

A Project/Dissertation Final Project Report

Mental Health Identification and Processing Assessment using Machine Language

Submitted in partial fulfillment of the requirement for the award the degree of B.TECH CSE



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Under The Supervision

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CANDIDATE'S DECLARATION

I/We hereby certify that the work which is being presented in the thesis/project/dissertation, entitled Tackling of Mental Illness using Machine Language in partial fulfillment of the requirements for the award of the B.TECH CSE submitted in the School of Computing Science and Engineering of Galgotias University, Greater Noida, is an original work carried out during the period of SEP, 2021 to DEC,2021, under the supervision of Mrs Priyanka Shukla Designation, Department of Computer Science and Engineering/Computer Application and Information and Science, of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

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Abstract

In the recent past years, there has been a surge in mental illness worldwide, affecting the majority of youth. About 7.5 percent of the Indian population alone and around one billion people globally suffer from some kind of mental disorder. People with mental disorder often shy away from expressing what they are going through as they are often scared of being judged. People dealing with mental illness often find themselves being misunderstood which furthermore stops them from expressing their real emotions.

Therefore, we have decided to work on a project which is to develop a mental healthcare app where people can share their stories and things they are struggling with and at the same time if they can know what kind of illness they are dealing with by answering some questions based on how they have been feeling from last two weeks and after answering it tells them how severe it is like if the illness is mild, moderate, severe and then gives them some suggestions on what they could do to get better.

Tools and techniques that we will be using are HTML and a module of Python i.e Tkinter for frontend and Java and PHP for backend. For a good app, it should contain user profile i.e it should feel personal, additionally it should have features such as notifications, dashboard and other features that are necessary for an application to have.

People can know what kind of illness they are dealing with by answering some questions based on how they have been feeling from last two weeks and after answering it tells them how severe it is like if the illness is mild, moderate, severe. This will help people with mental illness interact with each other and share their stories by providing them a comfortable space to do so which is that these people can share their stories and interact in anonymity if they wish to, they can further tell about their journey through counselling sessions.

In conclusion, we hope to create safe space for people so that they feel free to share their stories and get to know about their illness on a deeper level and can help to make it better.

Existing Problem:

We already know that there has been a sudden rise in people having anxiety and stress in them and a lot of teenagers dealing with mental health problems.

This research is going to focus on the issues people are dealing in their day-to-day life have and we can come in terms to resolve those issues by providing help to them in a certain way.

It is important for all of us to know about this issue since affecting majority of people around the globe and also if we are going to help that lot of people we need to know thoroughly about the importance and the sensitivity of the issue first

Proposed Solution: Healthcare professionals have very little experience on how to best evaluate apps and older healthcare practitioners may be less inclined to use them or even be intimidated by these new technologies. Similarly, old clients may

find it difficult to use and interpret the information provided to them by their smartphones. We must take into consideration the fact that embracing new technologies cannot possibly replace the therapist-to-client relationship, but technology has the potential to provide better tools in making this more productive therapeutic alliance and enhancing the quality of care and support

Tools and Technology Used :

Tools and techniques that we will be using are Html and a module of python i.e Tkinter for frontend and Java and Php for backend. For a good app ,it should contain user profile i.e it should feel personal ,additionally it should have features such as notifications, dashboard and other features that are necessary for an application to have.

Results: Severe mental illnesses (SMIs) are disabling, chronic psychiatric conditions that affect individuals in their prime and extol substantial burden on patients and their caregivers . Schizophrenia and bipolar disorders, the two major SMIs far surpass most physical disorders in terms of illness cost and disability. To help caregivers in their support activities and to provide psychosocial interventions to patients, technology based interventions, as a group, posit a practicable and effective alternative. In this paper, we interchangeably use the terms family members and caregivers to denote informal caregivers.

We acknowledge that not all family members are caregivers, nor are all the caregivers informal caregivers. We request that our paper be read as such.

