



The Psychosocial Reasons for the Surge of Chatbot Usage Among Young Adults: A Review

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ABSTRACT

With the advent of Artificial Intelligence (AI), machine learning and advancements in computer technology, there is a growing popularity of conversational agents or chatbots among young adults for seeking different forms of therapeutic and social support. Young adults are also considered to be more vulnerable to various mental health disorders and psychological disturbances. Moreover, the rapid integration of chatbot technology into modern lifestyle has sparked an increasing interest in understanding the underlying reasons behind its widespread adoption, particularly among young adults. The current research aimed to provide a comprehensive overview of the psychosocial factors driving such chatbot usage among young adults worldwide by reviewing previous relevant literature from multiple reputable academic sources such as Google Scholar. From this review paper, prominent research gaps have been identified in the areas of identifying predictors of chatbot usage among young adults of India, its long-term effectiveness in the areas of mental health intervention and its applicability in various psycho-social domains. Overall sparse works have been done on chatbot usage using the Indian population particularly focusing on young adults. Therefore the findings from this paper deem to be important for understanding the future applications of chatbots and their degree of utility in the Indian context.

Keywords: *Artificial Intelligence, Chatbots, Mental Health, Young Adults*

INTRODUCTION

Mental health conditions have become one of the leading causes of disability with its steady rise becoming a growing concern of global public health (World Health Organization, 2018). Young adults are particularly vulnerable to mental health disorders. Such vulnerability is often caused due to financial uncertainties and various life stressors (Education Policy Institute, 2018). The transition from adolescence to adulthood can also lead to social, psychological and physiological health issues among young adults (Shanahan, 2000).

To tackle such mental health issues, multiple health interventions like counselling, medical treatments and national health services have been devised globally. However, due to lack of awareness, prevailing stigma and limited access to mental health care (Eisenberg et al., 2007), majority of young adults suffering from mental health conditions fail to seek help (Macaskill, 2013; Gorczynski et al., 2017).

Therefore, to improve sensitization and access towards such facilities, existing mental health technologies have incorporated mobile phone applications, mental health apps, websites and online peer support communities (Levin et al., 2016; Toivonen et al., 2017) that serves as tools to complement the services and treatments that are usually provided physically by mental health professionals. There are several web-based applications that allow access to book a therapy session with counsellors which will take place via text messaging, audio or video. Among these online services, conversational agents like chatbots and digital or virtual assistants are increasing in popularity. Conversational agent is defined as a technology that allows user interactions with the help of natural language. Chatbots are a type of conversational agents which are computer programs designed to enable text-based conversations or clickable responses which makes it similar to an instant messaging application. These allow immediate interaction anytime anywhere (Linardon et al., 2019). Chatbots are deployed on popular platforms like Facebook which are used by people for social communication with friends and family. Some examples of mainstream chatbots include Apple's Siri, Facebook's M, Google Assistant, and Amazon's Alexa. Therefore, multiple leading companies like Google, Microsoft, and Facebook consider chatbots to be the next popular technology (Folstad & Brandtzaeg, 2017). Examples of other messaging platforms that have incorporated chatbots are Slack, Kik and Viber.

Chatbots have been successfully applied in the domains of education and e-commerce. However, its application in the domain of mental health is still under investigation. The use of

chatbots in mental health is an innovative and emerging field of research and their acceptability can only be speculated at because such AI generated technology can be viewed with lack of trust and as a threat to human employment (Aoki, 2020). Moreover, conversational agents in the domain of health is a matter of serious concern unlike in other domains because the safety of the user and data security and privacy and performance of the chatbot come under question (Palanica et al., 2019; Nadarzynski et al., 2019).

The present review paper aimed to understand the different psychosocial reasons for using therapeutic chatbots among young adults and to find relevant research gaps in this emerging field of AI and mental health in Indian context.

History of Chatbots

Recent years have seen a growing interest in chatbots despite natural language interfaces being known in the fields of computer science and Internet studies. Weizenbaum in 1960s, published an ingenious study on natural language interaction with ELIZA which was a computer program developed to imitate a psychotherapist's responses in a therapy session (Weizenbaum, 1966). According to Dale (2016), since 1991, the impact of the Loebner Prize (a form of annual prize awarded to those computer programs that are deemed to be most human-like) has propelled natural language user interfaces to be more human-like leading to the development of Pandorabots, which is a chatbot platform containing more than 200,000 bot developers as per 2016 records. In 1997, Cleverbot was publicly launched which was known to be the best-known chatbot followed by A.L.I.C.E. which won the Loebner Prize in the years of 2000, 2001, and 2004. Later on it was overthrown by Mitsuku, which won the Loebner Prize in 2013 and 2016.

