

# Awareness of Students Regarding Ethical Use of Artificial Intelligence (AI)

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## ABSTRACT

Students engaged in higher education are often burdened with multiple assignments, projects and other academic activities on daily basis, which they are required to complete in a stipulated time frame. In a world where tools with Artificial Intelligence (AI) are readily available at their fingertips, it is increasingly difficult to prevent its use. And recent studies have reported the increase in the frequency of use of these AI tools. The solution to this problem is to create awareness among the students about ethical use of AI tools. Although AI adoption and related ethical concerns have been studied in education, significant gaps remain, particularly in higher education institutes of India. Generally, studies are focused on AI usage and academic integrity issues rather than students' ethical awareness. AI ethics also receives limited and inconsistent attention in curricula, and students often use AI tools without adequate ethical guidance. As a result, students' overall ethical awareness across multiple dimensions remains inadequate. Therefore, the present study aims to find out the awareness of students regarding Ethical Use of Artificial Intelligence (AI). Data of students from higher education institutions will be collected using a questionnaire. The results of the study will be instrumental in developing a medium for spreading awareness regarding ethical use of AI tools among students.

**Keywords:** Ethical Awareness, AI Tools, Students of Higher Education Institutions, Academic Integrity, Data Privacy

## INTRODUCTION

Artificial Intelligence (AI) is the new technology that allows machines to analyse human behaviour and responses in various situations and then emulate these responses in performing different tasks. The complexity of these tasks varies in different fields and accordingly different AI tools are developed to undertake these tasks. The world today is moving towards dependency on such AI tools, and so there is a rapid increase in its use in the field of education. In the higher education system, there is a significant increase in integration of AI tools at different levels. These tools are being frequently used for general as well as academic administration. Teachers use these tools for teaching and evaluation purposes. Applications such as intelligent tutoring systems, automated grading systems, and generative AI tools have enhanced the accessibility of knowledge and improved the efficiency of academic activities. These technologies provide personalized learning environments, automated feedback, and improved academic support for students (Nguyen et al., 2023). AI-based educational systems can analyse learner behaviour and adapt instructional strategies according to individual learning needs, thereby enhancing the overall learning experience. Similarly, even students are using more AI tools in the present times. There is an increased pressure of presenting high quality work as well as making timely submissions of the academic tasks and assignments given to the students engaged in higher education. In such scenarios, the AI tools are readily available at the tip of their fingers to help manage these pressures. These AI tools present various

opportunities and benefits to them. Students in higher education institutions use AI tools for academic writing, research assistance, concept understanding, study support, programming tasks, content creation, and time management. Certain AI tools have the potential to generate ideas which reduces the student's ability to produce original work. The widespread availability of generative AI tools has therefore resulted in a significant increase in their usage among students. While these technologies can facilitate learning and improve academic productivity, their rapid adoption has also raised ethical concerns related to responsible use, academic integrity, and data privacy (Nguyen et al., 2023; Tang, 2024). The presence of bias and the question of reliability of AI outputs is also a major concern, when students use these tools without awareness regarding the ethical use of AI tools. Students need to develop awareness of responsible AI use which will ensure Ethical AI supported learning rather than recycling of content available on internet. The increasing reliance of students in higher education on AI tools for their academic tasks has transformed the learning environment. These tools are providing numerous advantages to deal with menial or tedious tasks; their widespread use also raises several ethical concerns. As the students lack awareness of the ethical implications associated with use of AI tools and thus, are unable to adopt responsible way of doing so. Therefore, the present study was undertaken to study the awareness of students regarding Ethical use of Artificial Intelligence (AI).

## REVIEW OF LITERATURE

Artificial Intelligence (AI) is increasingly integrated into education, enhancing learning, assessment, and academic productivity through tools such as intelligent tutoring systems and generative AI (Nguyen et al., 2023). While AI supports academic tasks like writing and research, its rapid adoption raises ethical concerns related to data privacy, bias, and academic integrity. Ethical frameworks by the UNESCO (2021) and OECD (2019) emphasize responsible AI use, including transparency, accountability, and data protection. Similarly, Floridi et al. (2018) highlight principles such as fairness and justice in AI systems. Concerns regarding bias and reliability have also been widely discussed, as AI-generated content may reflect inaccuracies or embedded biases (Akgun & Greenhow, 2021; Bender et al., 2021). Academic integrity is another key issue, with studies indicating that AI-generated content challenges originality and proper attribution (Cotton et al., 2023; Dwivedi et al., 2023). Research also highlights the importance of AI literacy and ethical awareness among students (Holmes et al., 2019; Kasneci et al., 2023). However, despite widespread AI use, students' ethical awareness remains inconsistent, indicating a need for focused research in higher education contexts.

