

STUDY ON EMPOWERING YOUTH AND ADULTS TO OVERCOME MENTAL HEALTH HARDSHIPS USING A WEB APPLICATION

Jennis Delina Giles Department of Information System Engineering Sri Lanka Institute of Information Technology Malabe, Sri Lanka jennisdelina@gmail.com	Nimesha Liyanage Department of Information System Engineering Sri Lanka Institute of Information Technology Malabe, Sri Lanka nimeshakavi@gmail.com	Damindi Senadheera Department of Information System Engineering Sri Lanka Institute of Information Technology Malabe, Sri Lanka damindihsenadheera@gmail.com
Dilan Randima Department of Information System Engineering Sri Lanka Institute of Information Technology Malabe, Sri Lanka dilanrandima1999@gmail.com	Kushnara Suriyawansa Department of computer science & software engineering Sri Lanka Institute of Information Technology Malabe, Sri Lanka kushnara.s@slit.lk	

Abstract: Mental health is essential during childhood, adolescence, and adulthood. Mental health issues can influence one's thoughts, disposition, and conduct. A record number of mental health problems are caused by a global pandemic. Prevention of mental disease is vital for both children and adults. We desired to develop a web application for those with mental health difficulties. This web application will provide group chat, discussion, a community feed, and counseling services. The community feed function provides information regarding scheduled conversation space meetings, and the counselor uploads uplifting thoughts and tales of patients who received proper care and overcame mental health issues. Community feed can filter content based on user preferences. The mental health system for adults and adolescents will be updated. The community feed delivers relevant and instructive postings, links, and images so that service recipients can benefit from other platform features and receive encouraging words to assist them in overcoming mental health difficulties.

Keywords: Mental Health, Communication, Anonymous, Counselling, Web application

1. Introduction

Globally, there is a growing epidemic of mental health and wellness difficulties. A staggering number of people suffer from mental illnesses, but only a small percentage receive treatment. People are not getting enough sleep in general, which is affecting their mental health. The

causes and repercussions of our mental health are complicated. We must all work together to identify and solve our society's challenges.

Mental health is an important component of our lives, and the topic has gained prominence in the previous decade. There are numerous ways to discuss mental health difficulties that provide support and make people feel less alone.

One approach is to empower young people and adults to prevent mental health problems. By

educating youngsters on how to manage stress, they may be able to avert more serious problems in the future. Adults can also gain essential skills to improve their quality of life and deal with difficult situations.

Depression, alcoholism, eating disorders, and suicide are the most frequent mental health difficulties among young adults. Suicide and drug misuse are the most common mental health disorders among teenagers. In the United States, around 3,000 teenagers aged 10 to 19 commit suicide.

Individuals must have good mental health in order to live productive and satisfying lives, hence youth must be empowered. Unfortunately, many people may not have good mental health for a variety of reasons.

Suicide prevention takes more than just developing support systems for people in need. It also necessitates addressing issues such as bullying and prejudice at all levels of society in order to lessen the stigma associated with specific issues.

According to the World Health Organization, there were over 70,000 suicides globally in 2017. This is a troubling statistic, and it is a problem that must be addressed. We can empower kids to avert mental health crises in their communities by utilizing social media, the internet, and technology such as artificial intelligence. According to research, social networking can benefit those who are anxious.

To solve this issue, we must educate youngsters on how to cope with mental health crises and use technology to reduce the loneliness and isolation they feel in their communities. As a remedy to the aforementioned issue, we suggest a web app where people can share their concerns and ideas without fear of being judged. It has services such as registration, chat rooms, forums, and therapy. Modern voice bots, algorithms, and machine learning technologies are available on the website.