Conclusion and Future Scope :Healthcare professionals have very little experience on how to best evaluate apps and older healthcare practitioners may be less inclined to use them or even be intimidated by these new technologies. Similarly, old clients may find it difficult to use and interpret the information provided to them by their smartphones . We must take into consideration the fact that embracing new technologies cannot possibly replace the therapist-to-client relationship, but technology has the potential to provide better tools in making this more productive therapeutic alliance and enhancing the quality of care and support . Future research should focus on certifying the quality and

accuracy of mHealth apps, as well as creating courses that will train mental health professionals in using mobile technologies that could revolutionize approaches to patient care. Furthermore, psychologists, counsellors and therapists should contribute to the constantly growing body of evidence on the impact of mobile technology on mental health by reporting their experiences, publishing their findings, and improving their current practices.

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1. Introduction

The social fabric is increasingly changing in our societies. Nuclear families are becoming the norm and children may not have adequate number of adult role models to look for. The fast

pace of social change seems to be unfathomable even for adults which puts children in a vulnerable spot. With increasing exposure to media, children may be prematurely coerced to adult ways of thinking, behaving but are not equipped to face the pressures and problems.

Mental health is a relatively new terminology. Throughout history, from the dark ages to the period of enlightenment, mental disorder was looked at as witchcraft, black magic and the afflicted having some supernatural powers. When madness was looked as self-inflicted then society gave its guardian permission to punish the 'mad' people. Gradually as the medical model took shape, the view that abnormal mental behaviour was the result of mental disease came into being.

It is important for all of us to know about this issue since affecting majority of people around the globe and also if we are going to help that lot of people we need to know thoroughly about the importance and the sensitivity of the issue first.

Now, to be able to help these people resolve their issues we are going to make an interactive platform where people can feel free to talk about what is bothering them, the cause of their stress, anxiety etc.

2.KeyWords-

user engagement ,usage , adherence ,retention ,mental health ,depression ,anxiety

User engagement- User engagement is the lifeblood of your SaaS company. It is literally the thing that keeps your business viable in both the short and long term.

Usage- firmly established and generally accepted practice or procedure

Adherence- the act of doing something according to a particular rule, standard, agreement, etc.:

Retention- the continued use, existence, or possession of something or someone

Mental health- Mental health is "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community".

Depression- Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest.

Anxiety- Anxiety is an emotion characterized by an unpleasant state of inner turmoil and includes subjectively unpleasant feelings of dread over anticipated events

Abbreviations And Acronyms:

SMI- Severe Mental Illnesses.

FOI- freedom of interest.

ED- emergency department.

1.2 Formulation of Problem

1.2.1 Tools and Technology Used

Tools and techniques that we will be using are Html and a module of python i.e Tkinter for frontend and Java and Php for backend.For a good app ,it should contain user profile i.e it shoul feel personal ,additionally it should have features such as notifications, dashboard and other features that are necessary for an application to have.

HTML- **HTML** is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

CSS- **Cascading Style Sheets (CSS)** is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.

JAVA SCRIPT- **JavaScript (JS)** is a lightweight, interpreted, or just-in-time compiled programming language with first-class functions. While it is most well-known as the scripting language for Web pages, many non-browser environments also use it, such as Node.js, Apache CouchDB and Adobe Acrobat. JavaScript is a prototype-based, multi-paradigm, singlethreaded, dynamic language, supporting object-oriented, imperative, and declarative (e.g. functional programming) styles. Read more about JavaScript.

PHP- PHP code is usually processed on a web server by a PHP interpreter implemented as a module, a daemon or as a Common Gateway Interface (CGI) executable. On a web server, the result of the interpreted and executed PHP code – which may be any type of data, such as generated HTML or binary image data – would form the whole or part of an HTTP response. Various web template systems, web content management systems, and web frameworks exist which can be employed to orchestrate or facilitate the generation of that response. Additionally, PHP can be used for many programming tasks outside the web context, such as standalone graphical applications^[11] and robotic drone control.^[12] PHP code can also be directly executed from the command line.

