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# Vietnamese University Students' Research Anxiety and Perceptions of Supervisor Support: A Mixed-Methods Study

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## ABSTRACT

This study examined differences in research anxiety levels among undergraduate students as well as the correlation between research anxiety and perceived supervisor support. The study employed an explanatory mixed-methods design, with quantitative data collected and analysed first, followed by qualitative data to help interpret the quantitative results. Three hundred and ninety undergraduates completed online questionnaire surveys, and 20 participated in focus group discussions. T-tests, ANOVA, and Pearson correlation were used for the statistical analysis. Thematic analysis was employed to analyse the qualitative data. Findings showed that females exhibited higher anxiety levels than males. Juniors exhibited the highest anxiety, while freshmen showed the lowest. Business and Management students reported the highest anxiety levels, whereas Technology and Engineering students had the lowest. A weak, positive relationship between anxiety and perceived support was identified, with qualitative data offering further insights into individual experiences and perceptions. Guidance in research, knowledge, skills, and emotional support generally reduced anxiety. However, seniors and juniors experienced increased anxiety due to perceived gaps between the support they received and their expectations. The combination of quantitative and qualitative data in this study provided a more comprehensive understanding of how supervisor support impacted research anxiety. The study suggests strategies for reducing anxiety levels among undergraduates and provides directions for future research.

*Keywords:* Mixed-methods design, research anxiety, supervisor support, undergraduates, Vietnam

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## INTRODUCTION

Improving undergraduate research (UR) is essential for enhancing undergraduates' awareness of the research process at higher education levels, fostering collaboration and research networks (Q. V. Pham et al., 2018), and developing lifelong learning skills (Hill et al., 2022). Unsuccessful UR experiences among undergraduates can lead to problematic issues such as a lack of preparedness for advanced research roles and reduced engagement with academic disciplines (Cooper et al., 2023). This, in turn, can ultimately affect students' career prospects and hinder their ability to contribute meaningfully to their fields. Therefore, in Asian countries such as Vietnam, universities are striving to encourage student participation in UR activities through various measures, such as establishing laboratories, centres or excellent research teams and organizing annual UR programs, competitions, seminars, and conferences (Le & Hoang, 2021), especially in technology and natural science fields (H. H. Pham & Bui, 2023). Despite these efforts, research resources and funding are often limited (Q. V. Pham et al., 2018). In Vietnam, undergraduates are required to complete a graduation thesis as a capstone project, which is considered a key UR activity. Within the scope of this paper, undertaking a UR activity by students is understood as completing a graduation thesis, participating in a project, or taking courses on research methods.

Conducting a research activity is considered a complex and challenging task, requiring various skills and qualities such as critical thinking, communication skills, problem-solving, scientific writing techniques, and argumentation skills (van Blankenstein et al., 2019). It is also a valuable learning experience, demanding commitment, curiosity, and patience from researchers (Quan & Elby, 2016). Therefore, lacking research experience, motivation, and exposure to research methods may negatively affect university students' attitudes and beliefs about research and research knowledge. Some scholars, such as Rezaei and Zamani-Miandashti (2013), posit that a significant number of students experience high levels of anxiety throughout the research process. High levels of anxiety can lead to burnout, wasting resources such as time, energy, and effort, and sometimes causing students to drop out of the research process (Angaiz et al., 2021). Students who perceive research as difficult and challenging often experience higher levels of anxiety than their peers (Oguan et al., 2014). Fear and anxiety are considered the main reasons why some students cannot complete research tasks. Although the relationship between UR anxiety and supervisor support remains unexplored (Cooper et al., 2023; Maharajan et al., 2017), studies examining the correlation between supervisor support and the mental health (stress and/or depression) of research students (Friedrich et al., 2023; Wollast et al., 2023) suggest that they are inversely related. When receiving high levels of support, the level of stress/depression decreases, and vice versa.

Currently, there are still relatively few studies focusing on the research anxiety of undergraduate students, the influencing factors, and the relationship between anxiety in UR and other factors (Maharajan et al., 2017; Sawitri & Creed, 2021). Razali et al. (2020) argued that there is a significantly lower number of studies related to supervisor support in undergraduate research compared to the postgraduate level. In the current Vietnamese literature, various issues surrounding the topic of undergraduate research have been addressed, such as students' self-assessment of research abilities (Le & Hoang, 2021), strategies to develop students' research capacity (H. H. Pham & Bui, 2023), research motivation (Q. V. Pham et al., 2018), or the role of supervisors during the research process (Tran et al., 2022). However, there appears to be a lack of studies investigating research anxiety or the impact of supervisors' support on students' research anxiety within the Vietnamese context. This absence of research has limited knowledge on the topic, making it challenging to develop effective interventions or resources to reduce research anxiety.

While most existing research focuses on postgraduate students, undergraduates may experience different research stressors and strains (Fatima & Malik, 2019). A significant number of studies are quantitative, offering insights into the levels of perceived support. However, less is known about the specific experiences that shape how support is perceived. Therefore, research that incorporates qualitative data is necessary to illuminate this issue. The study makes the following contributions to the existing literature. First, we focus on Vietnamese undergraduates, an under-researched population, as respondents and compare anxiety levels across various demographic variables. Second, we investigate the correlation between anxiety and perceived supervisor support. We expect the qualitative data to offer insights into this relationship, which has been largely unexplored in the existing literature. This study aims to provide valuable insights into strategies for enhancing the UR experience. Specifically, the findings can guide improvements in supervisory practices, contributing to a more supportive research environment and ultimately reducing research anxiety among undergraduates.

## LITERATURE REVIEW

### Anxiety and Research Anxiety

Anxiety is recognised as a psychological condition marked by unpleasant emotions (e.g., unease) about potential future adversities (Saviola et al., 2020). Symptoms associated with anxiety can manifest as avoidance behaviours (such as withdrawing socially or avoiding tasks), physical responses (like headaches or stomach aches), or physiological arousal (such as sweating or rapid breathing; Fishstrom et al., 2022). Anxiety is categorized into two main types: "state anxiety," which refers to a temporary reaction to negative events, and "trait anxiety," which represents a stable personality trait characterized by a consistent tendency to react with worries, concerns,

and troubles in various situations (Endler & Kocovski, 2001; Spielberger, 2013). In scholarly research, it is widely shown that minor levels of anxiety can enhance students' performance by improving their focus and concentration. Conversely, elevated levels of anxiety have been linked to multiple negative consequences within academic settings (Lader & Marks, 2013; Lyndon et al., 2017). Research anxiety refers to the state or condition of discomfort experienced by students while conducting research (Maschi et al., 2012).

