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Effects of gender and year in college on students' irrational beliefs

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Abstract

This study investigated the effects of gender and year in college on university students' irrational beliefs. A total of 388 students aged 18–26 years (M = 20.78, SD = 1.09) participated. The Arabic version of the German Irrational Beliefs Questionnaire was used to measure irrational beliefs across four subscales: Dependency, internal attribution of failure, negative self-evaluation, and irritability. Findings revealed significant gender differences, with female students scoring higher on total irrational beliefs, particularly on negative self-evaluation and irritability subscales. No significant effects were found for year in college. The study documents that female students are more prone to irrational thinking patterns, indicating greater sensitivity to external stimuli and higher self-blame for perceived failures. Practical implications suggest that counseling programs targeting irrational beliefs may be particularly beneficial for female students. Since year in college does not significantly influence irrational beliefs, interventions can be applied across all academic levels. Future research should explore irrational beliefs in relation to other personality variables and examine the effectiveness of counseling programs aimed at reducing irrational thinking to enhance mental health outcomes.

Keywords: Cognitive distortions, Gender differences, Irrational beliefs, Self-evaluation, University students, Year in college.

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Contents

Contribution of this paper to the literature

This study documents gender differences in irrational beliefs among university students, finding higher levels in females. No significant effects were found for year in college, highlighting the need for counseling interventions regardless of academic level.

1. Introduction

Many researchers have shown great interest in examining differences among students across various variables, such as depression (Jaradat, 2012) and self-disclosure (Jaradat, 2020), among others, with the aim of enhancing psychological well-being, reducing emotional disorders, and improving academic achievement. Irrational beliefs are considered a key determinant of human behavior and have been extensively investigated in the fields of counseling and psychotherapy. Research has demonstrated that irrational thinking is associated with several psychological phenomena, including depression, anxiety, and anger (Ababneh & Bani-Rshaid, 2025). Ellis (1962) argued that irrational thinking leads to emotional maladjustment. He further emphasized that individuals have a strong tendency to think and behave irrationally; however, they also possess the capacity to critically reflect on their behavior, correct illogical thinking patterns, and evaluate whether their assumptions align with reality (Dryden, 1999). The tendency of individuals to think rationally or irrationally is influenced by numerous variables, most notably family-related factors, such as parenting styles (Jaradat, 2012) and family cohesion.

Irrational thinking affects various aspects of individual behavior, including the prevalence of negative emotions among students (Rezapour, Dehzangi, & Saadati, 2022), levels of self-confidence (Bani-Irshid & Bani-Rshaid, 2022), academic burnout (Hălmăjan, 2024), depression and anxiety (Stanciu et al., 2014), as well as communication and social interaction among students (Bani-Rshaid, Hussein, Ababneh, & Khasawneh, 2023).

From Ellis's perspective, an individual can free themselves from unhappiness or emotional and mental distress by learning to maximize their rational thinking and minimize their irrational thinking (Ellis, 1962). He argued that since the attitudes of emotionally disturbed individuals are irrational, it is best to directly challenge their irrational thoughts (Patterson, 1980). He identified several irrational thoughts, including: it is essential to be liked by all important people around us; one must be highly competent to be valuable; some people are bad and should be punished; it is best to avoid difficulties and responsibilities; and it is terrible when things don't go the way they should (Ivey, D'Andrea, Ivey, & Simek-Morgan, 2002).

Rational Emotive Behavior Therapy (REBT) aims to help clients eliminate illogical or irrational thoughts and replace them with rational beliefs and attitudes (Dryden, 1999). The counselor's primary task is to correct the clients' patterns of thinking (Ivey et al., 2002). In the first step, clients are guided to recognize their irrationality, understand how and why they developed such patterns, and identify the connection between their irrational thoughts and their emotional distress or unhappiness. The second step involves helping clients realize that they perpetuate their own disturbances if they continue to think irrationally, that is, their current irrational thinking is responsible for their distress, rather than the continued influence of external events (Patterson, 1980).

The third step is to get clients to change their thinking and abandon their irrational thoughts. While some therapeutic approaches rely on clients to do this themselves, Rational Emotive Behavior Therapy (REBT) sees irrational thinking as so deeply ingrained that clients cannot change it on their own, but rather it is changed through logic, evidence, suggestions, argumentation, persuasion, as well as through activities and homework (Dryden, 1999; Patterson, 1980).