PYTHON- **Python** is an interpreted high-level general-purpose programming language. Its design philosophy emphasizes code readability with its use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.^[31]

Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming. It is often described as a "batteries included" language due to its comprehensive standard library.¹

Methods-

Search Strategy

The search strategy aimed at identifying the most-installed unguided apps targeting depression, anxiety-related problems, or mental health. We used keywords related to depression and anxiety because of the high prevalence of these conditions . We also included mental health apps that focused on happiness or the enhancement of mental health (ie, mindfulness meditations) because our previous work identified them as highly popular mental health tools [27,28]. We conducted a systematic engine search of the Google Play Store in November 2018 using the following terms: “depression” OR “mood” OR “anxiety” OR “panic attack” OR “phobia” OR “social phobia” OR “PTSD” OR “posttraumatic stress disorder” OR “stress reduction” OR “worry relief” OR “OCD” OR “obsessive compulsive disorder” OR “mental health” OR “emotional well-being” OR “happiness.”

Inclusion and Exclusion Criteria

To be included in this review, apps had to:

Be in English;

Have at least 10,000 installs documented on Google Play;

Focus on mental illness, mental health, or emotional well-being not specifically related to another medical condition (for example, we excluded apps specifically focused on stress reduction due to a physical medical issue such as heart attack); and

Incorporate recognized techniques aimed at promoting self-management of mental health problems such as coping with negative symptoms (eg, feeling nervous, loss of energy), achieving positive results (eg, feeling better), or symptom management (eg, mood tracking). We excluded apps focused on the incorporation of sham techniques (see

Multimedia Appendix 1 for a definition of sham techniques).

We excluded apps that:

Required payment for installation or provided a free trial only for a limited amount of time because it would be expected to bias program usage (free to install apps that included in-app purchases were not excluded);

Were therapist-based (eg, telepsychiatry) because the study was focused on unguided interventions; and Were not meant to be used for more than a few times (eg, tests, one-time exposure technique) or were merely magazines.

Two independent reviewers screened the apps based on the inclusion and exclusion criteria.

2. Literature Survey

The fast pace of social change seems to be unfathomable even for adults which puts children in a vulnerable spot. With increasing exposure to media, children may be prematurely coerced to adult ways of thinking, behaving but are not equipped to face the pressures and problems.

As the threats are changing from physical to psychosocial (stress in various dimensions of life, relationship issues), there is a shift in perspective from biological to psychological. Coping with the current demands of living may place a huge burden on the individual's coping resources, thereby threatening his mental health.

Mental health is a relatively new terminology. Throughout history, from the dark ages to the period of enlightenment, mental disorder was looked at as witchcraft, black magic and the afflicted having some supernatural powers. When madness was looked as self-inflicted then society gave its guardian permission to punish the 'mad' people. Gradually as the medical model took shape, the view that abnormal mental behaviour was the result of mental disease came into being.

ATTITUDE OF GENERAL PUBLIC TOWARDS MENTAL ILLNESS

Mental illness.

Health is wealth and if the health is affected it affects the whole body system.

According to WHO, "mental health is defined as a state of well being in which every individual realizes his or her own potential, can cope up with normal stress of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2014). This definition tries to explain that the mental health is an integral part of physical and social health and it is not only the absence of mental illness which purely defines the mental health. Mental health is the major part of body system which functions the whole body, so it's essential to take care of the mental health status of an individual.

Mental illness is a state or a condition which affects an individual's thinking, feeling, mood and behaviour related to others and functional ability on daily basis (NAMI, 2015). Mental illness is a situation which refers to wide range of mental

disorder or conditions which affect an individual's thinking, behaviour and individual can't be able to cope up with the community.

