The Resilience Training: Experimental Evaluation of a Group Psycho-educational Training on the Development of Resilience

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Abstract: The term resilience in psychiatry indicates the ability to cope, to overcome, to emerge strengthened from negative experiences. Research into the effects of applying training on building resilience in psychiatry is still at an early stage in Italy. Several programs have been developed that contribute to the increase of resilience including the Master Resilience Training (MRT) created based on the previous programs for American soldiers that we are experimenting in this study. Method: In a sample of 30 students, we studied the ability to increase resilience following a psychoeducational intervention structured in 6 weekly sessions. Improvement was assessed with the scales: Test SCL-902, SF-36 (V1), Zung Self-Rating Anxiety scale, BDI-PC, Rathus scale, Resilience Scale, at time To (before treatment) and T1 (after the treatment) to verify the effectiveness of the intervention and the achievement of the set objective. Results: The results obtained from psychoeducational training on the development of resilience show that it is possible to learn and increase resilience. The intervention demonstrated the efficacy in various indices with a significance in the SCL-90 and the Zung Axiety scale, which may particularly related to the greater resilience acquired. The training has proven effective in improving social contacts and strengthening personal relationships, especially favoring positive communication and teaching users to be assertive.

Keywords: Resilience, Resilience Training, Resilience Scales, Brief CBT Intervention, Psychoeducational Training

1. Introduction

Resilience represents the ability of an individual to withstand the shocks of life without breaking or cracking, maintaining and enhancing their personal and social resources [9], allows them to successfully face and overcome the important adversities of life, to develop positively and to persist in planning their future.

In fact, specific qualities are included in this capacity: flexibility, self-efficacy, optimism, gratitude, empathy.

Resilience and the promotion of mental health in general was configured as one of the possible antidotes to traumatic situation, especially to combat the loneliness and social isolation that characterized the pandemic and therefore to promote social connection and the resumption of daily activities that characterize the normal routine [27].

It is a quality, a way of being that characterizes each of us, it can be latent or manifest in a different way. For this reason, it is possible to implement psycho-educational training on resilience, to reveal this quality.

Resilience is never absolute, total, acquired for the last time, but varies according to the circumstances, the nature of the trauma, the context and the stage of life; it could expressed in a different way according to different cultures [10].

The capacity for resilience does not designate the simple ability to resist adverse events, but defines a positive dynamic aimed at controlling events and rebuilding a positive life path [11].

Recent studies have shown that every human being can be exposed in the course of his life to trauma of different nature [24], in fact, a study was conducted on the mental health of a

group of 70,000 adults, coming from twenty-four countries, without any economic or social distinction, and it emerged that at one point in their life, 70.4% of the interviewees had experienced at least one type of traumatic event.

Resilience is introduce, therefore, among the post-traumatic protective factors, as it describes "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adaptation to the external and internal". In fact, it had found that not everyone, who experiences a traumatic event, develops PTSD [25] but that, on the contrary, thanks to personal and environmental protective factors, people showed to be able to overcome adversity

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The current COVID 19 pandemic is a traumatic event, linked to the category of natural disasters, which has affected every individual and which has had minor or severe psychological repercussions on a large part of the world population, in particular healthcare personnel. Several multi-institutional and national studies have documented a high prevalence of psychological distress also among U.S. medical students [28-30]. People, whom experience this situation in a positive way, may be define as more resilient, but those who, on the other hand, suffer or have experience the pandemic, as a trauma that has destabilized them may need psychoeducational resilience training. In fact, pandemic COVID-19 is a threat to psychological resilience [27]. According to the American Psychological Association (2020) it is critically important to foster the psychological resilience of health care workers during the pandemic.

Master Resilience Training in the U.S. Army

The experimental evaluation of a group psychoeducational training on the development of resilience was inspire by the achievements of the Master Resilience Training in the U.S. Army [1]

The purpose of the MRT course was to teach NCOs a range of skills and techniques that build resilience. These skills have improved soldiers' ability to manage adversity, prevent depression and anxiety, prevent PTSD, and improve overall health. well-being and performance.

The psychoeducational training on the development of resilience was based on the master's degree implemented for the military in the USA [1].

This 10-day Master was create to educate sergeants in the concept of resilience and to ensure that they in turn can teach these skills to their soldiers.

The course included three phases: preparation, maintenance, and enhancement.

