
THE IMPACT OF RATIONAL EMOTIVE BEHAVIOUR EDUCATION ON ANXIETY IN TEENAGERS*

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Abstract

The present study is based on the assumption that teenagers endorsing high levels of irrational cognitions are prone to higher levels of anxiety, which can be diminished by rational emotive education (REE). To test this assumption we developed a brief REE intervention that was offered to a group of 88 10th-12th grade students from a high school in Cluj-Napoca. ABS II (irrationality) scores and STAI and HADS scores (anxiety) were used to assess the dependent variables, whereas the independent variables were represented by the presence/absence of the rational emotive behavior intervention and by gender, respectively.

The intervention consisted of a one-hour REE lesson, followed by a 14-day period during which the students were required to read the Rationality vs. Irrationality Decalogue (David, 2007) daily. After two weeks, both groups (intervention/non-intervention) were assessed again.

Our results indicate a strong correlation between irrational thinking and anxiety among teenagers. Moreover, REE resulted in a significant reduction in anxiety levels, and a decrease in irrational thinking.

Keywords: anxiety, rational emotive behavior education, teenagers

The 21st century teenagers are facing a series of difficulties arising from their situation at home and at school, which overlap with the inherent problems of this age related to growing up and developing an identity, and with a range of community issues, such as drug use, AIDS, lack of employment perspectives. Anxiety, anger and depression are the three emotional responses by which teenagers react to these difficulties (Bernard, 2004).

Anxiety disorders are among the most frequent psychiatric disorders among children and teenagers. A meta-analysis conducted by Twenge (2000) including various studies carried out on the American population, shows that anxiety levels have increased dramatically in the USA. On the average, the level of anxiety displayed nowadays by a child who is considered healthy is

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comparable to the anxiety reported in children inpatients of psychiatric departments 50 years ago.

Taking into account these data and the complex individual and social context, we conclude that the strategies teenagers use in order to adapt are extremely important in fostering their mental health.

According to the rational emotive behavior theory, developed by Albert Ellis, at the core of all emotional disorders, including anxiety, is the individual's tendency to make absolute and rigid evaluations of himself/herself, of others and of life (Ellis & Dryden 1997).

These unrealistic evaluations, called irrational beliefs, may generate, besides emotional disorders, an entire range of self-destructive behaviors such as substance abuse, aggressiveness, school failure, relational problems, eating disorders and suicide.

Rational emotive behavior education (REE), which can be used in class, aims at teaching teenagers problem-solving techniques and at enhancing their emotional strength by making them aware of the irrational beliefs causing anxiety and replacing them with rational, adaptive beliefs (Bernard, 2004; Popa, 2004).

The meta-analysis carried out by Trip, Vernon and McMahon (2007) using the results of 26 published research studies on the topic of the efficiency of REE led to the following conclusions:

- REE has a significant impact on the reduction of irrational beliefs and of dysfunctional behaviors and has a moderate effect on changing dysfunctional interferences and negative emotions;
- The efficiency of REE increases if participants are preoccupied with their problems;
- The psychometric tools used in the evaluation of irrational beliefs affect the results obtained;
- A higher efficiency was noted in the case of children and teenagers when compared to young adults.

Besides their primary problem, anxious teenagers also suffer from secondary emotional problems, which very often occur in the form of frustration, anger, and guilt related to their anxiety. For instance, an individual suffering from social anxiety will experience a strong fear when having to deliver a speech. This fear is the primary emotion. If the person starts blaming himself/herself for feeling anxious, he/she can get frustrated and have thoughts such as *"This is awful – I should be calm and now I am afraid – I can't take this – I am no good at all"*. The frustration is the secondary emotion which also seriously affects their performance, something that may not have happened, had the fear been considered more of a normal reaction and had the adequate rational resources been allocated to overcome it. Therefore, in fact, anxiety is not the main disturbing problem, but rather the beliefs and cognitions which appear as a reaction to it (Macavei, 2002).

Ellis places a particular emphasis on the secondary emotion, which can be overcome by changing it into an adaptive emotion and trying to modify the irrational cognitions occurring in problem situations (Ellis, 1994).

