

The Connection between Gender, Academic Performance, Irrational Beliefs, Depression and Anxiety among Teenagers and Young Adults

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Abstract

The present research has aimed at exploring the existing gender differences present at the level of anxiety and depressive symptoms among adolescents and young adults, looking also at the link between the presence, volume and intensity of irrational beliefs and these symptom categories, as well as the influence academic results have on them. The statistical population of the research constituted of 131 high-school students and members of the Faculty of Psychology and Educational Sciences from the University of Bucharest, as well as the Polytechnic Institute (84 female and 47 male). The participants were selected using a randomized sampling method and their ages ranged from 17 to 25 years. Depressive and anxiety symptoms were assessed using the Romanian version of the DASS21 questionnaire, while irrational beliefs were evaluated using a translated version of the Irrational Beliefs Inventory (IBI). Statistical analyses revealed the existence of significant gender differences manifested at the level of stress ($p=.049$) and anxiety ($p=.011$) symptoms, as well as significant correlations between irrational beliefs related to excessive worrying, rigidity and the tendency to avoid problems and predispositions toward depression and/or anxiety. Data analysis has also revealed that some irrational beliefs have an important impact on academic performances. As such, subjects with poor academic results seem to have more irrational beliefs related to problem avoidance compared to the ones with good academic performances ($U= -3,406$, $p=,001$). A similar result was found among the ones with low academic success and the average group ($U=-2,780$, $p=,005$). The data, however, did not confirm the existence of gender differences at the level of irrational beliefs, although excessive worrying almost reached statistical significance ($p=0,66$).

Keywords: *irrational, belief, depression, anxiety, stress, gender, academic.*

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I. INTRODUCTION

Taking as a reference point Albert Ellis's observations (1962) according to which people, unlike other animals, are likely to develop fear and anxiety problems only based on their mental world perceptions and representations and not necessarily in the presence of objects or actual situations, the concept of irrational beliefs has become one of the central pillars of the cognitive-behavioural orientation, demonstrating its utility in both theory and practice. In order to offer a wider description, within the model that Ellis promoted (1962), irrational beliefs represent illogical or dogmatic visions one has over the world that are frequently constituted at an intellectual level and are based on social conditioning, which determine dysfunctional behaviours or depreciative self-evaluations when the person that owns them is confronting himself/herself with some stressful life events. Consequently, following a thinking line that can be drawn in time up to the ancient writings of Epictetus, Ellis considers that the origin of multiple psychological disorders needs to be looked for not only within the traumatic events themselves, but also inside the mental constructions that people develop by interacting with reality and the outside social world (Ellis, 2001). As such, the main idea behind Ellis' rational-emotive model is that irrational or distorted beliefs related to the events one experiences cause behavioral dysfunctions and not the events themselves (Ellis, 1997).

In his initial writings, Albert Ellis proposed the existence of no less than 12 different types of irrational beliefs (Ellis & Dryden, 1997, pp. 15-16). In time, however, followers of the rational-emotive theory have narrowed them to only four big categories, as follows: catastrophizing, low frustration tolerance, global unfavorable assessment and the tendency to request things excessively (Ellis, 2000). From these, the last category is perhaps the most important one (Bernard & Cronan, 1999) as it reflects an imperative thinking style, often crystalized in formulations such as "I have to" or "It is absolutely necessary to". Described by Ellis as "musturbation", the tendency is, in the opinion of the American psychologist, at least, the foundation of many psychological disorders (Ellis, 1991a, 1991b, 1995). This is primarily because it frequently leads to unrealistic expectations or unfavourable opinions about one's self. *Ipsa facto*, it is postulated to be the main etiological basis for depression and anxiety dysfunctions.

Unfortunately, although the "irrational belief" concept has become extremely popular in therapeutic practice, empirical research using adequately developed instruments in order to measure this construct have been relatively scarce. In this respect, according to a recent review of the literature, Terjesen, Salhany and Sciutto (2009) identified only 14 instruments used to measure irrationality, maintaining that a lot of them suffer from serious psychometrical issues (see also Bridges *et al.*, 2010). As such, even though some questionnaires developed during