### Objectives of the Study

1. To understand AI usage patterns among students of higher education institutions.
2. To study the awareness of students regarding ethical use of Artificial Intelligence (AI).

## METHODOLOGY

For the purpose of this study, a descriptive research design was selected. The data was collected from 105 students of higher education institutions from Vadodara city using snowball sampling technique. A questionnaire was used to gather the information which was divided into three sections. Section 1 collected background information of the respondents, section 2 focused on AI usage patterns of the respondents and section 3 focused on identifying awareness of respondents regarding ethical use of AI. A 3-point continuum scale was used to study the awareness of the students wherein statements were formed with response structure "Agree", "Undecided" and "Disagree". The reliability of the questionnaire was assessed using Cronbach's Alpha to determine the internal consistency of the scale measuring students' ethical awareness regarding the use of Artificial Intelligence. The instrument consisted of 30 items divided into three dimensions: Data Privacy, AI Bias and Reliability, and Academic Integrity, measured using a three-point Likert scale (Agree, Undecided, Disagree). Negative statements were reverse coded before conducting the reliability analysis. The results indicated an overall Cronbach's Alpha value of 0.865, suggesting acceptable internal consistency of the instrument. The data was organised and presented as descriptive statistics.

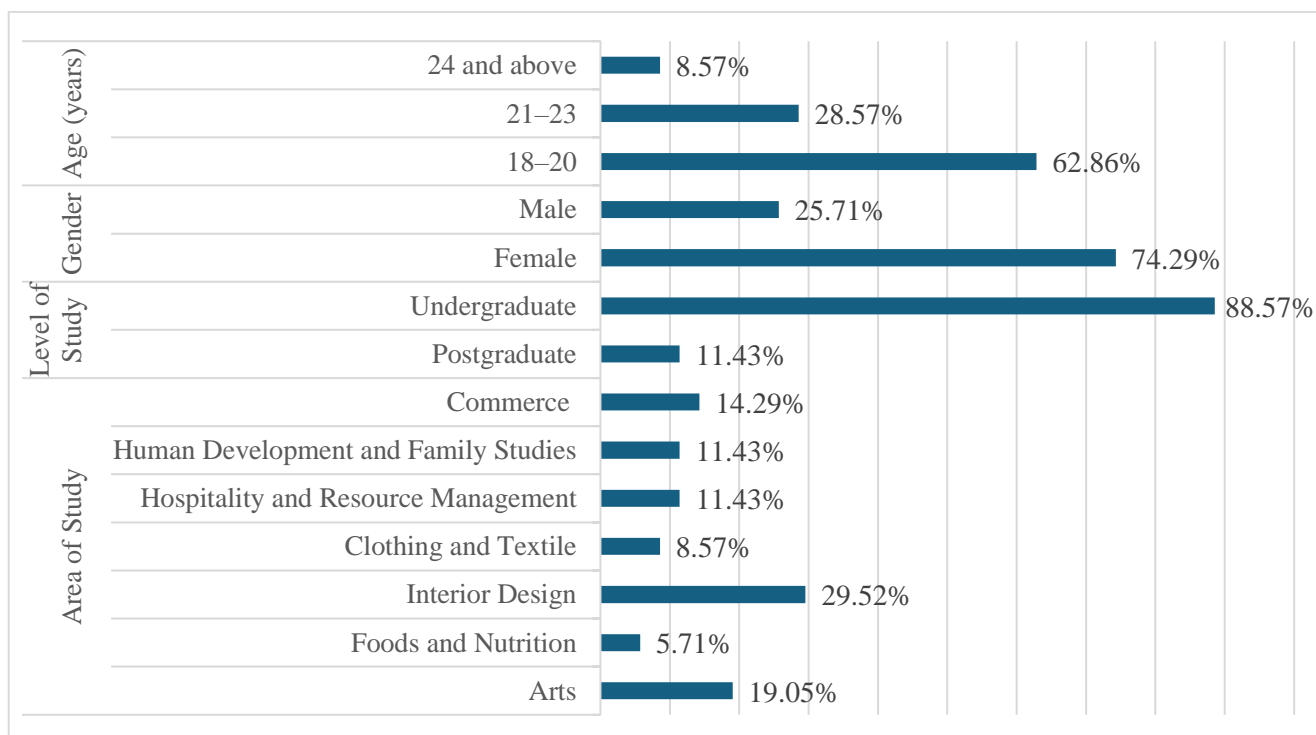
## FINDINGS

Following are the major findings of the study.

