



New psicoeducational approach; Salutogenesis; Recovery; Life-skills; Functioning

Effectiveness of a New Structured Psychoeducational, Salutogenetic Based Approach, in Facilitating the Recovery of People with Severe Mental Disorders

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Abstract

Aim: Nowadays there is an increasing attention to the recovery of people with severe mental disorders. Consequently, there is a growing literature mainly focused on the description of excellence paths with particular attention to the organizational aspects of the service. Less investigation has been carried out about specific interventions to foster all the abilities that are essential to improve the living conditions. The aim of this paper is twofold: 1) to describe an innovative and salutogenetic approach called "Group Psycho-educational Intervention for the Attainment of Objectives, Inte.G.R.O." conceived to facilitate recovery by improving functioning; 2) to evaluate the impact of this approach after a year of "active intervention".

Methods: We used a pre-post assessment design-study in 25 subjects diagnosed with schizophrenia, bipolar disorder or personality disorder according to DSM-IV-TR criteria. We used the Personal and Social Performance Scale (PSP) to evaluate functioning, the primary outcome. The secondary outcome measures were assessed by means of the Tower of London (ToL), the Stress-Scale, the Modified Five-Point Test for cognitive flexibility (M-FPT), the APEN/G and APEP/G scales for perceived self-efficacy, the Integrative Hope Scale (IHS), and ad hoc questionnaire of knowledge about Definition of Objectives, Communication Skills and Problem-Solving. The clinical assessment was performed by the Brief Psychiatric Rating Scale (BPRS), while we used the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS).

Results: Significant improvements were found in the following variables: PSP ($p < 0.01$); BPRS total score ($p < 0.05$); RBANS total score ($p < 0.05$); Execution Time ($p < 0.05$) and Total Time ($p < 0.05$) subscores of ToL; Stress-Scale ($p < 0.05$); ad hoc questionnaire of knowledge about Definition of Objectives, Communication Skills and Problem-Solving ($p < 0.01$).

Conclusions: The observed data confirm the effectiveness of this innovative approach, above all on Personal and Social Functioning, stress management, cognitive flexibility and problem solving that are key variables for Personal Recovery.

Keywords:

Introduction

The psychoeducational approach used in mental health facilities has traditionally been considered useful to improve the knowledge of mental disorder by users and relatives, helping them in decision-making and in coping with disturbances and stress. These kinds of intervention are effective, as shown by meta-analyses [1,2]. Many studies replicated its effectiveness in a broad range of psychiatric illnesses, such as schizophrenia [3,4,5], bipolar disorders [6], depression, anxiety and psychological distress [7], personality disorders [8] as well as in psychosis in adolescents [9] and early psychosis [10]. In the field of early psychosis authors are looking for most effective key therapeutic components [11]. The consequence of the positive results of these studies has been a growing opinion that the intervention has to focus the target on the diagnosis and symptoms. On this premises psychoeducation appears to have a merely pathogenetic basis. Anyway, from the beginnings, the goals of psychoeducational interventions were not only the illness or symptoms management, but also the social functioning [12]. According to Guerney [13], a pioneer of psychoeducation, the treatment was based on "the teaching of personal and interpersonal behavioral skills and modalities that an individual can apply to solve problems of a psychological nature and to improve their existential satisfaction"; thus, at the beginning the focus was above all the life of patients, to help them live better by *managing stress* in order to prevent recurrences. Consequently, the patient's own capabilities, personal resources and coping skills should be strengthened and used to contribute to the patient's own health, wellbeing and recovery. In this perspective, psychoeducation is very promising for the *promotion of mental health*, in a way more consistent to the salutogenetic rather than pathogenetic approach. Unfortunately, there are very few papers exploring the strong overlap between psychoeducation and salutogenesis [14,15]; nevertheless, these two approaches can be much more similar than one could believe. According to Antonovsky [16,17], who proposed the new paradigm of salutogenesis, stress is a normal and human condition, and stressors generate a state of tension which is not necessarily negative, having the potential to induce also healthy effects, depending on the strength of the individual and his ability to manage the tension. In Antonovsky's view, the "strength" of a person is the Sense of Coherence [SOC]. In his theory, the SOC is characterized by three components: 1) *Comprehensibility*: People can understand events in their life and reasonably predict what will happen in the future; 2) *Manageability*: The skills or ability or the resources necessary to take care of things/events; 3) *Meaningfulness*: A belief that things in life are interesting and a source of satisfaction, of worthwhileness, and that there is a good reason or purpose to care about what happens.