According to survey media depict mental illnesses negatively approximately 77% of the time over emphasising and over representing a minority of mental illness cases, promoting harmful stereotypes such as dangerousness and violence. It could be due to this over representation of rare cases of mental disorders that people generally delay professional help as they do not recognise that they may have a mental illness; they may normalise it by attribution to everyday stresses and believe they should deal with it on their own, as modern society has a higher tolerance of stress, (Jorm, 2012). This could explain the underutilisation of mental health services. Alternatively, stigma could be the reason for this lack of use, as the quantity of prescriptions for antidepressant medication have risen since the 1980's, (Mackenzie, Erickson, Deane, & Wright, 2014) despite attitudes towards helpseeking have become increasingly negative. Self-enrolment in psychotherapy for depression has decreased by 28% in the last 20 years, potentially because most adults do not believe it is an effective treatment, (Jorm & Wright, 2007; Mackenzie et al., 2014). Due to public education enforcing that mental illness is biological, the desire for medicinal treatments has increased. It could be argued that because dependence on drugs is viewed negatively it contributes to the stigma surrounding mental health, as 1 in 4 Americans believe psychiatric medications are harmful, (Jorm & Wright, 2007; Mackenzie et al., 2014).

Stigma harshly affects those suffering from mental illness, causing lowered self-esteem and reduced chances for social interaction, due to isolation, distancing and exclusion, (Bulanda et al., 2014). Sufferers of mental health issues may also experience fewer job opportunities, (Hansson, Jormfeldt, Svedberg, & Svensson, 2013), as evidenced by low levels of employment among those with mental illness; decreased life opportunities; loss of independence; and insurance disparities among those with mental illness and those with physical illness, leaving many unable to afford treatment, (Hinshaw & Stier, 2008). It has been noted that reduction in self-worth among those experiencing stigma is not inevitable, as many racial minorities

continue to have positive self-esteem despite the racism they face, but it should be remembered that the symptoms of many mental health issues such as depression or eating disorders include pessimism, despair and low self-worth, resulting in the internalisation of the prejudicial messages they receive. Furthermore, mental illness sufferers may worry about monitoring their symptoms so as not to reveal they have a mental disorder due to the pressure in society to conform, causing more stress .

2.1 Symptoms and Risk factors of children and adolescents with depression

Active Shape Model Active shape models focus on complex non-rigid features like actual physical and higher level appearance of features Means that Active Shape Models (ASMs) are aimed at automatically locating landmark points that define the shape of any statistically modelled Department of ECE Page 5 object in an image.

When of facial features such as the eyes, lips, nose, mouth and eyebrows.

The training stage of an ASM involves the building of a statistical

a) facial model from a training set containing images with manually annotated landmarks. ASMs is classified into three groups i.e. snakes, PDM, Deformable templates.

Mental health in the workplace: Towards evidence-based practice

Studies have shown that when employees are not aware of the benefits their employer provides that they are more likely to not use them; this is especially true when it comes to mental health benefits (Kelloway, 2017). According to research conducted by Kelloway and reported in the article Mental health in the workplace: Towards evidence-based practice (2017), the economic impacts to companies who have employees who are suffering from untreated mental health issues is vast and may include "...absenteeism, presenteeism, reduced productivity, increased turnover, and host of other organizational behaviors" (Kelloway, 2017). In fact, according to Kelloway, insurance companies have reported that upwards of 70% of claims in regard to both long-term and short-term disabilities can be attributed to mental-health related illnesses (Kelloway, 2017).

However, as Kelloway points out, although more experts are attempting to address mental health issues within the workforce, there are few empirically studied and confirmed programs that can be used by companies as a standard of prevention or care (Kelloway, 2017). One such

attempt, discussed in the article, as a standard which companies could go by was implemented in 2013 by the title of Promulgation of the CSA Z1003 which was based upon four common pillars of interest. The pillars included, "...requiring organizations to have a corporate commitment to improving psychological health and safety, to have leadership commitment to the issue, to involve employees in the identification of workplace issues and the design of workplace programs, and to ensure the confidentiality of individuals" (Kelloway, 2017). However, according to Kelloway, the standard was flawed in various ways, including, "..there is not a strong evidence base that provides guidance as to what are the most effective workplace strategies...[and] much of the focus has been on what occupational health psychologists refer to as primary prevention activities..." (Kelloway, 2017). Kelloway suggests that more than prevention needs to be addressed, and programs must be designed to intervene in non-workplace mental-health situations that may arise with employees, and programs must also be developed to accommodate employees with pre-existing mental health problems (Kelloway, 2017). It is of this student's opinion that Kelloway's suggestions for improvements in the standards of mental-wellbeing programs within companies are valid and should be studied further.

