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*What Does the Attitude Towards Artificial Intelligence Depend On? Demographic and Personality Correlates of Attitudes Towards AI***

ABSTRACT

The study examines the correlation between demographic variables such as age, gender, education, and residence, personality traits including Big Five personality traits, and self-esteem, positive orientation, anxiety, and attitudes towards artificial intelligence. The research draws upon Grassini's theoretical framework concerning attitudes towards AI, while also drawing upon extant research which has previously examined the correlates of this attitude. The research was conducted in Poland with a sample of 922 adults. The study employed several scales to measure different constructs (AIAS-4, TIPI-PL, SES, P-Scale, and the S-CL anxiety scale). The study found variations in attitudes towards AI based on gender and education level. Men, individuals with higher levels of education and of positive orientation, and lower levels of neuroticism were more likely to have positive attitudes towards AI. The results of the regression analysis show that gender, age, education level, positive orientation, self-esteem, anxiety, and

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neuroticism are predictors of general attitude towards AI. These findings underscore the necessity for ongoing research into the social and psychological determinants of AI acceptance, and they indicate the requirement for customised strategies that will engender more inclusive and informed technology adoption.

KEYWORDS: artificial intelligence; attitudes toward AI; adults; personality traits; age; gender

INTRODUCTION

In recent years, there has been a proliferation of communication and technological solutions that employ artificial intelligence. The impact of AI on our lives is set to increase in the near future. An important issue is that the decisions to introduce AI technologies are made by large corporations or governments, outside the control of ordinary citizens, while still affecting them. This translates into the significance of attitudes towards AI (Chen & Wen, 2021).

Grassini (2023) did not find evidence that educational level or age predict attitudes towards AI, although gender emerged as a significant factor, with females showing lower scores than males. Similarly, Schepman and Rodway (2023) reported gender differences, and also observed that younger respondents expressed more positive views, while education level remained irrelevant. By contrast, a study from Spain indicated that individuals with higher education tended to hold more favourable attitudes, with no clear role for gender or age (Centeno-Martín et al., 2023). Research from Germany, on the other hand, pointed to age as a meaningful predictor (Stein et al., 2024). Moreover, a higher level of understanding of AI has been consistently associated with more positive attitudes (Kaya et al., 2024). Taken together, these findings suggest no consensus: while some studies highlight the role of gender or age, others emphasise education or knowledge, indicating that the relationship between demographic factors and attitudes toward AI remains unresolved.

As with demographic variables, current research does not offer definitive answers regarding the correlation between personality traits and attitudes towards AI. Research conducted in the UK suggests that positive attitudes towards AI are linked to introversion, conscientiousness, and agreeableness, with no association found with neuroticism and openness to experience (Schepman & Rodway, 2023). In contrast, research conducted in Turkey suggests that negative attitudes towards AI were only linked to agreeableness (among the Big Five traits) (Kaya et al., 2024). In a study conducted by Kaya, Aydin, Schepman, Rodway, Yetişensoy, and Demir Kaya (2024), and in another study conducted in Spain by Centeno-Martín, Toledano-Buendía, and Ardèvol-Abreu (2023), individuals with greater openness to experience showed more positive attitudes towards AI. Similarly, in a German study conducted by Stein, Messingschlager, Gnambs, Hutmacher, and Appel (2024), such a relationship was only reported with agreeableness. In contrast, research conducted in South Korea has revealed additional patterns of connections between attitudes towards AI and personality traits (cf. Park & Woo, 2022). Further evidence indicates that personality traits significantly shape attitudes toward AI in more specific contexts. For example, individuals high in openness expressed greater liking and more positive emotions toward images perceived as AI-generated, suggesting that receptivity to novelty fosters acceptance. In contrast, low conscientiousness and lower emotional stability were associated with stronger negative biases toward AI-generated art, highlighting the role of personality in resistance or skepticism (Grassini & Koivisto, 2024). Moreover, individual differences in basic emotional tendencies also appear to influence how AI is perceived. Higher dispositions toward sadness were linked to more negative attitudes and greater fear of AI, whereas lower levels of sadness were associated with more openness and less apprehension. These findings underline the importance of emotional predispositions in understanding why acceptance

of AI varies across individuals (Montag et al., 2025).The aim of the research is to test the relationship of demographic and personality correlates to general attitudes towards artificial intelligence among Polish.