Many exercises rely on protective factors that contribute to resilience: optimism, effective problem solving, faith, a sense of meaning, self-efficacy, flexibility, impulse control, empathy, close relationships, and spirituality. Hence, the creation of the MRT includes key elements of the Penn Resilience Program (PRP), which had previously been developed at the University of Pennsylvania for students in late childhood and early adolescence [12], as well as a parallel program called APEX [13] which focused on prevention of depression and anxiety in college students. In addition, also from other concepts of positive psychology, such as identifying strengths [14] by cultivating gratitude [15] and strengthening relationships through constructive activity [16]. Central to the PRP and the APEX program is the model of Albert Di Ellis ABC [17], who argues that one's beliefs about events affect one's emotions and behavior, a key concept for the Masters in Resilience for the military in the USA. The study is conducted in 2009 and the University of Pennsylvania has worked in partnership with US Army personnel to readjust the Penn Resilience Program (PRP) for the military to create the US Military Resilience Master's. Two pilot courses are initially done, then the first full-blown training course took place in November 2009, which was conducted in Philadelphia, Pennsylvania, with 150 NCOs using an interactive method, then a live teleconference was conducted with 30 NCOs in Fort Jackson, South Carolina, validating the method.

2. Resilience Development Training

This training are designed to make the concept of resilience known and therefore learn specific techniques that can help the individual overcome the obstacles that arise during the life. Research on the effects of applying training on building resilience in psychiatry, especially in Italy, seems to be still at an early stage. However, by virtue of the ability attributed to this technique to provide relief and increase resilience it had decide to create a training to verify the improvement of the client's cognitive structure after participating in the program. Resilience programs have also proved effective in training contexts for medical students [18] and nursing students [19] and healthcare personnel, such as nurses and midwives [20].

Psychoeducational training on the development of resilience is a type of intervention suitable for everyone for the following reasons:

1) is easy to understand, innovative, interactive,
2) or easily adaptable to customer needs,
3) it can be done both individually and in groups,
4) or it can be adapted to any type of setting (in hospital conditions, in day hospital and as part of an outpatient rehabilitation project, where it can be implemented both in groups and individually).

Several protective factors contribute to resilience and in psychoeducational training; the following protective factors have been trained during six sessions: gratitude, optimism, self-efficacy, flexibility, empathy.

For this purpose, techniques deriving from positive psychology and cognitive behavioral therapy are used, in particular: Albert Ellis's ABC model [17], Relaxation training [21], the analysis of some cognitive distortions such as: catastrophizing and generalization, the identification and elimination of icebergs, identification of strengths, the strengthening of personal relationships, the use of feedback, assertive communication. The goal of the study was to

increase resilience in a group of students, who accepted the invitation to participate in the group after a brief briefing on the meaning of the training and its duration. These meetings took place once a week in the classroom of the Mental Health Department of the CBT Clinic center of Napoli.

Users, who gave their informed consent to participate, have been included into the program.

The intervention was carried out in 6 group sessions in which a series of skills and techniques that build resilience were taught.

Each session lasted an hour and a half and it divided into four phases:

1) homework correction (10 minutes)
2) rationale (in which the operator explains the activity of the session)
3) carrying out the activity
4) final considerations

The 4 modules that make up the various areas of interest essential to building resilience were developed in the sessions.

3. Materials and Methodology

The study involved the following phases:

1) Identification of the Training professional figures: 1 psychiatrist and 1 psychiatric rehabilitation technician

2) Development of the material for conducting the group intervention,

3) Recruitment of participants

4) Evaluation of the effectiveness of the experimental intervention

The material provided to users has been reworked, starting from the information of the Master Resilience Training in US Army [1].

We used the following scales to assess the effectiveness of the experimental intervention before and after the intervention [T0 and T1]:

1) SCL-90 test [2]
2) SF-36 (v1) [3],
3) Zung Self-Rating Anxiety scale (SAS) [4],
4) BDI-PC [5],
5) Rathus scale [6],
6) Resilience Scale [7]

The experimental sample

Three pilot groups were composed of 30 healthy subjects who met the following inclusion criteria:

1) Age between 18 and 60 years.
2) Minimum schooling of eight years.
3) Willingness to participate in the study after a complete description of this.

Instead, they represented exclusion criteria:

1) The presence of organic diseases that involve disabilities.

2) Habitual use of alcohol and drugs.

3) Diagnosis of psychiatric pathologies

All subjects were evaluated using psychological tests and clinical scales before the intervention (T0) and immediately after its completion (T1), to verify the improvements produced by psycho educational training on the development of resilience.