Merits of proposed system

One good thing that we can think of in using mental health apps personally is the cost. Most of these are free as a trial version. If you like it, you can pay for the whole thing to access other services. Come to think of it, it's very expensive nowadays to seek medical evaluation with a psychologist or psychiatrist. But with an app in your phone, you will receive some form of therapy without spending money or at a lower cost if you will buy the whole app.

It's also available 24/7 and in any place, you go. As long as you have your mobile phone or tablet with you, there's no problem with this element.

The apps provide services like information about your condition, activities or therapies that can provide immediate help, coping strategies, support groups and a diary to record your progress and daily experiences.

Since so much of the population uses a smartphone—and the average user checks his or her phone as often as 150 times a day—it can be worthwhile to store your mental health progress in something that is such a part of daily life. **1.High patient engagement:**

Also, apps offer the allure and sleekness of technological advancements. These technologies may be more appealing to certain participants over traditional therapy.

2.Anonymity and consistency:

Mental health services are obligated to keep your information private, mental health apps don't require directly communicating with another person, which may increase anxiety or similar symptoms for which someone may be seeking treatment.

While therapists and psychiatrists are highly trained professionals, there is always potential for slight variability from one patient to the next.

3.Interest –

Some technologies might be more appealing than traditional treatment methods, which may encourage clients to continue therapy.

4.Support –

technologies can compliment traditional therapy by extending an inperson session, reinforcing new skills and providing support and monitoring.

5.Use at Home-

If someone were to seek therapy for anxiety, depression, or similar disorders, it's not unlikely he or she may face some kind of waiting list for a therapist. Similarly, therapy can be expensive, especially if the office doesn't take your insurance. Mental health apps are either free or very low-cost.

Kinds of Mental Disorders:

Some of the main groups of mental disorders are:

1. mood disorders (such as depression or bipolar disorder)-

Overview

If you have a mood disorder, your general emotional state or mood is distorted or inconsistent with your circumstances and interferes with your ability to function.

You may be extremely sad, empty or irritable (depressed), or you may have period of depression alternating with being excessively happy (mania).

Anxiety disorders can also affect your mood and often occur along with depression. Mood disorders may increase your risk of suicide.

Some examples of mood disorders include:

- **Major depressive disorder** —
prolonged and persistent periods of extreme sadness
- **Bipolar disorder** —
also called manic depression or bipolar affective disorder, depression that includes alternating times of depression and mania
- **Seasonal affective disorder (SAD)** —
a form of depression most often associated with fewer hours of daylight in the far northern and southern latitudes from late fall to early spring
- **Cyclothymic disorder** —

a disorder that causes emotional ups and downs that are less extreme than bipolar disorder

- **Premenstrual dysphoric disorder** — mood changes and irritability that occur during the premenstrual phase of a woman's cycle and go away with the onset of menses
- **Persistent depressive disorder (dysthymia)** — a longterm (chronic) form of depression
- **Disruptive mood dysregulation disorder** — a disorder of chronic, severe and persistent irritability in children that often includes frequent temper outbursts that are inconsistent with the child's developmental age
- **Depression related to medical illness** — a persistent depressed mood and a significant loss of pleasure in most or all activities that's directly related to the physical effects of another medical condition
- **Depression induced by substance use or medication** — depression symptoms that develop during or soon after substance use or withdrawal or after exposure to a medication

For most people, mood disorders can be successfully treated with medications and talk therapy (psychotherapy).

