

Research Paper

Humanizing AI: Correlational Insights into Dysfunctional Attitudes and Chatbot Anthropomorphism among Emerging Adults

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ABSTRACT

This study, titled "Chatbots, as Companions: A Correlational Investigation of Dysfunctional Attitudes and AI Anthropomorphism Among Emerging Adults," examines the relationship between dysfunctional attitudes and the anthropomorphism of AI chatbots among young adults. The research was conducted in South Tamil Nadu with a sample of 230 participants, selected to represent young adult users of AI chatbots. Standardized tools, including the Dysfunctional Attitude Scale – Short Form 1 and the Godspeed Questionnaire Series, were used for data collection. Adopting a quantitative research design, the data were analyzed using Pearson's correlation coefficient. The findings revealed a weak inverse relationship between dysfunctional attitudes and the anthropomorphism of AI chatbots, suggesting that individuals with higher dysfunctional attitudes tend to perceive chatbots as less human-like. These insights contribute to a deeper understanding of the psychological factors shaping human-AI interaction among the youth.

Keywords: *Anthropomorphism, Dysfunctional Attitudes, AI Chatbots, Young Adults, Pearson's Correlation, South Tamil Nadu, Human-AI Interaction*

Artificial Intelligence (AI) has become a significant part of higher education, notably influencing both academic and personal aspects of students' lives. Among various AI tools, conversational agents like chatbots—designed to mimic human dialogue using natural language processing and machine learning—have gained widespread popularity, especially following the release of OpenAI's ChatGPT in November 2022. Research indicates that university students form the primary user base of ChatGPT; however, uncertainties still linger around its full potential and limitations, raising concerns about overdependence or misuse. Christian Stohr et al. (2024) found that out of 5,894 participants, a striking 95% were familiar with ChatGPT, and 35.4% reported regular usage, highlighting the hype surrounding this tool.

The age range of 18 to 25 years, often defined as young adulthood, is a critical period for identity development and self-exploration (Elena M. Higley, 2019). This age group

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Received: April 06, 2025; Revision Received: May 23, 2025; Accepted: May 26, 2025

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constitutes the majority of those pursuing higher education. A concept closely tied to AI usage in this demographic is *anthropomorphism*—the tendency to attribute human traits to non-human entities, including inanimate objects and technologies (Masanori Yamaguchi, Maka Okanda, et al., 2023). With the rise of AI, especially advanced chatbots like ChatGPT, this phenomenon has become more prevalent. People increasingly use human-centric terms such as “intelligence,” “feelings,” and “emotions” to describe AI behavior (Junyi Joey Ji, 2024). Past research by Tahiroglu and Taylor (2019) found that individuals—both children and adults—with imaginary companions are more likely to anthropomorphize inanimate objects and even technology.

A notable incident has brought attention to the psychological risks involved—where a teenage boy developed an emotional attachment to an AI chatbot, which allegedly contributed to suicidal ideation. Imane El Atillah (2024) explains that AI's constant availability and non-judgmental nature make it particularly attractive to young users, who may seek emotional support often lacking in human relationships.

Another important psychological variable is *dysfunctional attitude*, which refers to negative and rigid thought patterns such as “My worth depends on others’ opinions of me.” These attitudes are known predictors of depressive symptoms (Teng-Fei Yu et al., 2024) and can distort perception and impact mental health (Raheleh Rajabi et al., 2024). Though both AI anthropomorphism and dysfunctional attitudes have been studied individually, there is a lack of research exploring the connection between the two. This study seeks to bridge that gap by examining how dysfunctional attitudes might influence, or be influenced by, the anthropomorphism of AI chatbots. Given the increasing integration of AI tools in students' daily routines, investigating their psychological effects is both timely and necessary.

Anthropomorphism has been deeply embedded in human cognition across cultures and history—from ancient deities to modern AI interactions. As AI continues to evolve, the boundaries between human and machine communication blur. Chatbots, especially among young adults, are favored for their ability to simulate human conversation. While this improves engagement and functionality, it also introduces concerns about emotional reliance, ethical boundaries, and psychological impact.

Psychologically, the inclination to anthropomorphize AI often stems from emotional needs. Eyssel and Kuchenbrandt (2012) observed that social isolation increases this tendency, as individuals may seek companionship through AI. Likewise, users with a strong desire for predictability may find comfort in the consistent responses offered by chatbots (Kim & Sundar, 2012). Though these interactions can aid in emotional regulation, they might also reduce meaningful human social connections, leading to withdrawal from real-life relationships (Araujo, 2018). Takahashi (2023) notes that while chatbots can mimic empathy, their lack of genuine emotional capacity can lead to user disappointment or confusion.