the '60 and '70, such as the Irrational Beliefs Test (Jones, 1968) or the Rational Behaviour Inventory (Shorkey & Whiteman, 1977) are still used in common practice, the validity of the studies that employ such instruments is quite ambiguous, mainly because almost half of the items of these tests measure emotions or behaviours and not actual beliefs (Robb & Warren, 1990). Moreover, conclusions drawn in the '70 and '80 using such questionnaires and other similar ones are profoundly inconsistent, exhibiting substantial variations in term of results between student and clinical samples (Smith, Raush, & Jenks-Ketterman, 2004). As previously stated, the situation itself is problematic because irrational beliefs are hypothesized to be the main cause of psychological disorders (Froggatt, 2005) according to the main approach of cognitive-behavioural therapy (i.e. Ellis, 1962, 1991; Beck, 1977), at least. Thus, as certain studies seem to suggest, they are frequently associated with depressive (Nelson, 1977; Kassinove & Eckhardt, 1994; Chang, 1997; Chang & Bridewell, 1998; Chang & D'Zurilla, 1996; Taghavi, Goodarzi, Kazemi & Chorbani, 2006) and anxiety symptoms (Goldfried & Sobocinski, 1975; Zwemer & Deffenbacher, 1984; Deffenbahaer *et al.*, 1986; Malouff, 1992; Taghavi, Goodarzi, Kazemi & Ghorbani, 2006), although the precise influence irrational beliefs have over emotions is not yet clearly understood from an empirical point of view (David *et al.*, 2005).

The lack of rigorous instruments for measuring irrationality have not hindered, however, the practical implementation of many studies preoccupied with gender and social status differences manifested at the level of irrational beliefs or the influence that they have upon depression and anxiety symptoms. Regarding differences between the sexes, for example, the literature abounds with studies that indicate that men and women differ significantly in terms of their risk of developing depression, understood both as a clinical dysfunction (e.g. Kessler *et al.*, 1994; Robins & Regier, 1991) and as an emotional state characterized by a lack of energy, a diminished motivation for engaging in previously pleasant activities and social retreat. In addition, many empirical investigations have also revealed the fact that women tend to express their fears more intensely than men, both verbally and non-verbally (Allen & Haccoun, 1976; Kring & Gordon, 1998; Wallbott *et al.*, 1986) and they also engage more frequently in activities such as crying (Oliver & Toner, 1990, Wallbott *et al.*, 1986). Similarly, women tend to express their sorrows more frequently and intense than men (Allen & Haccoun, 1976; Dosser, Balswich, & Halverson, 1983), reporting at the same time a higher rate of depressive episodes (e.g. Eisenberg *et al.*, 1995; Grossman & Wood, 1993, Scherer *et al.*, 1986). As the main theoretical model of the cognitive-behavioral approach postulates the existence of a strong link between one's beliefs, on one hand, and the felt emotions, on the other, such results have also naturally led to the study of gender impact on irrational beliefs. Even though the effect size has varied considerably and consistently from one study to the other, most of the research performed in the last 30 years have reported the existence of significant differences between men and women (Al-

Mousawi, 2005; Bridges, & Roig, 1997; Daly & Burton, 1983) at the level of irrational beliefs, women being generally more predisposed toward such distortions (Jaradat, 2006). Nevertheless, drawing conclusions on this subject is quite premature, as the literature is still poorly developed in this respect and the tested samples are both relatively small in terms of volume and homogenous in terms of their socio-demographic variables (e.g. most of the participants are Caucasian student from the upper-middle class).

In his writing, Ellis has also frequently pointed out that intelligence and education does not protect one from engaging in irrational thinking or holding irrational beliefs (Ellis & Dryden, 1997, pp. 7-8). Consequently, it is assumed that the capacity to operate with abstract notions or symbols does not spare a person from frequently implementing cognitive distortions inherent in our species nature. Unfortunately, the literature is still undeveloped in this respect, a fact which we tried to address in the present study.

Starting from the previous considerations, this research has tried to investigate the existing differences between male and female in both depressive and anxiety symptoms and irrational beliefs, looking also at the relation hypothesized to exist between such distortions and academic performances. As such, we started from the premise that the considerable sex differences manifested at the level of psychological dysfunctions are actually the expression of significant differences existing at the level of irrational beliefs. Furthermore, we also tried to verify in an empirical manner Ellis's assumption that education is not a buffer for unrealistic beliefs, although we assumed that there will be significant differences at the level of certain beliefs categories, mainly those related to rigidity or the need for acceptance. The assumed connection, on the other hand, must not be interpreted in a causal manner due to the nature of the study's design.

