

A Review and Analysis on Predicting Psychotic behaviors of Social Media Posts using Recurrent Neural Networks

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Abstract—Social media platforms have become an integral aspect of everyday life for individuals worldwide, with a usage rate of over 72% among adults. Nevertheless, the utilization of social media can exert detrimental effects on one's mental well-being. Social media platforms offer a convenient and efficient means of communication for individuals with mental disorders. Lately, there has been considerable interest in using machine learning (ML) approaches to explore mental health by analyzing large amounts of social media data. We aim to systematically review and analyze research trends predicting psychotic behaviors in social media posts using recurrent neural networks (RNNs). Many argue that some of these negative effects are not a direct cause of social networking; however, social media has increased the risk for these tendencies. We focus on a few of the negative effects to explain social media's impact on our lives, sometimes without us even knowing it, and we also propose some social media use to improve mental health. Research indicates a favorable correlation among elevated levels of anxiety, depression, suicide attempts, and heightened utilization of social media. In addition, 77% of participants indicated modifying their behaviors due to using social media.

Index Terms— Mental health, social media analysis, mental disorder prediction, machine learning, recurrent neural networks.

I. INTRODUCTION

In modern times, a considerable proportion of people rely on social media platforms, including Facebook, Twitter, Snapchat, YouTube, and Instagram, to discover and form relationships with each other. While social media offers certain benefits, it is important to recognize that it can never fully replace authentic face-to-face relationships. Engaging in direct contact with other individuals is essential for triggering the secretion of hormones that decrease stress levels and foster emotions of joy, contentment, and positivity [1]. Ironically, despite its intention to promote connectivity, excessive engagement with social media can trigger sensations of solitude and isolation, as well as exacerbate mental health conditions such as anxiety and depression [2]. Mental health encompasses an individual's holistic state of emotional, social, and psychological well-being. It affects an individual's cognitive, behavioural, and emotional capacities. Mental health encompasses the capacity to proficiently cope with stress and exercise sound judgement throughout all phases of life [3]. Ensuring optimal mental well-being is of utmost importance throughout all phases of life, spanning from early childhood to adulthood. Mental health remains a predominantly taboo subject, with insufficient societal awareness. One's

actions and cognitive processes can be influenced by their mental health. Australian healthcare system is significantly burdened by poor mental health conditions. Multiple pieces of evidence [4-5] suggest that, despite government funding, there is an inadequate supply of inpatient mental health services to meet the demand. Moreover, it is expected that the population will face a surge in the need for mental health services as they start to encounter the psychological consequences of the pandemic COVID-19 [6]. Contemporary algorithms can improve the diagnosis of mental health conditions and enhance the accuracy of treatment targeting by using a data-driven approach to meet increasing demand. Advanced computational methodologies, including machine learning, deep learning, and artificial intelligence, possess the capability to significantly enhance the mental well-being of individuals [7].

The application of these advanced techniques enables the potential for precision medicine. Precision medicine seeks to individualize treatments by considering the unique attributes of each patient, rather than relying on average characteristics of the general population [8]. In recent times, the notion of precision medicine has brought forth the possibility of tailored mental health care. This customization is commonly referred to as precision psychiatry. The field of research exploring the utilization of artificial intelligence, machine learning, and big data in the domain of mental health treatment is growing rapidly. Artificial intelligence will be incorporated into mental health care in the future. This concept is widely acknowledged by psychiatrists in active practice. However, clinicians hold varying opinions regarding the extent to which artificial intelligence will disrupt the field. Some psychiatrist's express doubts about the capacity of artificial intelligence to provide compassionate care to patients [9].

However, a small majority of individuals hold the belief that artificial intelligence will possess the capability to diagnose or predict patient outcomes with higher precision compared to the average psychiatrist [10]. While opinions may vary regarding the extent of artificial intelligence disruption, most clinicians maintain that mental health professionals will never be entirely supplanted by artificial intelligence. While it is improbable for artificial intelligence to entirely supplant the individualized and compassionate care delivered by a psychiatrist, this document will explore the data-driven informatics techniques that have the capacity to significantly revolutionize the diagnosis, identification, and management of depression [11].