The overlap of the first two components with psychoeducation is obvious. The third one needs a brief commentary to understand how promising it is for Personal Recovery. SOC, according to the most relevant authors about salutogenesis [18], is strictly connected with problem solving or General Resistance Resources [GRR], particularly Internal Resources. Among the skills and the capability factors protecting against the effects of adversity, problem solving abilities and coping skills are effective at any age [19], more than other factors like,

for instance, intelligence, for which there is some contradictory evidence [19]. In addition, problem solving is a key strategic component of SOC according to Lindstrom & Erickson [18], two of the modern authors about salutogenesis that affirmed the sense of coherence is essentially "the orientation of an individual to solve problems and being able to use available resources". Falloon [20], one of the most famous experts of psychoeducational treatment, was well conscious about all the aspects we previously described, even if he did not explicitly mention SOC and GRR. From the beginning of his peculiar approach of "family psychoeducation" [21,22], patients were asked to establish pleasant goals: the aim was to stimulate little-behavior changes in order to prompt their motivation. The patients were also stimulated to see their problems as goals rather than difficulties. The true core of this approach was a family problem-solving training, starting after two months of treatment in order to improve social abilities. During this phase patients are asked to define one Personal-Goal as, for instance, looking for a job, starting new relationships, etc. We tested the feasibility and effectiveness of this traditional intervention [23] as well as of the Problem-Solving Training Group for patients [24]. Finally, it seems quite clear that psychoeducation and salutogenesis share the same principles and actions and that the educative attitude is in general the best action in the salutogenesis process [25] in itself. Thanks to their intrinsic characteristics, we strongly believe that these two approaches are the best and the most consistent to support Personal Recovery of people with SMI. Also the results of some studies sustain our opinion to offer a group "... model based on salutogenetic treatment principles in the recovery process among people with various mental health problems" [26]. Undoubtedly, Personal Recovery means that a patient is able to live a *meaningful life* [27], a process of change through which the patient becomes able to improve his health and wellness, live a self-directed life, and strive to reach his full potential. There are many phases in the life of patients to decide to initiate a recovery process, after a first crisis episode or afterwards. In our opinion, in all phases patients are more interested in the attainment of a meaningful and valued life, rather than putting attention to a complete absence of symptoms or cognitive deficits. As a consequence, the life-skills, as well as practical, interpersonal and personal problem-solving skills, become the true levers to move their life towards a personal recovery.

On these bases we hypothesized that a structured psychoeducational and salutogenetic training could be offered to patients that are ready for Personal Recovery, consistent with their needs for care according to the triad "*Comprehensibility-Manageability-Meaningfulness*". The approach we elaborated is theoretically quite complex, but very simple to apply for professionals by using a manual. The first assumption is that the attention must be directed towards life-skills, with a pro-active approach based on "cooperative and collaborative learning", never referring to illness, disorder or impairment. The modality of treatment we propose is not corrective or reparative but focused on strengthening personal resources and emphasizing optimism, to better achieve goals and solve social or personal problems.

The approach integrates methodologies taken from promotion of mental health and from salutogenesis, with actions, techniques and

psychoeducational strategies that have been proven effective for mental disorders, with particular attention to those aspects of cognitive functioning that mediate social and personal functioning, as described by Galderisi et al. [28]. In relation to the salutogenesis [29], for our approach we also referred to the following 3 dimensions: 1] cognitive, as a capacity to understand the surrounding reality, also sustained by a good level of cognitive flexibility; 2] motivational, as the ability to develop one's life horizon; 3] behavioral, as a capacity to cope with difficulties and stress.

The purpose of this contribution is twofold: 1) to describe in a synthetic way the approach [30], called "Group Psycho-educational Intervention for the Attainment of Objectives, Inte.G.R.O."; 2) to replicate a previous study about the effectiveness of this approach on Functioning (the primary outcome) in 3 groups of patients after one year of intervention; and also to test the impact on 3 other key variables, as secondary outcomes: level of "stress", cognitive flexibility, acquisition of problem solving abilities.

Materials and Methods

Study site

The study was conducted in the Community Mental Health Center of Campobasso.

Characteristics of the approach

InteGRO is designed for users who are in a phase of relative clinical stabilization, close to the concept of clinical remission [31], with relative awareness of the disorder, absence of severe cognitive deficits that compromise the learning and group participation, functioning more than 40 as assessed by the Semi-Structured Interview "Personal and Social Performance Scale" (PSP) [32]. The maieutic attitude and socratic questioning [33] applied to the group, the promotion of peer-to-peer learning, cooperative learning, and the "Group Cohesiveness" represent other fundamental aspects of working with InteGRO. The intervention, which includes a conductor and a co-conductor, is based on a well-structured manual where all the steps of each meeting are described in detail. The introductory part of the manual illustrates the theoretical principles, the basic cognitive-behavioral techniques, the conduction style, the tools to stimulate skills and to monitor improvements [34].

