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ORIGINAL

Between Curiosity and Concern: Gender Differences in Artificial Intelligence Anxiety among Psychology Students

Entre la curiosidad y la preocupación: Diferencias de género en la ansiedad hacia la inteligencia artificial entre estudiantes de psicología

Lesly Ann C. Jacinto[1]

[1]Western Mindanao State University, Zamboanga City, 7000 Philippines

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Corresponding author: Lesly Ann C. Jacinto

ABSTRACT

As Artificial Intelligence (AI) continues to reshape human life and work, understanding how future psychologists perceive and emotionally respond to this technology has become increasingly important. Psychology students, trained to explore cognition, emotion, and behavior, occupy a unique position in interpreting the human implications of AI integration. This study examined the levels and dimensions of AI anxiety, including learning, job replacement, sociotechnical blindness, and AI configuration, and explored gender differences using a descriptive-correlational quantitative design. A total of 221 psychology students participated in the study. Descriptive statistics revealed a moderate overall anxiety level (M = 4,36, SD = 1,36), with the highest mean scores found in job replacement (M = 4,87, SD = 1,74) and sociotechnical blindness (M = 4,84, SD = 1,67), indicating apprehension toward job loss, technological misuse, and ethical uncertainty. Results from an independent samples t-test showed that female students (M = 4,51) reported significantly higher anxiety than males (M = 4,01), t (219) = 2,54, p = 0,006, d = 0,37, suggesting a small to moderate effect. Overall, the findings indicate that psychology students' AI anxiety reflects not only technological apprehension but also ethical and professional awareness. The study recommends embedding AI literacy, ethical reasoning, and gender-sensitive training within psychology programs to foster confidence, critical engagement, and readiness for responsible participation in AI-supported practice and research. These implications highlight the need for universities to address emotional and cognitive readiness toward AI early in professional training, ensuring that future psychologists develop balanced, human-centered competencies that harmonize empathy with technological fluency.

Keywords: Anxiety; Artificial Intelligence; Psychology Students; Higher Education.

RESUMEN

A medida que la Inteligencia Artificial (IA) continúa transformando la vida y el trabajo humanos, comprender cómo los futuros psicólogos perciben y responden emocionalmente a esta tecnología se vuelve cada vez más importante. Los estudiantes de psicología, formados para analizar la cognición, la emoción y el comportamiento, ocupan una posición única para interpretar las implicaciones humanas de la integración de la IA. Este estudio examinó los niveles y dimensiones de la ansiedad hacia la IA, incluyendo el aprendizaje, el reemplazo laboral, la ceguera sociotécnica y la configuración de la IA, y exploró las diferencias de género mediante un diseño cuantitativo descriptivo-correlacional. Participaron un total de 221 estudiantes de psicología. Los análisis descriptivos revelaron un nivel moderado de ansiedad general (M = 4,36, DE = 1,36), con las medias más altas en reemplazo laboral (M = 4,87, DE = 1,74) y ceguera sociotécnica (M = 4,84,

DE = 1,67), lo que indica preocupación por la pérdida de empleo, el mal uso tecnológico y la incertidumbre ética. Los resultados de la prueba t para muestras independientes mostraron que las estudiantes mujeres (M = 4,51) reportaron una ansiedad significativamente mayor que los hombres (M = 4,01), t(219) = 2,54, p = 0,006, d = 0,37, lo que sugiere un efecto pequeño a moderado. En conjunto, los hallazgos indican que la ansiedad hacia la IA entre los estudiantes de psicología no refleja únicamente temor tecnológico, sino también conciencia ética y profesional. Se recomienda incorporar alfabetización en IA, razonamiento ético y formación con perspectiva de género en los programas de psicología para fomentar la confianza, la participación crítica y la preparación para un ejercicio profesional responsable apoyado en la IA. Estas implicaciones destacan la necesidad de que las universidades aborden desde la formación inicial la preparación emocional y cognitiva hacia la IA, garantizando que los futuros psicólogos desarrollen competencias equilibradas, centradas en el ser humano, que armonicen la empatía con la fluidez tecnológica.

Palabras clave: Ansiedad; Inteligencia Artificial; Estudiantes de Psicología; Educación Superior.