2. Research Components

2.1 Anonymous Chat

2.1.1 Literature Review

Mental health can affect individuals in a variety of ways, and it is crucial to be able to identify it. In the past, individuals had trouble discussing their mental health. A mental disorder is a health issue that affects one's thoughts, emotions, or

disposition. Adolescents, college students, adults, and young people face mental health issues. According to the World Health Organization (WHO), the prevalence of mental disorders among children aged 3 to 17 years ranges between 7% and 28%. Given the rising prevalence of mental health crises among young people, it is crucial to equip them with the necessary skills to prevent and manage such crises. Young adults between the ages of 15 and 24 are more likely to develop mental illness and substance use disorders than older age groups. Untreated mental health issues can negatively impact the lives of adolescents and those around them. This lack of understanding and expertise can result in the following: Every year, one in every five people suffers from a mental health problem. Numerous adolescents and young adults suffer from mental health issues such as depression, eating disorders, anxiety, conduct disorders, and addiction. The most prevalent mental health issues among adolescents and young adults are depression, anxiety, and substance use disorders. Mental capacity, logical ability, communication skills, emotional capabilities, and independence influence the presentation of mental health issues during adolescence and young adulthood. Several individuals who had never had a mental health problem before had their first mental illness during early adulthood. In addition, the majority of young people are thrust into new, potentially stressful educational and professional situations, and they are often unprepared for their new roles, which can contribute to mental health concerns. Frequently, kids involved in the justice system lack access to mental health and related treatments. Children and adolescents with mental health issues deserve assistance. The COVID-19 crisis has had a significant influence on the lives of young people (15-24 years old), and research indicates that this age group is witnessing an alarming rise in mental health issues.

2.1.2 Methodology

The main point of the communication platform component would be to enable the service receiver to communicate and message their problems to the platform. The outcome of this function is to give a safe place to express emotions through sharing anonymously, giving advice, and encouraging each other. The user will have access to create, delete, read, and update (CRUD) operations on the message posts. When a message is posted on the platform, it will check each post with an algorithm to detect any harmful content or hate speech. Any correspondence with harmful content will be rejected, and the post will not be posted on the platform. Service receivers will report any deviant user on the communication platform. These features will help create and maintain a friendly community environment.

The platform users will be admins, service receivers, and professionals. The admin will be managing all three users' account details. The admin will do CRUD operations on admin accounts. Once the service receiver creates a statement, the admin will view the history and delete any account if that account has been reported multiple times. Admin will have access to view all professionals' accounts and delete any account.

Moreover, this will provide secured communication and a better communication environment.

The website will be entirely developed using Java and PHP. The construction of the components will begin with the administration account management, followed by the communication platform capabilities; the communication chat room will contain the text content limitation policy, which will be developed using a specialized Python hate speech recognition algorithm.

Before the algorithm is implemented, the sensitive text content data set is compiled. The data set contains capital, lowercase, text case,

and individualized words with special characters. This is intended to determine the number of censored words within a particular post.

2.1.1 Results

The communication chat tool offers options for viewing, liking, and commenting on service receivers' posts. Moreover, users can exchange text-based posts. This tool can determine which words or phrases have been removed from a post. The function is constructed using an algorithm. Within the scope of the algorithm, we analyze the text that the user will be able to add to the website. The system will alert the user of any phrases that are prohibited from being submitted. In addition, the result of the analysis of the given text will include a summary and information about the criteria for hate speech. In order for users to have access to informative and secure material on the site.

We are currently focusing our efforts on the data set in an effort to enhance and personalize it. The data set will serve as the foundation for the conclusion of the analysis. The following figure illustrates a model of the algorithm's output results as a point of reference.

```

1] There is a passage that I get memorized, Ezekiel 25:17, "The path of the righteous man is harassed on all sides
2] by the inequities of the selfish and the tyranny of evil men. Blessed is he who, in the name of charity
3] and goodwill, shepherds the weak through the valley of darkness, because he is truly the guardian of his brother
4] and the search engine for lost children. And I'm going to tear you down with great vengeance and furious anger
5] those who try to poison and destroy My brothers. And they will know that I am the Lord when I put My revenge
6] upon you. "Now ... I've been saying that shit for years, and if you ever heard it, that meant your ass.
7] no dose right now I never thought much about what it meant. I just thought it was a cold-blooded thing
8] Tell a son of a bitch before he blow a hat on his ass. But I saw some shit this morning made me think
9] twice. Look, now I'm thinking: maybe it means you're the bad man. And I am the just man. And Mr.
10] You here ... he is the shepherd who protects my ass right in the valley of darkness. Or it could mean
11] you are the righteous man and I the shepherds, and the world is evil and selfish. And I would like
12] that. But that shit is not the truth, the truth is that you are the weak And I am the tyranny of evil men.
13] But I'm trying, Ringo. I'm trying to be the pastor.
14]
15] This man, Ringo, he is an asshole.
16] Sometimes, I really think of dumping him and fucking his dirty ass.
17] He is a bloody jerk.
.....
Language Detected : ENGLISH
.....
Checking for bad words in ENGLISH language...
.....