### Background information of the respondents

More than one-half of the respondents (62.9%) belonged to the 18–20 years age group, followed by less than one-third (28.6%) in the 21–23 years category, and less than one-tenth (8.6%) were 24 years and above. More than two-thirds of the respondents (74.3%) were female, while less than one-third (25.7%) were male. A majority of respondents (88.6%) were undergraduate students, whereas only slightly more than one-tenth (11.4%) were postgraduates. With respect to the area of study, less than one-third (29.5%) were from Interior Design, followed by less than one-fifth (19.0%) from Arts, and smaller proportions from Commerce (14.3%), Human Development and Family Studies (11.4%), and Hospitality (11.4%). Less than one-tenth belonged to Clothing and Textile (8.6%) and Foods and Nutrition (5.7%) (Figure 1).

**Figure 1. Background information of the respondents**

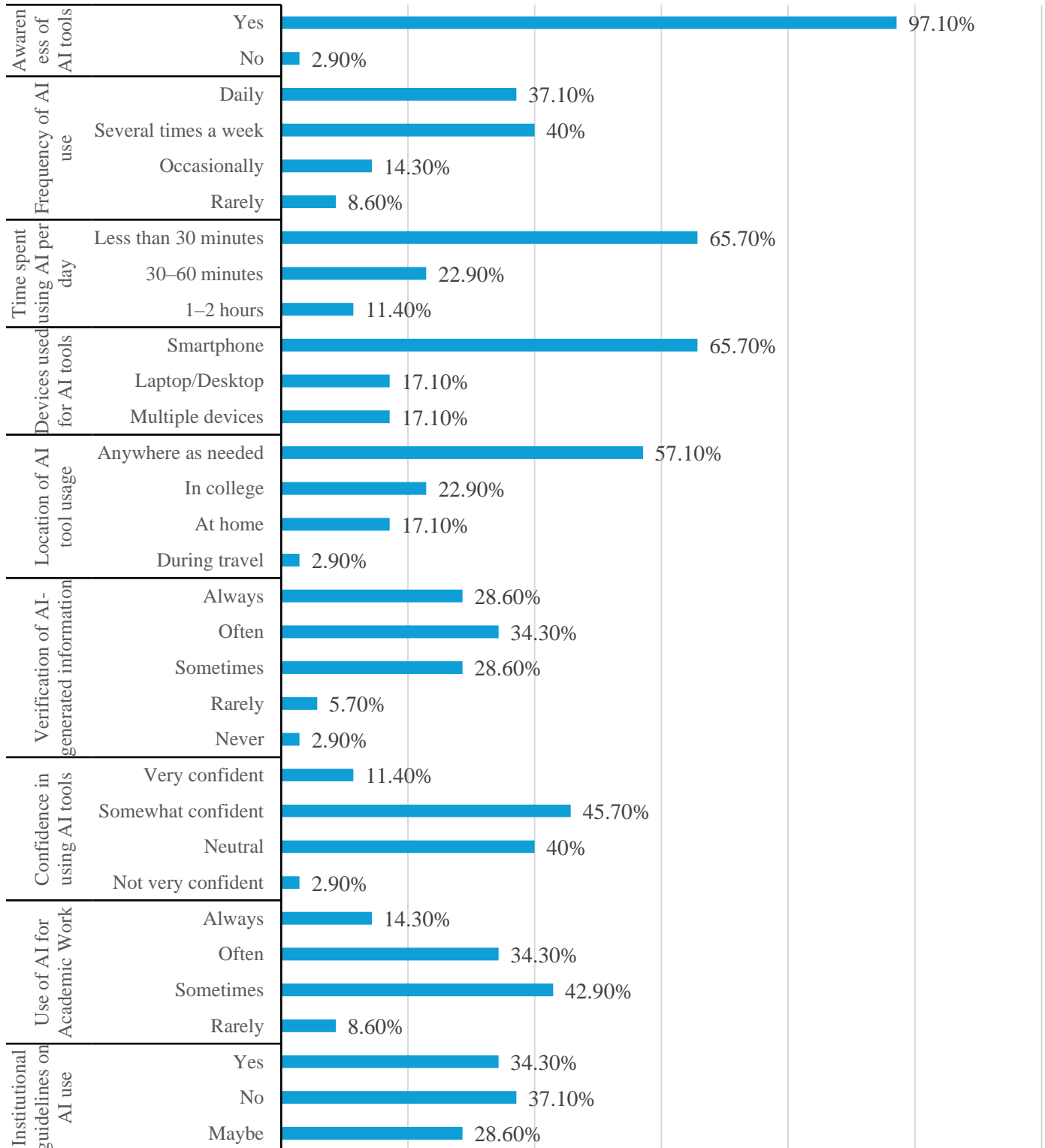


### AI Use Patterns of the respondents

A majority of respondents (97.1%) were aware of AI tools, while only a very small proportion (2.9%) were not aware. Regarding frequency of use, more than one-third (40.0%) used AI tools several times a week, and slightly more than one-third (37.1%) used them daily, whereas less than one-fifth (14.3%) used them occasionally and less than one-tenth (8.6%) used them rarely. In terms of time spent, more than one-half (65.7%) used AI tools for less than 30 minutes per day, while less than one-fourth (22.9%) spent 30–60 minutes, and slightly more than one-tenth (11.4%) spent 1–2 hours daily. More than one-half (65.7%) accessed AI tools using smartphones, whereas less than one-fifth (17.1%) used laptops/desktops and a similar proportion (17.1%) used multiple devices. More than one-half (57.1%) reported using AI tools anywhere as