INTRODUCTION

Artificial Intelligence (AI) has become an integral part of modern life, reshaping industries, education, and even the practice of psychology. Its rapid evolution offers opportunities for innovation and efficiency but at the same time evokes apprehension among individuals regarding its implications for work, ethics, and human interaction.[1,2] This psychological response, known as AI anxiety, reflects fear or unease about the potential consequences of AI on personal and societal levels.[3] In education, AI anxiety has become a growing concern as students increasingly use AI-driven tools for learning, assessment, and research.[4,5] Understanding this phenomenon is especially relevant for psychology students, whose future roles will involve interpreting and addressing human behavior in a technology-driven world.

Although research on AI anxiety has expanded, most studies have focused on students in technology-related or healthcare fields,[6,7] leaving a gap in behavioral sciences, particularly psychology. Recent investigations reveal that while AI applications improve access to information, automate assessment systems, and enhance learning personalization, they also provoke emotional tension and apprehension about dependence on technology.[8,9] Wang et al.[10] developed the Artificial Intelligence Anxiety Scale (AIAS), one of the earliest standardized tools to measure fear and discomfort toward AI. The scale identified dimensions such as learning anxiety, configuration anxiety, job replacement anxiety, and sociotechnical blindness, which capture the multifaceted nature of this psychological experience. Subsequent studies have demonstrated that students' emotional responses to AI are shaped by contextual factors, including their level of exposure, perceived competence, and trust in AI technologies.[6,11,12] However, little is known about how psychology students, who are trained to analyze emotional and cognitive processes, experience anxiety toward AI as they encounter it in academic and social contexts. As future professionals who may apply AI in psychological testing, therapy, and research, understanding their affective and cognitive stance toward AI is critical for preparing them to engage ethically and effectively with emerging technologies.

In the field of behavioral sciences, examining AI anxiety also provides insight into broader constructs such as adaptability, resilience, and cognitive dissonance when humans face technological change. For instance, research has shown that exposure to AI can elicit mixed emotional states of fascination and fear, producing ambivalence toward its benefits and risks.[13,14] This ambivalence is particularly salient among students who are both beneficiaries and critics of AI tools used in education. While generative AI systems such as ChatGPT enhance access to learning materials, writing assistance, and conceptual clarification, they also generate concerns about authenticity, ethical use, and over-reliance.[15,16] For psychology students, these concerns may be heightened because of their disciplinary emphasis on critical thinking, ethical responsibility, and human-centered understanding. Hence, exploring how this population perceives and emotionally reacts to AI can illuminate the psychological mechanisms underlying acceptance or avoidance of new technologies.

Gender differences have also emerged as an important consideration in understanding anxiety toward AI. Prior studies have yielded mixed findings regarding whether males and females differ in their emotional responses to artificial intelligence. Some research indicates that females tend to report higher AI anxiety levels than males, possibly due to differences in confidence, self-efficacy, or technological exposure.[5,12] Other studies, such as those by Alieto et al.[17] and Serdenia et al.[18], found no significant gender-based differences, suggesting that these disparities may diminish as digital access and familiarity increase. Such inconsistencies highlight the need for further investigation within specific academic disciplines. In the context of psychology, where empathy, reflection, and self-awareness are central, exploring whether gender moderates emotional responses to AI can provide valuable insight into how social and cognitive factors shape technology-related anxiety. Moreover, understanding these patterns may help address gender-specific barriers in digital adaptation

and guide educators in creating inclusive learning environments.

In the Philippines, the higher education landscape continues to adapt to the rapid technological transformations shaping both instruction and research. Universities are increasingly adopting AI-powered tools to support academic work, streamline administrative processes, and enhance the quality of learning experiences.[19,20] Yet, while students are exposed to these tools, their psychological readiness to use them remains an emerging area of study. Local research on AI anxiety is still limited, particularly among disciplines outside of computer science and engineering. Investigating the experiences of psychology students provides an opportunity to understand how future behavioral science professionals perceive and emotionally respond to the presence of AI in their academic and professional lives. Such inquiry is valuable in a country that is progressively integrating technology into education while maintaining a human-centered approach to learning and development.[21,22,23,24]

Given these considerations, the present study aims to determine the levels and dimensions of AI anxiety among university students majoring in psychology and to examine whether significant gender-based differences exist. Specifically, it seeks to identify which aspects of AI anxiety, including learning, job replacement, sociotechnical blindness, and AI configuration, contribute most to students' overall anxiety and whether these vary across gender. By addressing this gap, the study contributes to the growing body of literature on psychological and emotional responses toward technology within higher education.