```

Figure 1

```
*****
-- 2 Bad Words found at line number : 6 --
Bad Words : shit, ass
-----
-- 3 Bad Words found at line number : 8 --
Bad Words : bitch, ass, shit
-----
-- 1 Bad Words found at line number : 10 --
Bad Words : ass
-----
-- 1 Bad Words found at line number : 12 --
Bad Words : shit
-----
-- 1 Bad Words found at line number : 15 --
Bad Words : asshole
-----
-- 2 Bad Words found at line number : 16 --
Bad Words : fucking, ass
-----
Process finished with exit code 0
```

Figure 2

2.2 Talk Space

2.2.1 Literature Review

In the modern world, the inclusion of social media as a fundamental component that defines most aspects of human lifestyle has diminished people's ability to maintain social lives. The inability to communicate with humans and the need to maintain communications in indirect formats have directly increased, and as a result, our ability to accurately express our emotions has been seriously curtailed. The majority of studies have identified the importance and necessity of utilizing mechanisms such as online tools and web applications to ensure that these issues are mitigated. Counseling has been identified as the most effective method for ensuring that the youth and other communities are given the proper opportunities to maintain their mental health.

2.2.2 Methodology

The "talk space" that the user hosts can be heard by other users. Here, anyone can listen in on others' stories as well as live-share their own. Talk spaces can be added or removed by counselors. Service users can set up an audio chat room in which they can invite other users to engage as listeners and request a turn to speak in order to enable counselors to arrange

conversation areas and provide users reminders. allows the host to accept or reject the speaker's request. It automatically records the live event. Users can see a session video recording that has been posted.

The optimum "discussion space" for the user is suggested by this particular aspect of the online "talk space" function. Based on the user's preferences (rating/success states-[success, middle, bad]/comment and participation time), this function aims to suggest the ideal chat space. There are two categories of "conversation space" recommendations available to users when they use the platform. The following are the two different "talk space" recommendation tactics.

1. Provide the "best talk space" based on user ratings.

This feature allows users to choose the optimal "talk space" on the platform. Additionally, users will find it simpler to select the "talk space" they want to join as a result of this. The ideal "talk space" on the website will be displayed using an algorithm.

2. Suggest a talk space based on user preferences.

This feature will suggest the best "talk space" for the user based on their preferences. The best talk space will be determined by using a questionnaire. Users are able to answer the questionnaire regarding "talk space" issues. Based on their comments, the algorithm will suggest an appropriate talk space for the user. This function will be performed by an algorithm, and in order to recommend the "talk space," it will evaluate the data of the talk space as well as the user's responses to the questionnaire and comments.

2.2.1 Results

Users can receive expert guidance for their problems by using an online counseling platform. Since this platform is anonymous, users can benefit without hesitation. As a result, users can go to the website and join any "talk space" with what they like to talk space about.

The "talk space" suggestion features make it simple for users to choose "talk space". Users can choose the best "talk space" on the site by using the ranking feature. With the "talk space" filtering option, users can find the best "talk space" for their concerns.

2.3 Online Counselling

2.3.1 Literature Review

Mental health issues are a significant and rising problem in both adult and young populations across the world [1]. There are numerous kinds of mental health issues. The most frequent mental health concerns include depression, loneliness, anxiety, stress, suicidality, and substance misuse [2]. The majority of people who suffer from mental illnesses are afraid to speak up about them. Most people do not like to share some of their terrible life incidents with others, thinking that it will harm their personality. People are more likely to hide their mental health difficulties in today's judgmental environment. Also, some of them do not even like to share their incidents with close people because of trust issues.