Dysfunctional attitudes, as discussed by Beck (1983), can significantly affect emotional health and social behavior. When interacting with AI, individuals with such attitudes might seek constant validation or feel dissatisfied with chatbot responses, reflecting or exacerbating their negative cognitive patterns (Galloghly et al., 2024; Brown & Beck, 2002). Furthermore, cognitive distortions like the “Eliza Effect” (Weizenbaum, 1966)—where users wrongly perceive AI as sentient—can reinforce anthropomorphic beliefs. Glikson and

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Woolley (2020) highlight that trust in AI increases with perceived intelligence and reliability, further intensifying this illusion.

Ethical concerns also emerge as AI becomes more emotionally interactive. Kirchner and Ruch (2021) warn that users, especially those with psychological vulnerabilities, may struggle to distinguish between real and simulated empathy. While AI may offer comfort, its emotional mimicry may result in deeper isolation or manipulation. Polireddi and Kavitha (2023) emphasize that although AI can support mental health, it should never replace human therapists or authentic relationships.

Despite growing academic attention to both anthropomorphism and dysfunctional attitudes, the interplay between these two constructs remains underexplored. This study aims to investigate whether individuals with maladaptive cognitive patterns are more inclined to anthropomorphize AI, thus shedding light on the psychological dimensions of human-AI interaction. Insights from this research can inform mental health practices, AI ethics, and educational policy in the digital age.

Operational Definition:

- **Dysfunctional attitude:** A dysfunctional attitude is a persistent negative or unhealthy way of thinking that affects how a person views themselves, others, or the world.
- **Anthropomorphism:** Anthropomorphism refers to attributing human-like characteristics, emotions, intentions, or behaviors to artificial intelligence chatbots.

METHODOLOGY

Aim:

To study the relationship between Dysfunctional attitude and Anthropomorphism of AI chatbots among young adults.

Objective:

To study the relationship between dysfunctional attitudes and anthropomorphism of AI chatbots among young adults.

Hypothesis:

- **H0:** There is no significant relationship between dysfunctional attitude and anthropomorphism of AI chatbots among young adults

Research design:

- A quantitative research design was employed for the study.
- Sample size and technique: The sample consisted of 230 young adults, selected using convenience sampling.

Tools:

Data was collected using standardized instruments, namely the Dysfunctional Attitude Scale – Short Form 1 and the Godspeed Questionnaire Series.

- Internal Consistency: The DAS-SF1 demonstrated good reliability with a coefficient alpha of 0.84.

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- Godspeed questionnaire, A 24-item scale developed by Christoph Bartneck et al (2009) which assesses anthropomorphism. Internal consistency measures for the English version indicate a Cronbach's alpha greater than 0.70, which suggests good reliability

Procedure:

Method of data collection:

- Questionnaire (both through online and offline collection of data)
- **Sources of data:** The data for this study were collected through questionnaires from young adults between the ages of 18-25 in Madurai who use AI chatbots. A standardized questionnaire was used to gather responses.

Statistical analysis: Pearson's correlation analysis

RESULT AND DISCUSSION

Table No. 1 Pearson correlation between Dysfunctional Attitude and Anthropomorphism of AI chatbots

Variables	Dysfunctional Attitude	Anthropomorphism of AI chatbots
Dysfunctional Attitude	1	-0.122*
Anthropomorphism of AI chatbots	-0.122*	1

Note: $p < .05$ (1-tailed). $N = 230$. The single asterisk (*) in the table indicates that the correlation value is statistically significant at the $p < .05$ level (1-tailed). This means that there is less than a 5% probability that the observed correlation happened by chance. The negative sign indicates an inverse relationship between Dysfunctional attitudes and Anthropomorphism of AI chatbots among young adults. The strength of the correlation $r = -0.122$ indicates a weak correlation between dysfunctional attitudes and Anthropomorphism of AI chatbots among young adults.

DISCUSSION

The present study aimed to examine the relationship between dysfunctional attitudes and the anthropomorphism of AI chatbots among young adults. The null hypothesis (H_0), which stated that dysfunctional attitudes have no significant relationship with anthropomorphism of AI chatbots, was rejected. The findings indicated a weak but significant inverse correlation, suggesting that individuals with higher levels of dysfunctional attitudes are less likely to anthropomorphize AI chatbots, and vice versa.