In this paper, research anxiety is considered a type of anxiety that occurs while undergraduates are doing a research task, such as completing a graduation project, participating in a research project, or taking a course on research methods. Cooper et al. (2023) classified research anxiety as a specific type of state anxiety. It is described as dynamic rather than fixed (Maschi et al., 2012). It is triggered by the act of engaging in different research activities, such as conducting experiments, writing papers, or presenting findings. Research anxiety acts as a filtering mechanism and significantly influences the research process and academic achievements of students (Maharajan et al., 2017).

## Studies on Undergraduates' Research Anxiety

Currently, the number of research studies on research anxiety is not extensive (Angaiz et al., 2021), particularly when it comes to works targeting undergraduate students as informants (Mensah et al., 2023), despite anxiety in the learning environment being a highly regarded topic in various contexts. Among the published works concerning UR anxiety, scholars draw different conclusions, likely attributable to the dynamic nature of anxiety (Cooper et al., 2023).

Researchers have measured the research anxiety levels of undergraduates and investigated whether these levels differ across demographic variables. Some scholars (e.g., Adaboh et al., 2017; Maharajan et al., 2017; Natividad et al., 2019) state that undergraduate students experience high levels of research anxiety. However, in the study by Dönger et al. (2017), undergraduates reported relatively low levels of anxiety. Scholars also hold differing views on the anxiety levels among study groups from various departments. For instance, while Dönger et al. (2017) argued for differences in anxiety levels among students from different departments, Adaboh et al. (2017) denied this claim. Most authors state that there is no difference in anxiety levels between male and female students (Dönger et al., 2017; Natividad et al., 2019; Oguan et al., 2014). For example, Dönger et al. (2017) conducted a quantitative study to measure the research anxiety levels of 168 teacher education students (104 female, 57 male) from 4 learning areas in Turkey.

The results showed that the students had low anxiety levels. Anxiety levels did not differ between male and female students; however, variations were observed among students from different departments. Art education students showed the lowest anxiety level compared to other groups.

Similarly, Adaboh et al. (2017) conducted a descriptive statistical study to understand the anxiety levels in scientific research among 93 healthcare students and 35 education students at a university in Ghana. The results showed no difference in anxiety levels between the two majors. Both groups experienced moderate levels of anxiety during the research process. Regarding year of study, although there has been no research investigating this issue among undergraduates, similar studies suggest that anxiety decreases progressively with each advancing year of study (Beiter et al., 2015; Lomotey, 2021).

Beyond demographic factors, scholars have also examined other variables related to UR anxiety, such as research intent, research attitude, academic effort, and research self-efficacy, revealing interesting insights. For example, a study conducted with U.S. undergraduates by Cooper et al. (2023) found that research anxiety was negatively related to the intention to pursue a research-related career. Qualitative data from the study highlighted that the factors increasing research anxiety included unsuccessful research experiences, lack of research preparation, perceived insufficient guidance, and difficulty balancing commitments. Conversely, factors that decreased research anxiety included a positive laboratory environment, strong relationships with mentors, and a perception of sufficient guidance. Mensah et al. (2023) found that research anxiety was negatively related to research self-efficacy and perceived research usefulness among technical undergraduates in Ghana. No relationship was found between academic effort and research anxiety in this study. Maharajan et al. (2017), in their investigation of factors influencing research anxiety among pharmacy seniors in Malaysia, found that research anxiety was negatively correlated with academic effort and research self-efficacy. However, no relationship was found between research attitude and research anxiety in their study. Natividad et al. (2019) found no relationship between research anxiety and research self-efficacy among third-year students in the Philippines.

While researchers have explored the relationship between various factors and UR anxiety, a search on ScienceDirect, Scopus, ProQuest, and Google Scholar revealed a significant gap in the literature: no studies have examined the connection between UR anxiety and supervisor support. Given the crucial role that supervisors play in the undergraduate research process, as discussed in the following section, it is essential to investigate this relationship in relevant studies to better understand how supervisor support might influence UR anxiety and contribute to more effective interventions.

## Supervisor Support and Research Anxiety

The support provided by the supervisor is defined by Ahmed et al. (2017) as the assistance and guidance that students receive from their assigned supervisor. According to Han et al. (2022), in research, the supervisor is the primary provider of support to students

in terms of intellect, helping to minimise risks in the orientation and execution of research. This support can be direct or indirect, assisting students in various tasks such as topic selection, research planning, data processing, and report writing. Overall et al. (2011) emphasised that in addition to academic support, such as teaching necessary research skills or assisting with research design, supervisors need to provide personal support, specifically psychological support, to help students overcome any difficulties they encounter during the research process. Moreover, supervisors need to help students develop autonomy in research by encouraging them to make decisions, providing opportunities for them to express their opinions, and gradually building their independent research skills. Supervisors have a significant impact on the process, quality, and outcomes of research training, including students' creative behaviours in research (Tierney & Lanford, 2016). This is particularly true in the higher education environment in Vietnam, where undergraduate students typically have only one supervisor who is primarily responsible for guiding them through their research tasks.

It is recognised in the literature that research anxiety is considered common among undergraduates (Rezaei & Zamani-Miandashti , 2013). The role of supervisors in developing students' knowledge, emotions, and professionalism in scientific research is indispensable (Doğan & Bıkmaz, 2015). A UR student, when carrying out a research task, requires support from their supervisor in many aspects to overcome challenges encountered during the research process. However, the relationship between research anxiety and supervisor support has not been the focus of many studies yet. We are aware of two studies using postgraduates as informants, which indicated the inverse relationship between research anxiety and supervisor support. Ma et al. (2024) investigated the relationship between supervisor support, research self-efficacy, and postgraduate anxiety in three eastern provinces of China. The authors utilised a survey method with a sample of 1,095 students (518 males, 577 females, 74% postgraduates, and 26% doctoral students) from various disciplines. The researchers discovered that instrumental support (such as resources, knowledge, and funds) and emotional encouragement from supervisors were positively associated with graduate students' scientific research self-efficacy, while being negatively correlated with their levels of anxiety. Similarly, a survey carried out in China by Liu et al. (2019) involved 325 doctoral students (60.3% male, 39.7% female) at a medical university to evaluate levels of depression and anxiety. About 23.7% of the participants exhibited symptoms of depression, while 20.0% displayed signs of anxiety. The mentorship connection was found to have a positive correlation with research self-confidence and a negative correlation with student stress and anxiety.