The goal of the present study was to test the effects of a REE intervention in reducing irrational beliefs and anxiety in a group of teenagers. Our hypotheses were as follows:

1. Teenagers endorsing higher levels of irrational beliefs are prone to higher anxiety levels;
2. Anxiety and irrational beliefs can be reduced by means of rational emotive behavior education.
3. There are gender differences in what anxiety and irrational beliefs are concerned, with women exhibiting higher levels of both.

Method

Design

In order to test these assumptions, we used a correlational and an experimental design. Irrational beliefs levels and anxiety levels were the dependent variable, and the presence/absence of intervention and gender were the independent variables.

Participants

Participants were 88 10th-12th grade students from a high school in Cluj-Napoca. Their average age was 17.4 years (SD 0.82); 39.78% were girls and 60.22% were boys. All students were tested using the ABS II, STAI and the HADS. Fifty students (two of the four classes) were allocated to the REE intervention group, which received a 50-minute REE lesson, based on a model by Vernon (2006), followed by a daily reading of the Rationality/Irrationality Decalogue (David, 2007) for a period of 14 days. After two weeks, both the intervention and the control group (n=38) were reassessed using the same measures.

Measures

The **Attitude and Beliefs Scale II (ABS II)**, developed by DiGiuseppe et al. (1988). The scale consists of 72 items, grouped into three factors; in the present research, only the first factor, called “**cognitive processes**”, assessing four types of irrational thinking processes (Macavei, 2002), was assessed:

- **Demandingness (DEM)** – everything is expressed in absolute terms, in terms of “must”. Every wish becomes an imperative demand, which must by all means be accomplished.

- **Self downing and global evaluation (SD/GE)** – the situation and the self is evaluated globally, in terms of “all or nothing”, leaving no room for situational compromises.
- **Low frustration tolerance (LFT)** – the person cannot tolerate unpleasant situations, events that he/she does not want, or the fact that his/her wishes are not fulfilled.
- **Awfulizing / Catastrophizing (AWF)** – any unpleasant situation is interpreted as “awful”, he/she exaggerates and distorts the real threat, danger or prejudice produced by the situation.

The scale may be used to measure irrational beliefs starting with the age of 12. Studies conducted on American subjects report internal consistency coefficients between .86 and .92, whereas studies carried out on Romanian subjects indicate an internal consistency coefficient of .86. Test–retest reliability coefficients vary around the value of .75 (Macavei, 2002).

The State-Trait Anxiety Inventory (Spielberger, 1970) is a self-report measure that assesses anxiety, distinguishing between state anxiety, and trait anxiety. The scale evaluates the following aspects: tension, concern and nervousness. The State Anxiety scale evaluates the way respondents feel at a given time, the way a recent event has been perceived or in which an event which is to happen very soon will be interpreted. This scale is a sensitive indicator of transitory changes of a person’s mood. The Trait Anxiety scale serves to identify people with a permanently increased level of anxiety. The scale can be used for subjects older than 12. The STAI has good psychometric properties, with reliability coefficients (Spielberger et al.1970) ranging between 0.81 and 0.89. Internal consistency coefficients range between 0.74 and 0.86.

The Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) is a self-report measure of anxiety and depression, comprising 14 items. Each item is rated on a 0-3 scale. Overall anxiety and depression scores are obtained by adding the scores of individual items. A score under 7 is regarded as being in the normal range, whereas scores higher than 11 are considered pathological for both anxiety and depression.

Procedure

Correlations were first computed between ABS II, STAI and HADS scores.

As mentioned above all the measures were applied twice: (1) before the REE intervention and (2) two weeks after the intervention, both in the case of students in the experimental group, and in the case of the students in the control group.

These questionnaires were applied as measures of the participants’ way of thinking and emotions. They were filled in anonymously. Before the study was

conducted, written informed consent was obtained from the students and the school management.

Results

Data were analyzed using the *SPSS 8* software; the Pearson linear correlation coefficient was calculated to evaluate the relationship between irrational beliefs and anxiety. Intergroup comparisons (i.e., intervention vs. non-intervention; girls vs. boys) were computed using the independent sample t test.