needed, while less than one-fourth (22.9%) used them in college, less than one-fifth (17.1%) at home, and an exceedingly small proportion (2.9%) during travel. Less than one-half of respondents (34.3%) often verified AI-generated information, while slightly more than one-fourth (28.6%) always or sometimes verified it. A very small proportion rarely (5.7%) or never (2.9%) verified information. Less than one-half (45.7%) reported being somewhat confident in using AI tools, while more than one-third (40.0%) were neutral, and slightly more than one-tenth (11.4%) were highly confident. 2.9% of the respondents reported being not very confident. Less than one-half of respondents (42.9%) sometimes used AI for academic work, followed by less than one-third (34.3%) who used it often, and less than one-fifth

(14.3%) who used it always. A small proportion (8.6%) reported rare usage. Less than one-half of respondents (37.1%) reported that no institutional guidelines were available for AI use, while less than one-third (34.3%) indicated the presence of guidelines. More than one-fourth (28.6%) were uncertain about the existence of such guidelines (Figure 2).

**Figure 2. AI Use Patterns of the respondents**



**Awareness of the respondents regarding Ethical Use of AI**

The dimension-wise analysis reveals that students demonstrate high awareness in data privacy (Mean = 2.79), indicating strong concern regarding personal data protection. However, awareness related to AI bias and

reliability (Mean = 2.49) and Academic Integrity (Mean = 2.33) is comparatively moderate. The overall awareness level (Mean = 2.44) suggests that while students are generally informed about ethical AI use, there is a need to strengthen understanding in areas such as critical evaluation of AI outputs and proper academic usage practices (Table 1).

