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Who Bears the Burden? Demographic Variations in Research Anxiety among Research Scholars

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Abstract:
Doctoral research is widely regarded as a cornerstone of knowledge creation; however, the psychological challenges embedded within the research journey have received limited scholarly attention, particularly within the Indian higher education landscape. The present investigation examines research anxiety among doctoral scholars, with a focused analysis of the influence of gender and type of university (central and state) on its various dimensions. Employing a survey design, data were collected from 250 doctoral research scholars enrolled in central and state universities. A stratified sampling technique was used to ensure representation across gender and type of university. Research anxiety was measured using a investigators developed structured scale encompassing five dimensions: research self-efficacy, methodological competence anxiety, publish or perish anxiety, timeline anxiety, and supervisor anxiety. Independent samples t-test were employed to analyse group differences. The findings reveal significant variations in selected dimensions of research anxiety across gender and university type. Male scholars reported higher levels of anxiety related to research timeline anxiety, publish or perish anxiety, and supervisor anxiety, while no significant gender differences were observed in research self-efficacy and methodological competence anxiety. Scholars from central universities demonstrated significantly higher research self-efficacy, research timeline anxiety, and methodological competence anxiety compared to their counterparts from state universities; however, no significant institutional differences were found in publish or perish anxiety and supervisor anxiety. The study highlights the multidimensional nature of research anxiety and underscores the role of institutional structures and demographic factors in shaping doctoral research experiences. The findings emphasize the need for targeted academic support, effective supervision, and context-sensitive interventions to promote the psychological well-being and research productivity of doctoral scholars.

Keywords: Research anxiety; Research scholars; Research self-efficacy; Methodological competence anxiety; Publish or perish anxiety; Research timeline anxiety; Supervisor anxiety

Introduction:

Transitioning into higher education represents a significant turning point in a student's life (Tan et al., 2023). This period brings with it a range of responsibilities, from academic performance and extracurricular engagement to managing finances, personal relationships, and sometimes event part-time employment (Schmidt & Lockwood, 2017; Creed et al., 2015; Dyson & Renk, 2006). Navigating these diverse demands requires students to adapt effectively and maintain a healthy balance between academic and personal spheres in order to cope with everyday pressures and expectations (Dyson & Renk, 2006). Despite the developmental opportunities, university life is

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frequently accompanied by heightened vulnerability to mental health challenges, including anxiety, depression, sleep disturbances, and eating-related concerns (Wang & Liu, 2022; Cuttilan et al., 2016; Tavolacci et al., 2015; Gaultney, 2010). Majority of the suicides (37.8%) in India are by those below the age of 30 years (Vijayakumar, 2010). It is estimated that approximately one in seven people in India experiences some form of mental health challenge, which corresponds to nearly 15% of the country's total population (Hossain & Purohit, 2019). Mental health problems among graduate students in doctoral degree programs have received increasing attention (Woolston., 2018). Research is vital for long-term cultural, social, and economic progress, which depends on a strong research framework (Recto, 2021), it is a significant cause of stress for students. In higher education, research anxiety is a common issue (Ashrafi-ziri et al., 2014) and a key factor influencing how well students perform academically (Vitasari et al., 2010).

Anxiety is a more internal reaction of persistent, excessive worry that can linger even without a clear cause (American Psychological Association, 2022). While anxiety can serve an adaptive function by enabling individuals to prepare for and respond to stressful or challenging situations (Muthusamy et al., 2022), prolonged or disproportionate anxiety can adversely affect psychological functioning and academic engagement. Within academic contexts, research anxiety has emerged as a distinct phenomenon, referring to sustained fear, apprehension, and discomfort experienced during the research process. This form of anxiety is commonly associated with limited confidence in conducting independent research, mastering methodological procedures, academic writing, and successfully defending scholarly work (Henderson, 2023; Gupta & Singh, 2020). Empirical studies identify multiple sources of research anxiety, including difficulties in formulating research questions, conducting comprehensive literature reviews, inadequate writing proficiency, and insufficient knowledge of statistical analysis (Matook, 2020). Institutional conditions such as academic environments that prioritise teaching over research, constrained timelines, limited mentoring, and weak grounding in research principles - further intensify these anxieties (Assar et al., 2022; Kiyimba et al., 2022). Additionally, the perceived complexity of research tasks, heavy coursework demands, and limited prior research experience have been identified as key contributors to heightened research anxiety among graduate students (Oguan Jr et al., 2014).