The means and standard deviations of scores for each of the scales on the total sample are presented in Table 1. Table 2 presents the means and the standard deviations of the results of the two groups at the two moments of assessment (pre-, post-intervention). Table 3 presents the means and the standard deviations of the results by gender and by moment of assessment.

Table 1. Means and standard deviations of the results of all subjects

<i>Scale</i>	<i>Pre- intervention M and SD (n=88)</i>	<i>Post- intervention M and SD (n=88)</i>
STAI state.	36.55 (8.85)	34.43 (8.83)
STAI trait.	36.90 (9.33)	34.43 (9.01)
HADS	7.47 (3.26)	6.81 (3.09)
ABSII-TOTAL	121.30 (25.90)	116.57 (27.57)
AWF	32.34 (8.03)	30.76 (8.88)
DEM	30.56 (8.24)	29.76 (8.66)
SDGE	28.35 (6.85)	27.69 (6.68)
LFT	30.04 (4.55)	28.36 (4.75)

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Table 2. Means and standard deviations of the results of the intervention and the control group at the two moments of assessment.

<i>Scale</i>	<i>Intervention group (time I) M and SD n=50</i>	<i>Intervention group (time II) M and SD n=50</i>	<i>Control group (time I) M and SD n=38</i>	<i>Control group (time I) M and SD n=38</i>
STAI state	35.14 (8.64)	30.38 (6.52)	38.42 (8.93)	39.76 (8.75)
STAI trait	35.36 (9.45)	30.66 (6.97)	38.94 (8.88)	40.55 (8.32)
HADS	6.90 (3.35)	5.38 (2.53)	8.23 (3.02)	8.71 (2.75)
ABSII-TOTAL	114.80 (23.75)	101.300 (16.176)	129.86 (26.40)	136.68 (26.66)
AWF	29.82 (6.49)	25.56 (4.19)	35.65 (8.73)	37.60 (8.80)
DEM	28.36 (7.42)	25.00 (4.91)	33.47 (8.45)	36.02 (8.58)
SD\GE	27.02 (6.67)	24.52 (4.72)	30.10 (6.77)	31.86 (6.62)
LFT	29.60 (5.03)	26.22 (4.19)	30.63 (3.81)	31.18 (3.95)

Table 3. Means and standard deviations of the results by gender at the two moments of the testing.

<i>Scale</i>	<i>M S.D.</i>	<i>Males Pre-intervention M and SD</i>	<i>Males Post-intervention M and SD</i>	<i>Females Pre-intervention M and SD</i>	<i>Females Post-intervention M and SD</i>
STAI state.	M	35.24 (8.97)	33.11 (8.80)	38.54 (8.40)	34.43 (8.60)
STAI trait	M	35.28 (9.85)	33.37 (9.45)	39.37 (7.98)	37.28 (7.83)
HADS	M	6.96 (3.57)	6.50 (3.48)	8.25 (2.59)	7.28 (2.37)
ABSII-TOTAL	M	117.37 (26.14)	113.50 (28.71)	127.25 (24.70)	121.22 (25.45)
AWF	M	31.11 (8.18)	29.71 (9.17)	34.200 (7.54)	32.34 (8.29)
DEM	M	29.39 (8.05)	28.84 (9.17)	32.34 (8.32)	31.14 (7.75)
SD\GE	M	27.39 (6.82)	27.09 (6.95)	29.80 (6.74)	28.60 (6.24)
LFT	M	29.47 (4.95)	27.84 (4.78)	30.91 (3.76)	29.14 (4.670)

Correlations

Correlation coefficients between ABS II total, ABS II subscales, STAI and HADS scores are shown in Table 4 (pre-intervention) and in Table 5 (post-intervention).