People frequently avoid sharing occurrences involving their identities, making it difficult for them to receive the best motivational and advice support. And more often than not, such events also result in suicides. There must be a solution that works in the present environment when such mental health problems are taken into account. The world's population of one third has access to the internet. These numbers, which are quickly increasing, especially in developing nations, show an unprecedented level of connectivity on a worldwide scale [3]. As the telephone was an innovative communication tool that enabled for the development of crisis call centers, the internet has made it possible for those who are in need to reach out for assistance. Mutual-help groups based on the Internet are the "online" equivalents of conventional support groups. Some academics prefer the term "mutual-help groups" instead of "self-help groups" because this is the distinguishing

characteristic of support groups. Online mutual-help groups have been created for alcoholism, obsessive-compulsive disorder, attention deficit hyperactivity disorder, physical impairments, sexual abuse, and depression (OMHGs). While many of these organizations are run by peers aiding other peers, some are managed by paid staff or specially trained volunteers [4].

2.3.2 Methodology

This website service includes an option for online therapy. Through an online counseling service, regular platform users can speak with trained users, also known as counselors. Users can consult with counselors online using this service. This function may be beneficial to those who have major mental health issues. Those who are hesitant to seek out-of-office counseling will benefit from the option to speak with counselors anonymously. People can get answers to their questions by using the platform's online counseling service.

This specific feature of the online counseling function proposes the best counselor for the user. This function seeks to recommend the best counselor based on the user's preferences. When a user visits the online counseling platform, they can choose from two sorts of counselor recommendations. The two sorts of counselor recommendation strategies are as follows.

1. Suggest the best counselor according to the user ratings

Users can utilize this function to determine who the best counselors on the platform are. This will also make it easier for users to choose which counselor they want to work with. An algorithm will be used to display the best counselors on the platform. To determine the best counselor, the algorithm will assess the ratings given to the counselor by the user after the counseling session as well as the ratings given to the counselor in the talk space. When a user accesses the counseling platform, the counselors with the

highest ratings are always displayed at the top of the counselor list.

2. Suggest counselors with the users' preferences

Based on the user's preferences, this function will recommend the most suitable counselor for them. A questionnaire will be used to find the most suitable counselor. Users can respond to the questionnaire related to counseling concerns. The system will recommend a suitable counselor for the user based on their responses. An algorithm will be utilized for this function, and in order to recommend the counselor, it will assess the counselor's profile data as well as the user's responses to the questionnaire.

2.3.1 Results

Users can receive expert guidance for their problems by using an online counseling platform. Since this platform is anonymous, users can benefit without hesitation. As a result, users can go to the website and contact any counselor with whom they like to speak. The counselor suggestion features make it simple for users to choose counselors. Users can choose the best counselors on the site by using the ranking feature. With the counsellors filtering option, users can find the best counselor for their concerns.

```

SELECT C.*
FROM user
LEFT JOIN (
SELECT
'counselor session rating'.counselor,
AVG('counselor session rating'.rating) AS Rating,
COUNT(IF('counselor session rating'.success = 'True', 1, 0)) AS 'Success stories',
AVG(IF('counselor session rating'.rating = 5, 1, 'counselor session rating'.rating, 0)) AS URating,
COUNT(IF('counselor session rating'.success = 'True' AND 'counselor session rating'.by = 1, 1, 0)) AS URating
FROM 'counselor session rating'
GROUP BY 'counselor session rating'.counselor
) AS CSR ON user.id = CSR.counselor
LEFT JOIN 'data counselor' C ON user.id = C.user
WHERE type = 1
ORDER BY (
IFNULL(CSR.Rating, 0) *1 +
IFNULL(CSR.'Success stories', 0) *1+
IFNULL(CSR.URating, 0) *1+
IFNULL(CSR.'Usuccess stories', 0) *1
);
    
```

Figure 3

2.4 Community feed

2.4.1 Literature Review

70 percent of mental health issues start throughout childhood or adolescence, according to Compared to other age groups, young people aged 15 to 24 are more prone to experience depression and/or substance use problems.

According to one study, although depression lacks specificity as a predictor and little is known about the traits that raise the risk of suicide in depressed individuals, it is highly associated with both suicidal ideation and attempt. The papers frequently touch on depression, which is also the most prevalent mental illness among individuals who attempt suicide.

More study is required, along with the more proficient application of prevention interventions, in order to enhance mental disorder-related suicide prediction and other issues. The current special edition offers some significant instances of risk factors as well as helpful directions for the future in the fight against mental health issues and suicide deaths.