There are usually 36, 90-minute, weekly meetings (Table 1); some of them are carried out twice a week to facilitate better learning on the subject. The reinforcement and supervision sessions are held every 15 days, then monthly and finally every 3 months.

The intervention is based on four fundamental modules (definition of Pleasant and Personal Goals, effective communication, emotional perception and problem-solving), each comprising different teaching units. For each unit a meeting is scheduled. There are also inter-modular educational units that facilitate the acquisition of the skills of single modules (see Table 1).

IM1	Presentation of the intervention
IM 2	Defining a pleasant goal

IM 3-5	Emotional literacy: The joyful, the sadness, the fear
IM 6-7	Problem solving for practical problems: Teaching session, training Session
IM 8-9	Communication skills: Expressing pleasant feelings and make positive request, active listening
IM 10	Emotional literacy: The shame
IM 11	Problem solving for interpersonal problems: Expanding the social network
IM 12	Defining a personal goal
IM 13	Jumping to conclusions
IM 14	Review meeting
IM 15	Emotional literacy: The anger
IM 16-17	Understanding your mind: Training on connecting one's emotions-cognitions-behaviors for an event that occurred during the previous week
IM 18-20	Understanding the other's mind: training on predicting connections of other's emotions-cognitions-behaviors for an event that occurred during the previous week
IM 21	Understanding the other's mind: Recognition of the anger
IM 22	Communication skills: Expressing unpleasant feelings
IM 23	Training about self-control of anger and aggressiveness
IM 24-25	Calm your mind: Breathing with awareness
IM 26	Review meeting
IM 27	Effective communication and conversation
IM 28-32	Problem solving for personal problems: Problem analysis, how to deal with a personal problem, how to deal with an emotional crisis, i wish to meet new people, how to improve physical wellbeing
IM 33-36	4 Biweekly booster session with use of problem solving
	3 Monthly booster session with use of problem solving
	3 Three-monthly booster session with use of problem solving

Table 1: InteGRO Meetings (IM).

Moreover, the learning of a specific module, such as emotional perception, does not take place through linear and consecutive meetings, but the same subject (totaling 11 meetings in this example) is staggered with sessions characterized by other topics according to the crisscrossing strategy. This refers to the crisscross landscape metaphor of the philosopher Wittgenstein as a learning method based on Leonard's theory of cognitive flexibility [27]. The technique of massive learning is not averted; in fact, there are consecutive sessions, even intensive ones, which may deal with the same topic (e.g., emotional literacy).

Every single meeting begins with the revision of the tasks assigned in the previous meeting, with an emotional roll call and with small body exercises; after that, the topic of the teaching unit is discussed, by means of role-playing where established. The last phase concerns the homework assignment in the patient's living environment. A constant monitoring and support for the pleasant/personal goals chosen and defined by each participant is carried out.

Evaluation of the impact after one year

25 participants among the users of the Mental Health Facility were divided into 3 groups; one group consisting of subjects diagnosed with schizophrenia [N=13], one group diagnosed with bipolar disorder [N=5], one group diagnosed with personality disorder [N=7] according to the criteria of DSM IV-TR. All the psychiatrists in the mental health facility were asked to select subjects from a list of users who had attended an individual and/or familiar and/or group psychoeducational course; the selection was based on the following criteria: potentiality to reach recovery according to their psychiatrist; social functioning greater than or equal to 40 as assessed by the PSP scale; subjects who were motivated and agreed to take part to the study; subjects who expressed their will to attend the course for a year at least. The first 25 people responding to the criteria who had consecutively been reported by psychiatrists were enrolled in the study.

Design

This is an observational study without a control group. A pre-post evaluation was used on the following variables detected by interviews,

self-filled questionnaires and assessment tests: psychopathological symptoms, cognitive functions, personal and social functioning, perceived self-efficacy, hope, stress management, perception about consequence of the disorder and information learning.

Rating scales, interviewees and questionnaires

Brief Psychiatric Rating Scale (BPRS): The BPRS [35] is a psychopathological hetero-evaluation scale consisting of 24 items. Each item is assessed on a Likert scale with 7 coding levels ranging from 1 (absent) to 7 (very severe).

Repeatable Battery for the Assessment of Neuropsychological Status (RBANS): RBANS [36] is a neuropsychological battery in 2 parallel forms, divided into 12 sub-tests to be administered individually to evaluate 5 different cognitive domains: attention, language, visuospatial and visuoconstructive ability, immediate memory and deferred memory. It provides 12 scores for each specific skill (sub-test), 5 cognitive function scores and 1 total score. It allows a neuropsychological evaluation in patients affected by neurological or psychiatric disorders from 20 to 80 years of age.