LITERATURE REVIEW

Conceptual Perspectives on Artificial Intelligence Anxiety

Artificial Intelligence (AI) anxiety has emerged as a multidimensional psychological construct encompassing apprehension about how AI technologies influence learning, work, and society. Wang et al.[10] established this foundation through the development and validation of the Artificial Intelligence Anxiety Scale (AIAS), which delineates four key dimensions: learning anxiety, configuration anxiety, job replacement anxiety, and sociotechnical blindness. Their study demonstrated the scale's strong psychometric reliability, providing a framework that has guided subsequent research in educational and psychological contexts. Building on this, several scholars have explored the antecedents, correlates, and implications of AI anxiety among students, emphasizing its interplay with cognitive, affective, and behavioral factors.

Research in health and management education has consistently highlighted that anxiety toward AI often coexists with curiosity and cautious optimism. Findings from Ayed et al.[6] and Mohamed et al.[11] revealed that while students in nursing and allied fields expressed apprehension about AI, they also recognized its usefulness, particularly when institutional support and clear ethical guidelines were present. Similarly, Ismail and Joshy[25] showed that learners who maintained a paradox mindset—balancing skepticism with openness—displayed more adaptive attitudes, suggesting that anxiety can act as a regulatory mechanism that fosters reflection and motivation rather than mere avoidance.

Scholars have also emphasized the role of self-efficacy in mitigating AI-related anxiety. Wang et al.[2] demonstrated that strong learning self-efficacy reduces the adverse effects of anxiety, allowing students to convert apprehension into productive engagement. Hwang et al.[26] found that among design students, the use of generative AI enhanced innovative thinking and reduced anxiety when self-efficacy and structured exposure were present. Likewise, Schiavo et al.[27] and Cengiz et al.[13] reported that AI literacy contributes significantly to lowering anxiety by improving comprehension and confidence, while insufficient understanding tends to heighten emotional discomfort and uncertainty.

Beyond individual factors, studies have explored the broader educational consequences of AI use. Reviews by Çelik et al.[28], Hwang et al.[26], Vieriu et al.[9], Zhai et al.[16], and Zawachi-Richter et al.[29] warned that overreliance on AI may diminish independent thinking and analytical reasoning if not balanced with critical instruction. Klimova et al.[30] similarly cautioned that heavy dependence on technology can lead to technostress and cognitive fatigue, reinforcing the need for balanced pedagogical strategies. Experimental studies by Chen et al.[31] revealed that anxiety, when paired with perceived usefulness, can sometimes enhance learning motivation, though this depends largely on the learner's sense of competence.

More recent research has investigated mindset and tolerance for uncertainty as cognitive mechanisms influencing AI anxiety. Kaya et al.[32] observed that a fixed mindset and low uncertainty tolerance contribute to higher anxiety, while a growth mindset only reduces fear when accompanied by openness to ambiguity. Al Zahrani et al.[33] and Thomson et al.[34] expanded this discussion by underscoring the importance of transparency, privacy safeguards, and ethical guidelines in managing public apprehension toward AI technologies. Meanwhile, LaGore et al.[35] and Gao[36] demonstrated that structured AI literacy interventions significantly lower anxiety and enhance positive affect, indicating that informed exposure can recalibrate emotional and cognitive responses to AI.

At a regional level, several studies have revealed that Filipino students and preservice teachers generally show moderate to positive acceptance of AI, though variations in literacy and institutional support continue to

influence attitudes.[37,38,39,40] Collectively, these studies suggest that AI anxiety is not purely detrimental; under conditions of awareness, guidance, and ethical clarity, it may promote reflection, responsible learning, and critical engagement with emerging technologies.