Evidence consistently suggests that doctoral candidates constitute a psychologically vulnerable population due to sustained workloads, performance pressures, and high academic expectations (Forrester, 2021; Woolston, 2017). Clinically significant symptoms of anxiety and depression have been reported in approximately 17% and 24% of doctoral students, respectively, alongside concerning levels of suicidal ideation (Satinsky et al., 2021; Stubb et al., 2021). Comparative findings further indicate higher prevalence of psychological distress among doctoral candidates (34.3%) relative to master's students (29.2%) (Chi et al., 2023). Approximately one-fifth of doctoral students report moderate-to-severe anxiety, with strong research self-efficacy and supportive mentoring relationships functioning as protective factors (Gu et al., 2019). Moreover, demographic variables such as gender, age, and enrolment status have been shown to significantly influence anxiety levels, with female doctoral scholars often reporting higher anxiety than their male counterparts (Li et al., 2025). Psychological factors including imposter syndrome, loneliness, and perfectionism have also emerged as robust predictors of anxiety among PhD students (Levecque et al., 2017).

Although international studies have increasingly acknowledged the prevalence of psychological distress and research-related anxiety among doctoral scholars (Bergvall et al., 2025; Kumar et al., 2025; Chi et al., 2023; Liu et al., 2019), existing studies remain limited in several critical respects. Much of the available literature treats research anxiety as a unidimensional construct or subsumes it within general academic stress, thereby overlooking its multidimensional nature and the distinct ways in which different anxiety dimensions - such as research self-efficacy, methodological competence, publish or perish anxiety, research timeline anxiety, and supervisor anxiety interact with doctoral experiences. 80% of PhD students reported experiencing anxiety or related mental health concerns, and 60% admitted to contemplating dropping out of their programs (Singh, 2024). Other cases, such as reported incidents of mental harassment of doctoral scholars, highlight the role of institutional and supervisory factors in exacerbating anxiety and attrition (Chakraborty, 2024). Moreover, the covid-19 pandemic intensified challenges for Indian research scholars, with fellowship delays, disrupted research timelines, and uncertainties around completion contributing to heightened anxiety (Kumar & Sahu, 2022). Research scholars often report elevated stress connected to their academic work, home life, individual personalities, and psychological pressures (Sivagami & Sugasini, 2020). Existing studies tend to focus on prevalence or general psychological distress without systematically examining demographic differences through robust statistical approaches. However, no study has undertaken a systematic synthesis of the evidence in this domain. The gap is even more pronounced: while surveys and anecdotal reports highlight the severity of the issue, few empirical studies have rigorously analyzed how demographic factors shape anxiety among PhD scholars, particularly within Indian universities. This investigation is framed by the following research questions:

- RQ1. Do male and female doctoral research scholars differ significantly in their levels of research anxiety across its various dimensions?
- RQ2. Is there a significant difference in dimensions of research anxiety among doctoral research scholars enrolled in central universities and those enrolled in state universities?

Theoretical Framework:

Research Self-Efficacy: Rooted in his social learning theory, self-efficacy is defined as an individual's conviction in their capacity to perform the actions required for a desired outcome (Bandura, 1997). Research self-efficacy is a researcher's belief in their own research capabilities (Forester et al., 2004; Kahn & Scott, 1997). For Ph.D. students, higher research self-efficacy is linked to greater research interest and knowledge (Lambie et al., 2014) but lower levels of depression and anxiety (Liu et al., 2019). Female students reported higher levels of academic stress than their male counterparts in research on academic self-efficacy (Pai & Sekhar P. M., 2023).

Methodological Competence Anxiety: Interestingly there is very limited empirical examination of the issue of research methods anxiety among university students, globally (Papanastasiou & Zembylas, 2008). Studies confirm that many students hold negative views and experience anxiety toward courses on research methodology (Gredig & Bartelsen-Raemy, 2018; Einbinder, 2014; Papanastasiou & Zembylas, 2008; Papanastasiou, 2005). The anxiety students feel when facing this subject matter has been strongly correlated with their personal attitude, perceived research usefulness, self-efficacy, and academic effort (Maharajan et al., 2017; Ashrafi-Rizi et al., 2015; Iovu et al., 2015; Li, 2012).

