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Cognitive restructuring to eliminate irrational ideas in general studies students

Reestructuración cognitiva para eliminar ideas irracionales en estudiantes de estudios generales

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Abstract

This study evaluated the impact of the cognitive-behavioral program "Think Light" on reducing irrational beliefs in undergraduate students at the National University of Trujillo. This program is based on cognitive restructuring and emotional regulation techniques and was implemented using a pre-experimental design with a sample of 45 students. A questionnaire based on Ellis's Rational Emotive Therapy was used to measure outcomes. The data revealed a significant increase in the percentage of students with a low level of irrational beliefs, which increased from 40% to 82%. Likewise, the percentage of students with a medium level of these beliefs decreased from 60% to 18% ($p < 0.05$). Furthermore, significant improvements were observed in three specific dimensions: the need for external approval, demandingness of others, and perception of living conditions. These results demonstrate that the "Think Light" program is effective in reducing dysfunctional thoughts, improving emotional stability, and promoting adaptation to the university environment. Consequently, this research contributes to the achievement of Sustainable Development Goal 4, which seeks to ensure quality education. It also proposes practical psychoeducational strategies that can be applied in university settings to promote students' overall well-being.

Keywords: irrational beliefs, psychoeducational intervention, cognitive restructuring.

Resumen

El presente estudio evaluó el impacto del programa cognitivo-conductual "Piensa Ligero" en la reducción de creencias irracionales en estudiantes de primer ciclo de la Universidad Nacional de Trujillo. Este programa se basa en técnicas de reestructuración cognitiva y regulación emocional, y se aplicó mediante un diseño pre-experimental con una muestra de 45 estudiantes. Para medir los resultados, se utilizó un cuestionario basado en la Terapia Racional Emotiva de Ellis. Los datos revelaron un aumento significativo en el porcentaje de estudiantes con bajo nivel de creencias irracionales, que pasó del 40 % al 82 %. Asimismo, el porcentaje de estudiantes con nivel medio de estas creencias disminuyó del 60 % al 18 % ($p < 0.05$). Además, se observaron mejoras importantes en tres dimensiones específicas: la necesidad de aprobación externa, la exigencia hacia los demás y la percepción de las condiciones de vida. Estos resultados demuestran que el programa "Piensa Ligero" es efectivo para disminuir pensamientos disfuncionales, mejorar la estabilidad emocional y favorecer la adaptación al entorno universitario. En consecuencia, esta investigación contribuye al cumplimiento del Objetivo de Desarrollo Sostenible 4, que busca garantizar una educación de calidad. Asimismo, propone estrategias psicoeducativas prácticas que pueden aplicarse en contextos universitarios para promover el bienestar integral de los estudiantes.

Palabras clave: creencias irracionales, intervención psicoeducativa, reestructuración cognitiva.

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Introduction

Access to higher education represents a fundamental academic milestone for thousands of young people in Peru. Specifically, entering a public university involves undergoing a rigorous preparation process that can last from six to twelve months, during which students face multiple cognitive and emotional demands that impact their psychological well-being and adaptation to the new educational environment.

Since 2018, first-year students at the National University of Trujillo (UNT) have been enrolled in the General Studies phase, in accordance with University Law No. 30220. This period is aimed at developing key competencies in four fundamental areas: Health Sciences, Human Sciences, Basic and Technological Sciences, and Economic Sciences. However, this transitional phase also exposes students to elevated levels of stress, anxiety, and self-imposed demands, which may contribute to the emergence or consolidation of irrational beliefs.

Irrational beliefs, defined as rigid, absolutist thoughts disconnected from reality (Ellis, 1994), generate cognitive distortions that affect emotional regulation, social interaction, and academic performance (Medrano et al., 2010). In this regard, recent studies such as that of Yusefi et al. (2024) demonstrate a significant negative correlation ($r = -0.543$, $p < 0.001$) between irrational beliefs and quality of life, highlighting their direct impact on personal and academic well-being.

From an experimental perspective, current research reinforces this issue. For instance, Maldonado (2023), in a master's thesis at the National University of San Marcos, employed a pre-experimental design and showed that a cognitive-behavioral intervention significantly reduced state-trait anxiety levels in university students with high academic performance.

Similarly, Mendoza (2024), in a quantitative correlational study with first-cycle psychology students at a private university in Huancayo, found a significant positive correlation ($r = 0.412$, $p < 0.01$) between academic anxiety and irrational beliefs, particularly those related to the need for external approval and fear of failure. This result aligns with the work of Turner et al. (2024), who, in a correlational study involving university students in the United Kingdom, analyzed the relationship between irrational beliefs, exam anxiety, and academic self-concept. Through multiple regression and mediation analyses, they demonstrated that a greater presence of dysfunctional beliefs predicts a more negative academic self-perception and increased emotional reactivity.