The current interest in chatbots or conversational agents emerged due to the substantial advancements in computing technology, artificial intelligence and machine learning. Such advancements have led to the broad improvements in domain of interpreting and predicting natural language including improvements in machine translation (Shah, et al., 2016). The growing usage of messaging platforms and accessibility of mobile Internet have also led to the adoption of chatbots (Folstad & Brandtzaeg, 2017).

Rise of Chatbots in India

Chatbots showed a rising popularity in India by transforming the interactional style of businesses with customers. It has even changed how citizens engage with government services. In multiple domains, chatbots have made their entry, for example, Indian e-commerce companies use chatbots to provide instant customer support, answer product queries, process orders, and offer personalized recommendations. This helps businesses handle high volumes of inquiries efficiently and enhance customer experience (Vaish, 2022).

Indian banks are rapidly adopting chatbots to automate tasks like balance inquiries, fund transfers, and loan applications. This allows them to provide 24/7 service, reduce wait times, and improve operational efficiency (Pal & Singh, 2019). Indian hotels and travel companies use chatbots to help customers to book flights, hotels, and travel packages. They are also able to provide travel information, local recommendations and itinerary suggestions recommendations to customers (Pillai & Sivathanu, 2020). Chatbots are also being explored for medication reminders, appointment scheduling, symptom checking, and providing basic health information. However, their use in healthcare is still evolving and continues to face regulatory hurdles. Government agencies are also starting to use chatbots to improve citizen engagement and service delivery. This includes providing information about government schemes, filing complaints, and accessing public services (Androutsopoulou et al., 2019). Chatbots can be effective tools for disseminating information about public health campaigns, disaster relief efforts, and other important initiatives. The rise of chatbots in India can be attributed to the rapidly growing mobile phone user base, making chatbots easily accessible to a wide audience across varying socio-economic statuses.

The chatbot market in India is expected to continue growing rapidly in the coming years. As AI technology advances and adoption barriers are addressed, chatbots are poised to play an even more significant role in other sectors, transforming how Indians live, work, and interact with businesses and government services. However, much research has not been done on chatbots facilitating mental health of Indians.

Emergence of Chatbots in the Field of Mental Health: Therapeutic Chatbots

In the recent years multiple chatbots with mental health orientation known as therapeutic chatbots have been developed which focuses on a variety of mental health

difficulties and also provides education, self-help techniques, diagnosis and counselling (Vaidyam et al., 2019). In the context of mental health, chatbots provide immediate service by mimicking a therapist or counsellor or a peer who is instantly available to answer questions, provide support and advice and engage in interactive and friendly conversations in a supportive manner (Williams et al., 2021). Some chatbots are designed to screen for mental health conditions, potentially enabling early identification of disorders and intervention (Boucher et al., 2021) with the help of interviewing patients about their psychological health and symptoms (DeVault et al., 2014).

This could be particularly valuable for young adults who may not recognize or seek help for their symptoms. Some prominent mental health chatbots that are popular among young adults are the Woebot chatbot which reduces symptoms of stress and anxiety in two weeks (Fitzpatrick et al., 2017) and Wysa chatbot for depression which uses Cognitive Behavioural Therapy (CBT) (Inkster et al., 2018). Previous researches have also observed that such therapeutic chatbots showed enormous potential in addressing mental health-related issues (Følstad & Brandtzaeg, 2017; Brandtzaeg & Følstad, 2018) and in helping individuals to overcome the stigma about mental illness. Previous researches suggest that they may be able to instil greater openness and tolerance about mental health than human clinical interviewers (Slack & Van Cura, 1968; Lucas et al., 2014; Pickard et al., 2016). Certain studies suggest that engaging with chatbots designed for mental health interventions can lead to improvements in anxiety and depressive symptoms (Boucher et al., 2021). However, more research is needed to confirm these findings and to understand its long-term effects.

The present young adult population of the world suffers from various mental health disorders like depressive disorder (Auerbach et al., 2016), generalised anxiety disorder (Merikangas et al., 2010), eating disorders, post-traumatic stress disorders and bipolar disorders. Many young adults also experience social exclusion such as being isolated or excluded from a group (Williams, 2001; Williams et al., 2005). According to 2023 Gallup Poll, 38 % of young adults (aging from 18 to 29) report being lonely (*Loneliness and Depression in Young Adults*, 2023). Such experiences of social exclusion and loneliness are detrimental in nature as it can lead to depression (Nolan et al., 2003) low self-esteem (Leary et al., 1995), anxiety and perceived lack of control and lack of meaningfulness. Such prevailing mental distress among young adults compel them to find a channel to confide in without feeling ashamed propelling them to seek comfort and support in therapeutic chatbots.