The study presented several hypotheses.

H1. Men report more positive attitudes towards AI than women.

This hypothesis is grounded in prior research indicating that gender differences may play a role in shaping perceptions of technology. Several studies have reported that women tend to display more cautious or sceptical attitudes towards AI compared to men (Grassini, 2023; Schepman & Rodway, 2023). One possible explanation is that men often report higher levels of self-efficacy and confidence when engaging with digital technologies, which may translate into more favourable attitudes toward AI. Furthermore, cultural and societal expectations around gender and technology may contribute to these differences, with technology historically being perceived as a male-dominated domain.

H2. Age is negatively correlated with attitudes towards AI, with older individuals showing less favourable attitudes.

This formulation reflects consistent evidence that younger respondents are more positive towards AI (Schepman & Rodway, 2023; Stein et al., 2024).

H3. Individuals with higher education report more positive attitudes towards AI than those with lower education.

This reflects findings that higher educational attainment is linked to more positive perceptions of AI (Centeno-Martín et al., 2023), even though results across contexts remain inconsistent.

H4. Self-reported knowledge about AI and perceived impact of AI are positively correlated with attitudes towards AI, such that individuals declaring higher knowledge and stronger perceived influence report more favourable attitudes.

Greater knowledge of AI is consistently linked to more favourable views, as understanding reduces uncertainty and perceived risks (Kaya et al., 2024).

H5. Personality traits are correlated with attitudes towards AI, such that lower neuroticism and anxiety are associated with more favourable attitudes; introversion, conscientiousness, agreeableness, and openness to experience are positively related to favourable attitudes.

Previous studies suggest that individuals who are emotionally stable and less anxious tend to respond more positively to AI. Moreover, traits such as introversion, conscientiousness, agreeableness, and openness to experience have been linked to greater acceptance of AI, as these characteristics are associated with adaptability, cooperation, and receptivity to novelty (Schepman & Rodway, 2023; Centeno-Martín et al., 2023; Kaya et al., 2024; Stein et al., 2024).

H6. Positive orientation and self-esteem are positively correlated with attitudes towards AI, such that individuals with higher levels of positive orientation and stronger self-esteem report more favourable attitudes.

Research indicates that individuals with higher well-being and self-confidence perceive emerging technologies more as opportunities than threats (cf. Park & Woo, 2022).

METHOD

Sample

In December 2023, 1,024 Poles were surveyed, varying in age, gender, education and place of residence and region of Poland. Individuals were interviewed online via the computer assisted web interview (CAWI) method by the research company Pollster Research Institute. At the beginning of the analyses to avoid common method bias affecting the research conclusions, Harman's single-factor test for common methodological bias were used. The results showed that the variance explained by the first factor was 25.97%, which did not exceed 40%, indicating there was no serious common method bias. The interquartile range of the measured variables was then estimated – on this basis, 102 outlier observations were removed.

The final study sample comprised 922 individuals aged between 18 and 83 years (M = 48.45, SD = 16.82), with 478 women (51.8%) and 444 men (48.2%). The participants had vocational (26.0%) or high education (28.6%), while only a small proportion had primary education (6.2%). Additionally, 39.2% of the participants had secondary education. A total of 41.6% of the participants came from rural areas, while the others were from the town. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual adult participants included in the study.

Statistical analysis

All calculations were performed in SPSS version 28. Descriptive statistics, correlation coefficients, tests of significance of differences, and regression analysis were computed. The level of statistical significance was set at $p < .05$.

Measures

AIAS-4 is a 4-item questionnaire validated by Grassini (2023). The AIAS-4 assesses individuals' general attitude towards artificial intelligence and their perceptions of its impact on their lives, work, and humanity as a whole. The internal consistency was good, as indicated by a Cronbach's alpha of $\alpha = .90$. The study used the Polish adaptation of the questionnaire (Talik, Talik, & Grassini, 2025). In the current study, Cronbach's alpha is $\alpha = .93$.

TIPI includes two items measuring each of the Big-Five personality dimensions (Gosling et al., 2003). Within each dimension, one item represents a positive pole, the other a negative pole. The Polish version of the test, as adapted by Sorokowska, Słowińska, Zbieg, and Sorokowski (2014) was used. Cronbach's alpha ranges from $\alpha = .45$ to $\alpha = .83$. In the current study, Cronbach's alpha ranges from $\alpha = .45$ to $\alpha = .68$.