The effectiveness of the intervention rated in a comparative manner between the pre and post procedure data.

The statistical evaluation of the data made using the t-Test and then evaluating the statistical significance through the means for each rating scale.

4. Results

The socio-demographic data of the sample are as follows [N=28] 93% female and [N=2] 7% male with an average age of 18 years. 100 % of the total sample is single and 90% are university students. The sample appears quite homogeneous in terms of age, marital status, educational degree, and sex; in fact, it mainly recruited from psychiatric rehabilitation students.

The results relating to the evaluation of the different scales used are illustrated by comparing the data before and after the intervention [T0 and T1], there is an overall improvement in the various indices considered. [Table 1]

Table 1. *Effectiveness of the intervention - Clinical outcome measures.*

	T0	T1	p-value
SCL-90 (ds)	6,1 (3,7)	3,7 (2,7)	0,007*
SF-36 (ds)	509,8 (97,7)	555,8 (113,2)	0,097
ZUNG ANXIETY SCALE (ds)	37 (6,25)	32,4 (4,9)	0,002*
BDI-PC (ds)	2,2 (2,08)	1,6 (1,9)	0,258
RATHUS SCALE (ds)	10,8 (18,2)	17,2 (17,1)	0,165
RESILIENCE SCALE (ds)	54,5 (7,9)	57,5 (8,5)	0,162

Among the various indices examined, some significant data were identified in the following scales: the SCL-90 and the Zung scale on anxiety.

The SCL-90 scale for the evaluation of general psychopathology (SCL-90 mean=6.10 ± 3.7 at baseline vs. mean=3.77, ± 2.7 at follow-up, p-value < 0.05), where the decrease in the total mean indicates improvement in the different areas explored by the SCL-90 scale.

The Figure 1 can see the improvement in the individual areas of the SCL-90 scale.

The 10 areas explored by the SCL-90 are: somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, sleep disorders (respectively m=0.7 ± 0 vs. m=0, 4 ± 0.5; m=0.8 ± 0.6 vs. m=0.5 ± 0.3; m=0.7 ± 0.5 vs. m=0.5 ± 0, 4; m=0.6 ± 0.5 vs. m=0.5 ± 0.4; m=0.7 ± 0.5 vs. m=0.4 ± 0.4; m=0, 7 ± 0.4 vs. m=0.4 ± 0.3; m=0.2 ± 0.3 vs. m=0.1 ± 0.2; m=0.7 ± 0.7 vs. m=0.4 ± 0.4; m=0.3 ± 0.3 vs. m=0.2 ± 0.2; m=0.7 ± 0.8 vs. m=0.4 ± 0.7; p <0.05).

On the SF-36 scale, quality of life scale, the results indicate a lack of statistical significance for the mean (SF-36 mean=509.8 ± 97.7 at baseline vs. mean=555.87 ± 113, 2 at follow-up; 0.01≤p-value ≤ 0.05), but it is interesting the improvement in the individual areas of the SF-36 scale of the study participants.
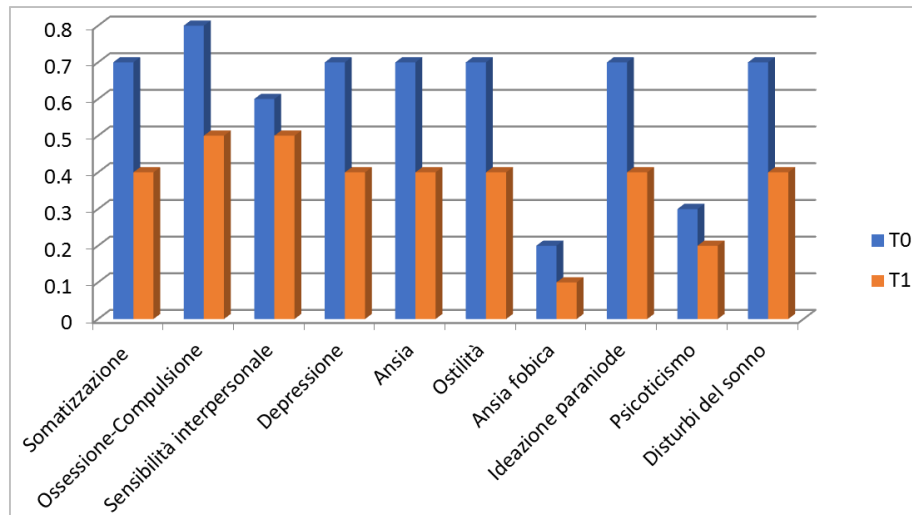
Figure 1. SCL 90 scale pre and post intervention.