These findings support the idea that intervening on cognitive schemas—as proposed in this study—can significantly enhance emotional coping in high-stakes evaluative contexts.

At a local level, Gallardo and Hernández (2023), in their undergraduate thesis at a public university in Lima, identified through descriptive statistical analysis that students with higher levels of irrational beliefs also exhibited frequent symptoms of generalized anxiety, adversely affecting their academic performance and emotional well-being. Meanwhile, Peláez and Vivar (2023), through a correlational study with students from a private university in Nuevo Chimbote, demonstrated that the presence of irrational beliefs—particularly those centered on idealizing living conditions—was associated with elevated levels of impulsivity, irritability, and aggressive behaviors.

Together, these studies confirm that irrational beliefs do not operate in isolation; rather, they impact multiple dimensions of academic and emotional well-being, from anxiety and self-concept to aggression and dropout rates. Therefore, the results emphasize the necessity for interventions that directly address the cognitive schemas of university students.

From a theoretical perspective, authors such as Papalia and Feldman (2012) argue that the transition from adolescence to adulthood presents structural challenges that predispose individuals to the crystallization of maladaptive beliefs. In this context, Lega et al. (1997) note that expressions such as "I must be perfect" or "I cannot fail" can generate high levels of anxiety and emotional dysfunction within educational settings.

Based on these empirical findings, the cognitive-behavioral program "Think Light" was designed, grounded in previous interventions based on Rational Emotive Behavior Therapy (REBT), such as those implemented by Maldonado (2023) and Pérez (2024), and adapted to the characteristics of UNT General Studies students. Since irrational beliefs directly affect emotional regulation, academic adaptation, and perceptions of well-being, it is pertinent to intervene at the cognitive structure level, using techniques that modify these dysfunctional schemas.

While literature identifies the relationship between irrational beliefs and emotional distress, systematic interventions that address this issue in a structured manner, particularly among early-stage university students, are scarce. Therefore, this study aims to achieve a statistically significant reduction in irrational beliefs, with the goal of enhancing students' emotional well-being and facilitating a healthy transition to university life.

Unlike approaches focused exclusively on academic performance, this proposal emphasizes modifying cognitive patterns that limit self-regulation and coping with the demands of the university environment.

It is noteworthy that no prior research has reported on the impact of irrational beliefs among General Studies students at UNT. Thus, this study serves as an evaluation of the effectiveness of the "Think Light" program, both in modifying these beliefs and in its influence on emotional balance.

Finally, this proposal relates to Sustainable Development Goal (SDG) No. 4, which promotes quality, inclusive, and equitable education, highlighting the importance of implementing psychoeducational strategies aimed at strengthening mental health. This, in turn, can positively influence students' retention and academic performance in higher education.

Methodology

This study adopts a quantitative approach with a pre-experimental design involving a single group and pre- and post-test measurements. This design allows for the evaluation of the effects of an intervention on the same sample, albeit without the presence of a control group. While this characteristic limits external validity and the ability to generalize results, it is considered an appropriate option for exploring the initial impact of a specific program in a defined context (Ñaupas Paitán et al., 2023).

Furthermore, the research is classified as applied and explanatory, as it addresses a specific issue and seeks to explain the changes resulting from the intervention. The population consisted of first-cycle General Studies students at the National University of Trujillo during 2024. The sample included 45 students, selected through non-probability convenience sampling based on their availability and voluntary participation.

Regarding the instrument, the Irrational Beliefs Questionnaire was used, consisting of 100 items with a Likert scale (never, almost never, sometimes, almost always, always), based on the theoretical categories proposed by Albert Ellis (Calvete & Cardeñoso, 1999). This questionnaire is widely recognized in cognitive psychology studies for its ability to identify dysfunctional schemas.

The intervention involved the implementation of the "Think Light" program, structured into 10 sessions of 60 minutes each. Strategies such as cognitive restructuring, guided self-observation, and emotional regulation were employed, complemented by printed guides, personal logs, and structured reflection exercises.

For statistical analysis, the Student's t-test for related samples was applied (significance level $p < 0.05$) to determine significant differences between pre- and post-test scores. Prior to this, data normality was verified using the Kolmogorov-Smirnov test, ensuring the validity of inferential procedures (Mishra et al., 2019).

In terms of ethical considerations, the following principles were strictly adhered to: obtaining informed consent, preserving anonymity, and ensuring data confidentiality. Inclusion criteria required participants to be active students in the General Studies program and to voluntarily agree to participate in the research; exclusion criteria eliminated those students who completed less than 80% of the sessions.

