

# Psychometric Characteristics of a Scale for Assessing the Effectiveness of Group Inpatient Psychotherapy with Psychotic Patients

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**Abstract:** *The purpose of this report is to propose a self-assessment method complementing the assessment of psychotherapist. The scale developed allows retrospective assessment of psychotic patients themselves for the level of safety, security and adopted support from the therapist and the group. This development presents the psychometric data from an authorized scale for assessing the effectiveness of group psychotherapy. This development presents the psychometric data from a developed author scale to assess the effectiveness of group psychotherapy. The person who takes part in the research are N= 104 – (84 man u 21 women). The sample consists of persons aged between 19 and 76. To check the reliability analysis, a Cronbach alpha factor was used, the overall reliability of the scale was Cronbach's Alpha  $\alpha = 0.826$ . To verify the constructive validity, a research factor analysis was carried out, the results obtained showed that Bartlett's spherical test was statistically significant ( $p < 0.001$ ), the adequacy measure (The Kaiser-Meyer-Olkin-Measure of Sampling Adequacy) for the scale is 0.787. The results show that there is only one factor that includes the issues under consideration, which mainly measures the created sense of trust and safety in psychotically ill patients. The results obtained show that the applied methodology for measuring effectiveness from group inpatient psychotherapy is satisfactorily reliable and constructively valid for the given sample of psychotically ill patients.*

**Keywords:** group psychotherapy, effectiveness

## 1. Introduction

Study of effectiveness in psychotherapy is a complex issue, even more when it comes to low-functioning groups of psychotic patients in stationary conditions. Most authors (McWilliams 2020; Pheula et al.2007; Marcolino et al. 2001; Brum et al.2012; Pestalozzi 2002), working with psychotic patients describe the main role of sensitivity for safety and adopted support from the therapist and the group. The fear of the Invasion of the Therapist (Kurtz, 1977) is known. When domestic objects are so strong, projection and project identification is also intensified (). The highly diffuse boundaries between the inner and outer world, the lack of symbolic space, the disturbing reality assessment, make the timely feedback for the therapist. Patients with psychosis must build their relationship with the other, starting from the first stage of Piage and only then smoothly passing to the next level. (Seamless, Piaget's). The trend towards withdrawal in the inner world of imagination and violation of the ability to test reality often leads to the psychotic patient in the group is a mystery of the therapist. Stress subjects, psychotic patients are prone to a level and incompetent effect (), long for proximity, but feel a constant threat of swallowing.

The main purpose of the measurement is to analyze it to analyze the observations made by group psychotherapy with inpatient patients with psychosis, but the scale for assessing effectiveness is to deepen the analysis of what happens during sessions from the point of view of the psychosis patients themselves. (Buckley et al. 2006, Yoshida, 2008) Such feedback makes it possible to think and analyze the experiences of the patients themselves, a retrospective assessment of what happens during therapeutic group sessions in stationary conditions. (Denise, 2003) The measurement toolkit consists of separate items questions combined into a common scale aimed at establishing the value of a theoretical variable, such as the effectiveness of group stationary therapy, a variable not directly monitored.

The measurement scale is developed based on the theoretical framework of psychodynamic and process-oriented modalities and the theoretical overview of the various psychotherapeutic modalities in the outpatient and inpatient group psychotherapy of psychosis. An author's scale has been drawn up for a retrospective assessment of the group psychotherapeutic session filled in by patients at the end of the session. With it, we supplement the objective assessments by the psychotherapist and the supervisor, with the subjective assessment of the patients themselves. A source set of questions is drawn up, the scale is of the Lyckert type, the questions are defined as declarative statements, and the answers indicate varying degrees of consent or disagreement with the statement.

### Persons surveyed

104 people - 84 women and 21 men - were examined. The sample consists of persons aged between 19 and 76 years (average age 45 years).

### Examination procedure

The study was conducted within the framework of group psychotherapy in stationary conditions, after the end of the group session.

### Data processing and analysis methods

The results were processed with the statistical program SPSS 19. The standard for this type of data presentation - descriptive statistics, correlation and factor analysis are used.

### Data processing and analysis methods

The results were processed with the statistical program SPSS 19. The standard for this type of data presentation - descriptive statistics, correlation and factor analysis are used. The reliability of the scale was assessed and item analysis was conducted. The validity (degree of consistency between the results of the study and the theoretical basis on which it is based) was assessed

Main stages of analysis of a scale for measuring effectiveness from group psychotherapy

**Stage 1**

**Formulation of research hypotheses:**

The main scientific hypothesis of the study is that during the group session of psychotherapy, patients with psychotic disorders feel safe, supported by the group and the presenter, having a sense of connectivity and understanding on the part of another person, making a transition from the feeling of loneliness and alienation characteristic of the psychotically ill to the hope that with the help of words and language, can be in a relationship with another person without creating a sense of threat.