Fig.1 shows the continuous process of predicting psychotic behaviors of social media posts using a machine learning model, i.e., prepare the dataset, start processing, and send the processed dataset to the training model.

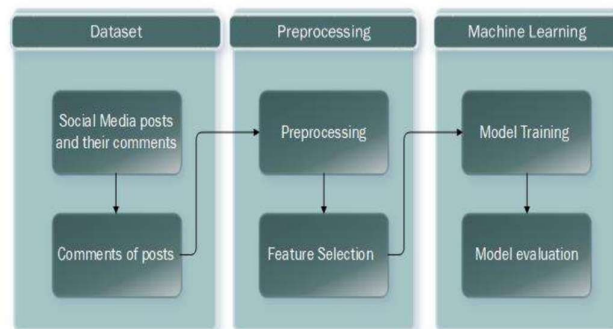


Fig. 1. Steps for Predicting Psychotic Behaviors of Social Media Posts using ML Model

A. Review and Analysis on Predicting Psychotic Behavior of Social Media Post's Negative Impact on Mental Health

Researchers worldwide have documented that heightened social media utilization can yield detrimental and beneficial effects on an individual's mental well-being. The negative impacts include diminished self-esteem, depression, and anxiety, as evident from the subthemes that have emerged. In recent years, online social media networks have emerged as a significant platform for individuals with mental illnesses to openly discuss their challenges and seek emotional support and valuable information. Reddit is a platform that hosts sub-groups known as 'subreddits' dedicated to various topics, including mental illnesses like anxiety or depression [12-13]. The extensive utilization of social media platforms has resulted in the production of substantial quantities of written information, granting researchers a distinctive chance to understand individuals' psychological well-being. Anticipating psychotic behaviour based on social media posts is a demanding and crucial undertaking, as prompt identification can facilitate timely interventions and assistance. This review cum analysis paper examines the most advanced techniques and methodologies for forecasting psychotic behaviour in social media posts using

Recurrent Neural Networks (RNNs) [14]. In contemporary times, social networking platforms and microblogging websites like Twitter have become prevalent across all age groups. These platforms serve as a means for individuals to connect with others and share their thoughts, emotions, and interests [15]. Depression, a prevalent psychiatric condition, is characterized by a profound and persistent feeling of sadness and a lack of interest in various activities. Failure to promptly treat this can lead to severe repercussions, including fatality. In the current era of the digital realm, individuals find it easier to convey their emotions on online platforms, as these platforms have become an integral aspect of their daily existence. The research utilizes machine learning classifiers on the Twitter dataset to identify whether a person's tweet indicates depression [16].

Recent suicide prevention statistics indicate a growing trend of individuals sharing their final thoughts online. This is made possible by the abundant availability of textual information on social media platforms, which allows researchers to analyse this data. Moreover, psychological research has demonstrated that our mental condition can be reflected in the linguistic characteristics we employ for communication. This article examines the feasibility of automatically distinguishing suicide notes from other forms of social media blogs through two document-level classification tasks. The primary objective of the first task is to discern suicide notes from depressed individuals and blog posts within a dataset that is evenly distributed. In contrast, the second experiment focuses on assessing the effectiveness of classifying suicide notes when there is a substantial volume of neutral text data. This scenario is more relevant to real-world situations [17-18].

The Anxiety and Depression Association of America (ADAA) reports that approximately 40 million individuals in the United States are affected by an anxiety disorder. It is the prevailing category of mental disorders in the nation [19]. Nevertheless, a mere 36.9% of individuals diagnosed with an anxiety disorder undergo treatment. Anxiety, as defined by the American Psychological Association (APA), is an emotional state characterized by feelings of tension, worrisome thoughts, and physiological alterations such as elevated blood pressure [20]. Having a clear understanding of the distinction between normal feelings of anxiety and an anxiety disorder that necessitates medical intervention can assist individuals in recognizing and managing the condition.

Social anxiety disorder, also known as social phobia, is characterized by an intense fear of negative evaluation or judgment from others in various social settings, including online platforms such as social networking sites. Social networking site anxiety disorder encompasses a spectrum of emotions, such as performance anxiety, an aversion to emotional closeness, and apprehension regarding embarrassment and rejection. Anxiety is a multifaceted reaction to actual or perceived dangers. It can encompass cognitive, physical, and behavioural alterations [21].