Gender and Contextual Factors in AI Anxiety Research

Gender has consistently emerged as a salient variable in AI anxiety research, though findings across contexts remain mixed. Darancik et al.[41], Maghanoy et al.[5], and Uçar et al.[12] reported that female participants tend to experience higher anxiety, particularly in areas concerning job replacement and ethical risks, often linked to differences in exposure or self-efficacy. In contrast, studies such as those of Alieto et al.[17], Balasa et al.[42], and Serdenia et al.[18] revealed no significant gender-based differences, suggesting that access to technology and familiarity may gradually reduce these disparities. Yaşar et al.[43] further emphasized that disciplinary context influences AI anxiety, showing that students in language and translation programs associate AI use with reduced career clarity when their work involves creativity and interpretation.

Within the Philippine higher education landscape, several recent investigations have examined demographic and contextual dimensions of AI anxiety among preservice and in-service teachers. Preservice teachers were found to hold positive attitudes but moderate anxiety levels, especially in job replacement and sociotechnical blindness, with females reporting higher anxiety than males and socioeconomic background also shaping results, favoring respondents from higher-income groups.[44] Findings likewise revealed that teacher aspirants displayed positive attitudes, low anxiety, and high literacy toward AI, with interrelationships among the three constructs emphasizing the importance of guided instruction and continuous exposure in shaping acceptance.[45]

Further evidence showed that Filipino secondary ESL teachers in Zamboanga City demonstrated moderate knowledge, positive attitudes, and high engagement with generative AI tools such as ChatGPT, though awareness and ethical understanding remained uneven and highlighted the need for institutional support and professional training.[46] Similarly, preservice teachers across the Zamboanga Peninsula exhibited moderately high literacy, moderate anxiety, and favorable attitudes, with gender and socioeconomic status influencing patterns of literacy and anxiety, while training enhanced literacy but had limited effects on attitudes or fear toward AI.[47] These results underscored the value of structured AI education and equitable access to digital opportunities.

Complementing these perspectives, teachers in elementary education were found to express favorable perceptions of AI across three dimensions—learning from, learning about, and learning with AI—with strong correlations among these areas indicating that greater understanding leads to more active integration in classroom practice.[48] The study further suggested that professional development efforts combining conceptual grounding and hands-on strategies can strengthen educators' readiness and confidence in adopting AI responsibly within the Philippine context.

Taken together, these contextual investigations highlight how gender, discipline, and socioeconomic background interact to shape perceptions and emotional responses toward AI. They collectively point to a need for educational interventions that promote literacy, confidence, and ethical reflection, factors crucial for developing balanced, human-centered engagement with artificial intelligence in higher education.

METHOD

Research Design

This study employed a descriptive-comparative quantitative research design to assess the levels of anxiety toward Artificial Intelligence (AI) among psychology students and to determine gender-based differences. This design was appropriate for describing patterns of AI anxiety and comparing mean scores between male and female respondents across four dimensions: learning anxiety, job replacement anxiety, sociotechnical blindness anxiety, and AI configuration anxiety. The use of statistical tests such as the independent samples t-test allowed for the identification of significant variations between groups. Following Creswell and Creswell[49], this approach provided a systematic means of quantifying psychological responses toward AI, contributing to a clearer understanding of how gender and cognition interact within the context of emerging technologies.

Respondents of the Study

The respondents were 221 undergraduate psychology students enrolled in a state university in the southwestern Philippines, consisting of 152 females and 69 males. The study employed purposive sampling to include participants who shared a common academic background relevant to the investigation of anxiety toward Artificial Intelligence (AI). The questionnaires were distributed online to ensure accessibility and convenience. Prior to participation, students were briefed on the study's objectives, the voluntary nature of their involvement, and their right to withdraw at any time without penalty. The data collection process adhered to established ethical standards for research involving human participants, particularly confidentiality, informed consent, and respect for autonomy.[50,51]

Research Tool

The data were collected using the Artificial Intelligence Anxiety Scale (AIAS) developed and validated by Wang et al.[10] The scale comprises 21 items categorized into four domains: learning anxiety, job replacement anxiety, sociotechnical blindness, and AI configuration anxiety. Each item was rated on a seven-point Likert scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The AIAS has been widely applied in educational and psychological research and has consistently demonstrated strong internal consistency, Cronbach's alpha coefficients across the four domains ranged from 0,87 to 0,92, indicating high reliability and stability of responses.