The Tower of London (ToL) test: The Tower of London [37] is one of the most used neuropsychological tests for assessing executive functions. In particular, it is considered a general measure of visuospatial problem-solving, and more specifically of planning. Performances are evaluated in terms of accuracy, measured as number of trials correctly solved in the minimal number of moves, or response times for the planning and execution phase, with some studies focusing on rule breaks, which occur when subjects fail in complying with the solving rules. Impaired test performances have been associated with a large range of neuropsychiatric diseases, including schizophrenia and mood disorders.

Personal and Social Performance Scale (PSP): The PSP [32] evaluates personal and social functioning through a semi structured interview and the information available from the acquaintances and health workers themselves. There are four main areas: 1) socially useful activities (including working and studying) 2) personal and social relationships 3) taking care of appearance and hygiene 4) disturbing and aggressive behaviours. The total score ranges from 0 (worst possible functioning) to 100 (excellent functioning)

Assessment of secondary outcome measures

Stress scale: The Stress Scale [38] is made up of 9 items taken from the well-known and widespread Goldeberg tool for investigations in routine conditions with a dichotomous yes-no answer which evaluates the presence of stress if the score is greater than 5.

Modified Five-Point Test (M-FPT): The M-FPT [39] is a test for measuring non-verbal fluency (figurative) of executive functioning, linked to cognitive flexibility. The subject is asked to draw different figures (images) in some minutes, following some rules and avoiding repetitions. The main aspects assessed are: cognitive flexibility, presence or absence of perseveration and strategic performance. The assigned scores are of 3 types: 1) Unique Drawings (UDs), i.e. number of drawings valid according to the rules and not produced before; 2) Cumulative strategies (CSs) i.e. number of UD's produced with a particular strategy that can be either enumerating (CSse) or rotative (CSsr) strategy; 3) Error index (ErrI), i.e. A percentage between the number of perseverative drawings or breaking rules (errors) and the total number of drawings.

Scales for perceived self-efficacy (APEN/G and APEP/G): The APEN/G and APEP/G [40] scales evaluate perceived self-efficacy in managing negative emotions (8 items) and positive emotions (7 items), respectively. The coding scores range from 1 (completely unable) to 5 (completely capable). Both scales showed good psychometric properties, in particular good internal validity and reliability (Cronbach alpha=0.83 for both scales).

Integrative Hope Scale (IHS): The IHS [41] is a self-assessment scale consisting of 23 items. Each item is rated on a 6 level Likert scale, from "Absolutely disagree" to "Absolutely agree". It has good psychometric properties, especially concerning concurrent and discriminating validity, with reliability 0.92 with a Cronbach's alpha reliability of 0.92. Factor analysis revealed four stable factors: trust, positive orientation, social relationships and personal value and lack of perspectives.

Objective and subjective consequences of the disorder items

These are just two items, one of which investigates the objective consequences and the other one centered on subjective consequences in a person with a mental disorder. They are extrapolated from the ABC [42] Questionnaire of which there is a Family Version, and adaptation for users, which showed good psychometric properties and excellent correlation between the single Objective and Subjective Load items with the respective single subscales of the QPF35 questionnaire. The scoring provides 6 levels from "never" (i.e. no problem) to "always" (i.e. very severe problem).

Ad hoc questionnaire of knowledge about definition of objectives, communication skills and problem-solving: It includes 6 items that explore the knowledge related to communication skills (4 items), the definition of a SMART objective (i.e. Specific, Measurable, Accessible, Realistic and Timed) (1 item) and the problem-solving described in its 6 stages (1 item). All the items have been coded according to correctness of the answer with an increasing score ranging from 1 (completely incorrect answer) to 4 (completely correct) [43].

Statistical analysis

For all the variables with parametric distribution the average \pm sd was calculated; for all variables with non-parametric distribution the median and range were calculated.

The pre-post comparison of the variables with parametric distribution was performed by paired two-sample t-tests. For non-parametric distribution variables the Wilcoxon signed-rank test was performed.

The Rho coefficient of Spearman was chosen for bivaried correlations between the PSP scale, variable of primary outcome, and all the other variables. For the same variable a step-wise linear regression was applied. The program chosen for statistical analysis was SPSS 19.0 (SPSS Inc., Chicago, IL, Usa) for Windows (IBM)

Spearman's Rho coefficient was used for bivariate correlations between the PSP scale, primary outcome variable, and all other variables. For the same variable, a step-wise linear regression was performed. The SPSS 21.0 for macOS (SPSS Inc., Chicago, IL, USA) software was used for statistical analysis.