In literature, studies (e.g., Friedrich et al., 2023; Wollast et al., 2023) consistently indicate an inverse relationship between

supervisor support and the mental health challenges encountered by postgraduate research students. High levels of perceived supervisor support or satisfaction with advisory relationships are linked to reduced depressive symptoms among these students. For instance, Fatima and Malik (2019) found that supervisor support significantly predicted lower levels of stress and depression, underscoring its critical role in safeguarding students' mental well-being. Levecque et al. (2017) reported that inadequate support and feedback were strongly associated with an increased risk of mental health issues, including anxiety, strain, unhappiness, and depression among doctoral students. The alignment between supervisor support and student expectations also emerges as a crucial factor in students' mental health outcomes. Anttila et al. (2024) suggested that the origins of students' anxiety and depression may lie in the nature and delivery of support provided by supervisors. A mismatch between supervisors' expectations and students' capabilities can lead to significant disappointment, particularly on the part of the students (Devos et al., 2016; Parker-Jenkins, 2016). Additionally, Pyhältö et al. (2015) highlighted that the high-performance demands imposed by supervisors can contribute to substantial psychological costs for doctoral students.

Given the limited research on undergraduate research (UR) anxiety, especially the dearth of research on the relationship between research anxiety and supervisor support, this mixed methods study aims to address these gaps by comparing anxiety levels among students across various demographic variables and examining how students' perceptions of supervisor support impacts research anxiety among undergraduates in Vietnam. Understanding these issues will facilitate both the development of effective interventions and resources to help students cope with anxiety, as well as the design of supervisor support strategies aligned with students' needs. Additionally, research anxiety and its contributing factors vary significantly by cultural and educational context (Cooper et al., 2023). Therefore, conducting a study in Vietnam—an under-researched context—is especially important.

Bronfenbrenner's ecological systems theory (2005) explains how various environmental factors interact at different levels to influence an individual's development. In the context of anxiety, the theory helps us understand how demographic factors like gender, year of study, and field of study, as well as the support provided by a supervisor, can create complex layers of influence that contribute to a person's anxiety levels. In addition, the buffering hypothesis (Cohen & McKay, 1984) suggested that supervisor support (a form of social support) can plausibly help individuals cope with stress and challenges in academic or work settings. However, social support can have negative effects if there is an overreliance on support or if support is perceived as inadequate, unhelpful, or creates pressure. In this study, we expect that Vietnamese undergraduates will differ significantly

in anxiety levels regarding demographic variables (independent variables), as research anxiety is situational and dynamic (Cooper et al., 2023; Maschi et al., 2012). We also anticipate an inverse relationship between supervisor support (independent variable) and research anxiety (dependent variable), as previous studies suggest a negative correlation between supervisor support and the mental health of research students (Friedrich et al., 2023; Wollast et al., 2023). Our hypotheses are as follows:

$H_1$: There are significant differences in research anxiety levels based on gender.

$H_2$: There are significant differences in research anxiety levels based on the field of study.

$H_3$: There are significant differences in research anxiety levels based on year of study.

$H_4$: There is a significant inverse relationship between perceived supervisor support and research anxiety.

## METHODS

This study utilised an explanatory mixed-method design to gain a deeper insight into students' perspectives on research anxiety and supervisor support, as described by Creswell and Creswell (2017). Employing a mixed-methods design enabled the researchers to overcome the constraints of relying solely on one method and enhance the depth and significance of the analysis. Quantitative statistical data were collected in the initial phase to measure students' anxiety levels and examine the correlation between anxiety and support. Subsequently, focus group discussions were employed to gain insights into the relationship between research anxiety and supervisor support, as it was identified as a core theme warranting detailed investigation.

### Participants

#### *Survey Participants*

This study collected data from 390 undergraduates at a university in Vietnam. A convenience sampling method was employed to select survey participants, where participants were selected based on their availability and willingness to participate. Among the participants, males comprised 73% (n = 284) while females constituted 27% (n = 106) of the sample. Regarding year of study, freshmen accounted for 25% (n = 97), followed by sophomores at 29% (n = 112), juniors at 28% (n = 107), and seniors at 19% (n = 74). The students in Social Sciences (Law, Education, and Foreign Languages) comprised 10.5% (n = 41), Technology and Engineering (Electrical Engineering Technology, Automative Engineering Technology, Heat and Refrigeration Engineering, and Electronics Technology) accounted for 74.5% (n = 291). Business and Management (Accounting, Finance & Banking, and Business Administration) represented 15% (n = 58) of the participants.

#### *Focus Group Participants*

The study employed a convenience sampling method to select participants

for the focus group discussions. Although 28 students initially agreed to participate, only 20 students (12 males and eight females) ultimately joined due to scheduling conflicts, with five participants per group. In terms of year of study, freshmen comprised 25% (n = 5), sophomores 20% (n = 4), juniors 25% (n = 5), and seniors 30% (n = 6). Regarding academic fields, the Social Sciences accounted for 20% (n = 4), Technology and Engineering for 60% (n = 12), and Business and Management for 20% (n = 4). Students were grouped based on their available schedules.

## Instruments

### *The Questionnaire*

The questionnaire consisted of three sections. In section 1, we collected students' demographic information, including gender, year of study, and field of study. Previous studies have indicated that these factors predict students' anxiety levels (Adaboh et al., 2017; Maharajan et al., 2017; Natividad et al., 2019). Additionally, guided by Bronfenbrenner's theory, we used students' demographic information along with perceived supervisor support as independent variables to capture the multi-layered environmental influences on anxiety. To develop the perceived supervisor support scale (section 2), we reviewed the literature and consulted with experienced teachers and scholars. The scale's content validity was then evaluated by three experts, ensuring relevance and clarity of the items. The original scale comprised 10 items. Following these consultations, one item was reworded for clarity and precision. The statement "My supervisor provides me with constructive feedback" was revised to "My supervisor's feedback is constructive." This adjustment aimed to enhance the item's straightforwardness and make the statement clearer for assessing the supervisor's effectiveness. Additionally, a new item was added: "My supervisor creates opportunities to encourage my critical thinking." This modification ensured that the scale not only reflects the supervisor's role in providing feedback but also captures their involvement in promoting students' independent thinking. The final scale consisted of 11 items, which required students to rate the academic and emotional support provided by their supervisors. It employed a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) and demonstrated high reliability, with a Cronbach's alpha of 0.938. A higher score indicates a higher level of perceived support.