II. OBJECTIVES AND HYPOTHESES

1. Objectives of the study

The main objective of this study was to investigate the measures to which there are significant gender differences among teenagers and young adults regarding their predispositions towards depression, stress and anxiety. In addition, we also aimed at investigating the degree to which the nature, quantity and severity of personal irrational beliefs influence these kinds of symptoms.

The second major objective of the study was to examine the assumed connection between academic performances and irrational beliefs, starting from the premise that outstanding

academic results can often hide an absolute or imperative thinking style or unrealistic dogmatic beliefs.

Last but not least, the present study has also aimed to explore the measure to which a subject's irrational beliefs influence one's level of depression and/or anxiety symptoms, thus consolidating one of the cardinal postulates of the cognitive-behavioural therapy that assumes that people's mental perceptions and representations are the main determinants of psychological disorders.

2. Hypotheses

The working hypotheses were as follows:

- (1) There are significant differences between men and women, regarding the anxiety, stress and depression levels.
- (2) The volume of irrational beliefs strongly correlates to the anxiety, stress and depression levels.
- (3) The persons with low academic performance, regardless the gender, have more irrational beliefs related to the necessity to avoid problems.
- (4) The persons with outstanding academic performance, regardless the gender, have more irrational beliefs related to rigidity.
- (5) The persons with outstanding academic performance have more irrational beliefs related to the need for approval.

III. METHODS AND INSTRUMENTS

3.1. Participants and design

The sample was randomly chosen out of the targeted population, consisting of 135 subjects: high-school students, undergraduates and graduate students from the Faculty of Psychology and Educational Sciences from the University of Bucharest and students attending the Polytechnic Institute. Four participants were eliminated because they didn't provide all answers to the questionnaires. Consequently, the total tested sample consisted of 131 subjects (84 female and 47 male), aged between 17 and 25 years ($M=18.69$; $SD=0.21$), attending the following institutions: "Tudor Vianu" National College, ICHB, "Spiru Haret" National College, the Psychology Faculty of the University of Bucharest and the Chemistry Faculty of the Polytechnic Institute. No significant differences were found in terms of age composition between male ($M=18.32$; $SD=0.245$) and female subjects (18.89 ; $SD=0.296$) or between their academic

performances distribution. All the subjects identified themselves as Caucasian with Romanian citizenship.

The present study employed a correlational design with two independent variables (gender and academic performances) and eight dependent ones (anxiety, depression and stress scores and irrational beliefs clustered into five large categories: excessive worrying, rigidity, problem avoidance, the need for approval and emotional irresponsibility). In order to reduce the influence of co-variant variables and other possible sources of errors, we tried to maintain the tested groups homogenous in terms of age, ethnicity and social class. Also, the subjects were asked to specify before taking the tests whether or not they have consumed psychoactive substances in the past days, if they are exhibiting strong emotional problems or if they have been deprived of food or sleep in the recent period.

3.2. Instruments and data collection

In order to measure the subjects' anxiety, stress and depression symptoms we used the DASS21 questionnaire (Antony *et al.*, 1998), developed by Lovibond and Lovibond (1995). The instrument represents a self-report questionnaire found in the public domain that consists of three scales: depression, anxiety and stress. The first scale, consisting of seven items (1,2,10,13,15,18,20) is meant to assess in a brief manner the measure to which the subjects taking the test have manifested depression specific symptoms, such as anhedonia, pessimism or a lack of motivation, initiative and interest towards social interactions. The second scale, consisting also of seven items (4,5,8,9,12,14,21), measures the psycho-somatic effects of anxiety, evaluating the level of respiratory or cardiac disorders, vertigo or panic sensations the subject has felt in the recent time. The last subscale, related to stress, consists of seven items (3,6,7,11,16,17,19), with it being meant to evaluate tension, irritability and sensations of intolerance. Internal consistency analysis of the DASS21 instrument have revealed acceptable psychometrical properties, with alpha coefficient in the 0.7-0.757 range ($\alpha=0.7$ for the depression subscale, 0.751 for the stress subscale and 0.757 for the anxiety one).

Assessing the subjects' irrational beliefs was achieved by using a translated version of the Irrational Beliefs Inventory (IBI) – a questionnaire that has been initially developed in Holland by Koopmans *et al.* (1994). Consisting of 50 items, this instrument is meant to evaluate a subject's irrationality, distorted beliefs being grouped into five different subscales: excessive worrying, rigidity, problem avoidance, the need for approval and emotional irresponsibility. In order to ensure adequate psychometric properties we used two authorized translators that were requested to translate the instrument from the initial language to Romanian, and then from Romanian back to the original language. This process was repeated until the two translators

reached a consensus regarding the translated form. Unfortunately, the internal consistency of the IBI subscales varied significantly from one scale to another (more specifically, from $\alpha=0.536$ for the emotional irresponsibility subscale to 0.761 for the rigidity subscale). Having a low internal consistency, we eventually decided to overrule the emotional irresponsibility subscale of the instrument.