The Rosenberg Self-Esteem Scale (RSES) is a psychometric tool designed to assess self-esteem. The scale in question is a unidimensional 10-item scale (Rosenberg, 1979). Participants are invited to indicate their level of agreement with a set of feelings they might have experienced. The Polish version of the test, as adapted by Łaguna, Lachowicz-Tabaczek, and Dzwonkowska (2007), was utilised in this study. The reliability coefficient of the Polish version of the method, Cronbach's α, ranges from .81 to .83 across the various study groups. In the present study, Cronbach's alpha was found to be $\alpha = .82$.

The Positivity Scale measures the underlying tendency to notice and attach importance to positive aspects of life, experiences and oneself, combining three components: self-esteem, optimism and life satisfaction (Caprara et al., 2012). The Polish version of the test, as adapted by Łaguna, Oleś, and Filipiuk (2011) was used. Cronbach's α coefficient values, which range from .77 to .84. In the current study, Cronbach's alpha is $\alpha = .83$.

The S-CL is a 15-item instrument designed to measure the intensity of anxiety as a personality trait. Anxiety is understood

as the tendency for an individual to perceive situations as threatening or to anticipate future events in terms of danger. This manifests itself through characteristic symptoms at the cognitive, emotional, behavioural and somatic levels (Spielberger et al., 1983). The Polish version of the test, as devised by Piksa, Kosiorowska, and Golonka (2020), was utilised in this study. The Cronbach's α coefficient was found to be .86. In the present study, Cronbach's alpha was found to be $\alpha = .90$.

RESULTS

Statistically significant differences in attitudes towards AI were found between men and women. The results suggest that men ($M = 5.97$, $SD = 2.11$) have more positive attitudes towards AI than women ($M = 5.30$, $SD = 2.09$), but the effect size is small (Cohen's $d = -.32$) (see Table 1).

Table 1. Differences for attitude towards artificial intelligence between female and male.

	Female ($N = 478$)		Male ($N = 444$)		t (920)	p	Cohen's d
	M	SD	M	SD			
Attitude towards artificial intelligence	5.30	2.09	5.97	2.11	–4.88	.001	–.32

Differences in attitudes towards artificial intelligence were calculated based on education level. Although there are differences between individuals with different levels of education, the effect size is small ($\eta^2 = .03$). Those with a Master's or Bachelor's degree have the most favourable attitude ($M = 6.09$, $SD = 1.95$) and are statistically significantly different from those with a VET degree ($M = 5.11$, $SD = 2.28$), and a secondary education ($M = 5.67$,

SD = 2.08). Individuals with secondary education differ from those with vocational education (*M* = 5.11, *SD* = 2.28) (see Table 2).

Table 2. Differences for attitude towards artificial intelligence for education level.

	Primary school or lower high school		VET		High school		Master's or Bachelor's degree		*F*(3, 918)	η^2	Post hoc Tukey's test
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*			
Attitude towards artificial intelligence	5.32	2.01	5.11	2.28	5.67	2.08	6.09	1.95	9.63***	.03	2:3,4; 3:4

*** $p < .001$.

There were no statistically significant differences in attitudes towards AI among people living in localities of different sizes (*F* = .91; *p* =.49).

In the sample of 922 respondents, attitudes toward AI (AIAS_4) averaged 22.49 (*SD* = 8.51) on a scale from 4 to 40. The distribution was close to normal, with slight negative skewness (−0.21) and flatness (kurtosis = −0.27), indicating moderate but varied attitudes toward AI. Correlation coefficients (Pearson's *r* or Spearman's *rho*) were calculated between attitudes towards artificial intelligence and age, as well as the level of knowledge of what artificial intelligence is and the degree to which it affects the respondents' lives (Table 3). The mean age of the respondents was 48.45 years (*SD* = 16.82), while the mean level of knowledge was 4.26 (*Me* = 4.37, *SD* = 1.26, min. 1, max. 6) and the mean degree of impact on their lives was 5.11 (*Me* = 5.25, *SD* = 2.30, min. 1, max. 10) (see Table 3).

Table 3. Interplay between attitudes towards artificial intelligence and age, knowledge about AI and impact of AI (Pearson's *r* or Spearman's rho correlation coefficient).

