

COUNSELING AND TREATMENT OF MENTAL DISORDERS USING ML

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ABSTRACT

This paper comes up with the concept of software that offers the solution for mental health problems and reveals mild symptoms of mental health online. To be more specific in the assessment of the user's mental condition, we do it by requesting a person to make a report on their lifestyle, daily functioning and any symptoms that has been recognised. In addition, this application is also useful in detecting the disease and even medicines for the patients. In case the user needs, this application also has a self-counselling feature for the user to help them cope up with the problems even if they are afraid of interaction. This is the one-stop platform for all the answers to the questions related to mental health care and they can be opted from articles or chatbots. In the same manner it as a platform for those who want to have healthy lifestyles for the purpose of body and mentality efficiency with some suggestions and reminders available. It becomes one of the platforms for the users because it enables people to find the right and the best for them, either they want to know the counselors or psychologist near their location. Students can as well engage with the system to receive counselling through the online counsellor by scheduling a meeting with their means.

This software focuses on accessibility, supporting those hindered by busy schedules or geographical constraints. Additionally, this software seeks to provide personalized preventive measures, suggesting healthy habits and lifestyle changes to reduce the risk of developing mental health conditions. As well as this software project focuses on accurately detecting various mental disorders, including phobias, depression, and anxiety. Users can self-assess on five different levels, and the software analyzes data through five distinct approaches to pinpoint the specific mental disease.

It also suggests a higher likelihood of a particular disorder, the system alerts users, recommending a meeting with their preferred psychologist. Users can share a personalized report generated by the software with their doctor for comprehensive clarification and guidance on mental health issues.

Keywords: Online Mental Healthcare, Psychiatrist, Online Counseling, Symptom Based Prediction, Data-Driven Therapy, Behavioral Analysis, Mental Health Care.

I. INTRODUCTION

With the period of high-tech creation, mental health is revealed as the global issue, [1] about 70% of individuals with mental health disorders grow up with symptoms before 25, so the problem demands right, available and compassionate solutions. We made it possible only through our project to integrate human psychology with the latest technology achievements, thus the counseling and treatment for mental disorders were greatly reviewed. our goal is to provide a comprehensive, extensive, and reliable method that detects and understands issues like depression, anxiety, and phobias and subsequently offer more creative and engaging therapeutic approaches.

Our method consists in using the statistical data analysis and an intensive mixture of self-recorded behaviors along with real-life psychological testing in order for the final results to be comprehensive. [2] Mental disorders affect over 450 million people which leads to being the second cause of disability worldwide. Our software is not only able to diagnose a user but recommends a help option. It gives a user the opportunity to use our tools or to direct the user to professional help experts. This way we help to bridge the gap between just assessment and treatment and we can expect that in the near future every mind will care for.

The counseling stays as one of the most useful methods in curing of the mental disorders like a major depressive disorder (MDD). To help in recognition of depression symptoms, enhance positive cognitive patterns as well as beliefs, improve social relationships and reach an adaptive level of healthy functioning in

performance are the goals of counseling. People tussling blindly with different mental illnesses such as anxiety, depression and phobias. The software project can be considered to be a scientifically based innovative one as a solution to this challenge.

It is through such multifaceted endeavor that the users are enabled to measure him/herself on five levels, determine their levels through chatting experience, insight through lifestyle, through psychological tests as well as the recent symptom evaluation. The software aims to meet the need for diagnosis of disorders like Generalized Anxiety Disorder, Panic Disorder, and Major Depressive Disorder amongst increasing density of population in mental health field and in turn, empowering individuals to actively take care of their own health. Given that the mental health issues underreported now, this project is our stance sign, which combines technology advancement with the human compassion for saving the minds of the people and healing their hearts.

II. LITERATURE REVIEW

Due to the increasing rate of mental problems, a demand for diversified software tools designed for mental health emergence moved up. In this process knowledge of the evolving field requires historical facts and more recent study with regards to occurring systems.

