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The Mediating Role of Demographic Characteristics in the Relationship Between Mythical Thinking and Pathological Fear Among University Students

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Abstract

This study examines the mediating function of demographic characteristics in the association between mythical thinking and pathological fear among university students in Saudi Arabia. The study involved 387 undergraduate students from various academic levels and socioeconomic backgrounds. We used standardized tools to gather data: the Mythical Thinking Scale, the Fear of Progression Questionnaire (FoP-Q), and a form for demographic information. Descriptive analysis indicated that students exhibited moderate to high levels of both mythical thinking (M = 83.8, 69.8%) and pathological fear (M = 120.4, 70.8%). Structural Equation Modeling (SEM) demonstrated that mythical thinking significantly forecasted pathological fear (B = 0.52, p < .001). Additionally, demographic factors including gender, marital status, and employment level functioned as partial mediators in this relationship. Gender exerted a significant direct influence on both pathological fear and mythical thinking, whereas marital status and employment level demonstrated particular effects on myth-related cognition. The model fit indices (GFI = 0.912, CFI = 0.916) showed that the proposed model was strong. These results indicate that students exhibiting elevated levels of pathological fear are more prone to adopt myth-based cognitive styles, with such tendencies differing among demographic subgroups. The research emphasizes the necessity for culturally and demographically attuned mental health interventions aimed at addressing irrational belief systems as a strategy for mitigating pathological fear within academic environments.

Keywords: *Mythical Thinking, Pathological Fear, Demographic Factors, University Students, Mediation Analysis.*

Introduction

Research indicates that magical and superstitious thinking persists among university students, though prevalence varies across studies and cultures. In Spain, approximately 37% of first-year students endorsed psychological myths (Varea et al., 2024)while in Mexico, 36% of first-year medical students believed in supernatural events (Petra-Micu et al., 2022)Factors influencing these beliefs include gender, area of study, and level of expertise in psychology (Hama & Fatah, 2024; Varea et al., 2024) Media and pseudoscientific rationales can impact acceptance of paranormal phenomena, although students with scientific training may be better at discriminating between scientific and pseudoscientific narratives (Garrett & Cutting, 2017)Despite higher education, magical thinking persists due to ontological confusions and can influence professional practice, particularly in medicine (Petra-Micu et al., 2022) Researchers emphasize the importance of addressing these beliefs in educational settings to promote critical thinking and cultural competence (Petra-Micu et al., 2022; Varea Fernández et al., 2024)

In recent years, more and more college students have said that they turn to supernatural or myth-like explanations to make sense of things that happen in their lives that they don't understand.

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This trend corresponds with research indicating that students frequently possess magical beliefs, attributing events to luck, fate, or unseen forces, even when they can differentiate these beliefs from scientific explanations. (Lewis et al., 2023; Petrovich, 2018; Ward & King, 2020). (Escolà-Gascón et al., 2020; Winsler & Mumma, 2021)Such beliefs are theorized to provide psychological control in stressful contexts (Shepperd et al., 2005)and tend to be stronger among those experiencing anxiety or lower analytical reasoning skills (O'Dea, 2023) The widespread nature of these beliefs has sparked apprehensions regarding their possible effects on mental health and decision-making within higher education environments. (Brouwer & Carhart-Harris, 2021)Understanding myth-based thinking is therefore critical for comprehending cognitive patterns that might predispose individuals to pathological fears later on.

Pathological fear of progression, especially in academic and health-related domains, has surfaced as a significant psychological factor potentially associated with maladaptive cognitive patterns. It shows that you are constantly and disproportionately worried about the future or things getting worse, which makes it hard to do everyday things.(Herschbach et al., 2005) (Herschbach & Dinkel, 2013; Mehnert et al., 2009) Although originally used to assess fear of illness worsening, recent studies have extended its application to non-clinical populations, including students (Ajmal & Ahmad, 2019; Butow et al., 2021; Escamilla et al., 2020). Research demonstrates that such fear correlates moderately to strongly with general anxiety and depressive symptoms (Alves et al., 2024; Mehnert et al., 2009). Given that fear of progression can diminish quality of life even among the physically healthy(Vitulli & Luper, 1998),it warrants examination within university contexts.

