more alcoholism subsequently overlapped with schizophrenia over time, the more the deterioration of the person in question started from a previous high level and had a place to lose. On the other hand, the metaphor according to which schizophrenic thinking is an unequal puzzle is well known, so we may be surprised by a spectacular functionality strictly in certain cognitive areas associated with significant deficits in other areas of cognitive functioning that would seem "benign" or simple or within the reach of the intellect of an 8-10 year old child. In other words, for patients with a high level of previous schooling, they have a richer cognitive reserve that can protect their judgment from cognitive errors and can preserve a better cognitive functioning.

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