2.4.2 Methodology

component of a community chat platform allows psychiatrists to discuss the experiences and occurrences that their patients have had, the links to the meetings planned in the talks area, and the messages that contain encouraging words. Responding to those posts with a like or a comment is requested by the service.

To share helpful and encouraging information with service recipients, the community feed function is currently being developed. In order to communicate with psychiatrists and service users, the community feed will be used. Psychiatrist will be able to share messages, images, and links on the community feed. The meeting's URL, posts and photos about their patients who recovered from mental health issues after receiving adequate care, encouraging words, and information about the treatments available to prevent mental health issues are all shared by experts on the topic. The meeting will be hosted on a chat platform.

Psychiatrists refrain from posting any information about their patients' names, ages, or locations in their posts.

Service users will be able to like and comment on psychiatrists' posts. Users will be able to filter postings in the community feed in accordance with their preferences. We will monitor the level of interest and the postings that service recipients are most interested in, and we will present those posts to them. We employed an algorithm to construct the post filtering functionality for community feed, which is specific to the user's preferences. In this algorithm, we considered the number of posts that users liked and the number of posts that users commented on, if people like to watch content that they have liked and commented on. We analyze these factors, and the system shows the relevant user those kinds of posts.

2.4.1 Results

The community feed feature includes options for sharing posts that are calming, linking to meetings held in the counselors' talk space, and viewing, liking, and commenting on posts for service recipients. excluding certain activities This feature includes post filtering based on user preferences, namely functioning as a study area. An algorithm is used to develop and enhance the post filtering function.

Based on the types of posts a user is liking and commenting on, we will show them the post that they have interacted with the most. In the algorithm, we analyze which kind of posts users like or comment on, and via this analysis, we make the assumption that the user preferred to watch that type of post, which is why they are liking or commenting on those particular articles. The user will be able to see the posts they are liking and commenting on at the top thanks to this analysis.

We are now working to enhance this post filtering functionality. Based on which counselors' posts users like and comment on most frequently, we are attempting to evaluate this data using the same algorithm and show users those posts most frequent.

Up until the new users begin to like or comment on the postings, newly enrolled users will be able to view the posts that are receiving the most likes and comments from other system users.

3. Limitation & Future work

Our research has some limitations. The first is our post-filtering functionality, which is specific to our web application. We didn't integrate with any other social media networks or external websites.

The second element is that we attempted to construct a dataset for the hate speech algorithm. The dataset may occasionally be lacking some phrases that are viewed as damaging. In this instance, it does not classify as dangerous keywords any words that are not included in the data set.

Finally, given that this study is observational and we were unable to control for every relevant lifestyle component, residual confounding is a possibility.

We are currently converting this online form into a web application. We wish to construct and release this internet platform as a mobile application if, following the launch of our online application, everything goes as anticipated.

4. Conclusion

By reading this research paper, readers will gain knowledge of the system's functionalities, and the study's focus, and be better able to comprehend the challenges involved in developing this application and how the overall system would operate. By encouraging patients to get the correct treatment and think positively, we encouraged the development of this online platform to protect children and adults from

mental health problems. We met several of our friends who are struggling with mental health concerns when we were still young students, and it really is awful to witness how painful it is for them. That's why we made the decision to create an online platform for treating children and adults who have mental health problems.

After learning the causes of mental health problems and how to prevent them, we made the decision to offer these answers in a modified form. Consequently, we created this online platform. Before beginning the development, we researched mental health difficulties, looked into whether any websites already existed that addressed these topics, and more. We also carried out a survey to find out how interested individuals are in using an online forum to discuss their mental health issues. With the information we gathered from our research and studies, we planned the system's functionalities and features.

We really believe that this platform will assist those who are struggling with mental health concerns in overcoming their condition, and it will undoubtedly encourage the affected individuals to be optimistic, receive advice on the best course of action, and be motivated to pursue it. We'd conclude that the goal behind creating this platform will be achieved by our platform.

5. References

[1] D. o. C. S. L. L. U. L. S. 2. 0. S. Faculty of Medicine, "NCBI," 17 September 2018. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6165520/#:~:text=The%20risk%20of%20suicide%20has,schizophrenia%20%5B5%2C6%5D..> [Accessed 18 January 2022].