People's expectation about therapeutic chatbots being good listeners that honour confidentiality also aids in the surge (Kim et al., 2018). Individuals also feel more comfortable confiding in them without being ashamed as chatbots cannot form their own judgments (Lucas et al., 2014). Users commonly account for moments where they talk about embarrassing experiences with the chatbot because of their ability to listen without being judgmental (Zamora, 2017). Such beliefs lead to the increasing use of chatbots among individuals. Hence chatbots have become the "perfect stranger" as envisioned by George Simmel (1950) to share intimate concerns, as they are situated at an optimum distance to share privacy with safety.

Therefore, therapeutic chatbots provide an easily accessible platform for mental health support and it potentially bridges the gap for individuals who face multiple barriers to traditional therapy, such as stigma, cost, or availability (Boucher et al., 2021). Chatbots that have been already employed in the field of mental health show subtle differences from regular chatbots like ChatGPT, which are used for educational and informational purposes. The latter focuses on conducting specific tasks or instructions while the former is a broader concept which centres on generating more advanced and stimulating human conversations (Stefanowicz, 2024).

Psychosocial Reasons for Using Chatbots

Multiple researches have revealed that the choice of using chatbot is motivated by several basic needs such as entertainment, social connection, identity and information (Brandtzaeg & Folstad, 2018).

Chatbots in general serve multiple functions in the domains of customer service, informational support, social and emotional support and entertainment services. Various types of chatbots are used as virtual assistants (examples, ChatGPT, OpenAI, Poe Bot Creator) and facilitate users to conduct particular tasks or errands (Folstad & Brandtzaeg, 2017). Recent studies have highlighted the multifaceted motivations that drive young adults to engage with chatbots (Brandtzaeg & Følstad, 2017). Additionally, one of the primary reasons is the perceived productivity and efficiency that these automated conversational agents can offer, allowing users to quickly obtain information or assistance (Folstad & Brandtzaeg, 2017). This aligns with the uses and gratifications theory, which suggests that individuals seek out media that can satisfy their specific needs and desires (Folstad & Brandtzaeg, 2017). Young adults often turn to chatbots for their ability to provide quick information and assistance (Folstad &

Brandtzaeg, 2017). Henceforth, in our fast-paced world, chatbots offer a convenient way to get things done efficiently.

Beyond the practical aspects, young adults also report engaging with chatbots for entertainment and social factors (Folstad & Brandtzaeg, 2017). This highlights the social aspect of technology, where even automated interactions can be engaging and enjoyable. Interestingly, some studies have revealed that children and adolescents have also found chatbots to be a source of stimulation and engagement, serving as a form of playful social interaction (Folstad & Brandtzaeg, 2017). This suggests a broader appeal of chatbots beyond specific age groups, highlighting their potential to foster social connections in various contexts. This infers that the interest of chatbots may extend beyond utilitarian purposes, catering to the innate human desire for social connection and novelty. Chatbots like Mitsuku and Replika are popular among young adults that cater to the need for connectedness (Brandtzaeg & Folstad, 2018). Multiple users find chatting with Mitsuku to be comforting and consoling in nature similar to chatting with a fellow human (Brandtzaeg & Folstad, 2018). Recent researches have also revealed users sharing intimate details of their lives to their chatbot friend, Replika which is a well-liked chatbot among young people aging from 18 to 25 years old (Brandtzaeg & Folstad, 2018).

The novelty of chatbot technology itself can be a driving factor for some young adults (Folstad & Brandtzaeg, 2017). As early adopters of new technologies, they are often curious to explore and experiment with the abilities and functions of chatbots. Some users also claim to be using chatbots just for fun or to kill time (Brandtzaeg & Folstad, 2018). As the chatbot technology continues to evolve, the ways in which young adults interact with and perceive these automated agents are becoming increasingly complex.

With growing complexity, the misuse of chatbots among young adults is also not uncommon. With improved sophistication of AI technology, chatbots designed to stimulate sexual interactions have also emerged. Though there is very limited empirical research on the long-term psychological and social impacts of using chatbots for sexual purposes but its effects on young adults can be severe as well. Young adults may use chatbots to satisfy their unfulfilled sexual needs and it may start off as a product of curiosity. However, excessive reliance on chatbots for sexual gratification could blur the lines between reality and fantasy which can potentially impact real-life intimacy. As with other forms of technology, there is also a risk of developing compulsive behaviour or unhealthy attachments related to such chatbots.