Results

The evaluation involved 25 subjects (14 males and 11 females). Among the 25 subjects selected, 13 had a diagnosis of psychotic

disorder; 5 had a diagnosis of mood disorder; 7 had a diagnosis of personality disorder. Among subjects with a diagnosis of psychotic disorder, 6 were diagnosed with paranoid schizophrenia, 1 with disorganized schizophrenia, 2 undifferentiated Schizophrenia, 2 Schizoaffective Disorder, 2 Delusional Disorder. Among subjects with a diagnosis of mood disorder, 4 were diagnosed with Bipolar I Disorder, 1 with Major depressive disorder. Among subjects with a diagnosis of Personality Disorder, 2 were diagnosed with Obsessive-Compulsive Personality Disorder, 2 with Borderline Personality Disorder, 1 Narcissistic Personality Disorder, 1 Histrionic Personality Disorder, 1 Not Otherwise Specified personality disorder.

All patients regularly received drug therapy. In the year before the intervention, one patient had received one hospitalization; after participation, one patient received two hospitalizations; both of them suffered from schizophrenia.

The mean age of subjects at the start of the intervention was 42.9 ± 12.36. 20 were "unmarried" (80%), 5 "married"(20%). 20 participants were "unemployed" (80%) and 5 "employed" (20%).

The participation by the 25 subjects was 90%; sporadic absences were due only to practical difficulties. As assessed by means of an ad hoc registration form for each single meeting, the median was 7.55 (range 5.9-7.9); for the "pleasantness of the meeting" (min-max score=3-8) and 7.65 (range 6.4-8.0) for the "usefulness of the meeting" (min-max score=3-8).

BPRS

At T0 the BPRS total score median was 40.00; at T1 it was 38.00. At T0 7 items out of 24(29.17%) showed a median higher than 1 (1=absent symptom), whereas at T1 there were 5(20.83%).

At T0 the median was 4 (=moderate) for the item 2 (anxiety); at t1 no item reached this value. At T0 no item had a median value of 3 (=mild), whereas at t1 the item 2 (anxiety) decreased to this value. At T0 the median was 2 (=very mild) for the items 1 (somatic concern), 3 (depression), 5 (guilt), 9 (suspiciousness), 17 (emotional withdrawal) and 22 (distractibility); at T1 the median was 2 for the items 1, 3, 5, 9 and 16 (blunted affect).

The pre-post comparison was significant for BPRS total score ($z=-1.96$; $p<0.05$), item 2 ($z=-2.47$; $p<0.05$) and item 17 ($z=-2.23$; $p<0.05$).

R-BANS

The median of the total score before the intervention was 76, considered a (at lower level of the "normal" score) borderline score, improved after the intervention, 77. The pre-post comparison was significant for total score ($z=2.10$; $p<0.05$), immediate memory ($t=-4.08$; $p<0.01$), deferred memory ($z=3.43$; $p<0.05$).

The tower of london test

At t0, the ToL total correct score average was 92.08 ± 11.470; at t1 it was 90.16 ± 12.23; The pre-post comparison was not significant. Significant differences were found in Execution Time ($z=2.18$; $p<0.05$) and Total Time ($z=2.31$; $p<0.05$) subscores but not in Total move Score, Initiation Time, Total Time Violations, Total Rule Violations subscores.

PSP

At T0 the average was 56.32 ± 9.43 with a range between 40 and 71. At T1 the average was 60.40 ± 8.37 with a range between 47 and 75. The pre-post comparison was statistically significant ($t=-7.18$; $df=24$; average difference=4.08 ± 2.84; $p<0.01$)

The PSP total score was in inverse correlation with BPRS total score at t0 ($\rho=-0.69$; $p<0.01$). At T1 it was in inverse correlation with BPRS total score ($\rho=-.41$; $p<.05$) and the Tower of London total correct score (-0.46 ; $p<0.05$).

The stepwise linear regression analysis showed different constant predictors for PSP at T0 and T1. At T0, the only constant predictor was the BPRS total score (Beta=-.61; $t=-3.65$; $p<0.01$). At T1, constant predictors were the marital status (Beta=-.45; $t=-3.02$; $p<0.01$), the Tower of London total correct score (Beta=-0.56; $t=-3.59$; $p<0.01$), The Tower of London total time (Beta=0.50; $t=3.08$; $p<0.01$) and the questionnaire of knowledge about Definition of Goal, Communication Skills and Problem-Solving total score (Beta=0.36; $t=2.23$; $p<0.05$).

Stress scale

The average of the scale before the intervention was 1.52 ± 0.30; after the intervention it was 1.36 ± 0.24. The pre-post comparison was significant ($t=2.08$; $p<0.05$).