Data Analysis Procedure

The collected data were encoded and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including the mean and standard deviation, were computed to determine the levels of anxiety across the four dimensions of the Artificial Intelligence Anxiety Scale (AIAS). An independent samples t-test was used to examine gender-based differences in overall AI anxiety, while Cohen's d was calculated to measure the effect size and assess the magnitude of observed differences.[52]

RESULTS AND DISCUSSION

Frequency Distribution of Anxiety Toward Artificial Intelligence

Table 1. Frequency Distribution of Responses on Anxiety Toward Artificial Intelligence Among Psychology Students

Statements	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Learning							
1. Learning to understand all of the special functions associated with an AI technique/ product makes me anxious.	20	35	35	52	32	32	16
2. Learning to use AI techniques/products makes me anxious.	19	45	33	51	26	37	10
3. Learning to use specific functions of an AI technique/product makes me anxious.	20	40	34	57	25	35	10
4. Learning how an AI technique/product works makes me anxious.	20	38	41	53	23	34	12
5. Learning to interact with an AI technique/ product makes me anxious.	19	39	39	55	26	29	14
6. Taking a class about the development of AI techniques/products makes me anxious.	22	33	39	55	25	34	13
7. Reading an AI technique/product manual makes me anxious.	24	36	42	50	27	29	13
8. Being unable to keep up with the advances associated with AI techniques/products makes me anxious.	20	35	32	53	30	35	16
Job Replacement							
1. I am afraid that an AI technique/product may make us dependent.	15	17	18	32	51	40	48
2. I am afraid that an AI technique/product may make us even lazier.	14	18	14	23	44	51	57
3. am afraid that an AI technique/product may replace humans.	20	16	25	30	33	51	46
4. I am afraid that widespread use of humanoid robots will take jobs away from people.	15	19	15	31	38	47	56
5. I am afraid that if I begin to use AI techniques/ products I will become dependent upon them and lose some of my reasoning skills.	15	19	18	31	31	51	56
6. I am afraid that AI techniques/products will replace someone's job.	16	21	12	31	37	48	56
Sociotechnical Blindness							
1. I am afraid that an AI technique/product may be misused.	13	20	14	27	47	52	48
2. I am afraid of various problems potentially associated with an AI technique/product.	13	16	17	36	45	59	35

3. I am afraid that an AI technique/product may get out of control and malfunction.	11	15	19	37	45	54	40
4. I am afraid that an AI technique/product may lead to robot autonomy.	13	16	18	44	38	53	39
AI Configuration							
1. I find humanoid AI techniques/products (e.g. humanoid robots) scary.	16	38	18	51	33	42	23
2. I find humanoid AI techniques/products (e.g. humanoid robots) intimidating.	16	35	22	53	40	39	16
3. I don't know why, but humanoid AI techniques/products (e.g. humanoid robots) scare me.	20	37	24	52	30	36	22

Note: N = 221.

Table 1 presents the frequency distribution of responses across the four domains of the Artificial Intelligence Anxiety Scale. Overall, psychology students demonstrated moderate levels of anxiety toward Artificial Intelligence (AI), with varying degrees of concern across domains. Apprehensions were more pronounced in areas related to job replacement and technological misuse, while anxiety related to learning and interaction with AI remained moderate. Across all items, most participants selected responses around the neutral to somewhat agree categories, reflecting cautious engagement and thoughtful uncertainty rather than fear or rejection of AI.

In the Learning Anxiety domain, most students responded neutrally (ranging from 50 to 57 per item), while about one-fourth expressed slight agreement and a smaller group (15–20 respondents) strongly agreed that learning AI made them anxious. This suggests that while some unease exists—particularly about keeping pace with technological advancements—students do not experience intense learning-related anxiety. Such moderate anxiety aligns with Wang et al.[10] 's finding that guided instruction and structured exposure to AI concepts can mitigate apprehension. For psychology students, who are trained to analyze cognitive and emotional processes, this pattern likely reflects an adaptive concern that motivates rather than hinders learning. Their awareness of AI's complexity may encourage deeper engagement, consistent with Schiavo et al.[27], who found that moderate anxiety can enhance persistence and self-regulated learning.