	Age (*r*)	Knowledge about AI (rho)	Impact of AI (*r*)
M	48.45	4.26	5.11
SD	16.82	1.26	2.30
Attitude towards artificial intelligence	.00	.32***	.43***

*** $p < .001$.

There is no correlation between age and attitudes towards AI. However, respondents with higher levels of knowledge about AI and those who perceive a greater impact of AI on their lives tend to have more favourable attitudes towards it.

Correlation coefficients were calculated between attitudes towards AI and self-esteem, positive orientation, anxiety, and personality dimensions: extraversion, neuroticism, openness to experience, agreeableness, and conscientiousness (see Table 4). In the sample of 922 respondents, the average self-esteem score was 20.99 (*SD* = 4.33), while the positive orientation had a mean of 28.17 (*SD* = 4.46). Among the Big Five traits, mean values were extraversion 9.58, agreeableness 10.61, conscientiousness 10.84, neuroticism 7.62, and openness 8.59 (all on a 2–14 scale). Anxiety averaged 22.84 (*SD* = 7.88) on a 0–45 scale. Distributions were generally close to normal, with only slight skewness and kurtosis across variables.

Table 4. Interplay between attitudes towards artificial intelligence and personality features (Pearson's *r* correlation coefficient).

	Self-esteem	Positive orientation	Anxiety	Extraversion	Neuroticism	Openness to experience	Agreeableness	Conscientiousness
M	20.99	28.17	22.84	9.58	7.62	8.59	10.61	10.84
SD	4.33	4.46	7.88	2.64	2.73	1.83	2.12	2.41
Attitude towards artificial intelligence	−.01	.15***	−.01	.06	−.11***	.06	−.03	.00

*** $p < .001$.

A weak relationship was found between attitude towards AI and positive orientation ($r = .15$) and neuroticism ($r = -.11$). The attitude towards AI was more positive when positive orientation was higher and neuroticism was lower. No association was found between attitude towards AI and self-esteem, anxiety, extraversion, openness to experience, agreeableness, or conscientiousness.

Multivariate linear regression analysis was calculated using the stepwise method. Age, gender, education, residence, personality traits (including extraversion, neuroticism, openness to experience, agreeableness, conscientiousness, and self-esteem), positive orientation, and anxiety were entered as explanatory variables, while attitude towards AI was the dependent variable. Table 5 presents the final step of the regression analysis and identifies the variables that were found to be significant predictors of attitudes towards AI.

Table 5. Predicting attitude severity towards AI based on personality traits and demographic variables – a linear regression analysis.

	B	*SE*	β	*t*	*p*
$F(7, 914) = 16.30$; $p < .001$; $R^2_{adj.} = .10$					
Constant	−4.49	4.09		−1.10	.27
Gender [a]	3.19	.57	.19	5.59	.001
Age	−.03	.02	−.07	−2.00	.05
Education	1.74	.31	.18	6.44	.001
Positive orientation	.53	.08	.28	3.25	.001
Self-esteem	.28	.09	.15	3.72	.001
Anxiety	.17	.05	.16	−2.77	.001
Neuroticism	−.35	.13	−.11	−1.10	.01

Note. $N = 922$. Dependent variable: attitude towards artificial intelligence.
[a] Male = 1, female = 0.

The data indicated that the model was a good fit ($F[7; 914] = 16.30$; $p < .001$). The dependent variable, attitude towards artificial intelligence, was explained by demographic and personality variables in 10% ($R^2_{adj.} = .10$). The strongest predictors were positive orientation, gender, education level. Attitude towards AI is also explained by anxiety, self-esteem, neuroticism and age. More so in males and with an increase in positive orientation, self-esteem and anxiety and with a decrease in neuroticism, as well as the higher the education level and younger the age of life, positive attitude towards AI increases.

DISCUSSION

The goal of the study was to investigate demographic, cognitive, and psychological predictors of attitudes towards artificial

intelligence. The hypotheses focused on gender (H1), age (H2), education (H3), knowledge and perceived impact of AI (H4), personality traits (H5), and positive orientation with self-esteem (H6). The findings are discussed below in light of these hypotheses and existing literature.