M-FPT

Before the intervention the subscore medians were: UDs 1.00 (range 0-4); CSs 2.00 (range 0-4); ErrIT 8.00 (0-64). After the intervention they were 2.00 (0-4), 3.00 (0-4) and 6.00 (0-40), respectively. The pre-post comparison was significant for the UDs ($z=2.52$; $p<0.05$) and CSs ($z=2.42$; $p<0.05$) subscores, but not the ErrIT subscore.

APEN/G and APEP/G

Before the intervention the APEN/G subscore average was 2.99 ± 0.58; after the intervention it was 3.06 ± 0.57. Before the intervention the APEP/G median was 3.66 ± 0.85; after the intervention it was 3.65 ± 0.80. The pre-post comparison was not significant for both scales.

IHS

Before the intervention the median of the scale was 3.33 (range 1.67-4.75); after the intervention it was 3.33 (range 1.92-3.67). The pre-post comparison was not significant.

Objective and subjective consequences of the disorder items

The median of both "Objective Burden" and "Subjective Burden" Items was 3 before and after the intervention. Before and after the intervention, the range was 1-6 for the "Objective Burden" and 1-5 for the "Subjective Burden". The pre-post comparison was not significant.

Ad hoc questionnaire of knowledge about definition of goals, communication skills and problem-solving

Before the intervention the total score average was 23.76 ± 8.54; after the intervention it was 31.84 ± 6.89. The pre-post comparison was significant ($t=-4.15$; $p<0.01$).

Discussion

The evaluation of the results of InteGRO intervention highlights a positive impact on the various outcome indicators taken into consideration (Table 2).

The first positive remarks are the active participation (>90%), the perception of “usefulness of meeting” which were found to be very high with a median of 7.55 (maximum code equal 8) as well as the “pleasantness of meeting” with a median of 7.65. These results are very similar to those observed in a first pilot study (43).

Variables	Median		p Value
	T0	T1	
BPRS total score	40.00	38.00	<0.05
RBANS total score	76.00	77.00	<0.05
R-BANS immediate memory	83.00	90.00	<0.01
R-BANS visual-construction ability	87.00	88.00	ns
R-BANS language ability	78.00	81.00	ns
R-BANS attention	89.00	88.00	ns
R-BANS deferred memory	72.00	90.00	<0.05
M-FPT UDs	1.00	2.00	<0.05
M-FPT CSs	2.00	3.00	<0.05
M-FTP Errl (%)	8.00	6.00	ns
IHS	40.00	40.00	ns
Objective burden	3.00	3.00	ns
Subjective burden	3.00	3.00	ns
	Mean ± ds		
ToL total correct score	92.08 ± 11.47	90.16 ± 12.23	ns
ToL total move score	3 ± 1.11	2.76 ± 1.3	ns
ToL initiation time	3.6 ± 0.764	3.84 ± 0.473	ns
ToL execution time	2.84 ± 1.28	3.20 ± 1.25	<0.05
ToL total time	2.92 ± 1.25	3.28 ± 1.24	<0.05
ToL time violations	2.64 ± 1.41	2.92 ± 1.38	ns
ToL rule violations	2.04 ± 1.36	2.36 ± 1.58	ns
FPS	56.32 ± 9.43	60.40 ± 8.37	<0.01
Stress scale	1.52 ± 0.30	1.36 ± 0.24	<0.05
APEN/G	2.99 ± 0.58	3.06 ± 0.57	ns
APEP/G	3.66 ± 0.85	3.65 ± 0.80	ns
LAQ	23.76 ± 8.54	31.84 ± 6.89	<0.01

Table 2: Impact of the InteGRO approach on the primary (functioning) and secondary (all other variables) outcome.

Regarding the psychopathological component, it is worth recalling that the approach is not aimed at improving clinical symptoms, since it was conceived for patients that present relative stabilization of the clinical picture similar to the concept of clinical remission of Andreasen [31]. In fact before starting the evaluation we observed only 3 “psychotic” items with very low median equal 2 (very mild) for suspiciousness, emotional withdrawal and distractibility. Only 7 items

were scored higher than 1 but less or equal 3 (mild). Nevertheless, the pre-post comparison was significant for BPRS total score ($z=-1.96$; $p<0.05$). We consider that just as an indirect value of general clinical improvement.