The Job Replacement Anxiety domain recorded the highest levels of concern, with many respondents (40–57 per item) agreeing or strongly agreeing that AI could replace humans or foster dependency. These results highlight fears surrounding employment stability and human autonomy in an automated society. Similar concerns were reported by Darancik et al.[41] and Maghanoy et al.[5], emphasizing that apprehensions about job displacement and reduced human agency strongly influence AI-related anxiety among students. For psychology majors, such fears may be particularly salient, as AI is increasingly applied to mental health assessment and behavioral analysis. The possibility that machines could imitate or surpass human empathy, reasoning, or diagnostic ability can be unsettling for those entering human-centered fields. These findings underscore the importance of framing AI as a tool that complements rather than replaces human intelligence within psychology education.

The Sociotechnical Blindness Anxiety domain also showed elevated concern. Most students (45–59 per item) agreed that they feared AI misuse, malfunction, or loss of control, while very few disagreed. This suggests that ethical and reliability issues remain strong sources of anxiety. These findings echo Feng et al.[53] and Johnson et al.[54], who noted that uncertainty about AI's decision-making and autonomy often triggers anticipatory anxiety. Psychology students may be particularly sensitive to such risks, as their training emphasizes moral reasoning, intentionality, and human predictability. Their anxiety thus reflects ethical caution rather than technophobia, rooted in a deep awareness of potential misuse of autonomous systems.

In the AI Configuration Anxiety domain, which concerns discomfort with humanoid or human-like AI, responses were more evenly distributed. About half of the participants (around 50–53 per item) selected neutral, while 16–23 respondents strongly agreed that humanoid robots were intimidating or frightening. This pattern reflects mixed feelings—curiosity coupled with mild unease, often linked to the "uncanny valley" phenomenon, in which near-human artificial forms elicit both interest and discomfort. Kaya et al.[32] found that individuals with lower tolerance for uncertainty tend to experience greater anxiety toward human-like AI. Among psychology students, this reaction may stem from their understanding of emotion, perception, and authenticity, as AI's ability to mimic human affect challenges conventional notions of consciousness and empathy.

Overall, the frequency data reveal that psychology students' AI anxiety is moderate, multidimensional, and ethically grounded. The strongest concerns center on job replacement and sociotechnical risks, while learning and configuration anxieties are manageable. These findings align with Wang et al.[10], who emphasized that AI anxiety can coexist with curiosity and motivation. Within psychology education, moderate anxiety appears to

play a constructive role, fostering critical reflection, ethical awareness, and responsible engagement with AI. Rather than hindering learning, it may inspire students to navigate emerging technologies with caution, empathy, and intellectual rigor—essential dispositions for future practitioners in psychology and related disciplines.

Descriptive Statistics on Anxiety Toward Artificial Intelligence

Table 2. Descriptive Statistics of AI Anxiety Dimensions Among Psychology Students

Variables	Mean	Std. Deviation
Learning Anxiety	3,81	1,62
Job Replacement Anxiety	4,87	1,74
Sociotechnical Blindness Anxiety	4,84	1,67
AI Configuration Anxiety	4,12	1,71
Overall AI Anxiety	4,36	1,36

Table 2 presents the descriptive statistics of psychology students' anxiety toward Artificial Intelligence (AI) across the four dimensions of the Artificial Intelligence Anxiety Scale: learning anxiety, job replacement anxiety, sociotechnical blindness anxiety, and AI configuration anxiety. The overall mean score of 4,36 (SD = 1,36) indicates that students experience a moderate level of anxiety toward AI. This suggests that while they recognize its growing influence in society, their apprehension is tempered by openness and curiosity.

Among the four domains, Job Replacement Anxiety registered the highest mean (M = 4,87, SD = 1,74), reflecting the students' strong concern about automation, human dependency, and the possibility of losing employment opportunities to AI. This result is similar to those of Darancik et al.[41] and Maghanoy et al.[5], who observed that fears of job displacement and the erosion of human agency are central to AI anxiety among education students. For psychology majors, these concerns are understandable since AI technologies are now being used in areas such as emotion recognition, psychological assessment, and behavioral analysis. Such advancements raise valid questions about the future roles of human practitioners. This finding emphasizes the importance of teaching students to view AI not as a threat, but as a complement to human intelligence, one that can assist in research, assessment, and therapeutic practice without replacing human empathy or ethical reasoning.