The hypothesis concerning gender was confirmed. Men reported more positive attitudes towards AI than women, a pattern consistent with previous findings (Grassini, 2023; Schepman & Rodway, 2023). Although the effect size was small, gender emerged as a significant predictor in regression analysis. The result may be explained by historical and cultural factors, since technology has long been framed as a male-dominated domain. Men are more often socialised to pursue careers in science, technology, engineering, and mathematics (STEM), which can increase technological self-efficacy and familiarity with innovations such as AI.

The hypothesis predicting a negative correlation between age and attitudes was not supported. No significant relationship was observed, although regression analysis indicated a weak predictive role of age. Prior research has documented generational patterns, with younger individuals often reporting more favourable attitudes toward AI (Schepman & Rodway, 2023; Stein et al., 2024). The absence of a clear effect in this study may indicate that increasing societal integration of digital technologies reduces generational differences in AI-related perceptions.

The hypothesis concerning education was confirmed. Participants with higher education (Bachelor's or Master's degree) demonstrated more positive attitudes towards AI compared to those with secondary or vocational education. This finding is in line with results obtained in Spain (Centeno-Martín et al., 2023). Education is likely to increase access to information, critical understanding, and opportunities for engaging with AI, which fosters more favourable attitudes. By contrast, individuals with vocational training may perceive AI more as a threat to employment

or may lack exposure to contexts where AI is framed as beneficial. It should be noted, however, that some studies (Grassini, 2023; Schepman & Rodway, 2023) did not confirm a significant link between education and AI attitudes, suggesting that contextual and cultural differences may shape this relationship.

The hypothesis regarding knowledge and perceived impact was supported. Individuals who reported greater familiarity with AI and stronger perceptions of its influence on their lives expressed more positive attitudes. This result is consistent with previous evidence showing that knowledge reduces uncertainty and perceived risk, thereby fostering more acceptance of emerging technologies (Kaya et al., 2024). A stronger recognition of AI's presence in daily life may also increase awareness of its benefits, such as convenience, efficiency, and new opportunities.

The hypothesis relating to personality was partially supported. A weak but significant negative association was observed between neuroticism and attitudes towards AI, which indicates that emotionally stable individuals reported more favourable perceptions. This finding corresponds with earlier research showing that high neuroticism and anxiety may foster scepticism and discomfort with new technologies (Schepman & Rodway, 2023; Centeno-Martín et al., 2023; Kaya et al., 2024; Stein et al., 2024). Contrary to expectations, no significant associations were found between attitudes toward AI and extraversion, openness to experience, agreeableness, or conscientiousness. The inconsistency of results across studies suggests that personality–AI links may be context-dependent, varying across cultural settings or measurement approaches.

The hypothesis concerning positive orientation and self-esteem was confirmed. Both emerged as significant predictors of attitudes toward AI, although correlations were weak. This finding supports the proposition that individuals characterised by optimism, higher self-confidence, and positive psychological functioning are more likely to perceive technological change as an opportunity

rather than a threat (Park & Woo, 2022). Optimistic orientation and self-esteem may facilitate greater adaptability to new environments, including AI-driven domains.

The attitude towards artificial intelligence was found to be influenced by a number of demographic and personality variables. The strongest predictors were positive orientation, gender, and education level. Additionally, attitude towards AI was found to be explained by anxiety, self-esteem, neuroticism, and age. As previously mentioned, individuals with a positive orientation tend to have more favourable attitudes towards AI. Their self-esteem, optimism, and life satisfaction are likely to lead them to perceive AI in a positive light. Those with a positive orientation may feel more confident in their ability to understand and adapt to AI technologies, which may lead to more positive attitudes. Gender differences in attitudes towards AI, with men generally holding more positive attitudes than women, highlight the influence of social and cultural factors. Higher levels of education are associated with more positive attitudes towards AI, likely due to greater exposure to and understanding of technology. Emotional stability and a lower propensity for worry are associated with more positive perceptions of technology. Age is the least significant predictor of attitudes towards AI, with older individuals generally holding less favourable attitudes. This could be attributed to factors such as less exposure to and familiarity with technology.

By understanding how these demographic and personality variables interact to shape attitudes towards AI, researchers and policymakers can develop targeted interventions and educational initiatives to promote technology acceptance and adoption across diverse populations. They can help ensure that the benefits of AI are accessible to all members of society while addressing the unique needs and preferences of diverse populations. This approach facilitates the creation of a more inclusive and equitable future, in which technology is employed to enhance the well-being and opportunities of all members of society.

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