The presence of actual or perceived threat induces a surge of adrenaline, a hormone and neurotransmitter in the brain. This, in turn, initiates anxiety responses through a mechanism known as the fight-or-flight response. Certain individuals may encounter this reaction in challenging social circumstances or proximity to significant occasions or choices. Occasionally, the length or intensity of anxiety can exceed what is expected based on the initial cause or source of stress. Additional physical manifestations, such as heightened blood pressure and feelings of nausea, may also arise. These responses escalate from anxiety to an anxiety disorder [22]. When anxiety progresses to the point of becoming a disorder, it can disrupt daily functioning.

Mental health is an individual's overall emotional, social, and psychological well-being. It impacts an individual's cognitive, behavioural, and emotional abilities. Mental health is the ability to effectively manage stress and make decisions at every stage of life. Maintaining good mental health is crucial at every stage of life, from childhood to adulthood. The topic of mental health is largely taboo and lacks adequate societal awareness. Modern algorithms can optimize the diagnosis of mental health conditions and enhance the precision of treatment targeting by utilizing a data-driven approach to accommodate rising demand. Advanced computing techniques such as machine learning, deep learning, and artificial intelligence have the potential to make a positive impact on the mental health outcomes of individuals [23]. The concept of precision medicine has recently introduced the potential for customized mental health care. This customization is frequently known as precision psychiatry. The field of research investigating the applications of artificial intelligence, machine learning, and big data in the realm of mental health treatment is expanding at a rapid pace [23]. Although there are varying opinions on the extent of artificial intelligence disruption, most clinicians maintain that mental health professionals will never be entirely re-placed by artificial intelligence [24].

Although artificial intelligence is unlikely to completely replace the personalized and empathetic care provided by a psychiatrist, this paper will discuss the data-driven informatics methods that have the potential to greatly transform the diagnosis, detection, and treatment of depression [25]. Due to the proliferation of social media platforms and the affordability of internet services, digital media has become pervasive in the lives of nearly everyone, particularly among the younger and older generations. In India, the number of users on Twitter alone has reached 27 million as of July 20223 according to Statista. As of March, 2023, the United States has

implemented a requirement for all new visa applicants to provide information about their social media accounts, as reported by BBC News. This demonstrates the significant extent to which social media has proliferated and simultaneously assumed a role in assessing users' behaviour and psychological state. It can also be utilized for other purposes, such as tracking users during emergencies [26-27].

B. Health Problems Associated with social media

Facebook and similar social networking platforms may give individuals a deceptive perception of connection, ultimately exacerbating feelings of loneliness in those who already experience solitude. Excessive use of social media is linked to a wide array of mental and physical health issues. Furthermore, aside from diminishing productivity, engendering distractions, and exacerbating burnout, they can also give rise to significant medical ailments [22].

Elevated Risk of Obesity: Inactive lifestyle, prolonged periods dedicated to social networking.

Eating Disorders: The influence of "ideal" body types in Western media on the development of eating disorders has been widely acknowledged. However, recent studies have focused on investigating social media's impact in initiating and disseminating these illnesses. Studies have demonstrated that eating disorders can be transmitted within social networks in a manner analogous to the spread of a virus.

Mental Health Disorders: Excessive use of social media daily has an adverse impact on the well-being of children, rendering them susceptible to psychological conditions such as attention deficit and hyperactivity disorders, anxiety, and depression.

Sleep Disorders: Medical professionals confirm that school-aged children suffer from sleep disorders due to the increased utilization of social media. Consequently, these sleep disorders significantly impact the children's capacity to uphold a whole-some lifestyle and hinder their academic performance.