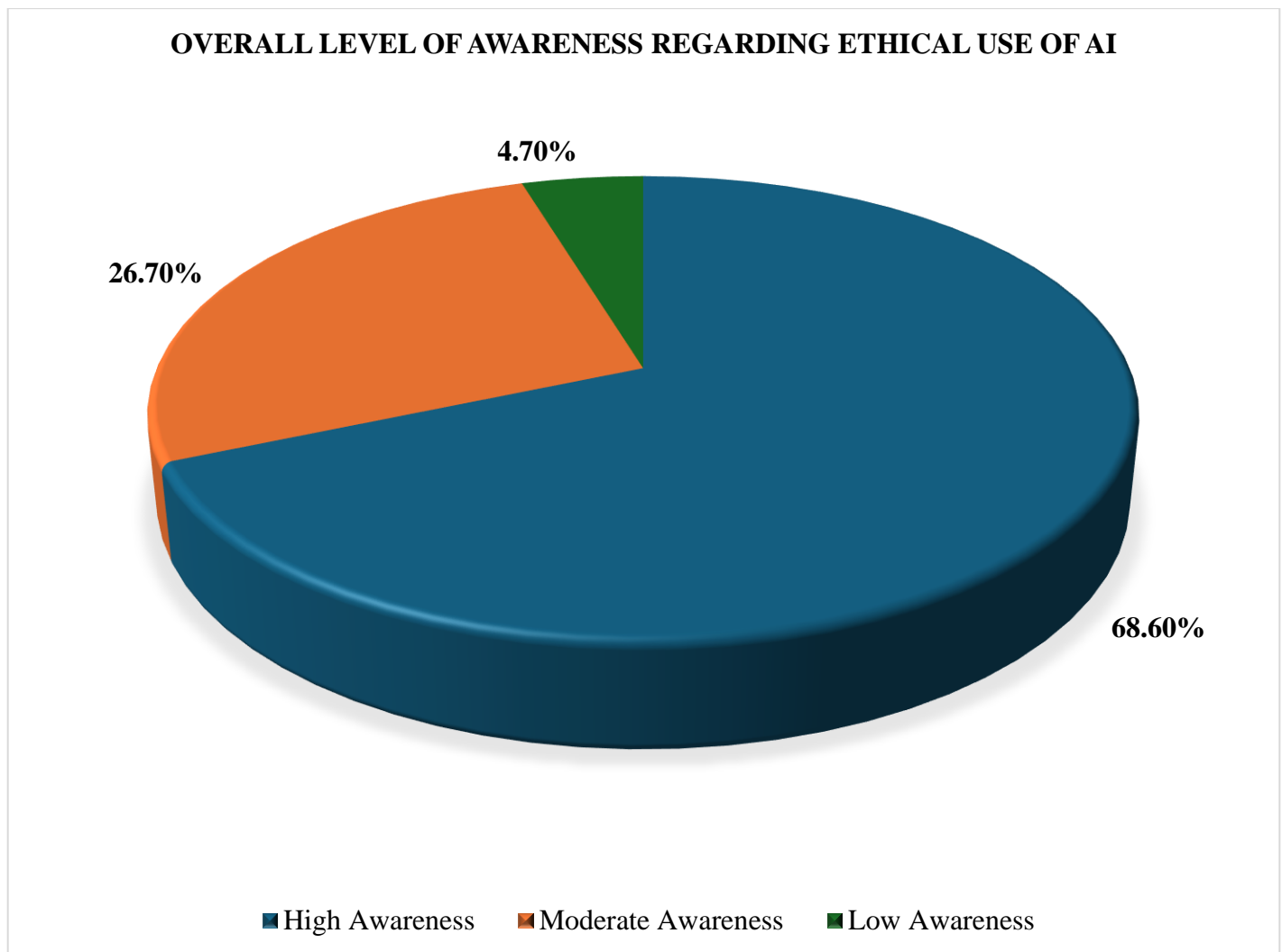
**Table 1: Dimension-wise level of awareness of the respondents regarding Ethical Use of AI**

Dimensions	Mean Score
Data Privacy	2.79
AI Bias & Reliability	2.49
Academic Integrity	2.33
Overall Weighted Mean	2.44

**Overall level of awareness regarding Ethical Use of AI**

More than two-thirds of respondents (68.6%) demonstrated high awareness regarding ethical use of AI. Slightly more than one-fourth (26.7%) showed moderate awareness. A very small proportion (4.7%) exhibited low awareness (Figure 3).

**Figure 3. Overall level of awareness regarding Ethical Use of AI**



**Data Analysis**

Data analyses, including independent samples t-test, one-way ANOVA, Pearson’s correlation, and linear regression, were conducted to examine differences and relationships in students’ ethical awareness of AI.

## Gender-wise Difference in Ethical Awareness (t-test)

**Table 2: Descriptive Statistics for Gender**

Gender	N	Mean	Std. Deviation
Male	27	2.12	0.26
Female	78	2.19	0.24

**Table 3: Independent Samples t-test**

Variable	t	df	Sig. (p-value)
Awareness Score	-1.19	103	0.238

Interpretation: An independent sample t-test was conducted to compare ethical awareness between male and female students. The results indicated no significant difference between male ( $M = 2.12$ ,  $SD = 0.26$ ) and female students ( $M = 2.19$ ,  $SD = 0.24$ ),  $t(103) = -1.19$ ,  $p = 0.238$  (Table 2 and Table 3). This indicates that gender does not significantly influence ethical awareness.