Among the limitations of the study, the absence of a control group is acknowledged, which restricts the ability to attribute the observed changes exclusively to the intervention. Therefore, it is recommended that future research incorporate a randomized control group and develop a longitudinal follow-up to assess the stability of the changes produced. Additionally, it is important to note that the small sample size and convenience selection limit the generalizability of the results to other university populations.

Results and discussion

The cognitive-behavioral program "Think Light" demonstrated a positive effect on reducing irrational beliefs among first-cycle students at the National University of Trujillo. Comparative data obtained before and after the intervention reveal a significant decrease in the levels of irrational beliefs assessed (see Table 1).

Table 1

Comparison of pre- and post-intervention levels of general irrational beliefs in General Studies Students, UNT, 2024

LEVELS	PRE-TEST		POST-TEST	
	n	%	n	%
Low	18	40 %	37	82 %
Medium	27	60 %	8	18 %
High	0	0 %	0	0 %

Total	**45**	**100 %**	**45**	**100 %**

Source: Results from the application of the irrational ideas scale among students at the National University of Trujillo

Before the implementation of the program, 60% of the students exhibited a medium level of irrational beliefs, while 40% were at a low level. However, following the intervention, the percentage of students at the low level significantly increased to 82%, while the medium level decreased to 18%, with no cases at the high level in either measurement.

These results support the effectiveness of the applied strategies and align with previous studies, such as that of Maldonado (2023), who reported a significant reduction in anxiety levels following a similar intervention. Additionally, improvements in rational thinking are associated with better emotional regulation and greater academic adaptation, as noted by Turner et al. (2024).

Beyond the general analysis, three specific dimensions were examined: "Approval from Others," "Demands on Others," and "Favorable Living Conditions."

Table 02

Pre- and post-intervention levels in the dimension "Approval from Others" in General Studies students at the National University of Trujillo, 2024

LEVELS	**PRE-TEST**		**POST-TEST**	
	n	**%**	**n**	**%**
Low	23	51 %	38	84 %
Medium	21	47 %	7	16 %
High	1	2 %	0	0 %
Total	**45**	**100 %**	**45**	**100 %**

Source: Authors' own elaboration

In the dimension "Approval from Others," the data reveal a significant increase in the low level, which rose from 51% in the pre-test to 84% in the post-test. This variation reflects a considerable decrease in the need for external acceptance, suggesting progress in emotional self-regulation and greater affective autonomy. This finding is supported by the study of Mendoza (2024), who, through a quantitative correlational investigation with first-cycle psychology students at a private university in Huancayo, identified a significant positive correlation between irrational beliefs and academic anxiety ($r = 0.412$, $p < 0.01$). Notably, Mendoza highlighted that the belief "I need everyone to approve of me to feel valuable" was one of the most frequent and dysfunctional. The statistically significant reduction of such beliefs indicates that the "Think Light" program successfully modified core schemas related to self-evaluation dependent on external judgment, thereby fostering a more functional form of emotional self-regulation in demanding academic contexts.

Table 03

Pre- and post-intervention levels in the dimension "Demands on Others" in General Studies students at the National University of Trujillo, 2024

Levels	**Pre-test**		**Post-test**	
	n	**%**	**n**	**%**
Low	25	56 %	39	87 %
Medium	20	44 %	6	13 %
High	0	0 %	0	0 %
Total	**45**	**100 %**	**45**	**100 %**

Source: Authors' own elaboration

In the dimension "Demands on Others," there was an observed increase in the low level, which rose from 56% to 87% following the intervention. This suggests a reduction in the persistence of rigid and normative beliefs regarding the behaviors expected from others. This transformation indicates progress in interpersonal tolerance and acceptance of diverse opinions and behaviors.

These results relate to the findings of Turner et al. (2024), who conducted a cross-sectional quantitative study with 240 university students in the United Kingdom. In their research, they identified that absolutist beliefs—such as "others must always act fairly towards me"—were significantly associated with a negative academic self-concept and high levels of emotional stress.

In comparison, the intervention applied in this study appears to have promoted the flexibilization of those cognitive schemas, facilitating a more realistic and balanced interpretation of social interactions. This reinforces the idea that programs based on cognitive restructuring not only impact self-perception but also enhance the quality of relationships with the immediate environment.