To measure the dependent variable (section 3), students' research anxiety, we employed a 10-item scale developed by Maharajan et al. (2017), which had a Cronbach's alpha of 0.74. Examples of the items included: "I feel out of sorts or not really myself when I undertake any research-related tasks," and "During data analysis, I think that I am doing awful or that I may fail." Each item was measured on a 5-point Likert scale, with a score of 1 indicating 'strongly disagree' and five indicating 'strongly agree.' Higher scores suggest higher levels of research anxiety. In the present study, Cronbach's alpha for the

10-item scale was 0.878, indicating strong internal consistency.

The questionnaire was translated into Vietnamese to ensure a consistent understanding of the question items. The back-translation technique, conducted by the first and third authors, along with a Vietnamese expert, ensured the fidelity and accuracy of the translation. A trial with a small sample of 30 students was conducted to address technical difficulties and ambiguities in meaning. No adjustments were needed, as the students did not encounter any issues with the questionnaire. As a result, the questionnaire was finalised without modification and distributed to the participants.

### *Focus Group Discussion*

Four discussions, each lasting 45 minutes, were conducted at a café near the university, which was convenient for all participants, and were audio recorded. The first researcher utilised a semi-structured set of questions to interview the students in their native language. Sample questions included: "In what ways can supervisors assist students in conducting research?" and "Do you think your supervisor can help alleviate your research anxiety? Please explain."

## Data Collection

The researchers utilised Raosoft software to determine the required number of survey participants, which resulted in a necessary sample size of 377. This calculation assumed a response distribution of 50%, with a 95% confidence interval and a 5% margin of error. Initially, the researchers secured approval from the faculty's research ethics committee (GXN No. 1/2023-KHCB-ĐĐNC) before initiating the informed consent process. An invitation email, containing an introductory screening question, 'Have you had any research experiences?' was sent to 700 undergraduates in late October 2023. The email clearly stated that participation in the study was optional, would not impact academic performance and advancement, and ensured full anonymity. To mitigate sampling bias (Creswell & Creswell, 2017), the researchers opted to include students who had previously engaged in or were currently doing research activities such as conducting undergraduate research, attending research method courses, or joining projects. Only students who responded 'Yes' to the screening question proceeded to the online questionnaire. After three weeks, the study received 459 responses, of which 390 were considered valid and included in the current research, yielding an efficiency rate of 85%.

Students who expressed interest in participating in the focus group discussions provided their contact information in the questionnaire. A total of 20 students participated in the discussions, organised into four groups of five students each. This grouping allowed us to facilitate focused, high-quality discussions while adhering to practical constraints. The focus group discussions were scheduled a week after the questionnaire distribution and were conducted in the final week of November 2023.

### Data Analysis

Quantitative data were analysed using SPSS 25.0 for Windows. First, the normality of the data was assessed using the Skewness test. The skewness tolerance values were 1.3 for anxiety data and 0.9 for support data, which are less than the critical values of ±1.96 at a 0.05 significance level. As the test indicated a normal distribution of the data, descriptive analysis, t-tests, and ANOVA were subsequently conducted to evaluate potential differences in students' levels of research anxiety across various demographic variables. To explore the relationship between anxiety and support, Pearson's correlation was employed.

We used the thematic analysis technique (Braun & Clark, 2006) to understand data from focus groups. The process began with the first researcher reading and re-reading the transcripts of the focus group data. During the second step, the first researcher identified text segments deemed relevant as codes, focusing on the impact of supervisor support on students' research anxiety. In the third step, these initial codes were systematically applied across the entire dataset, with the first researcher manually highlighting the corresponding sections of text. In the fourth step, similar codes were grouped into categories, forming preliminary themes. In the fifth step, the first researcher thoroughly reviewed and refined the content within each category to redefine these themes. Three themes emerged from the analysis: enrichment of knowledge and skills, emotional support, and discrepancies in expectations. In the last step, the themes were contextualised within the research question and supported with illustrative quotes from the focus group data.

To enhance transparency in the review process, the second and third researchers conducted thorough and independent evaluations of each theme, providing specific contributions to validate and refine the thematic analysis. They cross-checked the themes by reviewing supporting data examples and verifying that each data excerpt accurately fitted its category. Having the second and third researchers independently review the themes reduced individual bias and improved the credibility of the findings. As researchers and lecturers, we reflected on our own potential biases, assumptions, and roles in the research process. By being mindful of how our perspectives might influence interpretations, we strengthened the confirmability of the findings, demonstrating that conclusions were grounded in data rather than personal views.

## RESULTS

### Differences in Anxiety Levels with Respect to Demographic Variables

#### *Gender*

As can be seen in Table 1, females tended to have higher anxiety levels (M = 3.30, SD =0.769) compared to their male counterparts (M = 3.05, SD =0.729). There is a significant difference in anxiety levels between the two groups of students ($p$ = 0.003<0.5). The effect size was small to moderate (Cohen's d = 0.334). Therefore, $H_1$ was supported.

Table 1
*Results of the independent samples test with respect to gender*

| Variable | Male (N=284) | | Female (N=106) | | t | df | p-value (Levene Test) | p-value (2-tailed) | 95% CI of the Difference | Cohen's d |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | | | | | |
| Anxiety | 3.05 | 0.729 | 3.30 | 0.769 | -3.023 | 388 | 0.170 | 0.003 | -0.421 to -0.089 | 0.334 |

Table 2
*Results of the one-way ANOVA test regarding the field of study*

| | Field of study | N | Mean | SD | F | df1 | df2 | Levene's Test Statistic | *p*-value (Levene Test) | *p*-value (ANOVA) |
|---|---|---|---|---|---|---|---|---|---|---|
| Anxiety | Social Sciences | 41 | 3.31 | 0.750 | 17.98 | 2 | 387 | 0.494 | 0.611 | 0.000 |
| | Technology & Engineering | 291 | 3.00 | 0.720 | | | | | | |
| | Business & Management | 58 | 3.59 | 0.679 | | | | | | |
| | Total | 390 | 3.12 | 0.748 | | | | | | |