**Stage 2**

**Calculation of reliability of the scale and item analysis**

Before we start the procedure, it is necessary, due to the presence of back-phrased variables, to perform a procedure for creating new rheumatic variables through IBM SPSS Statistics. The internal resistance (homogeneity), on the scale (22 items), was evaluated by calculating Cronbach's Alpha index. For the sample studied, it was 0.826. (Table 1)

**Table 1:** Reliability of the scale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.826	.835	22

**Table 2:** Reliability of the scale – Item analysis

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
VAR00001	72.7788	160.64	0.363	0.611	0.82
VAR00002	72.5096	160.039	0.506	0.611	0.816
VAR00003	73.4519	151.823	0.551	0.599	0.811
VAR00004	72.9904	157.835	0.462	0.529	0.816
VAR00005	73.1346	154.855	0.532	0.592	0.813
VAR00006	72.9038	160.67	0.324	0.739	0.822
VAR00007	73.0096	156.612	0.47	0.754	0.815
VAR00008	74.6923	157.574	0.358	0.568	0.821
VAR00009	73.5577	157.298	0.461	0.436	0.816
VAR00010	73.4327	158.073	0.326	0.424	0.822
VAR00011	73.2981	154.638	0.473	0.598	0.815
VAR00012	73.25	153.257	0.528	0.555	0.812
VAR00013	74.6635	161.002	0.269	0.583	0.825
VAR00014	74.7885	164.77	0.177	0.534	0.829
VAR00015	72.8846	162.511	0.325	0.58	0.822
VAR00016	73.6538	151.161	0.554	0.479	0.81
VAR00017	72.4615	161.94	0.47	0.528	0.818
VAR00018	73.0288	157.096	0.484	0.645	0.815
VAR00019	74.125	164.868	0.162	0.535	0.83
VAR00020	74.9808	160.349	0.35	0.515	0.821
VAR00021	74.8077	163.341	0.199	0.435	0.828
VAR00022	74.0096	160.262	0.277	0.238	0.825

The psychometric analysis showed that the items had similar results to Cronbach's alpha, over 0.800 (Cronbach's Alpha if Item Deleted).

Table 36 presents the characteristics of the scale and the correlation of the individual item with the total ball. Significantly correlated, over 0.30- 0.40, are most items-number 1,2,3,4,5,6,7,8,9,10,11,12,15,16,17,18,20. The items which have a low correlation with the total ball Correlation (13, 14, 19, 21, 22), should not be included in the final version of the scale because they do not correlate sufficiently with it. A low positive correlation is understood to be a correlation below 0.30.

**Table 3:** Characteristics of the scale and the correlation of the individual item with the total ball correlation

Number	Mean	Std. Deviation	Corrected Item-Total Correlation
1.	4.2885	1.16313	.363
2.	4.5577	.92250	.506
3.	3.6154	1.39561	.551
4.	4.0769	1.16329	.462
5.	3.9327	1.23276	.532
6.	4.1635	1.27035	.324
7.	4.0577	1.23718	.470
8.	2.3750	1.44939	.358
9.	3.5096	1.20674	.461
10.	3.6346	1.50764	.326
11.	3.7692	1.37404	.473
12.	3.8173	1.34932	.528
13.	2.4038	1.41777	.269
14.	2.2788	1.34711	.177
15.	4.1827	1.08623	.325
16.	3.4135	1.43202	.554
17.	4.6058	.84092	.470
18.	4.0385	1.17352	.484
19.	2.9423	1.40614	.162
20.	2.0865	1.22364	.350
21.	2.2596	1.43463	.199
22.	3.0577	1.46696	.277

The number of questions on the scale has been optimized, with 17 items remaining from 22. the descriptive statistics of the resulting scale of 17 items are presented in table 4. Descriptive statistics show that the arithmetic mean of questions fluctuates around the average and the dispersion is relatively homogeneous.