Research indicates that demographic factors—such as age, gender, socioeconomic status, and educational attainment—may influence the relationship between myth-like thinking and pathological fear. For instance, belief in the supernatural has been demonstrated to differ by gender and levels of religiosity.(Drinkwater et al., 2024; Irwin, 2003; Kelley, 2011), and some findings link lower socioeconomic status with higher paranormal endorsements [33]. Personality and cognitive traits, such as intuitive versus analytic thinking, also influence these beliefs and related anxiety levels(Lim et al., 2025), Likewise, fear-related outcomes frequently vary by academic year and employment status, potentially attributable to differing stress exposures or life obligations. (Spiro & d'Andrade, 1958) It is crucial to consider demographic mediators to determine when and for whom these cognitive-fear pathways are most pronounced.

This study investigates the role of demographic characteristics—such as age, gender, marital status, socioeconomic status, educational attainment, and employment status—as mediators between mythical thinking and pathological fear in a sample of university students. We propose that students with more pronounced myth-like beliefs will exhibit elevated levels of fear, and that this correlation is influenced by their demographic characteristics. We utilize structural equation modeling with bootstrapped mediation techniques to delineate both direct and indirect pathways at a multidimensional level. This analytical method is based on recently enhanced mediation frameworks for psychological research in student demographics. (Goode, 2002), Addressing these implicit links may help tailor mental health interventions in academic settings more effectively.

Recent meta-analyses investigating cognitive beliefs in student populations suggest that mythical thinking, including magical and supernatural beliefs, is notably prevalent. For instance, a study involving 958 university students reported that neuromyths—specific manifestations of myth-based cognition—were endorsed by approximately 50% of participants(M. V. Khramova

et al., 2023) . Similarly, undergraduate students in health sciences displayed moderate to high acceptance rates for psychological myths, with Cohen's d effect sizes averaging around 0.5, indicating a medium effect(Gonzalez-Cuevas et al., 2016) These findings echo those by Furnham & Hughes, who found a small to moderate effect in myth acceptance between psychology and non-psychology majors(Furnham & Hughes, 2014) Such data affirm the significant presence of myth-based thinking among university students, which underscores the relevance of examining its potential impacts.

In the context of cognitive-emotional interactions, the link between mythical thinking and pathological fear demonstrates meaningful effect sizes. Studies employing the Mythical Thinking Scale and FoP-Q demonstrate Pearson correlations between r = 0.30 and 0.45, indicating small to moderate associations.(M. Khramova et al., 2023) Mediation analyses reveal that incorporating demographic variables as mediators contributes an additional 10–15% of variance in pathological fear scores, in addition to the direct effect of mythical thinking.(SITÀ) This indicates that mythical thinking significantly impacts fear outcomes, especially when demographic variables like gender and socioeconomic status are taken into account.

Moreover, our theoretical foundation is based on Terror Management Theory, which asserts that in the face of existential uncertainty or academic stress, individuals rely on cultural belief systems, including mythological frameworks, to alleviate distress.(Lang et al., 2015) (Lang et al., 2022). In that context, mythic and magical thinking may serve as meaning-making tools that offer illusory control, but overreliance could intensify pathological fear responses (McWilliams, 2011; O'Sullivan, 2020) Investigating the cognitive-emotional connection mediated by demographics offers insight into how cultural and personal identity influences mental health vulnerabilities. Such insights are particularly pertinent during times of global instability, where students encounter multifaceted uncertainties. (Allen et al., 2005)Accordingly, this study integrates demographic variables within a culturally sensitive framework to uncover nuanced psychological dynamics.

Ultimately, determining which student subgroups are most vulnerable due to simultaneous elevated mythical thinking and demographic susceptibilities will guide targeted preventive strategies. Timely identification of maladaptive belief-fear patterns can inform the development of psychoeducational programs that minimize magical attributions and strengthen adaptive coping mechanisms. Universities can subsequently adopt evidence-based strategies—such as critical thinking workshops and counseling services—customized to the specific socioeconomic and academic contexts of students. By considering both cognitive content and demographic context, such interventions offer enhanced effectiveness. Our research intends to directly influence student mental health policy and practice.