[2] U. D. o. H. & H. Services, "MentalHeath.gov," 28 May 2020. [Online]. Available: <https://www.mentalhealth.gov/basics/what-is-mental-health>. [Accessed 18 January 2022].

[3] Y. C. Foundation, "YMHC," [Online]. Available: <https://ymhc.ngo/resources/ymhc-stats/>. [Accessed 22 January 2022].

[4] Manuscript, "NCBI," 13 December 2013. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3492539/>. [Accessed 10 January 2022].

[5] "The Mental Elf," 2022. [Online]. Available: <https://www.nationalelfservice.net/treatment/mental-illness-prevention/preventing-mental-health-problems-what-can-we-do/#:~:text=Prevention%20in%20mental%20health%20aims,coping%20mechanisms%20of%20the%20individual..> [Accessed 22 January 2022].

[6] "Safe Space," [Online]. Available: [https://safespace.health/safespacehealth-app#:~:text=Safe%20Space%20Health%20is%20an,ways%20to%20effectively%20solve%20them.&text=Conversations%20within%20the%20app%20are%20text%2Dbased](https://safespace.health/safespacehealth-app#:~:text=Safe%20Space%20Health%20is%20an,ways%20to%20effectively%20solve%20them.&text=Conversations%20within%20the%20app%20are%20text%2Dbased.). [Accessed 10 December 2021].

[7] "TMP-22-189-ProjectCharter," Malabe, 2022.

[8] T. S. A. a. M. H. S. A. (SAMHSA), U.S. Department of Health and Human Services, 12 01 2022. [Online]. Available: <https://www.samhsa.gov/find-help/national-helpline>.

[9] M. h. foundation, "How to support someone with a mental health problem," in How to support mental health at work, Mental health foundation, 2017, p. 44.

[10] M. h. organization, "How to support someone with a mental health problem," 2020. [Online]. Available: <https://www.mentalhealth.org.uk/publications/supporting-someone-mental-health-problem>.

[11] W. H. Organization, "Adolescent mental health," World Health Organization, 17 November 2021. [Online]. Available:

- <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>.
- [12] World Health Organization [WHO]. (2013). Mental health action plan 2013–2020. Geneva, Switzerland:
- [13] Adriaan Nel & Ashraf Kagee (2011) Common mental health problems and antiretroviral
- [14] Mancini, F and O'Reilly, M 2013 New Technology and the Prevention of Violence and Conflict. Stability: International Journal of Security & Development, 2(3): 55, pp. 1-9
- [15] Elaine Greidanus & Robin D. Overall (2010): Helper therapy in an online suicide prevention community, British Journal of Guidance & Counselling, 38:2, 191-204
- [16] "Supporting young people's mental health through the COVID-19 crisis," OECD, 2021.
- [17] h. N. Y. M. H. Foundation, "young people's experience of telehealth during COVID-19," Australian Government Department of Health, 2020 July.
- [17] R. Chadda, "Youth & mental health: Challenges ahead," The Indian Journal of Medical Research, vol. 148, no. 4, p. 359, 2018.
- [18] N. Baghaei, J. Naslund, S. Hach and H. Liang, "Editorial: Designing Technologies for Youth Mental Health," Frontiers in Public Health, vol. 8, 2020.
- [19] A. Montague, K. Varcin, A. Parker and M. Simmons, "Putting Technology Into Youth Mental Health Practice," SAGE Open, vol. 5, no. 2, pp. 1-10, 2015.
- [20] D. Zemmels, "Youth and New Media," Communication Research Trends, vol. 31, no. 4, 2012.
- [21] A. Crawford, "Project CREATEs: youth engagement in suicide prevention," The Lancet, vol. 394, pp. 1222-1223, 2019.
- [22] J. White, "Introduction to the special issue on youth suicide prevention: research, policy and practice," International Journal of Child, Youth and Family Studies, vol. 5, no. 1, pp. 1-3, 2014.
- [23] E. Nkechi, E. Ewamaoghene and N. Egenti, "The Role of Guidance and Counselling in Effective Teaching and Learning in Schools," International Journal of Multidisciplinary Studies, vol. 1, no. 2, pp. 36-48, 2016.