In the field of mental health, distinct efforts have been made to develop therapeutic chatbots for companionship and to provide emotional support. During periods of stress and experiences of negative emotions, people often seek social support by talking to others about their problems and seeking comfort. Various studies have shown that social support has significant health benefits in individuals (Reblin & Uchino, 2008) for example, emotional and social support reduces blood pressure (Gerin et al., 1992), decreases mortality rates (Zhang et al., 2007), reduces the risk of having a myocardial infarction (Ali et al., 2006), and helps empowering and boosting the confidence of cancer patients (Ussher et al., 2006). Previous studies have also proved that therapeutic chatbots can significantly reduce negative emotions like stress (Prendinger et al., 2005; Huang et al., 2015), emotional distress (Klein et al., 2002), and frustration (Hone, 2006) while also providing psychological comfort to the user. Interacting with such chatbots about negative feelings, thoughts or sharing stressful experiences may also have similar benefits as discussing these issues with peers and family. With respect to the social and relational factors, many chatbot users have reported that chatting with a chatbot helped in reducing loneliness and facilitated socialisation (Brandtzaeg & Folstad, 2018).

Thus seeking social support in chatbots can have similar psychological, emotional and relational effects as disclosing to another human (Ho et al., 2018). This may occur because of the lack of ability of machines to experience or pass judgments (Bickmore, 2003; Bickmore & Picard, 2004; Lucas et al., 2014; but see also Liu & Sundar, 2018) hence a user may feel more comfortable in sharing personal distressing events to a chatbot than to a person. It was observed that users responded better to chatbots that expressed emotions than those that did not (de Melo et al., 2014; Zumstein & Hundertmark, 2017). According to Brandtzaeg and Folstad (2018), chatbot users usually do not look for social experiences with friends and family. Instead they search for channels for revealing intimate and personal details without being judged by other humans. A chatbot can cater to a person's need for support and connection 24/7 which may not be possible through other means like friends and family (Brandtzaeg & Folstad, 2018). Weizenbaum (1966), also observed the tendency of people to open up more easily with a computer or technology than to humans.

Apart from the lack of judgemental behaviour of the chatbots, other factors might also attribute for the heavy reliance on them for emotional expression. During times of grief and distress humans employ different communicative behaviours to comfort someone and to reduce the emotional distress of another individual (Burlinson & Goldsmith, 1996), one such action is

empathic behaviour. With regard to human-computer interaction, chatbots are able to use empathetic responses to support users just like humans do (Bickmore & Picard, 2005) by understanding the user's emotional state (Reynolds, 2017). Brave et al. (2005) found that users rated those chatbots that used empathetic responses as more trustworthy, caring, likeable, and supporting than those that did not use empathetic responses. Chatbots also help individuals to recover their mood quickly after experiences of social exclusion or social ostracism by allowing people to express and vent out pent up emotions and thoughts (Lepore, 1997; Pennebaker, 1997). Most of the chatbots allow users to maintain anonymity which creates a safe judgement-free zone for venting out. Because of the advanced technology, chatbots are able to use natural "human-like" interactions with user (McTear et al., 2016) which also reinforces such usage.

Another explanation can be provided which explains why people prefer chatting with such therapeutic chatbots. According to the Media Equation Theory (Reeves & Nass, 1996), this happens because humans instinctively perceive and react to computers or other media in a similar manner as they do with people. Although they are aware that computers are inanimate, there is a substantial evidence which proves that humans unconsciously attribute human like characteristics to computer and interact with them as social actors (Nass & Moon, 2000). Additionally people often mindlessly apply social scripts from human to human interaction when communicating with computers (Sundar & Nass, 2000) as they are more accustomed to using cognitive shortcuts or heuristics (Tversky & Kahneman, 1974). Thus, according to Nass and Moon (2000) people are unable to differentiate between mediated and non-mediated experiences and therefore attend to social cues given by machines by successfully "suspending disbelief" in their humanness. Thus, the social nature of humans prevent them from distinguishing conversing with a chatbot from interacting with a fellow human. As per the study conducted by Liu and Sundar (2018), chatbots expressing sympathy, cognitive empathy and affective empathy showed similar effects on the individual as shown in a human-to-human interaction. Therefore, with respect to previous established studies, it can be inferred that people have a strong tendency to respond to such emotional and social cues expressed by the chatbot in the same way as if they had originated from another person.