Table 3
*Results of the Bonferroni post-hoc test*

| (I) Field of study | (J) Field of study | Mean Difference (I-J) | SE | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Social Sciences | Technology and Engineering | 0.31488* | 0.119 | 0.027 | 0.027 | 0.603 |
| | Business and Management | -0.27434 | 0.146 | 0.185 | -0.626 | 0.078 |
| Technology and Engineering | Social Sciences | -0.31488* | 0.119 | 0.027 | -0.603 | -0.027 |
| | Business and Management | -0.58922* | 0.103 | 0.000 | -0.837 | -0.341 |
| Business and Management | Social Sciences | 0.27434 | 0.146 | 0.185 | -0.078 | 0.626 |
| | Technology and Engineering | 0.58922* | 0.103 | 0.000 | 0.341 | 0.837 |

*Note.* *=The mean difference is significant at the 0.05 level

### *Field of Study*

The results of a One-way ANOVA test in Table 2 show that participants differed significantly in anxiety levels related to their field of study ($F(2, 387) = 17.98$, $p = 0.00$). Levene's test confirmed the assumption of homogeneity of variances ($F(2, 387) = 0.494$, $p = 0.611$). Students in the Business and Management group displayed the highest anxiety level ($M = 3.59$, $SD = 0.679$), while those in the Technology and Engineering group reported the lowest level ($M = 3.0$, $SD = 0.72$). The results of a Bonferroni post-hoc test revealed significant differences between students in the Technology and Engineering group

Table 4
*Results of the one-way ANOVA test regarding the year of study*

| | Year of study | N | Mean | SD | F | df1 | df2 | Levene's Test Statistic | p-value (Levene Test) | *p*-value (ANOVA) |
|---|---|---|---|---|---|---|---|---|---|---|
| Anxiety | Freshmen | 97 | 2.81 | 0.676 | 13.48 | 3 | 386 | 0.669 | 0.571 | 0.000 |
| | Sophomore | 112 | 3.02 | 0.709 | | | | | | |
| | Junior | 107 | 3.41 | 0.720 | | | | | | |
| | Senior | 74 | 3.23 | 0.761 | | | | | | |
| | Total | 390 | 3.11 | 0.748 | | | | | | |

Table 5
*Results of the Bonferroni post-hoc test*

| (I) Year of study | (J) Year of study | Mean Difference (I-J) | SE | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Freshmen | Sophomore | -0.21845 | 0.099 | 0.169 | -0.481 | 0.044 |
| | Junior | -0.60766* | 0.100 | 0.000 | -0.873 | -0.342 |
| | Senior | -0.42085* | 0.110 | 0.001 | -0.713 | -0.128 |
| Sophomore | Freshmen | 0.21845 | 0.099 | 0.169 | -0.044 | 0.481 |
| | Junior | -0.38921* | 0.096 | 0.000 | -0.645 | -0.133 |
| | Senior | -0.20240 | 0.107 | 0.356 | -0.486 | 0.082 |
| Junior | Freshmen | 0.60766* | 0.100 | 0.000 | 0.342 | 0.873 |
| | Sophomore | 0.38921* | 0.096 | 0.000 | 0.133 | 0.645 |
| | Senior | 0.18681 | 0.108 | 0.508 | -0.099 | 0.473 |
| Senior | Freshmen | 0.42085* | 0.110 | 0.001 | 0.128 | 0.713 |
| | Sophomore | 0.20240 | 0.107 | 0.356 | -0.082 | 0.486 |
| | Junior | -0.18681 | 0.108 | 0.508 | -0.473 | 0.099 |

*Note.* *= The mean difference is significant at the 0.05 level

and those in Business and Management ($p$ = 0.00), as well as between Technology and Engineering and Social Sciences ($p$ = 0.027) (see Table 3). Therefore, $H_2$ was supported.

### *Year of Study*

The results of a One-way ANOVA test in Table 4 show a significant difference in anxiety levels between different groups of students, as related to their year of study (F (3, 386) = 13.48, $p$ = 0.00). Levene's test confirmed the assumption of homogeneity of variances (F (3, 386) = 0.669, $p$ = 0.571). Juniors tended to have the highest anxiety levels (M = 3.41; SD = 0.72), followed by seniors (M = 3.23, SD = 0.761). Freshmen were the least anxious students (M = 2.81, SD = 0.676). A Bonferroni post-hoc test was then conducted. The test indicated significant differences between the freshmen and senior groups ($p$ = 0.001), freshmen and junior groups ($p$ = 0.000), as well as sophomore and junior groups ($p$ = 0.000; see Table 5). Therefore, $H_3$ was supported.

Table 6
*Correlation analysis between anxiety and support*

| | | Anxiety | Support |
|---|---|---|---|
| **Anxiety** | Pearson Correlation | 1 | 0.181** |
| | Sig. (2-tailed) | | 0.000 |
| | N | 390 | 390 |
| **Support** | Pearson Correlation | 0.181** | 1 |
| | Sig. (2-tailed) | 0.000 | |
| | N | 390 | 390 |

## The Correlation Between Research Anxiety and Perception of Supervisor Support

In Table 6, a positive correlation was found between anxiety and support at the 0.01 level (2-tailed) (sig = 0.000). However, the correlation was weak (r (390) = 0.181). To some extent, as levels of support increased, levels of anxiety tended to increase slightly as well. Therefore, $H_4$ was not supported.

## Qualitative Data

There was evidence that students' anxiety was influenced by the supervision they received. When describing how supervisors could assist them in conducting research and reducing anxiety, students emphasised the importance of supervisors in providing research guidance, skill development, and emotional support. However, seniors and juniors experienced increased anxiety levels due to perceived discrepancies between the support they received in certain areas and their expectations.

### *Enrichment of Knowledge and Skills*

In the discussions, all students reported experiencing negative emotions owing to a perceived deficiency in research knowledge and skills at some stage during the research process. Guidance from supervisors in acquiring the necessary knowledge and skills assisted many students in addressing the research tasks.

### *Emotional Impacts of Research Knowledge Deficits*

All interviewed students expressed feelings of confusion, stress, and a lack of confidence when performing specific research tasks at various stages of the research process, which they attributed to their perceived lack of research knowledge and skills.

> *I was stressed about why a certain data test did not work. I tried everything I had learned from the textbook, but could not seem to figure out what might have gone wrong.* (ST1-FG3)

> *At the outset of my undergraduate thesis, I struggled with scientific writing for about a month.* (ST3-FG1)

> *I felt overwhelmed because I did not know how to start coding my data. I looked for help from my peers, but it seemed that they faced the same challenge.* (ST2-FG4)

*Writing the literature review was a daunting task. It was stressful to know how to write an outline.* (ST2-FG3)

### *Growth in Research Knowledge and Skills*

Many students valued the support they received from supervisors in enriching their research knowledge and skills. One student described how her supervisor's timely instruction in data analysis skills improved her confidence in handling statistical software.