This weak negative correlation implies that young adults who hold rigid, maladaptive belief systems are less inclined to attribute human-like qualities to AI chatbots. Conversely, those with fewer dysfunctional attitudes may be more open to perceiving AI chatbots as relatable or socially engaging entities.

Several theoretical and empirical findings support this interpretation:

Ghaniabadi (2023) highlighted that openness to innovation influences the perception and use of chatbots. Individuals with higher openness tend to be more adaptable and exhibit fewer

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dysfunctional attitudes, whereas those with rigid thinking may struggle to adjust to novel technologies. This rigidity may explain their lower tendency to anthropomorphize AI chatbots.

Reinecke et al. (2001) found that insecure attachment styles in adulthood are strongly associated with dysfunctional attitudes. Specifically, individuals with avoidant attachment may possess negative cognitive biases toward relationships and tend to avoid emotional connections. Such tendencies may extend to their interactions with AI, reducing the likelihood of anthropomorphism.

Wang et al. (2022) reported that childhood emotional neglect is linked to dysfunctional attitudes and anhedonia—the inability to experience pleasure. Since anthropomorphism often involves forming emotional bonds or perceiving emotional engagement, individuals high in anhedonia are less likely to anthropomorphize AI chatbots.

Otani et al. (2016) found that individuals with elevated dysfunctional attitudes often adopt a negative model of others, characterized by high self-reliance and distrust in external relationships. Such individuals are likely to resist forming connections with both humans and AI, further supporting the inverse relationship observed.

Glikson et al. (2020) emphasized that a chatbot's perceived intelligence and consistency can foster trust, which in turn enhances anthropomorphism. Trust mitigates dysfunctional attitudes such as skepticism or suspicion, possibly explaining the reduced anthropomorphism in individuals with high dysfunctional attitudes.

Brown et al. (2002) identified perfectionism as a component of dysfunctional attitudes. Perfectionists often lack cognitive flexibility, which may hinder their ability to view AI chatbots as human-like or socially engaging. Their rigid standards may prevent them from accepting AI as capable of fulfilling human-like roles.

Jarchi et al. (2014) found a strong link between low self-esteem and high dysfunctional attitudes. Individuals with low self-esteem may avoid both human and AI interactions, leading to a reduced tendency to anthropomorphize chatbots due to social withdrawal or fear of relational failure.

Liu et al. (2023) associated dysfunctional attitudes with anxiety and distrust. Anxious individuals may worry about privacy, data misuse, or overanalyze chatbot interactions, while those with high distrust may be reluctant to place faith in AI. These tendencies may deter anthropomorphizing behavior.

Malik et al. (2022) reported that individuals with neurotic personality traits often develop dysfunctional attitudes. Their skepticism, overthinking, and difficulties with trust may reduce the likelihood of emotionally engaging with or attributing human traits to AI chatbots.

In summary, the observed inverse relationship may be attributed to a combination of psychological factors including cognitive rigidity, attachment insecurities, emotional neglect, perfectionism, low self-esteem, anxiety, distrust, and neuroticism. These

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characteristics, closely associated with dysfunctional attitudes, likely serve as barriers to anthropomorphizing AI chatbots among young adults.

Scope:

- The study focuses on young adults aged 18-25 years.
- This study only focuses on AI chatbots, not other forms of AI technology.
- This study's participants are only from the Madurai region.
- It is a quantitative study.
- The participants of the study are users of AI chatbots, and non-users are excluded.

Limitations:

This study only focuses on young adults from the Madurai region, this study can not be generalized to different cultural contexts or geographical locations.

Implications:

The findings have implications for mental health awareness and digital well-being. They also inform ethical AI design by emphasizing psychological risks. Overall, the study promotes responsible and informed interaction with AI technologies.

CONCLUSION

This study aimed to find the relationship between dysfunctional attitude and anthropomorphism of AI chatbots. Considering the growing usage of AI chatbots among young adults this study was proposed. The findings of the study suggest an inverse weak relationship between dysfunctional attitude and anthropomorphism of AI chatbots. Further exploration in the AI human relationship should be more useful for the future generations.

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Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Kavibharathi, S. & Keziah, D.S.T. (2025). Humanizing AI: Correlational Insights into Dysfunctional Attitudes and Chatbot Anthropomorphism among Emerging Adults. *International Journal of Indian Psychology*, 13(2), 2340-2347. DIP:18.01.211.20251302, DOI:10.25215/1302.211