The 8 areas explored are: role and physical health, physical pain, health in general, vitality, social activities, role and emotional state, mental health, physical activity (respectively m=65± 35.9 vs. m=79 ± 31.5; m=40 ± 30.5 vs. m=45 ± 41.59; m=62 ± 17.9 vs. m=65 ± 19.85; m=62 ± 25.3 vs. m=63 ± 16.08; m=60 ± 19.67 vs. m=71 ± 22.8; m=64 ± 42.5 vs. m=67 ± 40.22; m=59 ± 106.5 vs. m=65 ± 13; m=102 ± 5.86 vs. m=94 ± 4.3; $0.01 \leq$ p-value ≤ 0.05). [Figure 2]
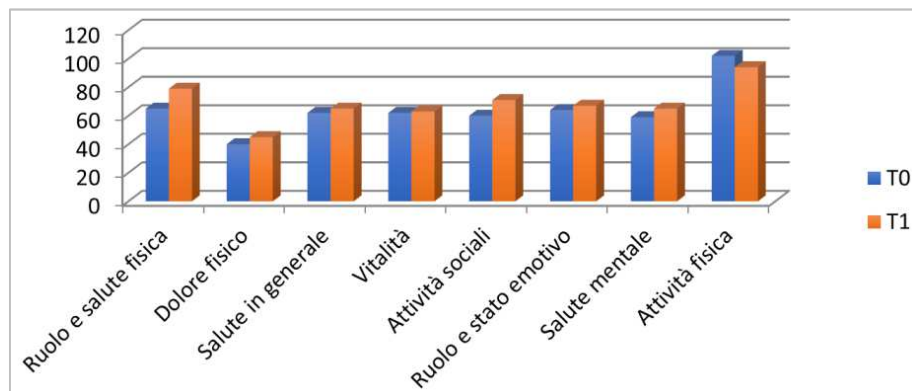

Figure 2. SF36 Scale pre and post intervention.

The Zung Anxiety Rating Scale reports a statistically ascertained significant improvement from T0 to T1 (mean ZUNG=37 ± 6.25 at baseline vs. mean=32.4 ± 4.9 at follow-up, p- value <0.05), where the decrease in the total mean indicates the improvement of the subjects' anxiety state.

From a clinical point of view, users reported an improvement in depressive symptoms, as assessed with BDI-PC [5], the results indicate a lack of statistical significance for the mean (mean BDI-PC=2.2 ±2.08 at baseline vs. mean=1.6 ± 1.9 at follow-up $0.01 \leq$ p-value ≤ 0.05), where the decrease in the total mean indicates improvement.

The Rathus scale was used for the assessment of assertiveness (mean Rathus=10.8 ± 18.2 at baseline vs. mean=17.2 ± 17.1 at follow-up, $0.01 \leq$ p-value ≤ 0.05), where the increase in the total mean indicates the improvement in the assertiveness of the subjects.

The Resilience Scale was used for the assessment of resilience (mean Resilience Scale=54.5 ± 7.9 at baseline vs. mean=57.5 ± 8.5 at follow-up, $0.01 \leq$ p-value ≤ 0.05) where the increase in the total mean indicates greater resilience in the subjects after resilience training.

The results obtained from psycho educational training on the development of resilience show that it is possible to teach, learn and increase resilience. The intervention was effective in improving psychopathological indices in particular (SCL-90 mean=6.10 ± 3.7 at baseline vs.. mean=3.77, ± 2.7 at follow-up, p-value < 0.05) which may be particularly related to the increased resilience acquired. A further significance of the intervention is found in the decrease in the level of anxiety (mean ZUNG=37 ± 6.25 at baseline vs.. mean=32.4 ± 4.9 at follow-up, p-value <0.05), presumably due to their greater ability to identify their resources.

This data finds a positive correlation, even if not significant, in the measure of quality of life (mean SF-36=509.8 ± 97.7 at baseline vs. mean=555.87 ± 113.2 at

follow-up; $0.01 \leq$ p-value ≤ 0.05). In particular, the improvement in the sub-areas of the SF-36 is emphasized, i.e. role and physical health, social activities and mental health (respectively m=65 ± 35.9 vs. m=79 ± 31.5; m=60 ±19.67 vs. m=71 ± 22.8; m=59 ± 106.5 vs. m=65 ± 13; $0.01 \leq$ p-value ≤ 0.05).

