

Response to Reviewer 1 Comments

Point 1: On page 3, following strong statement need references. Social media is ubiquitous in people's daily lives, playing an increasingly significant role. Statistical data show that as of October 2023, the global social media user count has reached 4.95 billion, accounting for 61.7% of the global population, and the number of social media users continues to grow at an accelerating pace.

Response 1: Thank you for your kind comments. Based on your helpful suggestion, we have added data sources and references for this statement.

Point 2: Similarly, on page 3, the perspectives need to be defined and clarified in the following statement; Currently, there are two main perspectives on the nature of this concept: one view considers it a nonpathological problematic use behavior [4], while the other view regards it as a pathological addictive behavior.

Response 2: Thank you for your kind comments. We have adjusted the order of the introductory part as follows: "One view is that it is a nonpathological problematic use [4] associated with mild to moderate psychological and physiological symptoms (e.g., anxiety, depression, etc.). Another view is that it should be considered a pathological addiction [5], which explains the difficulty in controlling behavior [6] and that social media overuse can have similar negative psychological and physiological consequences as other addictive behaviors [7]."

Point 3: On page 4, define or give example of "Currently, the cognitive-behavioral model".

Response 3: Thank you for your kind comments. We revised the sentence and added the statement “its main focus has been on patients’ irrational cognitive problems. Changes in patients’ views and attitudes toward the already used people or toward changing psychological problems [22]” to define the concept.

Point 4: On page 5, it seems an overclaim "Large language models (LLM) are deep learning models trained on a large amount of text data (with parameters reaching into the billions), which is capable of generating natural language text or understanding the meaning of text and subsequently performing natural language processing tasks such as text classification, question-answering, and dialog", provide the reference.

Response 4: Thank you for your kind comments. Based on your helpful suggestion, we have added data sources and references for this statement.

Point 5: On page 5, the following information is irrelevant that does not contribute to the understanding of explored topic. It should be removed and an account of the use of chatbots and ChatGPT in solving communication problems can be included to provide the base for the discussion of the use of ChatGPT in solving problematic social media usage.

Response 5: Thank you for your kind comments. Based on your suggestions, we deleted “For example, BERT is a bidirectional model constructed based on the Transformer encoder module, GPT is a unidirectional model constructed based on the Transformer decoder module, and T5 is a model built on both the Transformer encoder and decoder.”. It is currently considered that the remainder can express LLM's status and is therefore retained.

Point 6: On page 6 this is choppy "Therefore, ChatGPT can serve as an

anonymous communication partner to help those unwilling to reveal their feelings to humans address problematic social media use."

Response 6: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: "ChatGPT can help people with problematic social media use by compensating for the limitations of real-world conditions while also acting as an anonymous communication object to enhance the objectivity and efficiency of chats" And as a brief summary of the two views from the previous article.

Point 7: On page 7, these statements are overclaims otherwise should be supported by references; As a chatbot embedded with GPT, ChatGPT can enhance its communication and venting capabilities by better understanding users' emotional states and needs. Unlike traditional chatbots, ChatGPT moves away from rigid, mechanical responses by learning and understanding human language and thought processes.

Response 7: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: "Compared to previous chatbots, the ChatGPT chatbot has evolved from being static database-driven to a blend of real-time learning and evolutionary algorithms and has learned new responses and contexts based on real-time interactions with humans [38]."

Point 8: On page 7, "Users can improve the responses by asking additional questions, and through multiple rounds of communication, ChatGPT generates clear, logical, and organized responses." You may want to consider here different levels of difficulty faced by the users in conveying what exactly the users want ChatGPT to do in its generated responses.

Response 8: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: "ChatGPT understands and learns from the users' language and internal thinking, ultimately generating well-focused, logical, and organized responses."

Point 9: On page 7, this information seems repetitive and can be removed.

Response 9: Thank you for your kind comments. Based on your suggestions, we deleted the sentences with duplicated meaning.

Point 10: On page 8, correct it. (gender, age, race, etc.).),

Response 10: Thank you for your kind comments. Based on your suggestions, we have fixed this error.

Point 11: On page 8, "This information and resources include the harms of problematic social media usage and the potential benefits of improvement, methods and tools for self-monitoring and evaluation, as well as techniques and strategies for regulating one's state and addressing issues, helping individuals view their social media usage correctly." if it is based on observation then provide examples of the strategies and techniques for regulating one's state and addressing issues; and if it's based on the previous studies then provide references.

Response 11: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: "These include (1) curricular information and resources focused on cognitive-behavioral skill enhancement [42], such as the harm of problematic social media use and the benefits that may result from improvement [23]; (2) a problematic social media screening and evaluation tool [43], which can be used for self-monitoring and assessment; and (3) the design of an Internet-based intervention program [42] to help users regulate their own state and solve

problems.” Based on your helpful suggestion, we have added data sources and references for this statement.

Point 12: On page 8, "With a foundation of diverse information, users can self-analyze, consciously identify problematic social media usage, proactively establish healthy social media usage habits, and better manage their social media behavior." How? it is justified too late under the next heading as "ChatGPT can analyze users' activity characteristics and perform data analysis during their use of social media. It can monitor the content and quality of what users browse on social media, as well as the duration, time periods, and frequency of their social media usage, to assess the reasonableness of their social media usage and promptly identify problematic usage."