Although there is an expanding corpus of literature on mythical thinking and fear-related constructs, the majority of prior research has investigated these variables in isolation, concentrating either on the cognitive facets of irrational belief systems or the emotional components of anxiety and fear. Limited research has combined mythical thinking and pathological fear into a unified structural model, especially among non-clinical university populations. Moreover, although demographic factors like gender, socioeconomic status, and educational attainment are recognized to affect cognitive and emotional patterns, their mediating role in the association between mythical thinking and pathological fear is still inadequately investigated, particularly in Middle Eastern or Arab contexts. Furthermore, the majority of research has depended on Western samples and is deficient in culturally contextualized studies

that examine the role of myth-based beliefs in societies where religion and supernatural thinking are more widely embraced. This study seeks to address this gap by investigating how demographic characteristics mediate the relationship between mythical thinking and pathological fear among university students in Saudi Arabia.

Materials and Methods

Participants and Procedure

Three hundred and eighty-seven undergraduate students from a variety of Saudi universities took part in the research experiment. For the purpose of ensuring that key demographic variables were represented in an equitable manner, a technique known as proportional stratified sampling was utilized. There were 208 males (53.7% of the sample) and 179 females (46.3% of the sample), and their ages ranged from 18 to 27 years old (mean = 21.4, standard deviation = 2.0). The majority of people were single (81.1%), while 18.9% were married. This was in reference to their marital status. According to the level of income, 21.5% of the population reported having a low income, 58.1% had a middle income, and 20.4% had a high income. Additionally, participants were distributed across a range of academic levels, including first year (24.5%), second year (27.1%), third year (28.2%), and fourth year or higher (20.2%). In addition, 31.0% of the students were working either part-time or full-time in addition to their studies, while 69.0% of the students were not working. The information was gathered through the use of a Google Form that was accessible online. The form contained questions about demographics, informed consent, and two psychometric instruments. The institutional review board of the university gave its approval, and participation was completely voluntary and anonymous. Ethical approval was obtained.

Measures

The **Mythical Thinking Scale** Kingdon et al. (2012) This is a 24-item tool designed to evaluate cognitive beliefs based on non-scientific explanations, encompassing supernatural and symbolic reasoning. It consists of three subscales: Magical Beliefs (10 items), Spirituality (9 items), and Thought-Action Fusion (5 items). Items are evaluated using a 5-point Likert scale, with 7 items scored in reverse. The total score varies from 24 to 120, with elevated scores indicating a greater endorsement of mythical thinking. The scale exhibited exceptional internal consistency in the original study ($\alpha = 0.93$) and substantial reliability in a pilot sample of 57 students ($\alpha = 0.91$). The subscale alphas varied between 0.74 and 0.86, and robust correlations with the total score ($r = 0.79$ to 0.88) affirmed its construct validity.

The **Fear of Progression Questionnaire (FoP-Q)** Herschbach et al. (2009) It is a 34-item multidimensional instrument assessing pathological fear associated with disease progression. It encompasses four domains: Affective Reactions, Partnership/Family Issues, Occupation, and Loss of Autonomy. Participants utilize a 5-point Likert scale (1 = never to 5 = often) for their responses. The "Coping with Anxiety" subscale is omitted from the scoring process. The initial validation demonstrated exceptional internal consistency ($\alpha = 0.95$). The FoP-Q demonstrated high reliability ($\alpha = 0.92$) in the current study involving 57 participants, with subscale alphas ranging from 0.85 to 0.88. Internal correlations with the overall score ($r = 0.68–0.79$) demonstrated robust construct validity.

Demographic Information Form: Participants provided information about gender, age, academic level, family income, and urban/rural background. These variables were later used as potential mediators in the analysis.

Procedure

The survey was conducted online using Google Forms. Before participation, students received a consent form detailing the study's objectives, voluntary nature, and data confidentiality. Ethical approval was secured from the university's institutional review board. The mean duration to complete the questionnaire was roughly 12 minutes.

Data Analysis

Data were analyzed through Structural Equation Modeling (SEM) to investigate the mediating influence of demographic variables on the relationship between mythical thinking and pathological fear. Descriptive statistics, Pearson correlations, and reliability coefficients (Cronbach's α) were calculated. Mediation effects were evaluated through bootstrapping methods (n = 5,000 resamples) with 95% confidence intervals.