Building on Early Efforts: (1980s-2000s)

The endeavors originating from ELIZA and computer-assisted therapy (CAT) programs laid a foundation, and in the 1980s and 2000s, researches went even further to examine ethical issues of mental health software [3],[4]. Research brought up issues about the dependence on the technology by the users as a replacement for the human reasoners [5]. The report of this research highlighted the significance of integrating software applications with traditional therapy methods for the optimal outcome where technology would be found to enhance rather than substitute human interventions in the mental healthcare.

The Rise of the Internet and Mobile Apps: (2000s-2010s)

A breaking up of new kinds came into existence when they developed technology based on the internet and the mobile market. By making interfaces user-friendly and increasing the accessibility of online counseling, such as the tools for self-help and digital platforms for therapy, the evolution of these technologies happened. This solved a major problem – there were not enough health specialists and they tended to be absent in remote areas. Studies were tested the efficacy of iCBT in several mental health conditions and have shown evidence for treatment effectiveness among anxiety and depression [6].

Despite the fact that these developments brought a lot of new products to the market, many issues of quality and regulation emerged. Wright et al. study (2000) pointed out the importance of strong mental health education, evidence-based approaches in mental health software [5]. The necessity is present not only in Peterson et al. (2017), but also in Firth et al. (2017) who argue that the standards and regulations should be developed to ensure the high level and effectiveness of mobile mental health applications [7].

Expanding the Landscape: (2010s-Present)

The field of mental health software has expanded beyond traditional categories of self-help tools and online therapy platforms.

Biofeedback and Mindfulness Apps: These apps work with sensors to monitor the physiological responses such as rate of cardiac activity respiration rate etc. These services assist people in regulating stress levels and in their mindfulness practices through the feedback they offer in real-time [8]. Research still continues behind these therapies, for handling varied conditions in long term.

VR and Gamified Applications: VR service is being examined as an alternative to in vivo therapy and as an all-consuming type of virtual relaxation. The apps which use gamification for effect are focused on encouraging good behavioral change through interactive features. Although these apps provide great opportunities, it should be noted that there is still a lack of studies on their effectiveness in the long run and how widely they get used [9].

Holistic Integration with Wearables: The software for mental health is being algorithmized and is integrated with wearable devices and health trackers. Such feature enables a more complete perspective to the health by tracking the activity, rest, and other medical records that can influence mental stability ^[10].

III. PROPOSED SYSTEM

Mental health involvement in technology is about supportive measures provided by counseling and treatment systems that stand out in their diversity. This section focuses on the mental health software tool proposed with the description of the user interface and its leading functions.

3.1 User Interface:

The system is designed in a way to give attention to usability following user preferences ranging from basic to sophisticated technical requirements. This comprises of easy steps which are simple and Secure Registration. Users will begin by registering a personal e-mail, name and corresponding password to keep things simple. Upon receiving their login credentials, they are invited to complete their profile by providing some extra info like their date of birth, gender, city, and phone number. With this information, both the user experience and test scores can be rendered more personal. Moreover, navigation is designed intuitively, to the extent that the "Services" page is located at the top of the home page as the central hub. From here, users can easily access all core functionalities, including:

Assessments: A button or link will direct users to the assessment section, where they can choose between lifestyle and symptom assessments.

Self-Help Tools: Another dedicated button will lead users to the self-counseling feature, where they can engage in guided self-reflection exercises.

3.2 Core Functionalities

The software offers a comprehensive set of features designed to empower users in their journey of improving mental health:

3.2.1 Assessments:

Lifestyle Assessment: This analysis examines their practices, taking into account diet, sleep habits, exercise habits, and any addiction propensities, among other things. Identifying the relationships is a very important thing, because it can influence mental state significantly. The assessment is of a type that is structured in such a way that a standard questionnaire is to be applied.

Symptom Assessment: This analysis aims to determine possible symptoms attributed to different types of mental health disorders. It makes the questionnaire customized to the user experience, taking into account demographics data like age and gender, for example, by avoiding postpartum depression for the male gender. The targeted evaluation can be used for detecting the conditions regarding the depression and anxiety (such as of subtypes of them). This assessment involves the use of a research-based questionnaire, the form adding results from mental health professionals.