The final step goes beyond addressing specific irrational ideas held by clients. It considers broader, more general irrational beliefs and fosters a more rational philosophy of life, enabling clients to avoid falling prey to other irrational ideas and beliefs. As a result of this process, clients acquire a rational philosophy of life, replacing irrational beliefs and convictions with rational ones. Once this is achieved, distressing negative emotions and self-defeating behaviors are eliminated (Patterson, 1980).

Among the studies that examined the relationship between irrational beliefs and gender and/or academic year is the one conducted by Zwemer and Deffenbacher (1984) on a sample of 382 male and female students enrolled in an introductory psychology course. The results indicated a significant correlation between anger and anxiety on one hand, and irrational beliefs on the other. Moreover, the findings revealed no gender differences in irrational beliefs.

Marcotte (1996) conducted a study that aimed to investigate the relationship between irrational thoughts and depressive symptoms in a sample of adolescents, selected from three Canadian schools to participate in the study, and whose ages ranged from 11 to 18 years. The results showed a correlation between these two variables. Furthermore, the study indicated no differences in overall scores on the irrational beliefs scale attributable to age or gender.

Bridges and Roig (1997) also conducted a study that aimed to investigate the relationship between academic procrastination and irrational thinking in a sample of 271 male and female students selected from two universities. The results showed that procrastination was associated with the overall scale of irrational thinking. Furthermore, no differences in irrational thinking were found based on age, major, or year of study. Similarly, no gender differences were found on the overall scale of irrational thinking.

Thus, most studies have indicated that gender or academic year has no effect on irrational thoughts. They have also shown that irrational thoughts are associated with a few variables, such as depression, anger, anxiety, and academic procrastination.

2. Problem Statement

The literature indicates that the results of studies investigating differences in irrational beliefs considering gender and year in college are conflicting, which calls for further studies to clarify these differences in different environments and societies because the results of such studies would have very important guiding implications.

The current study attempted to investigate gender and educational level differences in irrational beliefs among a sample of university students.

More specifically, the present study aimed to answer the following two questions.

1. Are there statistically significant differences at the P=0.05 level between males and females in irrational beliefs?

2. Are there statistically significant differences at the P=0.05 level in irrational beliefs attributable to the school year?

3. Significance of Study

In general, the counseling process aims to enhance clients' psychological well-being and adjustment, in addition to assisting them in solving their problems. Therefore, the counselor's role involves both preventive and therapeutic functions. Among the key responsibilities of the counselor is identifying students who exhibit high levels of irrational thinking and helping them develop a more positive self-perception. Moreover, levels of irrational beliefs may vary according to gender and academic year factors that should be taken into consideration when designing programs intended to improve and modify students' irrational or faulty thinking patterns.

4. Method

4.1. Participants

The study sample consisted of 388 male and female students representing various disciplines and academic levels at Yarmouk University. The students' ages ranged from 18 to 26 years (Mean = 20.78, standard deviation = 1.09). Table 1 shows the distribution of the sample members according to the variables of gender and academic year.

Table 1. Distribution of sample members according to gender and academic year.

Total	Females	Males	Academic year
51	35	16	First year
107	55	52	Second year
111	61	50	Third year
119	47	72	Fourth year
388	198	190	Total

4.2. Instrumentation

4.2.1. Irrational Beliefs Scale

In this study, the Irrational Beliefs Scale developed by Klages and translated from German into Arabic by Jaradat (Klages, 1989, as cited in Jaradat (2006)) was used. The scale consists of 30 items, answered using a six-point Likert scale, where (0) indicates "does not apply at all," and (5) indicates "applies completely." The items are distributed across four dimensions representing four irrational tendencies.

1. Negative Self-Evaluation: Respondents who score high on this dimension show a negative view of themselves. They often think they are failures, worthless, and unable to properly control their lives. Higher scores indicate a higher level of negative self-evaluation. This dimension consists of 7 items.
2. Dependency: Respondents who score high on this dimension place great importance on others' opinions of them. They feel the need to be loved by everyone and for others to be pleased with what they do or how they behave. Higher scores indicate greater dependency. This dimension consists of 4 items.
3. Internal Attribution of Failure: Respondents with high scores on this dimension attribute the causes of their failures to themselves. When things do not go as expected or when they fail, they blame themselves. Higher scores indicate a higher level of internal attribution of failure. This dimension consists of 9 items.
4. Irritability: Respondents who score high on this dimension exhibit a high sensitivity to external stimuli. Small problems often anger them, and their feelings are easily hurt. They also tend to complain about unpleasant tasks they must perform. Higher scores indicate higher irritability. This dimension consists of 10 items.