Facebook Addiction Disorder refers to the condition where individuals experience a fear of disconnecting from social media platforms due to the belief that they will miss out on significant events or information. The condition, which lacks a clinical diagnosis and is not yet acknowledged by the wider medical community, is garnering attention. Recent research has revealed that Facebook and other social media platforms possess addictive qualities comparable to those of alcohol or cigarettes. Excessive utilization of social media has also been associated with lower academic performance. Engaging in social media has become a perilous activity for individuals afflicted with depression, anxiety, suicidal inclinations, and other mental health conditions. Although young individuals are more prone to experiencing mental health problems as a result of using social networking platforms, individuals of all age groups can be negatively impacted, especially adults who have a predisposition to addictive tendencies. Individuals must comprehend the indicators of an adverse social net-working circumstance. A study was conducted in response to the increasing incidence of suicide fatalities resulting from cyberbullying. Research has revealed that studying the relationship between Internet use and rising suicide rates is challenging due to the relatively small number of individuals worldwide who engage in this tragic act (approximately one million people). However, it has identified multiple repercussions associated with Internet usage and the escalation of suicide rates. Furthermore, suicide methods can be accessed via the same social media platforms. Excessive use of social media is linked to a wide array of mental and physical health issues. Furthermore, aside from diminishing productivity, engendering distractions, and exacerbating burnout, they can also give rise to significant medical ailments.

C. Learning systems to predict Psychotic Behaviors of Social Media Posts

Traditional research endeavors to identify interventions that are effective at the collective level [4-5]. Nevertheless, as previously emphasized, recent research reveals substantial symptom variability among patients with identical diagnoses. Therefore, diagnosis alone is inadequate for determining appropriate treatments [7]. The inconsistency in response to treatment interventions among patients diagnosed with identical conditions highlights the variability of categorical diagnostic systems. This is particularly evident in the case of major depressive disorder, where prescribing treatments and achieving remission rates pose significant challenges. Antidepressant treatments have shown remission rates ranging from 35 to 43%, with a percentage of patients achieving remission after their initial treatment course [15-16]. However, it is important to note that patients can still attain remission of their disorder, with approximately 77% estimated to achieve remission after undergoing multiple trials of antidepressant treatments [17]. Therefore, an optimal approach for allocating treatments should aim to maximize the probability of achieving a positive outcome. There is no standardized method for prescribing treatments using Ensuring the Specifications' Integrity.

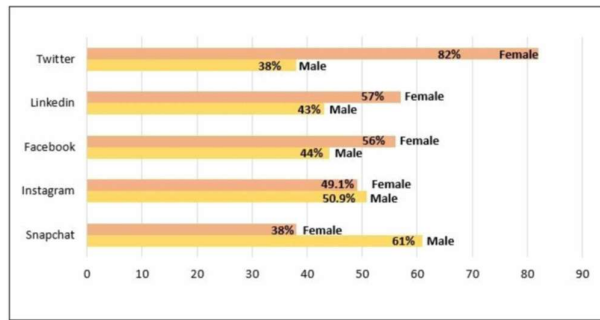


Fig. 2. The global distribution of social media audiences by gender as of mid-2023

D. Recurrent Neural Networks Based Prediction of Psychotic Behaviours of Social Media Posts

Recurrent neural networks (RNNs) are artificial neural networks in which certain node connections create a directed cycle. Recurrent neural networks are neural networks that have been improved by adding connections between adjacent time steps, allowing the model to incorporate temporal information. Recurrent Neural Networks (RNNs) typically lack cycles in their conventional connections, resembling the structure of feedforward networks. Conversely, edges that occur repeatedly or edges that connect neighboring time steps have the potential to create cycles. A cycle of length one, a self-loop, refers to a connection from a node to itself across time. An artificial neural network (ANN) is comprised of numerous perceptron. A perceptron is a mathematical function that operates on two input values. It multiplies these inputs by randomly assigned weights, adds them together along with a bias value, applies an activation function to the result, and outputs the final value. The adjustable weights and bias values determine the output of the perceptron when provided with two specific input values.

The utilization of perceptron allowed researchers to construct multi-layered networks with adjustable parameters capable of performing a diverse array of intricate tasks. The backpropagation mechanism is employed to tackle the task of determining the optimal values for weights and bias in a neural network. Unlike previous networks, which have been successfully utilized for sequence labeling tasks in natural language processing and other applications, where only previous input can impact the output, this is different. Recurrent Neural Networks (RNNs) are more appropriate for examining time-based and sequential information, such as text or videos. The neural network was widely acknowledged for its invention as a significant advancement in the field. Drawing inspiration from the intricate neural networks of the human brain, the architecture introduced an algorithm that empowered computers to optimize their decision-making abilities, essentially allowing them to acquire knowledge through a process known as "learning." During the backpropagation process, an Artificial Neural Network (ANN) is provided with an input, and the resulting output is then compared to the expected output. The discrepancy between the intended and observed output is subsequently incorporated into the neural network through a mathematical computation that determines the necessary modifications to each perceptron in order to attain the intended outcome. This process is iterated until a desirable level of precision is achieved.