Table 4. Pre-intervention correlations

	<i>STAI-S</i>	<i>STAI-T</i>	<i>HADS</i>
<i>ABS II-Total</i>	0.906**	0.896**	0.841**
<i>AWF</i>	0.883**	0.873**	0.815**
<i>DEM</i>	0.866**	0.853**	0.810**
<i>SD\GE</i>	0.878**	0.865**	0.836**
<i>LFT</i>	0.706**	0.708**	0.622**

**Correlations are significant for $p < .01$.

Table 5. Pos/-intervention correlations

	<i>STAI-S</i>	<i>STAI-T</i>	<i>HADS</i>
<i>ABS II-Total</i>	0.901**	0.904**	0.875**
<i>AWF</i>	0.893**	0.889**	0.853**
<i>DEM</i>	0.868**	0.871**	0.842**
<i>SD\GE</i>	0.884**	0.880**	0.868**
<i>LFT</i>	0.731**	0.758**	0.729**

**Correlations are significant for $p < .01$.

Intervention effects

Independent sample t tests were computed to evaluate the differences in irrational beliefs and anxiety levels between the two groups, at the two assessment moments: pre-and post-intervention. Results are presented in Table 6.

Table 6. Independent sample t test values for the two groups, at the two assessment moments.

<i>Scale</i>	<i>Pre-test (n=88) t/sig (p)</i>	<i>Post-test (n=88) t/sig (p)</i>
STAI state.	-1.74 (p>.05)	-5.78 (p<.01)
STAI trait.	-1.81 (p>.05)	-6.05 (p<.01)
HADS	-1.93 (p>.05)	-5.88 (p<.01)
ABSII-TOTAL	-2.80 (p<.05)	-7.70 (p<.01)
AWF	-3.59 (p<.05)	-8.49 (p<.01)
DEM	-3.01 (p<.05)	-7.59 (p<.01)
SDGE	-2.13 (p>.05)	-6.07 (p<.01)
LFT	-1.05 (p>.05)	-5.64 (p<.01)

Table 7 presents independent sample t test values by gender, at the two moments of assessment

Table 7. Independent sample t test values by gender and assessment moment

Scale	t Sig.	Pre-test Male vs. female (n=88)	Pos-test Male vs. female (n=88)
STAI state	T	-1.72 (p>.05)	-1.74 (p>.05)
STAI trait	T	-2.04 (p<.05)	-2.02 (p<.05)
HADS	T	-1.84 (p>.05)	-1.15 (p>.05)
ABSII-TOTAL	T	-1.77 (p>.05)	-1.29 (p>.05)
AWF	T	-1.78 (p>.05)	-1.36 (p>.05)
DEM	T	-1.65 (p>.05)	-1.21 (p>.05)
SD\GE	T	-1.62 (p>.05)	-1.03 (p>.05)
LFT	T	-1.46 (p>.05)	-1.25 (p>.05)

Discussion

The goal of the present study was to test the effects of a REE intervention in reducing irrational beliefs and anxiety in a group of teenagers.

In what the level of irrationality is concerned (ABS II), both our groups displayed higher levels (121.30, respectively 116.57) than the average value calculated on the Romanian population (Macavei, 2002). Our results shows irrationality levels in both groups (113.02). The mean of the intervention group was higher in the beginning (113.02) and then ranged in the lower level (101.30) after the intervention. The mean of the control group was higher at both moments.

Results on the STAI (state and trait) on both groups (i.e., intervention and control) and at both times (pre- and post-intervention) were lower than the average values observed on the Romanian population.

The correlational analyses we've conducted confirm the significant correlations between irrationality and anxiety (our first hypothesis).

In another study conducted by us (Lupu et al., 2005), 54 8th grade students participated to test the assumption that high levels of irrational beliefs are associated with high levels of anxiety, and this relationship becomes stronger under stressful circumstances (e.g., exam). Participants were evaluated a few days before a difficult exam, and our results confirmed the association between irrationality and anxiety, which was best correlated with demandingness.