When to see a doctor

If you're concerned that you may have a mood disorder, make an appointment to see your doctor or a mental health professional as soon as you can. If you're reluctant to seek treatment, talk to a friend or loved one, a faith leader, or someone else you trust.

Talk to a health care professional if you:

- Feel like your emotions are interfering with your work, relationships,
- social activities or other parts of your life
- Have trouble with drinking or drugs
- Have suicidal thoughts or behaviors — seek emergency treatment immediately

Your mood disorder is unlikely to simply go away on its own, and it may get worse over time. Seek professional help before your mood disorder becomes severe — it may be easier to treat early on.



2. Anxiety disorders-

Anxiety is a normal emotion. It's your brain's way of reacting to stress and alerting you of potential danger ahead.

Everyone feels anxious now and then. For example, you may worry when faced with a problem at work, before taking a test, or before making an important decision.

Occasional anxiety is OK. But anxiety disorders are different. They're a group of mental illnesses that cause constant and overwhelming anxiety and fear. The excessive anxiety can make you avoid work, school, family gettogethers, and other social situations that might trigger or worsen your symptoms.

With treatment, many people with anxiety disorders can manage their feelings.

Types of Anxiety Disorders

There are several types of anxiety disorders:

- Generalized anxiety disorder. You feel excessive, unrealistic worry and tension with little or no reason.



- **Panic disorder**. You feel sudden, intense fear that brings on a panic attack. During a panic attack you may break out in a sweat, have chest pain, and have a pounding heartbeat (palpitations). Sometimes you may feel like you're choking or having a heart attack.
- **Social anxiety disorder**. Also called social phobia, this is when you feel overwhelming worry and selfconsciousness about everyday social situations. You obsessively worry about others judging you or being embarrassed or ridiculed.
- **Specific phobias**. You feel intense fear of a specific object or situation, such as heights or flying. The fear goes beyond what's appropriate and may cause you to avoid ordinary situations.
- **Agoraphobia**. You have an intense fear of being in a place where it seems hard to escape or get help if an emergency occurs. For example, you may panic or feel anxious when on an airplane, public transportation, or standing in line with a crowd.
- **Separation anxiety**. Little kids aren't the only ones who feel scared or anxious when a loved one leaves. Anyone can get separation anxiety disorder. If you do, you'll feel very anxious or fearful when a person you're close with leaves your sight. You'll always worry that something bad may happen to you or your loved one.
- **Selective mutism**. This is a type of social anxiety in which young kids who talk normally with their family don't speak in public, like at school.
- **Medication-induced anxiety disorder**. Use of certain medications or illegal drugs, or withdrawal from certain drugs, can trigger some symptoms of anxiety disorder.

Anxiety Disorder Symptoms

The main symptom of anxiety disorders is excessive fear or worry. Anxiety disorder can also make it hard to breathe, sleep, stay still, and concentrate. Your specific symptoms depend on the type of anxiety disorder you have.

Common symptoms are:

- Panic, fear, and uneasiness

- Feelings of panic, doom, or danger
- Sleep problems
- Not being able to stay calm and still
- Cold, sweaty, numb, or tingling hands or feet
- Shortness of breath
- Breathing faster and more quickly than normal (hyperventilation)
- Heart palpitations
- Dry mouth
- Nausea
- Tense muscles
- Dizziness
- Thinking about a problem over and over again and unable to stop (rumination
)

- Inability to concentrate
- Intensely or obsessively avoiding feared objects or places

Anxiety Disorder Causes and Risk Factors

Researchers don't know exactly what brings on anxiety disorders. A complex mix of things play a role in who does and doesn't get one.