However, not much is known about what such relationships with these chatbots in general can lead to in future. Whether such conversational agents would exacerbate loneliness and depression among young adults or whether they can be used in a balanced manner for the benefit of users' mental health, is yet to be studied thoroughly across varying contexts. Therefore further research to identify and develop the predictors of chatbot usage must be

conducted to get a comprehensive model regarding what promotes such behaviour among young adults.

EVALUATION

While therapeutic chatbots hold potential for improving mental health, the relationship with conditions like depression, loneliness, and anxiety is complex and warrants careful consideration. While some studies show promise, the overall effectiveness of therapeutic chatbots in treating depression, loneliness, and anxiety remains inconclusive (Abd-Alrazaq et al., 2020). Therefore it is crucial to avoid overstating their benefits and acknowledge the need for further research. The use of chatbots in mental health raises ethical considerations, such as ensuring user privacy and confidentiality, managing potential risks, and setting realistic expectations (Kretzschmar et al., 2019). Though chatbots can be helpful tools, it's important to emphasise that they should not replace human interaction and professional help when needed. Over-reliance on chatbots could potentially aggravate feelings of loneliness or isolation in some cases and can lead to addictive tendencies like behavioural or cognitive oddities and withdrawals due to abstinence from chatbot. This is especially important for young adults as they may become dependent on such chatbots and continue to seek for social companionship and instant need gratification instead of opting for human interaction and other healthier coping strategies. Severe cases of mental health issues cannot be solely solved using chatbots. Physical therapy, guided assistance and physical social support are needed for maximum effectiveness and functioning.

Therefore before integrating chatbots into our lives some ethical implications must be considered by the users and the developers. Chatbots often collect personal information during interactions, hence, safeguarding user data is paramount, especially in sensitive contexts like mental health. Robust security measures are necessary to prevent data breaches and protect user privacy (Coghlan et al., 2023). Users should also be clearly reminded that they are interacting with a chatbot and not a human, especially considering the rising sophistication of conversational AI (Murtarelli et al., 2021). Chatbots like Character.ai known for its hyper-realistic AI conversational ability, constantly keeps a reminder of “Remember: Everything Character says is made up” underneath every chat-room as per their guidelines to keep the line demarcating human and non-human firm.

While full transparency may not be feasible, efforts should be made to explain how chatbot algorithms work, particularly regarding potential biases or limitations (Stahl, 2021). Clear guidelines are needed to determine liability in cases where chatbot interactions can lead to harm or aversive consequences. This includes considering the roles of developers, providers, and users (Coghlan et al., 2023). Users should be fully informed about the capabilities and limitations of chatbots before engaging with them, especially in sensitive contexts like healthcare or therapy (Kretzschmar et al., 2019). It is important to promote responsible use of chatbots and avoid fostering dependence. Users should also be encouraged to seek human interaction and professional help when needed (Coghlan et al., 2023).

By addressing these ethical considerations, work towards harnessing the potential of chatbots while safeguarding user well-being and societal values can be made successfully. It must be kept in mind that chatbots (therapeutic or in general) are not a “one-solution-fits-all” technology and therefore people can have several motivations and purposes for utilising chatbots.

CONCLUSION

The rise in chatbot usage among young adults reflects a larger trend of technology integration into the modern lifestyle. Although chatbots offer efficiency, convenience, psychological support and entertainment, it is important to approach their proliferation with a critical and discerning eye.

From this review the multifaceted reasons behind young adults' adoption of therapeutic chatbots, ranging from practical needs to social desires have been highlighted. However, the ethical implications of increased chatbot usage cannot be overstated. Furthermore from this review, research gaps have been delineated especially in the areas of identifying predictors of chatbot usage among young adults of India, its long-term effectiveness in the domain of mental health intervention and its applicability in other psycho-social domains. Sparse works have been done on chatbots in the field of mental health using the Indian population. Therefore, this review acts as a clarion call for shifting the attention of researchers, psychologists, developers and policy makers towards AI and chatbots.

As we venture into the age of conversational AI, seeking a balance between technological advancement and ethical responsibility is paramount. This requires a

collaborative effort from developers, policymakers, researchers, and users. This way we can harness the potential of chatbots in the field of mental health ensuring their beneficial integration into the lives of young adults.

ETHICAL COMPLIANCE SECTION

- A. Funding: The author has no funding to disclose
- B. Compliance with Ethical Standards: Not Applicable
- C. Conflicts of Interest: The author declares no conflicts of interest

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