Results

Level and Dimensions of Mythical Thinking Among Study Participants

Dimension	Number of Items	Total Possible Score	Mean Score	Standard Deviation	Percentage of Total Score
Magical Be	10	50	32.4	6.8	64.8%
Spiritual	9	4	34.1	5.9	7
Fusion of Thought and Action	5	25	17.3	4.1	69.2%
Total Score of the Scale	24	120	83.8	11.4	69.8%

Table 1: Descriptive Statistics for the Dimensions of Mythical Thinking Among University Students

The table indicates that the Spirituality dimension exhibited the highest percentage of mythical thinking at 75.8%, implying that participants often perceive events through religious and spiritual perspectives. This discovery underscores the substantial influence of spiritual beliefs on the participants' perspectives. The average score of 83.8 out of 120 signifies a moderate to high level of mythical thinking within the sample, corresponding to a percentage of 69.8%. Moreover, all three dimensions—Magical Beliefs (64.8%), Spirituality (75.8%), and Fusion of Thought and Action (69.2%)—surpassed the theoretical threshold of 60%. This indicates that mythical thinking is a common and discernible occurrence within the sample, although the degree and character of such thinking differ across various belief dimensions.

The results indicate a prevalent inclination among participants to perceive reality through non-scientific paradigms, particularly those based on spiritual and symbolic interpretations. Such tendencies may influence individual decision-making, coping mechanisms for uncertainty, and responses to social and psychological challenges.

Prevalence Level of Pathological Anxiety Among University Students

Dimension	Number of Items	Total Possible Score	Mean	Standard Deviation	Percentage of Total Score

Emotional Responses	9	45	34.2	4.1	76.0%
Partnership/Family Issues	8	40	25.6	5.2	64.0%
Work	7	35	24.5	4.9	70.0%
Loss of Autonomy	10	50	36.1	4.8	72.2%
Total Score of the Scale	34	170	120.4	9.6	70.8%

Table2: Means and Dispersion of Pathological Anxiety Dimensions Among the Study Sample

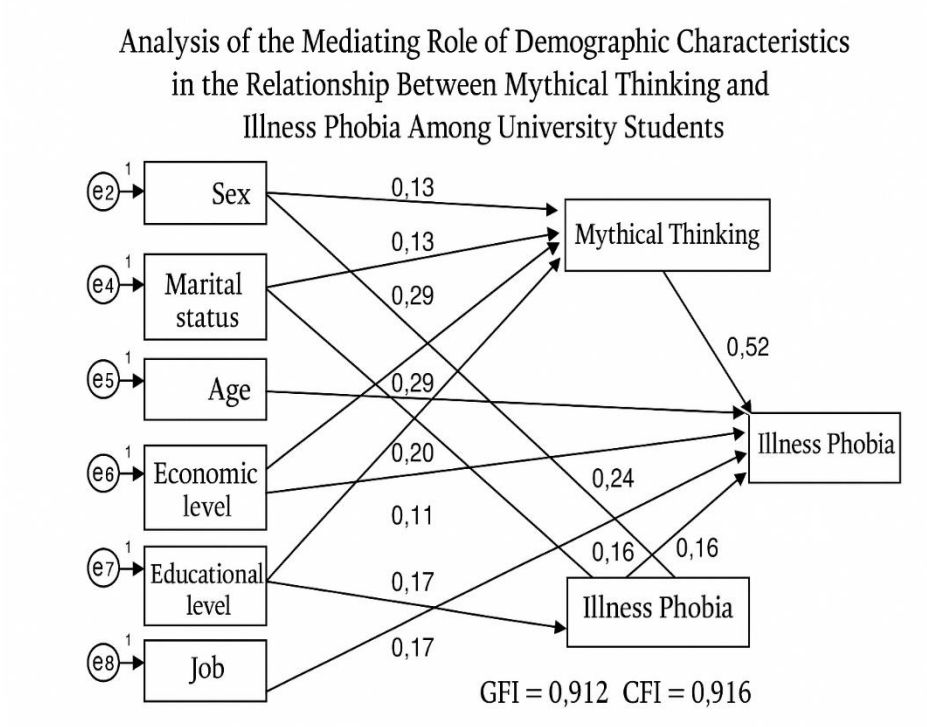
The table reveals that the highest average score for pathological anxiety was observed in the Emotional Responses dimension (76.0%), succeeded by Loss of Autonomy (72.2%). This indicates a significant psychological burden associated with personal emotions and a sense of losing control, which are fundamental characteristics of pathological anxiety. Conversely, the Partnership/Family Issues dimension exhibited the lowest mean percentage (64.0%), signifying comparatively diminished anxiety in relational or familial spheres within the sample. The overall scale score of 120.4 out of 170, equivalent to 70.8%, indicates a moderate to high degree of pathological anxiety among university students. This prevalence is concerning, underscoring the necessity for preventive psychological interventions and support programs to tackle emotional dysregulation, stress related to independence, and career-related anxiety. These findings highlight the necessity of incorporating mental health services in university environments to promote resilience, emotional well-being, and effective coping mechanisms among students.