Concerning the executive functions, the scores were satisfactory at the beginning, with a median of 76 at RBANS expressing a low

“normal” score, demonstrating that users were able to participate and learn. Even though the scale was used, as suggested in the scientific literature [44], in the initial assessment in rehabilitation programs, and the intervention is not conceived to specifically ameliorate executive cognition, nevertheless we found an improvement at the end-point median, with a median of 77 and statistically significant for total score ($p < 0.05$), immediate ($p < 0.01$) and differed ($p < 0.05$) memory sub-scale. Also, in this case, the results are quite similar to the previous study, where we observed a global improvement without statistical significance, and statistically significant only for immediate memory. So, we have two studies that confirm the improvement of executive functions with particular relevance to memory. This improvement could be related to problem solving training and emotional literacy.

The greatest impact of the intervention is on the personal and social functioning, the primary outcome. In fact, from an average level of $56.32 (\pm 9.43)$, which corresponds to marked difficulties in only one area of functioning, the mean result of $60.40 (\pm 8.37)$ was obtained that overcomes the cutoff of 60 corresponding to evident difficulties (less severe) in one or more areas. This positive impact is similar to that observed in the previous study where the average level at the beginning was lower (49.44 ± 9.3), corresponding to marked difficulties in two or more areas of functioning; at the end the mean of $57.66 (\pm 9.0)$; $p < 0.001$) was observed. This proves the effectiveness independently from the initial level of functioning. Furthermore, qualitative data confirm these encouraging results. For example, one patient passed the competition for a position in the navy, 3 patients started working, one patient went to live alone facing the move with some members of the group. Functioning of course is a priority target in therapeutic interventions aimed at promoting recovery [45]. For what concerns predictors we found very interesting the results in The Tower of London total time (Beta=0.50; $t=3.08$; $p < 0.01$) and in the Problem-Solving learning (Beta=0.36; $t=2.23$; $p < 0.05$). We would remark that the ToL total time express the speed of problem solving and the competence to plan, two very important abilities for what concerns the Recovery Process. We agree with Galderisi et al. [28] who suggest multiple pathways to explain real-world functioning. In their study on a sample of 921 patients with schizophrenia, the authors pooled many variables in three categories related to: 1) disease (such as symptoms, cognition, functional capacity); 2) personal resources (resilience and service engagement); 3) context (stigma and social support). This classification is very useful to understand how many variables should be taken into account for the outcomes of severe mental disorders; in addition, most of the models cannot explain, for Morin and Franck [46] more than 50% of the functional outcome variance. These authors conclude that functional outcomes, as well as Personal Recovery, are strictly related to neurocognition and social cognition. Our results as to ToL total time and Problem-Solving confirm the statement of Morin and Franck (46). Again, the effect on Problem-Solving is not surprising, as many “InteGRO” meetings are dedicated to the Problem-Solving Training, focusing above all on personal problems related to the life of patients.

We also found an improvement in the level of stress ($p < 0.05$) which obviously means an increased ability to manage adverse events in life. We would remark the importance of this improvement, already observed in a previous study [43]. These results are also relevant if one considers the underlying theory of stress-vulnerability model. These results are also relevant taking into account the secondary outcome as well as the improvement of cognitive flexibility. Greater cognitive flexibility is associated with higher resilience to negative life events and stress in adulthood [47]. The process of salience detection, partially

impaired in people with psychosis, is the first step towards attention and subsequent implementation of flexible responses. Focusing on these variables is then of great importance. Since flexibility is one of the necessary abilities of Problem-Solving, especially in the steps 2 or 3 (listing solutions and discussing about advantages and disadvantages), the Problem-Solving Training is a key module of the InteGRO approach.

We found no significant improvement in the other secondary outcome variables, like for instance perceived self-efficacy, hope and personal objective and subjective burden. For the latter variable we believe more time is needed to reach a greater effect-size since the basic level of assessment was not quite high, less than the central point of the score. As to the hope assessment, maybe the tool fails to be “sensitive to change” in a sample including a discrete proportion of people with psychosis; the same authors who validated the scale implicitly recommend a cautious use of the tool for subjects with psychosis since they state that “*for use in people with psychosis, we suggest some minor modifications to the scale*” [41]. In our next studies we are going to operate such minor modifications as suggested by the authors, since a discrete proportion of patients treated by our approach suffer from psychosis. The same considerations apply to the APEN/APEP scales.