Publish or Perish Anxiety: Scholars in academia frequently compete for professional appointments, publications, research grants, personal prestige, and scholarly influence (Ogbonna & Harris, 2004). The "publish or perish" culture creates a highly competitive environment for research scholars, as success is primarily measured by publication and citation counts. This escalating pressure to publish is well-documented across diverse fields, including demography (van Dalen & Henkens, 2012), medicine (Tijdink et al., 2013), and bioethics (Eriksson & Helgesson, 2017). This competition is further intensified by demands to publish in high-impact journals, acquire large grants, and navigate a culture of constant evaluation (Mantler et al., 2021; Flatt et al., 2017). The demand to publish in high-impact journals can lead to significant mental health stress, including anxiety, impostor syndrome, and burnout (S, 2025).

Research Timeline Anxiety: A student's ability to manage time effectively plays a vital role in their success at university (Mohamed et al., 2018). Research has demonstrated a significant link between time management and academic achievement among higher secondary students (Cyril, 2015). Strong time management is directly linked to higher academic grades, making it a key factor in student productivity and success (Britton & Tesser, 2013).

Supervisor Anxiety: Supervisor support, encompassing both instrumental and emotional aid, is linked to higher scientific research efficacy and lower anxiety among graduate students (Ma et al., 2024). The rapid, worldwide expansion and internationalization of graduate programs over the past 30 years have created significant challenges for maintaining high-quality research supervision (Gruzdev et al., 2020). In supervisory relationships, positive emotions help build motivation, trust, and academic success. An emotional disconnect can harm both a student's progress and the relationship itself (Han & Jin, 2025).

Methodology:

The present investigation adopted a descriptive survey design to examine variations in research anxiety among doctoral research scholars. A sample of 250 research scholars were drawn from various universities of Uttar Pradesh. The study adopted a stratified sampling technique to ensure adequate representation of key demographic subgroups relevant to research anxiety. The population of doctoral research scholars was first divided into meaningful strata based on predetermined characteristics, namely: gender (male and female) and type of university (central university and state university). Stratification minimized sampling bias, enhanced comparability between groups, and strengthened the validity of group-wise statistical analysis.

To assess research anxiety among doctoral scholars enrolled in central and state universities in Uttar Pradesh, India, a research anxiety scale was developed comprising 78 items distributed across five key dimensions: research self-efficacy, methodological competence anxiety, publish or perish anxiety, research timeline anxiety, and supervisor-related anxiety. The investigators constructed five-point Likert scale, ranging from strongly agree to strongly disagree for gathering the response of the participants (Table 1). To establish content validity, the initial set of items was reviewed by experts in education, psychology, and research methodology. Based on their feedback, modifications were made to improve clarity, relevance, and alignment with the construct of research anxiety. The overall Cronbach's alpha reliability coefficient for the research anxiety scale was 0.87, surpassing the 0.7 threshold and demonstrating high internal consistency (Cortina, 1993). Therefore, the reliability of this study tool can be confirmed. The finalized instrument was administered through Google Forms to facilitate data

collection from research scholars across different universities and geographical locations. Participants were informed about the purpose of the study and assured that their responses would remain confidential and be used solely for academic purposes. Participation was voluntary, and only complete and valid responses were included in the analysis.

Table 1. ***Scoring Indication for Items***

Statements	Indicators	Scores
Positive Statements	Strongly agree	5
	Agree	4
	Neutral	3
	Disagree	2
	Strongly Disagree	1
Negative Statements	Strongly agree	1
	Agree	2
	Neutral	3
	Disagree	4
	Strongly Disagree	5

Data Analysis:

The data were obtained from 250 respondents, yielding a mean score of 166.86 with a standard deviation of 11.53, indicating moderate variability. The standard error (0.359) reflects a precise estimate of the mean (Table 2). The skewness value (0.192) suggests slight asymmetry, while its z-value (2.50) indicates no substantial violation of normality. The kurtosis value (-0.311) reflects a mildly flat distribution, and the corresponding z-value (-2.02) remains within acceptable limits (Table 2). Established guidelines suggest that z-values within ±2.58 indicate acceptable normality (Ghasemi & Zahediasl, 2012; Huck et al., 1986), while a more conservative criterion of ±1.96 has also been proposed (Doane & Seward, 2011). Overall, the distribution closely approximates normality, supporting the use of parametric statistical analysis.