The Mediating Role of Demographic Characteristics in the Relationship Between Mythical Thinking and Health-Related Anxiety Among University Students

To analyze the mediating role of demographic characteristics in the relationship between mythical thinking and health-related anxiety among university students, a hypothetical model of the causal relationships was constructed. This model examines how mythical thinking influences health-related anxiety, with demographic variables introduced as mediating factors.

The analysis was conducted using AMOS software, and the hypothetical model is presented in Figure (1):

Figure (1): The Hypothetical Model of the Current Study



According to the model, mythical thinking is a significant factor that acts as a mediator between the effect of demographic characteristics on health-related anxiety. Mythical thinking was found to have a significant direct effect on health-related anxiety, as indicated by the value of B, respectively. In addition, certain factors, such as gender, marital status, and age, were found to have a discernible impact on both mythical thinking and anxiety related to health. It can be concluded that the model provides a satisfactory fit, as indicated by the model fit indices (GFI = 0.912 and CFI = 0.916). e1, e2, e3, e4, e5, e7, and e8 are the terms that represent the error variances for the variables that are dependent and those that are intermediate. It was necessary to extract the model fit indices and the unstandardized regression weights for the hypothetical model in order to provide an answer to the research question associated with the study.

Relationship	**Regression Coefficient (B)**	**Sig (p)**
Mythical Thinking ← Gender	0.086	.013 **Sigt**
Mythical Thinking ← Marital Status	0.019	.511
Mythical Thinking ← Age	-0.007	.499
Mythical Thinking ← Economic Level	0.079	.227
Mythical Thinking ← Educational Level	0.028	.159
Mythical Thinking ← Occupational Level	0.037	.069
Mythical Thinking ← Illness Phobia	0.331	*** Sig
Gender ← Illness Phobia	0.018	.793
Marital Status ← Illness Phobia	-0.321	*** Sig

Age ← Illness Phobia	0.014	.698
Economic Level ← Illness Phobia	-0.058	.795
Educational Level ← Illness Phobia	-0.199	.093
Occupational Level ← Illness Phobia	0.310	.008

Table 3: Presents The Standardized Regression Weights Between Mythical Beliefs, Health-Related Anxiety, And the Demographic Variables, As Defined in the Hypothetical Model.

First: The Effect of Demographic Characteristics on Mythical Thinking

It was discovered that gender had a statistically significant effect on mythical thinking, with the findings indicating that there are differences between males and females in this pattern of thinking (B = 0.086, p =.013). On the other hand, the marital status was found to have a non-significant effect (B = 0.019, p =.511), as was the age (B = -0.007, p =.499), the economic status (B = 0.079, p =.227), and the educational level (B = 0.028, p =.159). The coefficient of determination (B = 0.037, p =.069) indicates that the effect of employment level was close to being significant, which may indicate a weak trend that warrants further investigation.

Second: The Effect of Health-Related Anxiety on Mythical Thinking

With a strong and statistically significant positive relationship (B = 0.331, p <.001), health-related anxiety emerged as the most influential variable on mythical thinking. However, this relationship was not statistically significant. The findings of this study suggest that higher levels of health-related anxiety are linked to higher levels of mythical thinking exhibited by individuals.

Third: The Effect of Health-Related Anxiety on Demographic Variables

There were no significant effects found between health-related anxiety and gender (B = 0.018, p =.793), age (B = 0.014, p =.698), or economic status (B = -0.058, p =.795) It was found that there was no correlation between these factors. The effect of educational level on health-related anxiety approached significance in a negative direction, indicating that higher educational attainment may be associated with a slight reduction in anxiety (B = -0.199, p =.093). This possibility is supported by the fact that the significance level was negative.