Table 04

Pre- and post-intervention levels in the dimension "Favorable Living Conditions" in General Studies students at the National University of Trujillo, 2024

Levels	Pre-test		Post-test	
	n	%	n	%
Low	30	67 %	40	89 %
Medium	15	33 %	5	11 %
High	0	0 %	0	0 %
Total	**45**	**100 %**	**45**	**100 %**

Source: Authors' own elaboration

In the dimension "Favorable Living Conditions," there was an increase in the low level, which rose from 67% to 89% following the intervention. This change reflects a decrease in the rigid schema that posits that emotional well-being depends solely on external factors, such as success, material comfort, or social approval. Therefore, it suggests a strengthening of the internal locus of control and a more autonomous and realistic view of personal well-being. This interpretation is supported by the study of Peláez and Vivar (2023), who, through a quantitative correlational investigation with university students in Nuevo Chimbote, found that those with a greater presence of irrational beliefs related to the idealization of living conditions also exhibited higher levels of aggression and frustration behaviors. Although this study did not measure behavioral variables, the reduction of such beliefs could prevent dysregulated emotional expressions, such as hostility in response to frustration or dependence on external achievements for emotional balance. Thus, the "Think Light" program not only strengthens rational thinking but also contributes to the development of a more self-sufficient and adaptive perspective in both university and personal life.

The improvement observed in these dimensions can be explained through the ABC model of Rational Emotive Therapy, formulated by Ellis and Grieger (1990). This model posits that dysfunctional emotions do not arise directly from events but from the intermediate and core beliefs that individuals hold. These beliefs, often automatic and generalized, serve as interpretative filters that amplify perceived threats and diminish the sense of control. In this study, students learned to identify and challenge ideas such as "I must be approved by everyone" or "everything must go as I expect for me to be happy," which explains the significant improvement in the dimensions of external approval and perception of living conditions. This transformation involves not only a temporary behavioral change but also a structural modification in the way they interpret their academic experiences.

From this perspective, the intervention based on cognitive restructuring allows students to reinterpret university situations with greater flexibility and realism. This process justifies the increase in the low level across the evaluated dimensions and substantiates the utility of programs like "Think Light" in contexts of academic transition.

Moreover, the statistical analysis using the Student's t-test confirmed significant differences ($p < 0.05$) between pre-test and post-test scores, both globally and by dimension. This result reinforces the study's

hypothesis that cognitive-behavioral intervention produces measurable improvements in maladaptive cognitive schemas.

Finally, the empirical findings highlight the innovative value and applicability of the "Think Light" program, especially due to its comprehensive focus on psychological variables affecting university performance. Unlike programs centered exclusively on academic achievement, this intervention addresses internal factors that limit student well-being, allowing for the design of more effective support strategies from the early stages of university education.

Conclusions

The present scientific evidence confirms the effectiveness of the cognitive-behavioral program "Think Light" as an effective intervention for modifying irrational beliefs in university students undergoing academic transition. Indeed, the significant increase in the low level of the evaluated beliefs, along with the improvements observed in specific dimensions of external approval, demands on others, and perception of living conditions, supports the relevance of such psychoeducational programs in promoting both emotional regulation and university adaptation.

From a methodological standpoint, the Student's t-test revealed statistically significant differences between pre-test and post-test measurements, strengthening the validity of the intervention. Theoretically, these results align with the contributions of authors such as Ellis (1994) and Turner et al. (2024), who emphasize that cognitive restructuring strategies positively impact emotional stability and academic coping.

Additionally, this study reaffirms the need to integrate emotional support programs within student support policies from the outset of university life, especially in contexts where academic performance is affected by dysfunctional cognitive schemas. Similarly, at the institutional level, the results underscore the urgency of incorporating cognitive-behavioral psychoeducational programs into university wellness services, particularly in the public sector, where students often face adverse social conditions. Such interventions could be part of a systematic model for emotional support.

However, it is important to note that the study evaluated the effects of the intervention only at the conclusion of the program, without including follow-ups at medium or long-term. Therefore, it is not possible to ascertain whether the observed improvements are maintained over time, which represents a significant empirical limitation and highlights the need for future longitudinal studies to examine the permanence of cognitive and emotional change. Consequently, it is suggested to integrate these programs with tutoring courses, implementing preventive strategies, individualized follow-up, and semester evaluations of impact.

Finally, in line with Sustainable Development Goal 4, which promotes quality education, this study provides empirical evidence on the importance of fostering inclusive educational environments that consider emotional well-being as a central axis for ensuring sustainable, equitable, and successful academic trajectories.

As a future research direction, it is proposed to conduct studies with quasi-experimental or experimental designs that include a control group, as well as the analysis of complementary variables such as self-esteem, procrastination, or academic anxiety. Additionally, it is recommended to apply the program in other educational institutions to evaluate its replicability and reach.

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