Response 12: Thank you for your kind comments. Based on your suggestions, we found the original sentence inapplicable here and therefore delete it. We have adjusted the order of the introductory part as follows: “This information and resources can help users identify and improve problematic social media use.”

Point 13: On page 9, relate it to ChatGPT "For example, when Tiktok detects that a user has been watching videos for too long, it may display text prompts and insert public service videos featuring familiar celebrities to encourage users to relax their eyes, engage in physical activity, and spend more time socializing with family and friends.

Response 13: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: “For example, with appropriate programming, ChatGPT can send specific messages to customers when it detects that a user has been watching a video for too long by inserting a public service video with the participation of a celebrity that the

user is familiar with, etc., which may improve customer compliance [45]. It also encourages them to bring positive changes to their daily lives and address possible barriers, such as encouraging users to relax their eyesight, exercise, and spend more time with their loved ones and friends [45]. It can also inform clients of stress coping strategies, dietary recommendations, physical activity based on current conditions and user preferences, and routines, among others [45]."

Point 14: On page 9, relate it to the problematic use of social media in stead of presenting general limitations of GPT as "First, ChatGPT may operate based on erroneous data. The data that ChatGPT learns from are sourced from the public internet, including but not limited to webpages, books, social media, and conversational data. Due to the vast amount of data and the limitations in current filtering technologies, ChatGPT often replicates text without reliably citing original sources or authors, leading to the inclusion of biased and erroneous content in the dataset. Second, ChatGPT operates with "hallucinations," which is considered a significant issue in large language models [34]. Many researchers have pointed out that ChatGPT sometimes presents fluent and convincing sentences that contain factual inaccuracies, false statements, and erroneous data".

Response 14: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: "Users with problematic social media usage tendencies are more likely to belong to a group with limited access to information sources. Without the ability to discern errors, they may be misled by false information and inappropriate recommendations when using ChatGPT, which is detrimental to improving problematic social media usage." This paragraph combines ChatGPT with problematic social media use.

Point 15: On page 10, it is overclaim unless it is supported with the references, "It may provide inappropriate and erroneous advice to users with problematic social media usage, which not only fails to truly help them but may even cause harm.".

Response 15: Thank you for your kind comments. Based on your suggestions, we have changed the title of this paragraph into "There is bias in alleviating problematic social media usage.". We deleted "It may provide inappropriate and erroneous advice to users with problematic social media usage, which not only fails to truly help them but may even cause harm." and added "Research has found that the richness of ChatGPT language responses and the comprehensibility of writing in some languages are significantly inferior to those in English" to argue.

Point 16: On page 10, "The initial purpose of collecting data is to serve the users" data collection suddenly appears here, whereas it was discussing problematic use of social media. It should be clarified what type of data and for what purpose?

Response 16: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: "Using ChatGPT requires providing a large amount of data, such as users' account information, user content, communication information, and social media information [50]."

Point 17: On page 11, these are overclaims whereas, several studies have investigated such issues "If users perceive ChatGPT as a more important communication entity than real people, prioritizing interactions with machines over human interactions could lead them to become increasingly detached from real society, resulting in negative impacts. Overdependence on

ChatGPT may hinder normal development and improvement of individuals' critical and independent thinking abilities." so, provide the references.

Response 17: Thank you for your kind comments. Based on your suggestions, we provided references to support for the paragraph. “can access them 24/7 with just a click, potentially exacerbating addictive behavior [48]. Research has shown that autonomy is directly correlated with positive treatment outcomes and is common in effective treatment interventions [53,54] and that enhancing autonomy is important for reducing problematic social media use.”

Point 18: On page 11, "Currently, the delineation of rights and responsibilities for using ChatGPT remains unclear, and there is no corresponding entity to bear responsibility for any adverse effects that may arise from ChatGPT" does not clarify the implications. Updated Privacy policy of ChatGPT that will be affective from January 31, 2024, can be referenced here with significant points of concern.

Response 18: Thank you for your kind comments. Based on your suggestions, we have adjusted the order of the introductory part as follows: “These rights and responsibilities include awareness of the limitations and biases of ChatGPT and that OpenAI, as the developer, is responsible for ensuring that the ChatGPT algorithms are autonomous and beneficial to the users [57].”

Point 19: On page 13, it is a strong conclusion "The role of professional medical intervention should not be overlooked or avoided simply because of ChatGPT's capabilities. Given the shortcomings of ChatGPT in complex psychological, emotional, sociocultural aspects, it is important to integrate human therapists and others to work in conjunction with ChatGPT to leverage their combined strengths in alleviating problematic social media

usage.". But it has never been discussed earlier in the manuscript. such strong conclusion should be embedded and pointed towards a relevant paragraph where interventions by ChatGPT and by medical experts should be compared.

Response 19: Thank you for your kind comments. Based on your suggestions, we have deleted “involving the development of an integrated process that combines artificial intelligence and human therapists.” .