Table 2. ***Descriptive Measures to know the Normal Distribution of Research Anxiety Scores of Research Scholars***

N	Mean	SD	SEM	Sk	Std. Error Sk	Z-value of Sk	Ku	Std. Error Ku	Z-value of Ku
250	166.86	11.53	0.359	0.192	0.077	2.50	-0.311	0.151	-2.02

The normality of the overall research anxiety total scores was examined using both the Kolmogorov-Smirnov and Shapiro-Wilk tests (Table 3). The obtained significance values for both tests were found to be greater than 0.05, indicating that the distribution of research anxiety scores does not significantly deviate from normality (Kwak & Park, 2019; Ghasemi & Zahediasl, 2012; Razali & Wah, 2011). Therefore, the assumption of normal distribution was satisfied, justifying the use of parametric statistical techniques, particularly the independent samples t-test, for further analysis.

Table 3: ***Kolmogorov-Smirnov and Shapiro-Wilk test of Normality to test significance of the Normal Distribution of Research Anxiety***

Normality Test						
Research Anxiety	Kolmogorov-Smirnov			Shapiro-Wilk		
	Static	df	Sig.	Static	df	Sig.
	0.05	250	0.16	0.98	250	0.06

RQ1. Do male and female doctoral research scholars differ significantly in their levels of research anxiety across its various dimensions?

There was no significant gender difference in research self-efficacy. Although male (M = 51.54) scored slightly higher than females (M = 48.61), the difference was not statistically significant (t(248) = 1.61, p = 0.111). It can be seen that the t-value is 2.61 which is significant at 0.05 level with df = 248. It indicates that the mean scores of research timeline anxiety of male and female research scholars differ significantly. Further, the mean score of research timeline anxiety of male researchers is 52.75 is significantly higher than those of female researchers whose mean score of research timeline anxiety is 46.58 (Table 4). It may, therefore, be said that male research scholars were found to have significantly higher timeline anxiety than those of female researchers. There was no statistically significant gender difference in methodological competence anxiety. Although males (M = 52.09, SD = 9.29) reported slightly higher anxiety levels than females (M = 48.26, SD = 8.40), the difference was not statistically significant (t (248) = 1.96, p = .053). From Table 4, it can be seen that t-value is 2.10 which is significant at 0.05 level with df = 248. It indicates that the mean score of publish or perish anxiety of male researchers is 56.96 is significantly higher than those of female researchers whose mean score of publish or perish anxiety is 52.87. It may, therefore, be said that male research scholars were found to have significantly higher publish or perish anxiety than those of female researchers. From Table 4, it can be seen that t-value is 2.30 which is significant at 0.05 level with df = 248. It indicates that the mean score of supervisor anxiety of male researchers is 57.55 is significantly higher than those of female researchers whose mean score of supervisor anxiety is 51.39. It may, therefore, be said that male research scholars were found to have significantly higher supervisor anxiety than those of female researchers.

Table 4: ***Gender-wise comparison of Research Anxiety Dimensions***

Dimension	Gender	N	Mean	SD	df	t	Sig.	Level of Significance
Research Self-Efficacy	Male	134	51.54	8.72	248	1.61	0.111	Not Significant
	Female	116	48.61	7.62				
Research Timeline Anxiety	Male	134	52.75	11.31	248	2.61	0.011	Significant at 0.05
	Female	116	46.58	10.09				
Methodological Competence Anxiety	Male	134	52.09	9.29	248	1.96	0.053	Not Significant
	Female	116	48.26	8.40				
Publish or Perish Anxiety	Male	134	56.96	9.35	248	2.10	0.039	Significant at 0.05
	Female	116	52.87	8.22				
Supervisor Anxiety	Male	134	57.55	11.60	248	2.30	0.023	Significant at 0.05
	Female	116	51.39	13.99				

RQ2. : Is there a significant difference in dimensions of research anxiety among doctoral research scholars enrolled in central universities and those enrolled in state universities?