*I contacted my supervisor, and she promptly organised an online meeting to teach me and my group members how to conduct various data tests using the SPSS program. I felt relieved! The new skills I gained not only helped me analyse my research data more effectively but also boosted my confidence in handling the software.* (ST1-FG3)

Another student noted the improvement in his scientific writing skills because of his supervisor's guidance.

*My supervisor carefully checked my writing every fortnight, highlighting areas for improvement in her feedback. This guidance aided in honing my writing skills. I felt grateful and indebted to her.* (ST3-FG1)

Similarly, a student observed an increase in her understanding of research ethics protocols and her research confidence, which she attributed to her supervisor's instruction.

*My supervisor noticed our struggles and took the time to explain the foundational concepts step by step. She provided real-life examples of how she and other researchers navigated similar challenges. This timely support not only deepened my understanding of research ethics protocols but also restored my confidence in tackling the tasks.* (ST5-FG4)

### *Emotional Support*

Supervisors' sympathy and implementation of anxiety-reduced strategies proved to be successful in fostering positive emotions and alleviating the anxiety levels of many students throughout the research process.

### *Supervisors' Empathy and Encouragement*

Students' negative emotions were mitigated by supervisors' understanding of their frustrations, encouragement, and acknowledgement of their efforts. As a result, they felt supported, valued and more confident in their abilities.

*I struggled with the literature review section in my previous research methods course. I deeply appreciated the warmth and understanding shown by my supervisor. She repeatedly reassured me that having this challenge was normal and that I was doing just fine. Her discussion helped reduce my*

*worries and instilled confidence in me.* (ST2-FG4)

*My supervisor consistently expressed understanding and empathy when I faced difficulties and felt pressured. She attentively listened and responded to any concerns I had. She frequently complimented me and made me feel good about myself and my work.* (ST1-FG4)

### *Anxiety-Reduction Techniques*

Supervisors' efforts to implement certain strategies also contributed to reducing students' anxiety. One student recalled feeling comfortable expressing his research frustrations and uncertainties due to his supervisor's organisation of group meetings, which effectively addressed his needs and alleviated his anxiety.

*My supervisor organised a monthly group meeting in which my research group members discussed fears or research problems openly. I did not feel stupid for asking questions. We listened to each other's problems, shared advice, and learned from our peers and the supervisor. We felt much better, and our research confidence improved after each meeting.* (ST5-FG2)

Another student noted that her supervisor adjusted tasks and set realistic deadlines based on the students' abilities, which gradually reduced anxiety for her and her classmates while building their confidence.

*When we felt overwhelmed by the workload, my supervisor discussed breaking tasks into smaller parts and setting realistic deadlines with us. This change in approach reduced our worries about falling behind and motivated us to concentrate more on completing our tasks.* (ST2-FG4)

### *Expectation Discrepancies*

It seemed that there were discrepancies between the support provided by supervisors and the expectations of certain students, who were either seniors or juniors. Some supervisors expected quality outcomes and independent work, along with providing support and guidance in these areas. Meanwhile, the students grappled with the daunting task of meeting these expectations amidst the complexities of their research activities. The expectation discrepancies fuelled pressure and self-doubt, leading the students to question their competence, and ultimately resulting in heightened anxiety about their research abilities.

### *Emotional Impacts of Independent Work*

In the following example, the supervisor's support for independent work contributed to a senior student feeling lost and uncertain about how to proceed with his work, since he hoped for clear guidelines and explanations.

*My supervisor consistently encouraged us to work autonomously or make independent decisions. She enthusiastically provided me with reading materials at different*

*stages of my project. However, many important concepts remained unclear to me without her explanations. I often found myself stuck and confused when encountering vague issues. I felt hesitant to ask my supervisor for clarification, fearing I might appear incompetent.* (ST2-FG2)

Similarly, another junior student mentioned his negative emotions about working independently.

*Each student in my class was required to submit a draft of the literature chapter independently, but I felt confused. I was instructed to find articles discussing the same research topic, but I did not know how to read them. As a result, I ended up feeling frustrated.* (ST3-FG3)

***High Expectations and Overwhelming Feelings***

Some other junior students mentioned supervisors' expectations for quality, manifested through fixed deadlines, the completion of many tasks, or the requirement to meet high standards. These expectations resulted in heightened levels of anxiety among the students. Examples of students' voices are below:

*Our supervisor was enthusiastic and readily available whenever we sought help. He advised us to practice diligently to improve our research knowledge and skills, assigning us plentiful assignments to be completed within specified deadlines. However, my teammates and I often felt overwhelmed and constantly anxious about managing our workload or meeting deadlines.* (ST2-FG1)

Another student mentioned experiencing significant stress when required to write his paper without any English errors.

*I struggled with writing in English, and my supervisor expected my paper to be written in flawless English. He was dissatisfied with my initial drafts, which led me to revise them several times. This process made me start doubting my writing abilities and turned that period into a particularly stressful time for me.* (ST4-FG3)

***Critical Feedback and Fear of Judgment***

Other senior students shared that they felt criticised and undervalued when receiving feedback from their supervisors. They mentioned their fear of judgment and the pressure to perform well.

*My supervisor was meticulous when providing feedback, a quality not often found in many supervisors. However, she often criticised me and my classmates for our mistakes, even when not everything we did was wrong. I felt constantly judged and under pressure to perform perfectly to meet her expectations.* (ST5-FG3)

*I noticed that my supervisor rarely acknowledged our efforts or*

*improvements. Her harsh comments primarily focused on what was wrong and how to address the issues. While I understood that her feedback ultimately helped us improve, I often felt hesitant to submit my work to her, fearing judgment and criticism.* (ST1-FG2)

## DISCUSSION

In the limited number of studies investigating research anxiety among undergraduates, this paper explores the differences in anxiety levels across various demographic variables and examines the correlation between anxiety and perceptions of supervisor support. The study's results indicate that anxiety levels varied among students based on gender, field of study, and year of study. A weak positive relationship was found between anxiety and perceived supervisor support, with qualitative data offering further insights into this connection.