The next area of concern, Sociotechnical Blindness Anxiety, showed a similarly high mean (M = 4,84, SD = 1,67), pointing to apprehension about the reliability, safety, and ethical use of AI. Many students expressed fear of AI malfunction, misuse, or the loss of human control over automated systems. This pattern supports the observations of Johnson et al.[54] and Feng et al.[53], who linked AI anxiety to uncertainty about how AI systems make decisions and who is accountable for their actions. For psychology students, such concerns may reflect deeper moral awareness rather than technophobia. Since their discipline emphasizes human ethics, cognition, and behavior, their anxiety is likely a reflection of their sensitivity to ethical boundaries and the social implications of technology, rather than rejection of AI itself.

Moderate anxiety was also observed in the AI Configuration Anxiety dimension (M = 4,12, SD = 1,71), which involves unease toward humanoid or human-like AI. Responses suggest mixed feelings: curiosity paired with mild discomfort. Kaya et al.[32] noted that people with lower tolerance for uncertainty often experience stronger anxiety toward lifelike AI, an effect associated with the so-called "uncanny valley" phenomenon described by Mori et al.[55] For psychology students, this discomfort may be linked to their understanding of perception, emotion, and authenticity. The idea that machines can imitate human affect or behavior might challenge their views on consciousness and emotional genuineness, evoking both intellectual fascination and emotional unease.

Meanwhile, Learning Anxiety had the lowest mean (M = 3,81, SD = 1,62), showing that students are relatively comfortable learning about and using AI technologies. While a few expressed difficulty keeping up with AI's rapid development, most responses suggest curiosity rather than avoidance. This supports Wang et al.[10] and Schiavo et al.[27], who found that guided exposure and increased familiarity can significantly reduce learning-related anxiety. For psychology students, this openness may stem from their reflective nature and awareness of emotional regulation, which helps them process anxiety constructively and transform it into motivation to learn.

Overall, the results portray psychology students as experiencing a moderate and multidimensional form of AI anxiety—one that combines caution, curiosity, and ethical reflection. The highest concerns lie in job replacement and sociotechnical risks, while discomfort with humanoid AI and learning anxiety remain within manageable levels. These findings echo previous studies in both global and local contexts, suggesting that AI anxiety is not inherently negative. For psychology students, moderate anxiety may serve a constructive role

by fostering critical thinking, ethical sensitivity, and responsible use of AI in practice. Embedding AI literacy and ethics-focused modules in psychology programs could transform apprehension into awareness and prepare future practitioners to navigate the evolving intersection of human behavior and intelligent technology.

Gender Differences in Anxiety toward Artificial Intelligence

Table 3. Gender Differences in Overall Anxiety toward Artificial Intelligence

Variables	Gender	N	Mean	SD	t	df	p value	d	Interpretation
Anxiety	Female	152	4,51	1,33	2,540	219	0,006	0,37	Significant; Small to Moderate Effect
	Male	69	4,01	1,39	2,499	126,58			

The results in table 3 show a statistically significant difference in overall AI anxiety between male and female psychology students. Female respondents (M = 4,51, SD = 1,33) reported higher anxiety levels than males (M = 4,01, SD = 1,39), and this difference was supported by the independent samples t-test, t(219) = 2,54, p = 0,006, with a small to moderate effect size (d = 0,37). Taken together, the findings suggest that gender may play a role in shaping how students interpret and emotionally respond to the growing presence of AI.