It can be seen that the t-value is 2.94 which is significant at 0.01 level with df = 248. It indicates that the mean scores of research self-efficacy of research scholars from central and state university differ significantly (Table 5). Further, the mean score of research self-efficacy of central university researchers is 52.20 is significantly higher than those of state university researchers whose mean score of research self-efficacy is 46.97. It may, therefore, be said that central university research scholars were found to have significantly higher research self-efficacy than those of state university researchers. From Table 5, it can be seen that the t-value is 2.38 which is significant at 0.05 level with df = 248. It indicates that the mean scores of research timeline anxiety of central and state university research scholars differ significantly. Further the mean score of research timeline anxiety of central university researchers is 52.56 is significantly higher than those of state university researchers whose mean score of research timeline anxiety is 46.83. It may, therefore, be said that central university research scholars were found to have significantly higher research timeline anxiety than those of state university researchers. From Table 5, it can be seen that the t-value is 2.39 which is significant at 0.05 level with df = 248. It indicates that the mean scores of methodological competence anxiety of central and state university research scholars differ significantly. Further, the mean score of methodological competence anxiety of central university researchers is 52.30 is significantly higher than those of state university researchers whose mean score of methodological competence anxiety is 47.63. It may, therefore, be said that central university research scholars were found to have significantly higher methodological competence anxiety than those of state university researchers. There was no statistically significant difference in publish or perish anxiety between research scholars from central and state universities. Although scholars from central universities reported slightly higher mean scores (M = 56.71, SD = 8.80) than those from state universities (M = 53.30, SD = 9.73), the difference was not significant (t(248) = 1.72, p = 0.088). There was no significant difference in supervisor anxiety between research scholars from central and state universities. Although research scholars from central universities showed a slightly higher mean score (M = 56.86, SD = 12.26) compared to those from state universities (M = 52.80, SD = 13.30), the difference was not statistically significant (t (248) = 1.48, p = 0.142).

Table 5: ***University-wise Comparison of Research Anxiety Dimensions***

Dimension	University	N	Mean	SD	df	t	Sig.	Level of Significance
Research Self Efficacy	Central University	132	52.20	7.52	248	2.94	0.004	Significant at 0.01
	State University	118	46.97	9.51				
Research Timeline Anxiety	Central University	132	52.56	10.86	248	2.38	0.019	Significant at 0.05
	State University	118	46.83	11.35				
Methodological Competence Anxiety	Central University	132	52.30	8.62	248	2.39	0.019	Significant at 0.05
	State University	118	47.63	9.67				
Publish or Perish Anxiety	Central University	132	56.71	8.80	248	1.72	0.088	Not Significant
	State University	118	53.30	9.73				
Supervisor Anxiety	Central University	132	56.86	12.26	248	1.48	0.142	Not Significant
	State University	118	52.80	13.30				

Discussion:

The present study provides empirical evidence that research anxiety among doctoral scholars is not a uniform experience but varies meaningfully across demographic and institutional contexts. By examining multiple dimensions of research anxiety, the findings highlight how gender and university type intersect with structural, academic, and psychosocial demands of doctoral training in India. Gender-wise analysis indicates that male research scholars reported slightly higher research self-efficacy than female scholars; however, this difference was not statistically significant, suggesting broadly comparable confidence levels across gender (see Table 4). Consistent with the present finding, Kerrigan and Hayes (2016) reported no significant association between gender and research self-efficacy or research interest. In contrast to the present findings, several earlier studies (Cooper et al., 2021; Annu, 2020; Sharma & Shakir, 2020; Sagar & Singh, 2017), reveal that female students demonstrated significantly higher anxiety levels than their male counterparts. The pattern observed in the current study may be attributed to a growing balance in opportunities related to research preparation, mentoring, and institutional support. It indicates that although the sources contributing to self-efficacy may vary, its cumulative influence remains comparable for both males and females (Lin & Tsai, 2017). Furthermore, academic self-efficacy has been identified as a stronger predictor of academic success than social or emotional dimensions, highlighting its central role in academic achievement irrespective of gender (Akturk & Ozturk, 2019). Collectively, these results suggest that anxiety experienced by doctoral scholars may stem less from doubts about competence and more from performance-related demands and relational factors embedded within the research environment. Male scholars tend to hold higher expectations regarding their own performance (Bühren et al., 2024). In contrast, university-wise findings reveal significantly higher research self-efficacy among central university scholars compared to those from state universities (see Table 5). This difference likely reflects stronger research ecosystems, greater exposure to scholarly activities, and more structured research support in central universities, which may foster enhanced research confidence.