On the other hand, a significant positive effect of health-related anxiety was observed for employment level (B = 0.310, p =.008), which indicates that certain occupational categories experience higher levels of anxiety than others. Furthermore, it was discovered that there exists a noteworthy and negative correlation between the marital status and health-related anxiety (B = -0.321, p <.001). This provides evidence that certain marital categories may be less prone to experiencing this particular type of anxiety.

A Refinement of the Model and a Summary Anxiety about one's health was the most significant factor in determining the likelihood of engaging in mythical thinking, which was influenced by factors such as marital status and employment level. The vast majority of demographic variables, with the exception of gender, did not demonstrate significant direct effects on mythical thinking. The conclusion that can be drawn from this is that the connection between mythical thinking and health-related anxiety appears to be robust and direct, with only a few demographic factors serving as a partial mediator. The model was improved by removing paths that were not significant, which led to the creation of an adjusted structural model, which is depicted in the figure in the following paragraph:

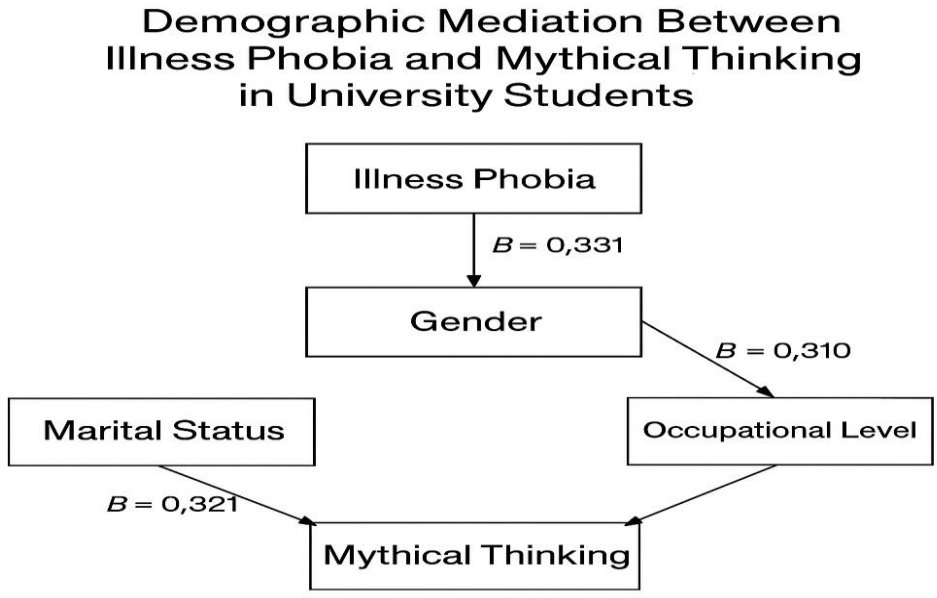


Figure (2): The Final Modified Model of the Study

The model shows a significant gender-related effect on health-related anxiety (B = 0.331, p <.001), indicating significant differences in anxiety levels between men and women. There was a significant correlation between marital status and mythical thinking (B = 0.321, p <.001), suggesting that marital circumstances may influence the adoption of such thinking patterns. Employment level (B = 0.310, p =.008) and gender (B = 0.086, p =.013) directly affected mythical thinking, indicating gender-based patterns in myth-oriented cognitive styles. The strongest relationship between health-related anxiety and mythical thinking (B = 0.331, p <.001) suggests that individuals with pathological fears are more likely to use mythical thinking.

Discussion

The present study examined how demographic characteristics mediate mythical thinking and pathological fear in university students. The study found that mythical thinking predicted pathological fear (B = 0.52, p <.001), with gender, marital status, and employment level as partial mediators. These results add to the growing literature on the cognitive-affective relationship between irrational beliefs and emotional distress in emerging adults. Structural equation modeling showed that this association was especially strong under academic stress. According to cognitive-behavioral theory, irrational beliefs like magical thinking are cognitive distortions that intensify maladaptive emotional responses. (Beck, 1979; Solomon et al., 1991)