As concerning the current study, no significant differences were found between the two groups at pre-test on the STAI, HADS and SD/GE and LFT subscales of the ABS II. Significant differences were noticed however on the ABS total, and on The AWF and on DEM subscales of the ABS-II, which have an impact on our conclusions. At post-test, significant differences between the two groups were noted on all measures. In other words, the REE intervention (one-

hour lesson and the reading of the Rationality/Irrationality Decalogue) significantly decreased the anxiety of the students in the intervention group reducing global irrationality as well as AWF, DEM, SD/GE and LFT, thus confirming our initial hypothesis.

The only gender differences we found ($p < .05$) were in the case of trait anxiety (i.e., STAI trait). No differences in terms of irrationality were observed between male and female participants.

We believe that our results, as well as those reported by other authors, emphasize the necessity of implementing REE programs in schools on a large scale, as a means of preventing and managing anxiety, a disorder associated with numerous negative effects at individual and social levels.

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The Ten Commandments of Rationality (David, 2006)

- **1. IT WOULD BE PREFERABLE that you succeed in everything you attempt, and do everything in your power for this to happen, BUT IF YOU DO NOT SUCCEED it does not mean that you are worthless as a person, but that you've had a less desirable behavior, which can be improved in the future.**
- **2. IT WOULD BE PREFERABLE that you succeed in everything you attempt, and do everything in your power for this to happen, BUT IF YOU DO NOT SUCCEED, remember that it is only (very) bad, not catastrophic (the worst thing that could happen to you).**
- **3. IT WOULD BE PREFERABLE that you succeed in everything you attempt, and do everything in your power for this to happen, BUT IF YOU DO NOT SUCCEED, you can tolerate it, and go on enjoying life, even if it's more difficult in the beginning.**
- **4. IT WOULD BE PREFERABLE that the others be nice and/or fair to you, BUT IF THEY ARE NOT, it does not mean that your or they are worthless human beings.**
- **5. IT WOULD BE PREFERABLE that the others be nice and/or fair to you, BUT IF THEY ARE NOT, remember that it is only (very) bad, not catastrophic (the worst thing that could happen to you).**
- **6. IT WOULD BE PREFERABLE that the others be nice and/or fair to you, BUT IF THEY ARE NOT, you can tolerate it, and go on enjoying life, even if it's more difficult in the beginning.**
- **7. IT WOULD BE PREFERABLE that life be fair and easy, BUT IF IT IS NOT, it does not mean that you are worthless as a person, and/or that life is unfair.**
- **8. IT WOULD BE PREFERABLE that life be fair and easy, BUT IF IT IS NOT, remember that it is only (very) bad, not catastrophic (the worst thing that could happen to you).**
- **9. IT WOULD BE PREFERABLE that life be fair and easy, BUT IF IT IS NOT, you can tolerate it, and go on enjoying life, even if it's more difficult in the beginning.**
- **10. THE ONLY THING THAT MUST BE, IS THAT NOTHING MUST ABSOLUTELY BE!**

The Ten Commandments of Irrationality (David, 2006)

- **1. YOU MUST succeed in everything you do, OTHERWISE you are worthless as a human being (you are unimportant/ inferior/ weak).**
- **2. YOU MUST succeed in everything you do, OTHERWISE it is awful and catastrophic (the worst thing that could happen to you).**
- **3. YOU MUST succeed in everything you do, OTHERWISE you cannot tolerate it (it is intolerable).**
- **4. The others MUST be fair and/or nice to you, OTHERWISE you are worthless as a human being (you are unimportant/ inferior/ weak) and/or OTHERWISE they are worthless (evil).**
- **5. The others MUST be fair and/or nice to you, OTHERWISE it is awful and catastrophic (the worst thing that could happen to you).**
- **6. The others MUST be fair and/or nice to you, OTHERWISE you cannot tolerate it (it is intolerable).**
- **7. Life MUST be fair and easy, OTHERWISE you are worthless as a human being (you are unimportant/ inferior/ weak) and/or life is unfair.**
- **8. Life MUST be fair and easy, OTHERWISE it is awful and catastrophic (the worst thing that could happen to you).**
- **9. Life MUST be fair and easy, OTHERWISE you cannot tolerate it (it is intolerable).**
- **10. I, THE OTHERS AND/ OR LIFE MUST ABSOLUTELY...**