3.2.2 Self-Help Tools:

Self-Counseling: The built-in feature here uses guided questions-and-answers approach for users to introspective and to solve problems for their elaboration. Here's a breakdown of the potential question flow: Here's a breakdown of the potential question flow:

Initial Inquiry: Here, the software starts with a question focused on the user's primary challenges.

Exploring Sub-Issues: Secondly, the application goes into details by inducing users to delve deeper into the disparate problems resulting from the central concern.

Contextualization: To be able to help users find the main cause of the problem, the tool would require them to recall the length of time these issues happened and if there are any particular events that triggered the feelings (e.g., old events from childhood or current stressors).

Problem-Solving Strategies: The focus then shifts towards solutions. The tool guides users through questions that help them brainstorm strategies to overcome their challenges.

Goal Setting: Finally, the tool encourages users to set achievable goals related to overcoming their identified issues.

Goal Management: The self-counseling feature and lifestyle assessment integrate with reminder, task setting, and alarm functionalities. These functionalities empower users to translate their goals and plans into concrete steps for daily action.

3.3 Expanding User Support:

"Find a Therapist" Feature:

This functionality leverages location services to search for psychiatrists in the user's vicinity. While the current system locates psychiatrists based on user location, consider incorporating functionalities to:

Locating Counselor: It provides the details of all the psychiatrists and counselor around you sorted on the basis of reviews given to them by others.

Verification Measures: Implement verification measures to ensure listed professionals hold valid licenses and certifications. This builds user trust and confidence in the service.

Online Appointment Scheduling: Explore the feature of integrating online appointment scheduling directly within the platform. This would streamline the process for users seeking professional help and improve user experience.

3.4 System Security and User Privacy:

The system prioritizes user data security by implementing robust security measures. This includes encrypting user data at rest and in transit to safeguard sensitive information and utilizing strong password hashing techniques and two-factor authentication for secure user logins. It also Ensures adherence to relevant data privacy regulations, such as GDPR and HIPAA, to protect user information. The system prioritizes user control over their data. This means it provide a clear and accessible privacy policy that outlines how user data is collected, used, and stored and giving users the ability to access, update, or delete their personal information upon request.

IV. SYSTEM FLOW

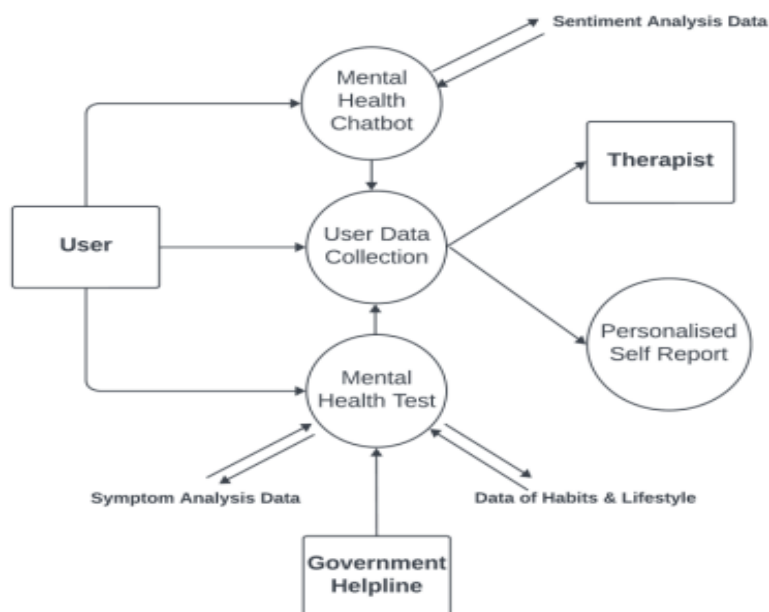


Fig: 1 Data Flow Diagram

V. DIFFICULTIES OF CURRENT MENTAL HEALTH IMPROVEMENT TECHNIQUES

Well though the increased recognition on mental health issues is there, there are still huge obstacles especially for those under the current intervention system in India. One of the primary obstacles to get assistance is the fact that the prejudice around mental illnesses is still existing. In a system where appearing strong and being able to solve your own problems are praised and social harmony is paramount, giving up and undisputable

admission of being weak or shameful may be looked down upon. The International Journal of Social Psychiatry published research in January, they found social stigma around mental health was a big reason why people of rural India found it difficult to reach out for help [11]. One of the best states of fear and the people, the person will isolate themselves from seeking help of the therapists or even talking about their problems with their loved ones.