This pattern echoes observations from earlier studies indicating that women often report stronger technology-related anxiety, partly due to concerns over ethical risks, job insecurity, and human replacement.[5,12,41] Wang et al.[10] noted that these differences may reflect variations in perceived self-efficacy, where those with lower confidence in navigating AI systems tend to feel more apprehensive. In a similar way, Kaya et al.[32] highlighted that individuals with lower tolerance for uncertainty are more likely to react anxiously when confronted with emerging technologies. Related studies reinforce this direction. Tejada[56] found that even when attitudes toward AI appear generally neutral, worries about errors, misuse, or surveillance still surface. Dumagay et al.[57] also observed that female preservice teachers tended to report higher anxiety and lower literacy than males, suggesting that confidence gaps may influence affective responses. Meanwhile, Alieto et al.[58] noted a moderate level of ambivalence toward AI among both pre-service and in-service teachers, reflecting a blend of interest and hesitation that does not always translate into clear gender differences. Complementing these educational insights, Toukoumidis et al.[59] reported that demographic characteristics, including gender, shape how individuals process unfamiliar or evolving issues. Although their work focused on media perceptions, the underlying pattern of uncertainty resonates with how students encounter AI.

For psychology students, the gender difference in anxiety may also stem from the nature of their training. Female students, whose coursework often emphasizes empathy, interpersonal processes, and ethical sensitivity, may interpret AI as a potential challenge to these human-centered principles, particularly in areas like counseling or assessment. Male students, on the other hand, may feel somewhat more at ease with technology, possibly because of differences in familiarity or perceived control.

Overall, these findings highlight the importance of considering gender when designing educational approaches related to AI. Strengthening AI literacy, providing structured exposure to AI tools, and embedding ethical reflection within coursework may help reduce anxiety and build confidence for all learners. Such efforts can promote a more balanced understanding of AI's role in psychology, ensuring that students are prepared to work with AI in ways that preserve the discipline's human-centered values while still embracing technological innovation.

CONCLUSIONS

The study investigated psychology students' anxiety toward Artificial Intelligence (AI) across four domains: learning, job replacement, sociotechnical blindness, and AI configuration, while also examining gender-based differences. The findings revealed a moderate overall level of AI anxiety (M = 4,36, SD = 1,36), indicating that students are not resistant to AI but remain cautious about its implications for their discipline. The highest levels of concern were observed in job replacement and sociotechnical blindness, suggesting that fears related to human displacement, technological misuse, and the erosion of human control are particularly salient among psychology students. Meanwhile, learning-related and configuration anxieties were moderate, implying that while students acknowledge AI's complexity, they are willing to engage with it when guided appropriately. The results also showed a significant gender difference, with female students reporting higher anxiety (M = 4,51) than males (M = 4,01). Overall, the study suggests that psychology students' AI anxiety is multifaceted and adaptive rather than signifying fear or rejection; it reflects moral awareness and reflective engagement that can be harnessed to promote responsible use of AI in psychological contexts.

Based on these findings, the study recommends the integration of AI literacy and ethical education within psychology curricula to equip students with both technical competence and moral discernment. Universities

should design structured learning experiences that connect AI concepts to counseling, assessment, and behavioral research, ensuring that students understand AI as a complement to human intelligence rather than a replacement for it. Gender-responsive interventions are likewise encouraged to strengthen digital self-efficacy among female students and to promote equitable participation in AI-driven environments. Moreover, embedding reflective practices in coursework can help students manage apprehensions and transform anxiety into professional insight. Future research should examine how sustained exposure to AI-based learning tools influences anxiety trajectories over time and whether educational interventions can enhance confidence and adaptability.

While the findings provide valuable insights, this study is limited by its focus on a single academic discipline, which may restrict generalizability. The use of self-report surveys could also introduce response bias, as anxiety levels may vary depending on context and social desirability. Future studies should employ mixed-method approaches or longitudinal designs to capture evolving perceptions and emotional responses to AI over time.

By addressing both cognitive and emotional aspects of AI engagement, higher education institutions can cultivate psychology graduates who are technologically competent, ethically grounded, and capable of navigating the growing intersections between human behavior and intelligent systems.

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Conceptualization: Lesly Ann C. Jacinto.
Formal analysis: Lesly Ann C. Jacinto.
Research: Lesly Ann C. Jacinto.
Methodology: Lesly Ann C. Jacinto.
Project management: Lesly Ann C. Jacinto.
Resources: Lesly Ann C. Jacinto.
Software: Lesly Ann C. Jacinto.
Supervision: Lesly Ann C. Jacinto.
Validation: Lesly Ann C. Jacinto.
Drafting - original draft: Lesly Ann C. Jacinto.
Writing: Lesly Ann C. Jacinto.