**Table 4:** Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
sex	104	1	2	1.8095	0.39456
age	104	19	76	45.1442	11.35262
VAR00001	104	1	5	4.2885	1.16313
VAR00002	104	1	5	4.5577	0.9225
VAR00003	104	1	5	3.6154	1.39561
VAR00004	104	1	5	4.0769	1.16329
VAR00005	104	1	5	3.9327	1.23276
VAR00006	104	1	5	4.1635	1.27035
VAR00007	104	1	5	4.0577	1.23718
VAR00008	104	1	5	2.375	1.44939
VAR00009	104	1	5	3.5096	1.20674
VAR00010	104	1	5	3.6346	1.50764
VAR00011	104	1	5	3.7692	1.37404
VAR00012	104	1	5	3.8173	1.34932
VAR00015	104	1	5	4.1827	1.08623
VAR00016	104	1	5	3.4135	1.43202

VAR00017	104	1	5	4.6058	0.84092
VAR00018	104	1	5	4.0385	1.17352
VAR00020	104	1	5	2.0865	1.22364
Valid N (listwise)	104				

**Stage 3**

Validity check: a research factor analysis.

To verify the structural validity of the measurement scale analysed for the sample, it is necessary to carry out a research factor analysis.

**Factor analysis – results:**

The first analysis conducted is a correlation, the table representing the correlation matrix is too large (17 X 17) to be subject to tabular rendering, we present only an analysis of the coefficients. The correlation matrix shows how each of the variables connects to the others. There are no too high > 0.90 and only a few of them are below <.30. so we have reason to move to an analysis of the results of the factor analysis. The higher correlation (> 0.40 indicates that the two variables are related to each other are likely to fall into the same group of factor analysis. The value of the determinant is well above 0.0001, in our case, it is 4.06.

The following is Table 5 KMO and Bartles's test (table ....), which shows the sample adequacy measure. This measure indicates whether the number of variables for each factor is sufficient. The resulting value of the Kaiser-Meyer-Olkin test is 0,787 (which is above the accepted limit of 0,6) and the Bartlett spherical test is,000, p<0,001 i.e. the distribution of values is adequate for factor analysis.

**Table 5: KMO and Bartlett's test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.787
Bartlett's Test of Sphericity	Approx. Chi-Square	753.493
	df	136
	Sig.	.000

From the Total Variance explained table, it follows that data form one factor.

**Table 6: Total variance explained**

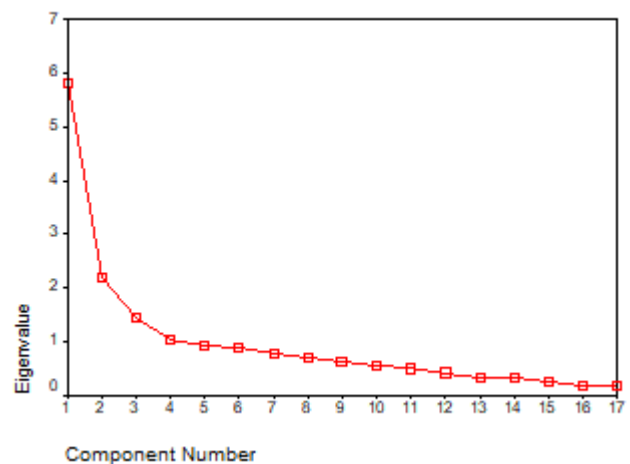
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.787	34.041	34.041	5.787	34.041	34.041
2	2.183	12.839	46.881			
3	1.445	8.499	55.380			
4	1.019	5.992	61.372			
5	.921	5.416	66.789			
6	.886	5.213	72.002			
7	.776	4.564	76.565			
8	.683	4.020	80.585			

9	.626	3.684	84.269		
10	.534	3.139	87.408		
11	.480	2.821	90.228		
12	.413	2.427	92.655		
13	.346	2.035	94.690		
14	.316	1.856	96.547		
15	.257	1.510	98.056		
16	.170	.999	99.056		
17	.161	.944	100.00		

Extraction Method: Principal Component Analysis

Based on the theoretical framework of the questionnaire, the scree plot image and the percentage explained variation from the factor (over 5 %), we examine the one-factor solution. The dot graph gives the own meanings of each component. The graph shows that after the first component the difference between the own meanings decreases, they are below 1.0. This means that the questions form one scale, which is also the purpose of the factor analysis with the sample.

**Scree Plot**



The "Scree Plot" graph shows the severity of every possible factor. We limit ourselves only to those whose weight is greater than 1, i.e. greater than the weight of the individual item. When extracting one factor, we do not have a rotation of factors.

The results of the factor analysis for a scale that, like this one, has no hints, serves to verify data and purposes - as researchers are convinced they can be used for deductive statistics. After the analyses conducted, we get a scale of 17 items with good indicators of reliability and validity and correlation with the total ball.