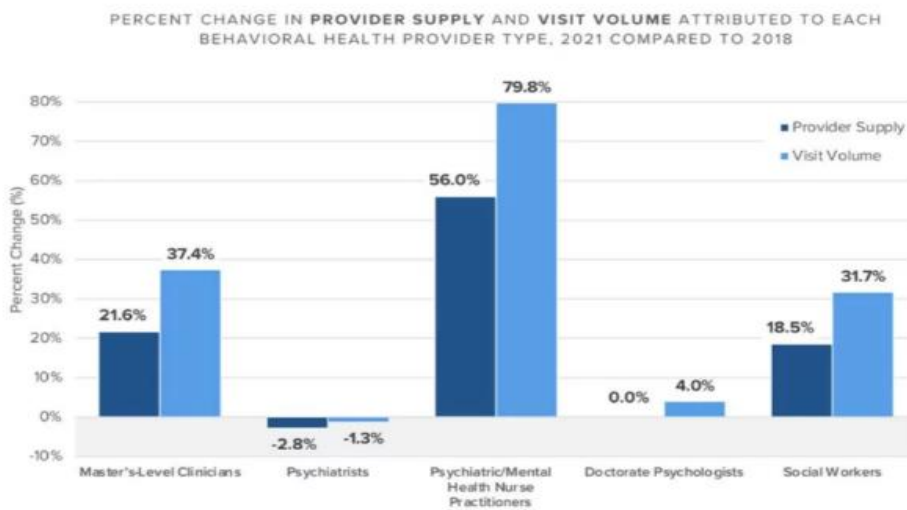
One of the obstacles faced in this case is that communities lack a large number of mental health professionals. Whereas, compared to the population proportion, the sheer number of mental health experts in India is very inadequate; which makes it obvious why therapeutic waiting time is very long, and the slots for appointments limited. Moreover, mental health services in rural areas and small towns are scarce, which means even fewer choices for somebody staying in these areas. A research article published in the journal PLOS one in 2019 calls for more equal distribution of mental health professionals in India. More importantly we need a drastic improvement in access to healthcare in rural undeveloped areas [12].

A high price in mental health care is not only a problem for a large number of individuals and families but is a serious problem in an economy as well. Sessions in therapy, medication, and possibly making hospitalizations, all may create so many financial barriers particularly for the people with a low socioeconomic background. Eliminating this financial strain, people can delay or postpone on seeing professionals for any help.

SUPPLY: PROVIDERS

Psychiatrist and Psychologist Supply Is Flat to Declining As Allied Health Supply Is Increasing

From 2018 to 2021, visit volumes increased most for psychiatric NPs (+79.8%) and declined most for psychiatrists (-1.3%). Visit volumes for all behavioral health provider types are growing at a rate outpacing the growth in provider supply.



Source: Trilliant Health Provider Directory and national all-payer claims database.

Fig 2:

Getting help may seem difficult both because of specific mental health issues which may make it difficult to move in any direction and because of stigmatization and fear. Disorders, which involve the issues of social anxiety, depression, and schizophrenia, evoke much greater difficulty in the areas of social interaction and communication. Though the action of setting up an appointment, traveling to a counsellor's office, or simply talking about mental health difficulties may pose significant challenges for many people, others are already equipped for this process.

There is a great chance of ignorance and lack of skills that can be a barrier for asking for help in mental health. People can get a sense that they have mental health problems they cannot understand or cannot identify the symptoms of the problem arising in themselves or others, some of them try to describe their struggle as personal failure of themselves. Moreover, a poor grasp of the treatment options available on the market can make people become doubtful about their pursuits and confused over which improvement way to follow.

VI. RESULTS AND EVALUATION

The proposed mental health software system offers a multifaceted approach to promoting user well-being. However, evaluating the effectiveness of such a system requires a multi-pronged approach, considering both user experience and potential mental health outcomes.