This particular type of artificial neural network is highly effective for basic statistical prediction tasks, such as forecasting an individual's preferred football team based on their age, gender, and geographical location. However, employing AI for more challenging tasks, such as image recognition, necessitates a more intricate neural network structure. Recurrent Neural Networks (RNNs) can analyze sequential data, such as text or video, by utilizing loops that enable them to remember and identify patterns within those sequences. The recurrent cells, which are the units responsible for these feedback loops, allow the network to effectively store and preserve information over some time. Detecting Psychotic Behaviour in Social Media Posts To predict psychotic behaviour in social media posts, RNNs can be trained on datasets of labelled posts, which are categorized based on their mental health status. These labelled datasets can be obtained from clinical records or crowdsourced annotation efforts. RNNs can then be used to analyse the linguistic and emotional content of posts, as well as the presence of specific keywords, phrases, or linguistic patterns associated with psychosis. Predicting psychotic behaviour from social media posts using RNNs represents a promising avenue for early intervention and support for individuals at risk of mental health crises. However, this field also presents ethical and technical challenges, which need to be addressed responsibly. As RNN technology continues to advance, it holds great potential for contributing to mental health research and public health efforts by identifying those in need of assistance and support in a timely manner.

E. Discussion & Analysis on Learning systems to predict Psychotic Behaviors of Social Media Posts

In recent years, online social media networks have emerged as a significant platform for individuals with mental illnesses to openly discuss their challenges and seek emotional support and valuable information. In the contemporary era, a significant number of individuals depend on social media platforms, such as Facebook, Twitter, Snapchat, YouTube, and Instagram, to discover and establish connections with one another. Although both have advantages, it is crucial to acknowledge that social media can never serve as a substitute for genuine interpersonal relationships. Physical interaction with others is necessary to stimulate the release of hormones that reduce stress and promote happiness, well-being, and optimism. Paradoxically, despite its purpose of fostering connectivity, excessive involvement with social media can induce feelings of loneliness and seclusion, as well as intensify mental health issues such as anxiety and depression. The field of precision psychiatry is gradually incorporating advancements in deep learning, machine learning, and natural language processing. This paper provides a comprehensive overview of the current advanced techniques and unresolved psychiatry and social media post issues.

Enhanced cooperation between social mental health experts and data scientists is necessary to effectively translate this research into enhanced patient results. Over the past ten years, there have been significant progressions in the technologies utilized to facilitate social mental health. In the field of depression detection and diagnosis, there is a noticeable shift from using machine learning algorithms to employing advanced deep learning architectures like RNNs. Nevertheless, the adoption of deep learning architectures could be clearer when it comes to predicting treatment response. Although quantitative data such as EEG, fMRI, and MRI are utilized in this field, it heavily depends on established technologies like SVM. Limited approaches are available for directly feeding raw neuroimaging data, such as EEG, into Deep Learning Algorithms. Therefore, there is a potential for utilizing deep learning techniques to acquire feature representations for predicting treatment response and simplifying data preparation of social media posts. Table 1. Represents various social networking site's dataset model with their accuracy levels.

TABLE I. PERFORMANCE COMPARISONS OF VARIOUS DATASET OF SOCIAL NETWORKING SITE

Author	Dataset	Used-Model	Accuracy Level
[8]	Anxiety and depression illness dataset	SVM	Accuracy 94
[6]	Instagram dataset	SVM	Accuracy 87%
[24]	Twitter dataset	Naive Bayes	Accuracy 89%
[12]	Reddit dataset	Decision Tree	Accuracy 92%
[1]	Facebook comments dataset	KNN	Accuracy 93%
[21]	LinkedIn Dataset	Random Forest	Accuracy 96.47%
[16]	Smart phone dataset	Random Forest	Accuracy 96.44-98.14%
[17]	Snapchat dataset	SVM	Accuracy 72-75%

When trained on a time series data collection, Recurrent Neural Networks (RNNs) function as latent variable models, capturing the fundamental dynamic process. They construct a model of the person as a dynamical system, which can be utilized to forecast the individual's behaviors and propose appropriate interventions in advance in order to alter the projected behavioral trajectory.