Depression data (mean BDI-PC=2.2 ± 2.08 at baseline vs. mean=1.6 ± 1.9 at follow-up $0.01 \leq$ p-value ≤ 0.05) did not they are greatly modified since they were already of a non-psychopathological entity.

Similarly, the results of the resilience scale show a slight positive but not significant improvement, to be re-evaluated later with the acquisition of a greater sample size; furthermore, the use of a short version of the scale (10 items) could be less sensitive, compared to the full version (25 items).

The improvement found on the quality of life indices (mean SF-36=509.8 ± 97.7 at baseline vs. mean=555.87 ± 113.2 at follow-up; $0.01 \leq$ p-value $\leq 0, 05$).

Another strong point of the work carried out refers to the figure of the psychiatric rehabilitation technician, who using this type of approach has the possibility of implementing a psycho educational intervention in the primary prevention phase.

Among the methodological limitations of the study is the low sample size that affects the significance of the results.

5. Discussion

The results obtained from psycho educational training on the development of resilience show that it is possible to teach, learn and increase resilience. The intervention was effective in improving psychopathological indices in particular SCL-90, which would especially correlated to the increased resilience acquired. A further significance of the intervention founded in the decrease in the level of anxiety (ZUNG Scale), presumably due to their greater ability to identify their resources.

It is very interesting to note an overall improvement in the quality of life, particularly detectable with SF36. There is evidence of improvement in the sub-areas of the SF-36, namely role and physical health, social activities, and mental health. This evidence is in line with what it was described in work on Master Resilience Training [MRT] in the US Army [1]. This study showed an improvement in quality of life after MRT in 183 soldiers who had returned from a deployment. Most participants had highly valued this program and rated it with a score of 4.7 out of 5 where 5 was the optimal rating.

Translated with www.DeepL.com/Translator (free version), the training has proved effective in improving social contacts and in strengthening personal relationships; in fact, psycho educational training on resilience especially favors positive communication and teaches users to be assertive. It is worth specifying that the type of setting used, as the group setting itself favors comparison and communication with the other, may have conditioned this result. A strong point of the intervention is the short duration, which favors continuity

and user participation.

Another strong point of the work carried out refers to the figure of the psychiatric rehabilitation technician, who using this type of approach has the possibility of implementing a psycho educational intervention in the primary prevention phase.

Our results are quite similar of study on the efficacy of a Stress Management and Resiliency Training (SMART) program for decreasing stress and anxiety and improving resilience and quality of life among Department of Radiology physicians [31]. A statistically significant improvement in perceived stress, anxiety, quality of life, and mindfulness at 12 weeks was observed in the study arm compared to the wait-list control arm; resilience also improved in the active arm, but the changes were not statistically significant when compared to the control arm, but this study have a low sample. Furthermore, a systematic review of 28 articles on empirically evaluated interventions and only 3 included randomization studies examined any intervention designed to promote medical students' emotional well-being, limited evidence suggested that some specific learning environment interventions were associated with improved medical student emotional well-being [32].

6. Conclusions

This study demonstrates that psycho educational training on resilience is able to enhance the ability to cope with one's vulnerabilities, in the way of managing stress and to be assertive, information also obtained from previous studies done on medical students that demonstrate the usefulness and effectiveness of resilience education [8].

Educating for resilience means to be protected from stressful factors that can be encountered in the workplace and in life.

Furthermore, education for resilience positively influences health [22], as also demonstrated by the data relating to the Resilience Scale (Resilience Scale mean=54.5 ± 7.9 at baseline vs. mean=57.5 ± 8.5 at follow-up up, $0.01 \leq$ p-value ≤ 0.05). The subjects undergoing the training can modify their wrong perception of things by being able to appreciate more the simpler aspects of life, cultivating gratitude. Educating for resilience means increasing levels of self-esteem, self-efficacy, and increasing leadership, all of which are considered as safety factors for mental health [20]. The limitations of this study relate to the small sample size; certainly, they needs to be reproduced on larger groups of subjects. The results on resilience are not significant even if they show improvement. However, it is interesting that this training significantly improve overall health indices, proving that resilience has a concrete impact on the physical and mental health of the subjects. This new, short, and interactive training is a new method that was implemented in psychiatric rehabilitation practice, as it aims at the unmasking of resilience, present in every individual.

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