1. User Experience Evaluation:

Running user surveys upon first use and periodically helps grasping the experience users make of their interaction with the app or gadget. It involves the comprehensive evaluation of the ways in which consumers feel the service responds to their needs, as exemplified in terms of ease of use, navigability, usefulness of features, and user satisfaction.

Measuring the user involvement metrics is the source of data that displays how users engage with the system. The data can be tracked, for instance, through the most often used functions, averages of the self-assessment completion rate, and the total time spent on self-help materials. Such indicators may help to point out areas of even stronger development as well as areas where user experience is not compromised.

2. Mental Health Outcomes Evaluation:

Integration of standardized mental health examinations to be done before and after the user has used the software for a specific period is a data collection method from which the preliminary results can show user wellbeing improvements. But, at the same time, the software won't be a tool to substitute qualified doctors to make a diagnosis or treatment.

Working with mental health professionals who can assess a user's outcome will provide useful knowledge. That could encompass therapists following patients' progress and giving a constructive feedback on the software's efficacy, as one more tool available in treatment.

3. Ethical Considerations:

Strict data privacy procedures as well as security measures must be maintained. On the one hand, conducting audits periodically and staying within the course of data privacy policies is the key to strengthen user bond and protect the confidential information on the other hand. Captions and subtitles can be used so that the system is not only understandable, but inclusive as well. Additionally, there's need to reach out to NGOs or social service organizations and form partnerships might eradicate the financial hurdles to the mental healthcare of such communities.

VII. CONCLUSION

The mental health software system under consideration holds the prospect of becoming a useful tool for the building of healthy mindsets of users. It offers a multiple means approach that integrates the use of feedback tools, self-help tools, and linkage to professional support. An interface which will be designed user-friendly with a secondary target of those with various requirements.

Nevertheless, it is the multi-dimensional dimension that involves when assessing the effectiveness of the technology is what is difficult. User experience is a critical feature of any digital presence. By involving users in the process and understanding their requirements through surveys and engagement metrics, the system can be continuously upgraded to suit the user's needs and to ensure a good user experience at the end.

Although software does not serve as a substitute for professional help, it may be used as something to add to it. The platform will track such data as engagement with assessments and self-help features which allow initial conclusions on probable mental improvements. Another aspect is to cooperate with mental healthcare professionals because of their expertise on the efficiency and benefits of the software that is used for support within the treatment plans.

Ethical concerns lie at the heart of the matter. Secure data processing and the adherence to data privacy regulations are basic to the safe storage of customer data. Apart from increasing access, regarding to the people with disabilities and expanding access beyond the current community could be added to these strategies.

The advocated system is not only the most efficient solution but also the best way of enabling people to improve their mental health effectively. The mental health intervention system that will be introduced will provide individuals with access to supportive resources including guidance and self-reflection. Such a system

can play a vital role in the mental health of the population at large. Long term studies are necessary to determine the effect of this ingenious method, while the benefits pictured the prospects of such innovative devices in the ever changing field of psychiatry.

VIII. FUTURE WORK

The system represents an anchor for mentally healthy community life. Here are some exciting possibilities for future development: Here are some exciting possibilities for future development:

Mental Health Community Forum: Creating a secure forum with moderation active is the best instrument for building a trusting space in which each user would feel supported and could relate to others. The community users entered could share and help brethren experience in the supportive environment while they utilize their safety and privacy of information.

Integration with Wearable Devices: The option of including wearable devices output (with user permission) opens doors for collecting more data like sleep stages or physical activity levels with the aid of this approach. These data, along with user input, could be used to adjust not only the recommendation but also the intervention within the system so as to make the process more effective.

Advanced Self-Help Tools: We also can extend the personalized approach to the content of the app by making it aligned with CBT techniques, relaxation elements and mindfulness practices. Such systems may be adjusted according to the results of an user's assessment and unique goals.

Private Helpline Integration: Offering a dedicated helpline within the app could give users an access to crisis support and licensed mental health professionals directly via the platform. It will avail an alternative platform to individuals for a timely attention in times of emergency.

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