Previous studies (e.g., Angaiz et al., 2021; Dönger et al., 2017; Natividad et al., 2019; Oguan et al., 2014) have suggested that there is no difference in research anxiety levels between male and female students. However, in the current study, females tended to have higher anxiety levels compared to their male counterparts. This finding aligns with previous research indicating that female undergraduates displayed higher levels of anxiety in science (Cooper et al., 2023; England et al., 2019; Mohammed et al., 2021) compared to their male peers. Researchers have not reached a consensus with respect to the mechanism responsible for these differences. One explanation for the gender gaps in anxiety can be attributed to cultural and psychological influences such as gender roles and social pressure (Hosseini & Khazali, 2013). Women are more inclined than men to articulate concerns related to anxiety (Bernstein et al., 2006). It is expected that further research into research anxiety will clarify the merits of these explanations. Supervisors at the local university should recognise the higher anxiety levels experienced by female students compared to their male counterparts when providing guidance, assigning tasks, or evaluating performance. Adopting a supportive and empathetic approach can help female students feel more comfortable sharing their research challenges and seeking assistance. Encouraging female students to engage in collaborative projects and peer support groups can also mitigate feelings of isolation and bolster their confidence.

Variations in anxiety levels were observed among students from three different areas of study. Students in the Business and Management group exhibited the highest anxiety level, while those in the Technology and Engineering group reported the lowest anxiety levels. There were differences in anxiety levels between students in the Technology and Engineering group versus those in Business and Management, as well as between Technology and Engineering and Social Sciences. One reason for these variations in anxiety levels could be the nature of the research activities undertaken by the students. Students in the Technology

and Engineering group reported the lowest anxiety levels, which might be related to the emphasis on practical, solution-oriented research in their field. This focus may reduce the perceived uncertainty and complexity often associated with research.

In contrast, the nature of research projects in the Business and Management group is more dynamic, leading students to feel greater pressure to complete their research, which can result in higher anxiety levels. Other factors, such as the complexity of research methodologies applied in each field of study (Gustafsson & Hagström, 2023) or the perceived level of peer support and collaboration (Aschbrenner et al., 2016), could also contribute to these differences and warrant further investigation. To alleviate anxiety among students in the Business and Management group, supervisors should enhance students' competence in research methods by organising workshops or tutorials focused on quantitative and qualitative research techniques tailored to Business and Management projects. Administrators could consider establishing partnerships with industry professionals to provide students with real-world insights and mentoring opportunities.

The variations in anxiety levels among different academic disciplines are consistent with prior research, such as that of Dönger et al. (2017), which indicated the variations in anxiety levels between students coming from different disciplines. In this study, Art Education students showed the lowest anxiety level compared to students in Turkish Language Teaching, Science Education, and Computer and Instructional Technology Teaching. However, the variations in anxiety levels among students from different areas of study contradict the findings of Adaboh et al. (2017). In their study, there was no difference in anxiety levels between students in the Nursing program and those in the Education Programme. Both groups experienced moderate levels of anxiety during the research process. Owing to the inconsistent findings in the literature and the lack of studies examining the anxiety levels of undergraduates, more research is needed.

In our study, juniors and seniors seemed to experience more research anxiety than freshmen and sophomores when conducting research. This finding is in contrast with studies suggesting that students in their third and last years exhibited lower levels of anxiety compared to students in the first or second years. For example, when investigating the mental health issues of undergraduates at a university in Ohio, Beiter et al. (2015) found that compared with freshmen, juniors, and seniors scored lower on depression, anxiety and stress scales due to their experience in dealing with those issues. In the research conducted by Lomotey (2021), the language anxiety level was highest for freshmen, and anxiety levels decreased linearly with respect to year of study. Anxiety was found to decrease as experience and proficiency increased over the years. At the local university where our study was conducted, the primary research activity for freshmen and sophomores is to participate in the research methods course. Students typically undertake their thesis

graduation projects during their third or final years. Many research projects, often in collaboration with companies, explicitly prioritise the recruitment of juniors and seniors. In comparison to the knowledge and skills required by the research methods course, those necessary for company projects and graduation projects involve more sophisticated concepts, methodologies, and analytical skills. In addition, some seniors and juniors, during discussions, expressed feeling pressure to produce high-quality research outcomes and to meet greater expectations from supervisors for independent work. Therefore, the anxiety levels of juniors and seniors were higher than those of freshmen and sophomores in this study.

The current study also explored the relationship between research anxiety and perceived supervisor support. Quantitative data suggested that higher levels of anxiety were, to some extent, associated with increased levels of support. Qualitative findings gave insights that help explain this weak positive relationship. The supervisors expected independent work and quality outcomes while students preferred clear guidelines and research standards aligned with their current abilities. The expectation discrepancies resulted in increased anxiety about research abilities among the students. This finding may imply that some additional factors, such as students' personalities, perceived research competence, or cultural influences, likely impact the relationship. Recent studies suggest that personality moderates how students experience and respond to stressors, including research anxiety (X. Wu et al., 2024). Efficacious students are more resilient to anxiety than their less efficacious peers (Mensah et al., 2023). Cultural norms also shape how students perceive negative or positive supervisory interactions, with collectivist societies often emphasising respect and harmony (Han et al., 2022), which can influence these dynamics. Therefore, further research should be conducted to investigate these factors to obtain a more comprehensive understanding.

The positive relationship between research anxiety and perceived supervisor support contradicts the findings of prior studies (e.g., Liu et al., 2019; Ma et al., 2024), which indicated a negative correlation between the two variables. The relationship between research anxiety and perceived support has not been the focus of many studies yet. Additionally, nearly all current studies exploring similar issues adopt a quantitative research design. Insights into the weak, positive relationship in this study were discovered via qualitative data. The need for more empirical research employing qualitative designs is evident to better understand the nuanced dynamics between undergraduate research anxiety and perceived supervisor support, particularly given the unique insights qualitative approaches can offer into individual experiences and perceptions (Creswell, 2012).

In this study, certain juniors and seniors recounted instances where supervisors failed to acknowledge their perspectives,

including expectations for clear guidelines and research standards aligned with their current abilities. The requirement of quality research outcomes and independent work resulted in their high anxiety levels. The ignorance of student perspectives and needs likely resulted in expectation discrepancies between supervisors and students, leading to increased anxiety among the students. Overall et al. (2011) suggested that in encouraging students to make their own decisions and be open with their ideas, supervisors need to acknowledge student perspectives. This study underscores the significance of effective communication between supervisors and students regarding research perspectives, expectations, concerns, guidelines, and standards to mitigate discrepancies and anxiety. Regular meetings with transparent communication about these issues provide a vital platform for facilitating such discussions.