A significant gender difference was observed in research timeline anxiety, with male scholars experiencing higher anxiety related to managing research timelines (see Table 4). This may be linked to heightened performance expectations or career-related pressures. University-wise results similarly show significantly higher timeline anxiety among central university scholars (see Table 5). Academic pressure among research scholars is most commonly associated with challenges in adhering to prescribed PhD and research work timelines (Kumar et al., 2025; Prasad & Vaidya, 2017). The academically demanding environment and stricter research milestones characteristic of central universities may contribute to elevated time-related stress, despite offering richer research opportunities.

Gender-wise differences in methodological competence anxiety were marginal and not statistically significant, indicating similar levels of concern across male and female scholars regarding research methods (see Table 4). However, central university scholars reported significantly higher methodological competence anxiety than state university scholars (see Table 5). Despite representing a smaller proportion of higher education institutions, centrally funded universities contribute approximately nine per cent of India's total research output, reflecting the presence of a comparatively robust research ecosystem (Banshal et al., 2019). In contrast, the significantly larger number of state and private institutions collectively produces a relatively lower volume of research. This imbalance underscores the strategic importance of centrally funded institutions in driving national research

productivity and highlights the need for state governments to strengthen research infrastructure, incentives, and scholarly culture within their institutions to enhance overall research performance (Kanaujia et al., 2022). Greater emphasis on methodological rigor and advanced research standards in central universities may intensify scholars' awareness of methodological challenges, thereby increasing anxiety.

Male scholars reported significantly higher publish or perish anxiety than female scholars, suggesting stronger perceived pressure to meet publication expectations (see Table 4). University-wise comparison, however, did not reveal significant differences (see Table 5), indicating that publication-related stress is a common concern across institutional contexts and not confined to a particular university type. Findings of the studies shows that how deeply the "publish or perish" culture has entered doctoral education (Bayanbayeva, 2026; Horta & Li, 2023; Lei, 2021). This situation is linked to neoliberal ideas in higher education, where publishing becomes a way to monitor performance and accountability (Lei, 2021). Much of this pressure comes from universities' efforts to improve their research output in order to increase rankings and institutional reputation. The "idea of excellence" has become a major priority, often treated as a limited and valued achievement by higher education institutions (Watermeyer & Olssen, 2016).

Gender-wise analysis shows that male scholars experienced significantly higher supervisor-related anxiety (see Table 4), possibly reflecting differences in supervisory expectations or interaction styles. University-wise findings did not show significant differences (see Table 5), suggesting that supervisor anxiety is influenced more by individual supervisory relationships than by institutional context. Supervisor anxiety points to the need for more nuanced, gender-sensitive academic support systems that address expectations beyond skill acquisition. Having a supervisor of a different gender may lead employees to experience social exclusion and strained supervisory relationships (Carter et al., 2014). Studies have shown that positive relationship with mentor and a perception of adequate guidance serve as protective factors, significantly reducing research-related anxiety (Cooper et al., 2023; Aikens et al., 2017; Byars-Winston et al., 2015). Research scholars faced challenges in receiving adequate social support, engaging with the academic community, and maintaining consistent access to their supervisors (Barry et al., 2018).

Limitations of the Study:

Despite its contributions, the present study has certain limitations that should be acknowledged when interpreting the findings. First, the use of a cross-sectional survey design restricts the ability to draw causal inferences regarding the relationships between demographic variables (gender and university type) and dimensions of research anxiety. The observed differences therefore reflect associations at a single point in time and may not capture fluctuations in anxiety levels across different stages of research. Second, the study relies on self-reported data, which may be influenced by social desirability bias or respondents' subjective perceptions of their research experiences, potentially affecting the accuracy of reported anxiety levels. Third, although stratified sampling was employed to ensure representation across gender and university type, the sample was limited to doctoral scholars from central and state universities, thereby excluding scholars from private, deemed, or research-intensive institutes. This may limit the generalisability of the findings across the broader landscape of higher education institutions in India. Fourth, the researcher-developed research anxiety scale, while multidimensional and contextually grounded, requires further validation across diverse academic disciplines and institutional settings

to establish its broader psychometric robustness. The analytical approach was confined to group comparisons using t-tests, which, while appropriate for identifying mean differences, does not account for potential interaction effects or the influence of additional variables such as disciplinary background, year of enrolment, funding status, or quality of supervisory support. Future studies employing longitudinal designs and more advanced multivariate analyses may provide deeper insights into the dynamic and complex nature of research anxiety among doctoral scholars.

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