Before we administered the questionnaires we gave the participants a voluntary consent form. This document informed the subjects that their participation is purely voluntary and that their answers will remain confidential, being used only for research purposes. At the beginning of the study, subjects were also informed about the main objective of the research and they were given an approximation of the duration of the entire procedure. Furthermore, they were instructed to provide honest answers, being specifically told not to rush the test and complete all the items. After finishing the questionnaires, the subjects were thanked for their participation and they were notified that they can receive the study's results if they wish so. The subjects' repartition to performance groups was achieved by using the school or faculty registries and by consulting some of their teachers about their academic performances.

IV. RESULTS

Due to the fact that only the scores on the stress subscale respected a normal distribution within the tested sample (Shapiro-Wilk $p=.061$), we chose to use a non-parametric test (Mann-Whitney) in order to verify the first research hypothesis. This was supported by the gathered data, significant statistical differences having been found between men and women in both respect to anxiety ($U= -2,538$, $p=.011$) and stress symptoms ($U= -1,968$, $p=.049$). Contrary to our expectations, however, no significant differences related to depression were found between the sexes ($U=-.961$, $p=0.337$). Given the asymmetrical score distribution, the correlations between the tested subjects' irrational beliefs and their recorded scores on the depression, stress and anxiety subscales of the DASS21 questionnaire were performed using the Sperman rho coefficient. The table below comprises the results in a synthetic manner:.

Table 1. Sperman rho correlations between irrational beliefs, depression, anxiety and stress.

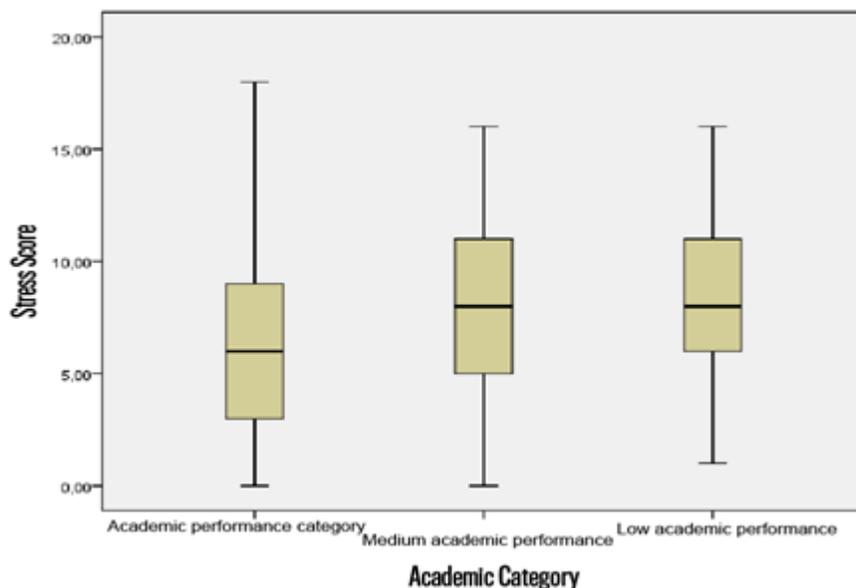
Variable	M	SD	1	2	3	4	5	6
1. Excessive worrying	39,97	0,47						
2. Rigidity	45,75	0,66	,367**					
3. Problem avoidance	28,27	0,48	,55	,190*				
4. Need for approval	20,87	0,34	,164	,373**	,254**			

5. Depression	4,14	0,29	,306*	,512**	,261**	,201**		
6. Anxiety	5,22	0,32	,418**	,412**	,234**	,113	,506**	
7. Stress	7,58	0,35	,437**	,491**	,157	,254**	441*	,637**

Notes: * p<0.05; ** p<0.01; n=131 subjects

As it can be inferred from the table, excessive worrying and rigidity seem to be found in all depressive-anxiety type disorders, while the need for approval strongly correlates with depressive tendencies and a high stress level, but not with anxiety symptoms. Given the size and the significance of the correlations, the general hypothesis according to which irrational beliefs are strongly connected to the intensity of the mood disorders experienced by the subjects was supported.