Validity Procedures: To ensure the accuracy of the translation of the measurement instrument and the appropriateness of its items for the Jordanian context, Jaradat (2006) presented both the original and translated versions of the Irrational Beliefs Scale to two specialists in German as a foreign language to obtain their opinions regarding the accuracy of the translation and to correct any errors, if present. Based on their suggestions, the translation of three items was modified. The linguistic formulation was reviewed, and content validity procedures were conducted for the scale. Nine items of the Irrational Beliefs Scale were reformulated, as at least 40% of the evaluators agreed on the need for modification. Regarding the appropriateness of the items for the study's population, the evaluators agreed that all items were suitable. Thus, the number of items in the translated version remained equal to that in the original version.

Reliability: In the current study, the internal consistency reliability coefficient of the Irrational Beliefs Scale and each of its dimensions was calculated by applying Cronbach's alpha to the scores of the sample members. The scale showed acceptable internal consistency. Table 2 shows the reliability coefficient values using Cronbach's alpha.

Table 2. Internal consistency coefficients for the overall irrational beliefs scale and its sub-dimensions.

Alpha	Irrational beliefs
0.86	Total score
Sub-dimensions of the irrational beliefs scale	
0.70	Negative self-evaluation
0.74	Dependency
0.72	Internal attribution of failure
0.79	Irritability

4.3. Statistical Analysis

Initially, the means and standard deviations of the sample members' scores on the irrational beliefs scale were calculated according to the variables of gender and grade level. Then, a two-way multivariate analysis of variance (ANOVA) was performed to determine the effect of gender and grade level on irrational beliefs.

5. Results

To answer the study's questions about gender and school year differences in irrational beliefs, the arithmetic means and standard deviations of the sample's scores on the irrational beliefs scale were calculated according to the variables of gender and school year, as shown in Table 3.

Table 3. Means and standard deviations of the irrational beliefs scale according to gender and academic year.

Dimension / Gender	First year	Second year	Third year	Fourth year	Overall mean	M	SD
Irrational beliefs (Total) - Males	3.82	3.70	3.57	3.68	3.68	M	SD
	0.76	0.70	0.73	0.72	0.71		
Irrational beliefs (Total) - Females	3.81	3.89	4.07	3.90	3.94	M	SD
	0.76	0.70	0.66	0.72	0.71		
Irrational beliefs (Total) - Full sample	3.81	3.79	3.84	3.78	3.81	M	SD
	0.73	0.69	0.73	0.73	0.71		
Negative self-evaluation - Males	3.61	3.01	3.05	2.85	3.01	M	SD
	0.90	1.04	0.90	1.06	1.02		
Negative self-evaluation - Females	3.24	3.11	3.28	3.15	3.20	M	SD
	1.05	1.08	0.93	0.93	0.99		
Negative self-evaluation - Full sample	3.36	3.05	3.18	2.97	3.11	M	SD
	1.01	1.05	0.92	1.02	1.00		
Dependency - Males	4.11	3.94	3.98	4.21	4.07	M	SD
	1.30	1.20	1.43	1.19	1.27		
Dependency - Females	3.85	3.97	4.44	4.29	4.18	M	SD
	1.27	1.28	1.19	1.28	1.27		
Dependency - Full sample	3.93	3.96	4.23	4.24	4.12	M	SD
	1.27	1.24	1.32	1.22	1.27		
Internal attribution of failure - Males	3.87	4.01	3.63	4.11	3.93	M	SD
	1.18	0.86	1.10	0.90	0.99		
Internal attribution of failure - Females	4.09	4.12	4.37	4.18	4.09	M	SD
	0.98	0.87	0.94	0.94	0.93		
Internal attribution of failure - Full sample	4.02	4.10	4.04	4.12	4.07	M	SD
	1.05	0.88	1.07	0.92	1.05		
Irritability - Males	3.80	3.81	3.68	3.68	3.74	M	SD
	0.89	0.93	0.69	0.76	0.81		
Irritability - Females	3.98	4.12	4.22	4.07	4.10	M	SD
	1.07	0.91	0.81	0.87	0.90		
Irritability - Full sample	3.92	3.96	3.98	3.83	3.92	M	SD
	1.01	0.94	0.80	0.82	1.01		

Note: M = Mean, SD = Standard deviation.