## Age-wise Difference in Ethical Awareness (ANOVA)

**Table 4: Descriptive Statistics by Age**

Age Group	N	Mean	Std. Deviation
18–20	66	2.10	0.23
21–23	30	2.25	0.24
24+	9	2.38	0.26

**Table 5: One-Way ANOVA**

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.72	2	0.36	6.50	0.002
Within Groups	5.68	102	0.056		
Total	6.40	104			

Interpretation: A one-way ANOVA was conducted to determine differences in ethical awareness across age groups. The results showed a statistically significant difference,  $F(2,102) = 6.50$ ,  $p = 0.002$  (Table 4 and Table 5). This indicates that ethical awareness increases with age, suggesting that maturity or academic experience may influence ethical understanding.

## Correlation between AI Usage and Ethical Awareness

**Table 6: Correlation Analysis**

Variables	r	Sig.
AI Usage Frequency & Awareness	-0.22	0.032

Interpretation: Pearson correlation analysis revealed a weak negative correlation between AI usage frequency and ethical awareness ( $r = -0.22$ ,  $p = 0.032$ ) (Table 6). This suggests that higher AI usage is associated with slightly lower ethical awareness, possibly due to overdependence on AI tools.

The analysis revealed no significant gender differences in ethical awareness, while age showed a significant effect. A negative relationship between AI usage and ethical awareness indicates that frequent use may reduce critical engagement with ethical considerations.

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## DISCUSSION

The findings of the present study provide a comprehensive understanding of students' ethical awareness regarding the use of Artificial Intelligence (AI) by integrating both descriptive and inferential analyses. The high level of awareness and widespread use of AI tools among students reflects the increasing integration of AI in higher education, supporting earlier findings that AI enhances learning efficiency and academic productivity (Nguyen et al., 2023). However, the results indicate that awareness is not consistent across all dimensions, with students demonstrating stronger awareness in data privacy compared to AI bias and academic integrity. The inferential analysis further strengthens these findings. The absence of significant gender differences suggests that ethical awareness is uniformly distributed among students, whereas the significant variation across age groups indicates that awareness improves with maturity and academic exposure. This supports the argument that ethical understanding develops progressively through experience and structured learning (Holmes et al., 2019). The negative correlation between AI usage and ethical awareness highlights a critical concern. Frequent users may rely more heavily on AI tools without critically evaluating their outputs, reflecting overdependence and reduced critical engagement. Similar concerns have been reported in literature, where AI-generated content may reinforce bias, misinformation, and unethical academic practices (Akgun & Greenhow, 2021; Bender et al., 2021; Dwivedi et al., 2023). Overall, the findings reveal a gap between awareness and responsible application, emphasizing the need for strengthening AI literacy, ethical training, and institutional support mechanisms in higher education.

## CONCLUSION

The present study highlights that while students in higher education institutions exhibit a generally high level of awareness regarding the ethical use of Artificial Intelligence (AI), this awareness is uneven across different aspects of AI use. Students appear to be more conscious of issues related to data privacy, whereas their understanding of AI bias, reliability, and academic integrity remains comparatively limited. The study also indicates that demographic factors such as age influence ethical awareness, suggesting that exposure and academic experience play a role in shaping students' understanding of responsible AI use. Additionally, the findings point toward a tendency among frequent users to rely on AI tools without sufficient critical evaluation, which may impact ethical decision-making. A key implication of the study is the need to move beyond awareness toward the development of responsible practices. Strengthening institutional frameworks, embedding ethical considerations into academic structures, and encouraging reflective use of AI tools are essential steps. Overall, fostering a balanced approach that combines technological adoption with ethical responsibility is crucial for ensuring the meaningful and sustainable use of AI in higher education.

## RECOMMENDATIONS

Based on the findings, higher education institutions should adopt structured and practical strategies to enhance students' ethical awareness regarding the use of Artificial Intelligence (AI). AI ethics should be integrated into the curriculum through dedicated modules focusing on data privacy, bias, academic integrity, and responsible use, enabling students to develop both theoretical understanding and practical application skills. Institutions should also establish clear and well-defined policies regarding acceptable AI usage, including mandatory disclosure of AI assistance in academic work to ensure transparency and accountability. Regular workshops, seminars, and hands-on training sessions should be conducted to equip students with the ability to critically evaluate AI-generated content, identify inaccuracies, and verify information. Faculty members should redesign assignments to emphasize critical thinking, originality, and reflective learning, thereby reducing overdependence on AI tools. Additionally, awareness programs on data security and ethical responsibilities should be implemented. Continuous monitoring, guidance, and institutional support are essential to ensure that AI is used as a supportive learning tool rather than a substitute for independent thinking and cognitive development.

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