The generative nature of RNNs allows us to simulate and predict the impact of environmental factors. The model can produce new behavior when projected into the future. This allows for the emulation of model inputs, enabling the assessment of the impact of specific interventions and their hypothetical interaction with other variables and the dynamic process itself. RNNs can provide insights into abnormal mechanisms that underlie psychosis or other conditions. Integrating multiple features and inputs can uncover previously unknown or unanticipated relationships between environmental factors and behavior. Given the intricate nature of these relationships, which often encompass intricate temporal dependencies over extended periods, it can be challenging to evaluate them intuitively. However, increasing awareness through feedback could be beneficial from a psychological and educational standpoint. Indeed, while these models possess significant capabilities, they also present significant obstacles. These encompass the computational and data components of model training, ethical and data safety concerns, and the choice of suitable model inputs and features (which may be sampled at varying frequencies and adhere to different distributions). Efficient recurrent neural network (RNN) models often require substantial data volumes to derive their numerous parameters. An effective approach to address this issue is "transfer learning". This involves utilizing data collected from a larger population to initially train the model and then using data from the specific individual to further refine and optimize the model.

Psychological Analysis Using social media: Facebook, Twitter, Instagram, and Reddit are social media platforms that contain substantial amounts of data that can be utilized for psychological classification tasks (Fig.3 shows a psychological analysis of these social networking site). Psychological analysis involves the extraction of psychological information from textual data. Twitter is a renowned social media platform that millions of individuals use globally. Individuals express their viewpoints on current trends or political turmoil and discuss notable events. Twitter users express their opinions or views through tweets, which are limited to approximately 250 words. The imposition of this limit elevated the significance of Twitter data. Given the word limit of tweets, users employ specific vocabulary to convey their opinions and emotions.

Currently recognized as a central platform for political and government figures, primarily politicians and government officials, Twitter is utilized for many announcements regarding international and national projects [8-9]. Users engage in discussions regarding the perspectives presented by different political parties. Psychological analysis of tweets collected from the Twitter platform can assist in determining election results during the election period. Facebook is another renowned social networking platform.

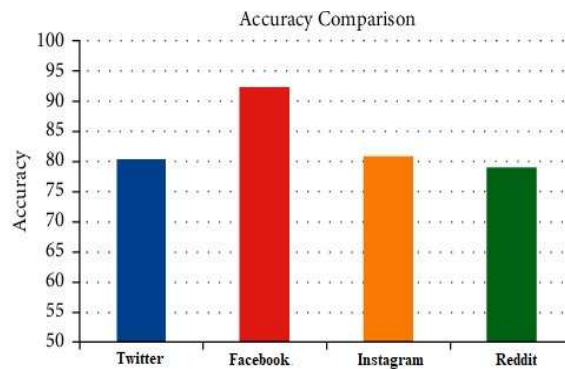


Fig. 3. The global psychological analysis of these social networking site

With the growth of the Internet, Facebook gained widespread popularity in 2007 [7]. In 2023, Facebook has a staggering user base of 7 billion individuals globally. Platform users offer valuable perspectives on businesses, movies, politics, and trends. Facebook generates a substantial volume of data annually, encompassing images, text, and links. Facebook is a platform comprising various online communities where individuals with similar interests connect and express their psychological perspectives and opinions [11]. Online communities, such as political forums, engage in discussions regarding their preferred and disliked political figures and parties with divergent viewpoints. Such data is valuable for comprehending individuals' psychological inclinations towards their political affiliations. Another category comprises mental health support groups, where individuals engage in discussions about their mental well-being, sharing their daily struggles and experiences with ongoing treatment [9]. Data obtained from these particular groups yields ample textual information to comprehend the psychology of individuals within said groups. Identifying psychology using text data is simpler than using image-based data, as the latter necessitates the utilization of deep learning classifiers and high-quality image-based data.