Table 3 shows differences in the means of the cells related to gender and academic year. To determine whether these differences were statistically significant at the p-value (0.05), a two-way multivariate analysis of variance (ANOVA) was used. Table 4 shows the results of this analysis.

Table 4. Results of multivariate two-way ANOVA for differences between genders and academic levels in irrational beliefs.

Dependent variables	Source of variance	Sum of squares	df	Mean square	F-value	Significance level
Irrational beliefs (Total score)	Gender	6.55	1	6.55	12.99	0.001
Negative self-evaluation	Gender	1.98	1	1.98	1.96	0.162
Dependence	Gender	1.73	1	1.73	1.08	0.299
Internal attribution of failure	Gender	7.91	1	7.91	8.58	0.004
Hostility	Gender	13.22	1	13.22	17.93	0.001
Irrational beliefs (Total score)	Academic level	0.165	3	0.06	0.11	0.955
Negative self-evaluation	Academic level	4.99	3	1.66	1.65	0.178
Dependence	Academic level	8.44	3	2.82	1.76	0.154
Internal attribution of failure	Academic level	1.62	3	0.54	0.59	0.625
Hostility	Academic level	0.88	3	0.29	0.40	0.756

The table shows statistically significant differences between male and female scores on the overall scale of irrational beliefs (F = 12.99; P = 0.001). The table also indicates that the average female score (3.94) on the overall scale is higher than the average male score (3.68). Furthermore, the table reveals statistically significant differences between male and female scores on the internal attribution of failure dimension (F = 8.85; P = 0.004). The average female score (4.21) on this dimension exceeds the male average (3.93). Additionally, the table shows statistically significant differences between male and female scores on the impulsiveness dimension (F = 17.93; P = 0.001). The average female score (4.10) on this dimension is higher than the male average (3.74). Conversely, the table indicates no statistically significant differences between male and female scores on the dimensions of negative self-evaluation and dependency. Regarding differences in irrational beliefs across academic levels, Table [number] shows no statistically significant differences on the overall irrational beliefs scale or its sub-dimensions attributable to academic year.

6. Discussion

This study aimed to examine the differences between genders and academic years in irrational beliefs among university students. The results indicated that there are differences between males and females in irrational beliefs.

Specifically, females scored higher than males on the total scale of irrational beliefs as well as on the subscales of internal attribution of failure and hostility, suggesting that the level of irrational thinking among females is higher than that of males. Females tend to attribute mistakes or experiences of failure more to themselves, blaming themselves for errors or the negative consequences of their behaviors, even when these outcomes may result from circumstances beyond their control. Additionally, the higher level of hostility among females indicates greater sensitivity to external stimuli compared to males. This reflects that females have a greater need for counseling services than males, especially considering that irrational thinking is positively associated with various psychological disorders and problems.

The current study's findings differ from those of Daly and Burton (1983) and Zwemer and Deffenbacher (1984), Marcotte (1996), and Bridges and Roig (1997), which reported no gender differences in irrational beliefs. This discrepancy may be attributed to cultural factors.

Furthermore, the results indicated no statistically significant differences among academic years in irrational beliefs, suggesting that students' levels of irrational thinking do not change as they progress from one academic year to another. This underscores the necessity of providing counseling services to all students, regardless of their academic level, as they all require such support. These findings are consistent with Marcotte (1996), who found no age-related differences in total scores on irrational thinking scales, and with Bridges and Roig (1997), who reported no differences in irrational thinking attributable to age or academic year.

7. Limitations and Directions for Future Research

The current study was limited to undergraduate students; therefore, future studies may investigate irrational beliefs among students at other academic levels. Furthermore, the current study focused solely on the variable of irrational beliefs and did not explore its relationship to other personality variables; this will be addressed in future research. It is also possible to test the effectiveness of counseling programs aimed at reducing irrational thinking to determine their impact on mental health variables such as depression.

8. Conclusions

Based on the results of this study, we can conclude that cognitive therapy programs aimed at reducing the level of irrational thinking are likely to be more effective for females than for males. Regarding academic years, since no differences were found among students in different years in terms of irrational thinking, counseling programs can be directed to all students who need to modify their cognitive beliefs, regardless of their academic year.

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