Finally, we observed that the patients acquired complete information related to the skills implemented in the InteGRO approach, that is: to define objectives, to acquire communication skills and problem solving abilities, as demonstrated by the answers given to the ad hoc questionnaire ($p < 0.1$). In our opinion the Problem Solving Training is of primary importance because it has long been known that not efficiently managed persistent stressors may turn into biological vulnerability pathways [48] and may contribute to permanent increases in biological vulnerability [49]. This classical finding was validated over the years [50]. For instance, it is proved that stress reactions during adolescence elicit a cascade of events that may lead to hippocampal damage and to the onset of psychosis-like states in the adult [51]. However, in clinical settings stress is only taken into account when associated with severely negative or sometimes deeply positive events; actually, life itself is a sort of “Ambient stress”, the stress that people experience with the day-to-day hassles of life in the community, more similar to the concept of daily challenges according to Antonovsky's theory. There is an ongoing accumulation of stresses during the household, social and leisure pursuits as well as in work and study environments. Stress emerges from every practical problem we have to deal with, ranging from interpersonal relationships (real or mediated by internet) to many kinds of personal problems. Currently, there is scarce literature about Problem Solving Training for people with severe mental illness compared with a large amount of researches, for instance, about the effectiveness of cognitive remediation [52] and, more recently, about the Integrated Neurocognitive Therapy [53]. However, we agree with Vita and Barlati that “*psychiatric rehabilitation interventions are currently a mixture of evidence-based practices, promising practices and emerging methods that can be effectively tied together, providing a broad strategy to achieve personal functional recovery*” [54]. Bearing in mind this, approaches focused on Personal Goals, Problem Solving, Stress Management with Life-Skills Training are welcome for dealing with “daily challenges”. Similarly we agree with Falloon [20], that Problem Solving training aims at enhancing the patient's ability to “*act wisely in facing practical problems as well as in social and interpersonal encounters by learning to consider the point of view of others and appraise the problems that must be addressed in an accurate manner*”. In this way it has much in common with well-

known social problem solving and cognitive enhancement therapies [55-57], but our approach differs under many aspects. Firstly, it is always related to Personal Goals as defined by the patient and to the person-centered Life-Skills, without stressing the “therapeutic framework” of the treatment. Secondly, it is structured specifically for practical, interpersonal and Personal Problems. Thirdly, Problem-Solving Training is not only dealt with in a specific way, depending on the nature of the problem, for example “interpersonal”, but before performing it, preliminary issues are addressed; for example, one of the meetings is about the recognition of shame. Fourthly, all booster sessions are considered as problems to be addressed in order to improve them with the basic Problem-Solving scheme. Finally, the Problem-Solving Training in our approach is a part of a more comprehensive program.

In conclusion, the purpose of this study was twofold: 1) to describe an innovative, structured, manualized psychoeducative intervention to support a recovery path for people with severe mental disorders based on a salutogenetic approach rather than “reparative” of impairment; 2) to replicate a study to obtain more evidence about its effectiveness.

The most obvious limit is the design of the study; indeed, it is not a randomized control study. As a consequence, it is difficult to generalize the results, which should be interpreted with cautions. Another limit is the use of some tools, like for instance the Integrative Hope Scale and the APEN/APEG scales, which have not been sufficiently validated for patients with psychosis, as reported for the IHS by the same authors.

However, our intentions were to illustrate through the international literature a new and promising approach to facilitate the recovery and to replicate a previous study where we observed a great result concerning personal and social functioning.

By this investigation, we obtain another proof of the high active participation and satisfaction of users. Undoubtedly, the group approach itself favors participation and satisfaction; we also believe that other factors had a positive impact, because also the evaluation of usefulness for each session was very high. For instance, the absence of psychopathological terms used by facilitators, the contents of the units regarding above all Life-skills, the attitude of the conductors to normalize negative events, the cooperative learning are variables that influenced the positive judgment. In our opinion other features (i.e., emotional literacy, including recognition of emotions on the face of others, conscious breathing to stimulate interest in meditation, training in effective communication and negotiation with management of aggressive impulses to improve interpersonal dialogue, and practicing intersession and homework physical exercises) made the sessions very attractive for people in a Personal Recovery Path. All this work is intended to be performed in a structured, coordinated way, and in an outpatient mental health service.

The most important result has been the replication of a good outcome in functioning: the improvement concerned the level of severity, from “marked” to “evident” which means less severe difficulties according to PSP. Of course, it is the best novel for people who are in a personal recovery path! Two other most important variables are the cognitive flexibility and problem solving, which are closely related to each other. Despite there is not so much literature about the effectiveness of problem solving [58], our team is collecting good results about the association between improvement of problem-solving abilities and function [24,43] consistent with another Italian study [59].

Conclusion

We believe that the positive results observed in Functioning, stress management, cognitive flexibility, learning of Goal setting and Problem Solving are very promising in order to facilitate Personal Recovery. We also would like to pinpoint that, to our knowledge; this is the first proposal of an approach based on integrated salutogenetic and psychoeducational principles. It would be interesting to overcome the limits of this research by a randomized control study and also to investigate a potential mutual enhancement in people previously treated by INT.

Conflicts of Interest

The authors declare the absence of conflict of interests.

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