Alternatively, Maschi et al. (2012) recommended the use of informal talks between supervisors and students whenever the supervisors perceive a high level of anxiety among students to continually monitor their research anxiety and address it promptly. To ensure the effective communication of such informal talks, it is essential to integrate key Vietnamese cultural factors, including the concept of *face* (N. T. H. Pham, 2007) and respect for teachers (Phan, 2011). The deeply ingrained cultural emphasis on preserving *face* often discourages Vietnamese students from openly expressing concerns or admitting difficulties, as doing so may be perceived as a loss of dignity or competence. Similarly, the hierarchical tradition of respecting authority figures like supervisors can create a sense of intimidation, further inhibiting open communication. To address these barriers, holding informal meetings in relaxed settings, such as over coffee or outside formal office hours, can help reduce perceived formality and encourage open dialogue. Furthermore, when supervisors share their own challenges or mistakes from their research journey, or personal stories of struggles faced by other students, they humanise their role and dismantle the image of infallibility often associated with authority figures.

In addition, our findings suggest that supervisor support may not uniformly reduce the anxiety levels of all students in one class or one group, as anxiety levels differed based on gender, year of study, and field of study. Therefore, recognising the diverse research needs and motivations of all students is crucial. It would be helpful if supervisors tailor their support strategies based on student characteristics and preferences, considering factors like gender, prior research experience, academic level, and study disciplines. To achieve this, supervisors can conduct initial assessments using surveys to identify specific research areas where students require guidance, enabling personalised support. Additionally, employing varied teaching methods that align with students' backgrounds and academic profiles may also prove effective. For instance, first-year students may benefit from simplified explanations and step-by-

step guidance, while senior students might prefer mentorship in advanced topics. Given the limited research opportunities available at the local university, it is essential for faculty to organise workshops tailored to students' needs and academic disciplines. Examples include workshops on research proposal writing for those with limited experience or advanced statistical techniques for students seeking more specialised skills.

Last but not least, research indicates that negative evaluations from instructors can heighten student anxiety and impact learning motivation (Downing et al., 2020), as such feedback often instils feelings of failure (Fong et al., 2018). In our study, perceived judgmental responses created pressure and a feeling of research incompetence among certain students. Meanwhile, emotional support from supervisors alleviated the anxiety levels of most students. Consequently, supervisors may consider modifying their research feedback practices, particularly those that tend to elicit high levels of anxiety in students, such as judgmental responses. Supervisors may opt for feedback that offers specific suggestions for research improvement, delivered respectfully (Y. Wu & Schunn, 2020) and grounded in the interactions and relationships between supervisors and students (Fong et al., 2018). The university and faculties could consider offering training programs for supervisors on effective feedback delivery, emphasising constructive, respectful, and motivational approaches. Additionally, establishing anonymous channels for students to share feedback about their supervision experiences could further enhance supervisory practices.

This study fills a gap in the literature on the research anxiety of undergraduate students as well as the relationship between research anxiety and perceptions of supervisor support. It contributes to a widened understanding of how research anxiety manifests in the Vietnamese context. One key contribution of the study is that it provides examples challenging the claim that supervisor support can positively impact the mental health of research students (Friedrich et al., 2023) and that research anxiety and supervisor support are inversely related (Liu et al., 2019; Ma et al., 2024). In relation to this, our study lends support to the work of Cohen and McKay (1984), Devos et al. (2016), and Pyhältö et al. (2015), who argued that support can have negative effects if it creates pressure or if there is a mismatch between supervisors' expectations and students' capabilities.

Current studies investigating research anxiety and its correlation between research anxiety and perceptions of supervisor support often rely on survey methods, without detailed explanations or examples of how students' experiences shape their perceptions of supervisor support. This study has responded to the need to explore the correlation between research anxiety and perceived supervisor support using a mixed-methods approach. Quantitative data revealed correlations between the two variables. At the same time, focus group discussions captured the complexity of students' experiences. They helped

clarify an unexpected finding from the quantitative data—a positive relationship between perceptions of supervisor support and research anxiety. Overall, the study underscores the importance of integrating qualitative and quantitative data to obtain a more comprehensive understanding of research anxiety, as qualitative data helps contextualise statistical correlations and reveals nuanced experiences that surveys alone may overlook.

## CONCLUSION

This study contributes to the existing literature by focusing on Vietnamese undergraduates, a population that has been under-researched. It compared anxiety levels across various demographic variables and investigated the correlation between research anxiety and perceived supervisor support among the students, both of which are under-explored topics. An explanatory mixed-method design was employed to overcome the limitations of relying on a single method, thereby enhancing the depth and significance of the analysis. The study's results indicate that research anxiety levels varied among students based on gender, field of study, and year of study. A weak positive relationship was found between anxiety and perceived supervisor support, likely due to students' perceived discrepancies in expectations.

### Limitations and Recommendations

The current study has several limitations that should be considered when interpreting its findings. Because participants were not selected through randomisation, the students who responded to the questionnaire in this study may not represent the broader population of undergraduates. Instead, they might reflect a more motivated group of students. To create a more representative sample, future research should employ random sampling techniques, where every individual in the population has an equal chance of selection. Conducting the research at multiple sites or in different cultural contexts could enhance the robustness and generalizability of the findings.

The study employed a cross-sectional research design, which may not be robust enough to explore causal relationships between perceived supervisor support and undergraduates' research anxiety. Future researchers may wish to use experimental designs to better establish the relationship between these variables. Conducting longitudinal studies to track changes in students' research anxiety and the types of support they receive as they progress through higher education levels would be beneficial. Additionally, the study relied on self-reported data and retrospective information, which may be subject to memory inaccuracies, potentially leading to reporting errors. To address this, future research could benefit from collecting data from both instructors and students to allow for comparisons. The qualitative phase of this study focused on explaining the relationship between research anxiety and perceived supervisor support, as it was considered a central theme requiring in-depth exploration. Other relationships

tested in the hypotheses were primarily addressed in the quantitative analysis. Future research could employ qualitative methods to investigate additional relationships, such as those between demographic factors (e.g., gender, year of study) and research anxiety, to provide a more comprehensive understanding. Despite these limitations, the present study reveals significant findings regarding the levels of research anxiety across various demographic variables and the correlation between research anxiety and perceived supervisor support. This study underscores undergraduate research anxiety as a potential focus for future interventions.

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