Investigating the link between the subjects' academic results and the DASS21 scores, the Krushall-Wallis variance analysis revealed significant results only in respect to stress (Square Chi=6,180, p=,046), although anxiety scores almost reached statistical significance (p=,054). As such, although no significant differences between students with average academic results and the ones with low academic performances were found, students with outstanding academic achievements seem to register a lower stress level than both the other groups tested.



Worth mentioning, the hypothesis according to which there are significant differences manifested at the level of irrational beliefs related to problem avoidance, on one hand, and academic performances, on the other, was sustained throughout the Krushall-Wallis variance

analysis (Square Chi =12,671, $p=,002$). As such, students with low school performances seem to have more irrational beliefs related to problem avoidance than high achievers ($U= -3,406$, $p=,001$). Similar results apply also to the students with low performances in comparison to the average ones ($U=-2,780$, $p=,005$). Still, the hypothesis according to which people with high academic success have more irrational beliefs related to the need of approval, as well as rigidity, was not sustained by the collected data.

The gender differences manifested in the space of irrational beliefs was also investigated, revealing a lack of significant results. As such, only beliefs related to excessive worrying approached the statistical significance threshold ($t= -1,757$, $p=0,66$). Because the score distribution on the rigidity subscale didn't respect the normal distribution parameters (Shapiro Wilk $p=,001$), we used a non-parametric test (Mann-Whitney) in order to investigate the gender differences. The test did not reveal the existence of notable results.

V. DISCUSSIONS

The present study has shown that there are significant differences between men and women in terms of both anxiety and stress, female subjects having generally a higher tendency for worrying and developing psycho-somatic symptoms associated with stressful life events. In contrast to our expectations, however, no notable gender differences were found related to depressive symptoms, a fact from which we can draw the conclusion that both genders have similar ruminative tendencies. Essentially, the study sustains the consensus found in the literature according to which there are indeed important predispositions related to anxiety and depression that are mediated by the gender variable.

Another notable fact sustained by the gathered data was that excessive worrying and rigidity seem to be linked to depressive-anxiety disorder type symptoms. A possible explanation for such results is that excessive worrying represents the manifestation pattern of an anxious core and irrational beliefs related to rigidity maintain this anxious core.

The need for approval strongly correlated with depressive tendencies and a high level of stress, but not with anxiety. This situation can be explained through the fact that the need for approval can give birth to high expectations, consequently maintaining a high level of stress and depression. Important to note, these expectations were not found in people with high anxiety scores, a fact which can be due to a higher level of control exhibited by them.

The fact that the subjects with outstanding school performances have registered a correspondingly lower level of stress can be explained through the fact that academic success implies a constant daily routine that can train the mind to handle stressful situations. On the other

hand, academic performance implies also a certain self-confidence, which also explains the lower stress level found in this category of subjects compared to their peers.

The highest degree and volume of irrational beliefs related to problem avoidance was found in students with low academic performances. This may indicate that such students have a tendency to run rather than solve their problems in a determinate manner. Avoiding problems, in its turn, correlated positively with the need for approval, as well as depression and anxiety scores. This situation seems to suggest that the lack of action and activity can be found behind anxiety and depression mood disorders. Still, given the correlational nature of the present study, no causal conclusions can be drawn in this respect. Due to the fact that rigidity strongly correlated with the need for approval, as well as depression, stress and anxiety, we can say that the interventions marked by a flexible attitude recommend themselves as the most appropriate ones for the age category studied in this research.

Although the results of this study sustain both the basic postulates of REBT and many of the findings drawn in the literature in the past 30 years', its conclusions must be evaluated in a critical manner due to some important shortcomings. First of all, one notable problem is that what counts as high academic performance may vary greatly between institutions. In our research, subjects were grouped in three performance categories (low, average and high), but we could not control for the different norms and procedures used by each school and faculty for evaluating school success. Also, the sample size was a relatively small one and the tested groups were homogenous in terms of social and demographical variables. Consequently, the results of this study should not be extended to the level of the entire human population. Furthermore, the instrument used for assessing the subjects' irrational beliefs, viz. IBI, was translated from the original language in Romanian. The questionnaire showed an adequate but not high internal consistency on some of its subscales. In order to correct some of these drawbacks, future research should try not only to verify the stated hypothesis on a larger and more heterogeneous sample, but also to investigate the interaction existing between gender and school performances, on one hand, and depressive and anxiety symptoms, on the other.

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