**Stage 4.**

Measurement scale analysis:

After checking the reliability and validity of the scale, we can move on to its analysis:

Table 7 Descriptive Statistics of the new scale “ Effectiveness of group psychotherapy in psychotic patients”  
 Table 8 Shows the measures of central trend and scattering of the scale. Table 9 shows the mean and standard deviation of the scale.

**Table 8:** Summary Item Statistics  
**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
SEX	104	1.00	2.00	1.8077	.39602
AGE	104	19.00	76.00	45.1442	11.35262
VAR00001	104	1.00	5.00	4.2885	1.16313
VAR00002	104	1.00	5.00	4.5577	.92250
VAR00003	104	1.00	5.00	3.6154	1.39561
VAR00004	104	1.00	5.00	4.0769	1.16329
VAR00005	104	1.00	5.00	3.9327	1.23276
VAR00006	104	1.00	5.00	4.1635	1.27035
VAR00007	104	1.00	5.00	4.0577	1.23718
VAR00008	104	1.00	5.00	3.6250	1.44939
VAR00009	104	1.00	5.00	3.5096	1.20674
VAR00010	104	1.00	5.00	3.6346	1.50764
VAR00011	104	1.00	5.00	3.7692	1.37404
VAR00012	104	1.00	5.00	3.8173	1.34932
VAR00015	104	1.00	5.00	4.1827	1.08623
VAR00016	104	1.00	5.00	3.4135	1.43202
VAR00017	104	1.00	5.00	4.6058	.84092
VAR00018	104	1.00	5.00	4.0385	1.17352
VAR00020	104	1.00	5.00	3.9135	1.22364
EFFECTIVN	104	33.00	82.00	67.2019	11.04833
Valid N (listwise)	104				

**Table 9:** Mean and standard deviation of the scale

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.9531	3.4135	4.6058	1.1923	1.3493	0.1187	17

**Mean and Standard deviation**

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
67.2019	122.0656	11.0483	17

After checking the reliability and validity of the scale, proceed to the analysis of the scale for measurement by sex and age, presented in Table 10. Using one-way analysis of variance One-Way ANOVA we derive the mean values by sex for measures of the effectiveness of group psychotherapy).

**Table 10:** Mean values and standard deviation of the performance scale depending on gender

Sex	N	Mean	Std. Deviation
Man	20	62.2500	9.03720
Women	84	64.5714	12.15887

**Limitations of the scale used**

Given that the scale measures components difficult to operationalize, it is important to use it, together with the analysis of group session protocols and the assessment of the effectiveness of group psychotherapy, from this scale, measuring mainly the restoration of a sense of security, safety and support, as essentially necessary in psychotic patients, to be compared with the data from the group therapist evaluation and the analysis of group protocols of therapy sessions.

**2. Conclusion**

Based on the analyses carried out, a questionnaire with satisfactory reliability and constructively valid for the given sample of psychotically ill patients was constructed.(3,4) The need for such a scale arises because of the difficulty of reporting and directly monitored much-needed experiences of security, safety and support, which group psychotherapy aims at when working with groups of psychotically ill patients. It is recommended that the scale should not be used outside the general analysis of the group therapist and his supervisor about what is happening in the group session process.

**Application: "Effectiveness of group psychotherapy in psychotic patients"**

Instruction: Before you are several statements about your impressions of group psychotherapy, respond to the allegations by selecting the degree to which they were manifested to you during group psychotherapy such as:

1-very weak, 2-weak, 3-medium, 4-high 5- very high

1	I feel safe during the group	1	2	3	4	5
2	The psychotherapist is supportive.	1	2	3	4	5
3	I found out new things about myself.	1	2	3	4	5
4	I feel comfortable and convenient for me	1	2	3	4	5
5	The members of the group are supportive.	1	2	3	4	5
6	I freely shared my thoughts and ideas.	1	2	3	4	5
7	I shared without worry.	1	2	3	4	5
8	I felt confused.	1	2	3	4	5
9	Others respect and value my opinion.	1	2	3	4	5
10	I prefer individual meetings with the	1	2	3	4	5

	therapist.					
11	I learned new things about human relationships.	1	2	3	4	5
12	I feel more optimistic.	1	2	3	4	5
13	I felt safe.	1	2	3	4	5
14	Over the weekend, I think about what we talked about in the group.	1	2	3	4	5
15	A therapist is a person I can trust.	1	2	3	4	5
16	I look forward to the next group.	1	2	3	4	5
17	I felt helpless and vulnerable.	1	2	3	4	5

The 8th and 17th items are reversible, when calculating the total score they are calculated as reversible items.(5 →1, 4→2, 3→3,2 →4, 1→5)

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