Facebook displays advertisements from different companies and stores data about the companies we search for on the Google platform. Typically, these advertisements occasionally employ surveys to comprehend user psychology regarding their perception of the business organization. Facebook offers a selection of emoticons in the "Posts" section that depict basic human emotions. In contrast, machine learning-based methods encompass both supervised and unsupervised learning techniques, such as neural networks, which yield highly effective outcomes. Hybrid methods exist that integrate dictionary-based approaches with machine learning techniques. Treatment response prediction provides empirical evidence regarding the likely effect of an intervention. Currently, clinicians rely on experimentation and observation to ascertain the most efficacious antidepressant for a specific patient [4, 14, 15]. Treatment response prediction facilitates the shift from an arbitrary prescription of treatments to providing evidence-based treatment recommendations substantiated by data. Here, we propose some social media use cum alternation to improve mental health:

Minimize online presence: According to a recent study by the University of Pennsylvania in 2022, limiting social media usage to 30 minutes per day yielded a noteworthy decrease in anxiety, depression, loneliness, and sleep disturbances. However, it is unnecessary to significantly reduce your social media usage to enhance your mental well-being. The study determined that simply being more cognizant of your social media usage can yield advantageous outcomes for your emotional state and concentration.

Shift your attention: Many individuals utilize social media out of sheer routine or to passively occupy idle periods of free time. However, by directing your attention towards your underlying drive for accessing online platforms, you can not only diminish the time allocated to social media but also enhance your overall encounter and circumvent numerous unfavorable consequences.

Allocate additional time to socialize with friends and family in person, away from digital platforms. Humans require direct interpersonal interaction to experience happiness and maintain good physical and mental well-being. When used optimally, social media is an excellent tool for facilitating genuine interpersonal connections. However, if you have permitted virtual connections to supplant genuine friendships, numerous methods exist to establish significant connections without depending on social media. Allocate a specific weekly period to interact face-to-face with friends and family without using technology. Strive to establish a recurring gathering in which you consistently refrain from using your mobile devices. If you have disregarded in-person friendships, contact a former acquaintance (or an online acquaintance) and schedule a meeting. If both individuals have hectic schedules, one can propose jointly accomplishing errands or engaging in physical activities. Participate in a club.

Cultivating and articulating gratitude towards significant aspects of your life can provide a much-needed respite from the negative emotions such as resentment, animosity, and discontent that can arise from engaging with social media. Allocate a sufficient amount of time for introspection and contemplation. Consider maintaining a gratitude journal or utilizing a gratitude application. Maintain a record of all the remarkable recollections and favorable aspects in your life, along with those entities and individuals whose absence would be deeply felt. If you express your frustrations or post negative content more frequently, you can also choose to express your gratitude on social media. However, it may be more advantageous for you to engage in private introspection that is not subject to the critical evaluation of others. Engage in the practice of mindfulness.

II. CONCLUSION AND FUTURE REMARKS

The application of Recurrent Neural Networks for forecasting psychotic behaviour in social media posts is a developing and encouraging area. This review and analysis paper offers a comprehensive examination and evaluation of the current advancements, difficulties, and moral deliberations. In recent years, there has been significant advancement in utilizing wearable technologies to collect behavioural, physiological, and other social networking site's data in real-life situations to enhance our comprehension of psychosis. In this discussion, we have presented the idea that Recurrent Neural Networks (RNNs), a highly effective statistical machine learning technique for analysing and predicting time series data, can be trained using multiple data modalities simultaneously. This allows the RNNs to learn a dynamic model to forecast individual trajectories and schedule online feedback and intervention as needed. Subsequent investigations employing this methodology are expected to pro-vide novel opportunities for advancing our comprehension of therapies for psychosis.

In order to bring personalized prediction of psychotic behaviours of social media posts, future efforts should focus on acquiring more extensive datasets and conducting empirical validation through randomized control trials. Enhanced cooperation between healthcare professionals and artificial intelligence researchers could expedite the adoption process and guarantee the utilization of cutting-edge techniques to enhance health outcomes.

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