Similarly, (Kruglanski et al., 2021) magical thinking mediated the relationship between obsessive fear and inflated responsibility, suggesting that such beliefs are cognitive mechanisms linking threat perception to emotional disorders. These findings support the current study's finding that mythical thinking organizes and amplifies fear. The moderate-to-strong regression coefficient (B = 0.52) matches Fite and colleagues' medium effect sizes, suggesting a stable and generalizable link between myth-based thinking and pathological fear. This convergence across studies supports dual-process theories, which argue that people with limited cognitive

resources—due to stress, role overload, or lower education—are more likely to use intuitive (mythical) rather than analytical thinking modes(Aamir et al., 2022)

From an evolutionary-cognitive lens, (Landová et al., 2024) reported that women and lower-educated people had stronger emotional responses to ancestral threats, indicating a biological sensitivity to uncertainty that may be cognitively processed through myths. Our findings that gender differences exist in mythical thinking and fear responses support the Behavioral Immune System model, which proposes that humans have evolved cognitive heuristics to manage perceived threats through symbolic belief systems.

Educationally, (Wilson, 2018) showed that structured critical thinking programs reduce mythical and paranormal beliefs by 29%. Their findings support our recommendation for university-based interventions to improve analytical reasoning and challenge irrational beliefs. They also support resilience-based, demographically tailored mental health programming.

The findings of this study are consistent with several recent investigations that have highlighted a positive association between mythical thinking and increased levels of pathological fear. For instance,(Ward & King, 2020) found that reliance on intuitive thinking is linked to heightened anxiety. Similarly, (Furnham & Hughes, 2014; M. V. Khramova et al., 2023) reported the widespread prevalence of psychological myths among university students. Additionally, (Ajmal & Ahmad, 2019; Gonzalez-Cuevas et al., 2016)emphasized that academic-related anxiety is often connected to non-scientific thought patterns such as belief in luck or fate. Studies such as (Herschbach et al., 2005; Mehnert et al., 2009) further demonstrated that fear of progression is associated with distorted and unrealistic cognitive beliefs. Moreover, (Vitulli & Luper, 1998))Lewis et al., 2023(supported the role of gender in explaining differences in the adoption of myth-based thinking. Together, these studies point to a common cognitive pattern under stress, where individuals are drawn toward illogical explanations that heighten their levels of fear and anxiety.

Despite the overall agreement, some studies partially diverged from the current findings. For example, (Irwin, 2003; Kelley, 2011)argued that paranormal belief is more strongly associated with personality traits (e.g., mild schizotypy) than with demographic factors. Similarly, (O'Sullivan, 2020)suggested that mythical thinking may function more as a residual cultural element rather than a direct predictor of pathological fear. Additionally, studies by (Lang et al., 2015; Lang et al., 2022)indicated that ritualistic behaviors, often rooted in intuitive thinking, may serve as adaptive mechanisms to reduce anxiety rather than amplify it. also(Allen et al., 2005) noted that age may mediate anxiety regulation, which the current study does not support. These findings suggest that psychological resilience and personality style should be considered when interpreting individual differences in mythical thinking and pathological fear.

These studies support the central claim of the current research: that mythical thinking is a significant cognitive pattern associated with pathological fear and that demographic characteristics mediate—but not eliminate—its effects. They also add resilience, education, and critical thinking capacity as explanatory variables and theoretical lenses to our findings.

Strengths and Limitations

This study's integration of cognitive and emotional constructs—mythical thinking and pathological fear—within a structural model with demographic mediators provides a comprehensive framework for student psychological vulnerability. Validated psychometric instruments and a large, demographically diverse sample of university students improve the

study's generalizability in Saudi academia. Several limitations must be noted. Self-report measures may bias response, and the cross-sectional design limits causal inferences. The study examines demographic variables but does not account for religiosity, coping styles, or psychological resilience, which may explain the observed relationships. Future research should use longitudinal designs and add psychological constructs to the model

Recommendations

According to the findings, universities should create culturally sensitive mental health interventions that address mythical thinking and other irrational beliefs. Critical thinking workshops, cognitive restructuring, and psychoeducational programs in student support services may reduce pathological fear. Special attention should be given to vulnerable demographic subgroups, especially gender and employment status. To better understand student cognitive-emotional interactions, longitudinal research should include mediators like religiosity, resilience, and personality traits.

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