Causes of Anxiety Disorder

Some causes of anxiety disorders are:

- **Genetics.** Anxiety disorders can run in families.
- **Brain chemistry.** Some research suggests anxiety disorders may be linked to faulty circuits in the brain that control fear and emotions.
- **Environmental stress.** This refers to stressful events you have seen or lived through. Life events often linked to anxiety disorders include childhood abuse and neglect, a death of a loved one, or being attacked or seeing violence.
- **Drug withdrawal or misuse.** Certain drugs may be used to hide or decrease certain anxiety symptoms. Anxiety disorder often goes hand in hand with alcohol and substance use.
- **Medical conditions.** Some heart, lung, and thyroid conditions can cause symptoms similar to anxiety disorders or make anxiety symptoms worse. It's important to get a full physical exam to rule out other medical conditions when talking to your doctor about anxiety.

Risk Factors for Anxiety Disorder

Some things also make you more likely to develop an anxiety disorder. These are called risk factors. Some risk factors you can't change, but others you can.

Risk factors for anxiety disorders include:

- **History of mental health disorder.** Having another mental health disorder, like depression, raises your risk for anxiety disorder.
- **Childhood sexual abuse.** Emotional, physical, and sexual abuse or neglect during childhood is linked to anxiety disorders later in life.
- **Trauma.** Living through a traumatic event increases the risk of posttraumatic stress disorder (PTSD), which can cause panic attacks.
- **Negative life events.** Stressful or negative life events, like losing a parent in early childhood, increase your risk for anxiety disorder.

- **Severe illness or chronic health condition.** Constant worry about your health or the health of a loved one, or caring for someone who is sick, can cause you to feel overwhelmed and anxious.
- **Substance abuse.** The use of alcohol and illegal drugs makes you more likely to get an anxiety disorder. Some people also use these substances to hide or ease anxiety symptoms.
- **Being shy as a child.** Shyness and withdrawal from unfamiliar people and places during childhood is linked to social anxiety in teens and adults.
- **Low self-esteem.** Negative perceptions about yourself may lead to social anxiety disorder.

Anxiety Disorder Diagnosis

If you have symptoms, your doctor will examine you and ask questions about your medical history. They may run tests to rule out other health conditions that might be causing your symptoms. No lab tests can specifically diagnose anxiety disorders.

If your doctor doesn't find any physical reason for how you're feeling, they may send you to a psychiatrist, psychologist, or another mental health specialist. Those doctors will ask you questions and use tools and testing to find out if you may have an anxiety disorder.

Your doctors will consider how long you've had symptoms and how intense they are when diagnosing you. It's important to let your doctors or counselors know if your anxiety makes it hard to enjoy or complete everyday tasks at home, work, or school.

Anxiety Disorder Treatments

There are many treatments to reduce and manage symptoms of anxiety disorder. Usually, people with anxiety disorder take medicine and go to counseling.

Treatments for anxiety disorder include:

Medication. Several types of drugs are used to treat anxiety disorders. Talk to your doctor or psychiatrist about the pros and cons of each medicine to decide which one is best for you.

- **Antidepressants.** Modern antidepressants (SSRIs and SNRIs) are typically the first drugs prescribed to someone with an anxiety disorder. Examples of SSRIs are escitalopram (Lexapro) and fluoxetine (Prozac). SNRIs include duloxetine (Cymbalta) and venlafaxine (Effexor).
- **Bupropion.** This is another type of antidepressant commonly used to treat chronic anxiety. It works differently than SSRIs and SNRIs.

- **Other antidepressants.** These include tricyclics and monoamine oxidase inhibitors (MAOIs). They are less commonly used because side effects, like drops in blood pressure, dry mouth, blurry vision, and urinary retention, can be unpleasant or unsafe for some people.
- **Benzodiazepines.** Your doctor may prescribe one of these drugs if you're having persistent panicky feelings or anxiety. They help lower anxiety. Examples are alprazolam (Xanax) and clonazepam (Klonopin). They work quickly, but you can become dependent on them. Usually, they're meant to be an add-on to your anxiety disorder treatment and you shouldn't take them for a long time.
- **Betablockers.** This type of high blood pressure drug can help you feel better if you're having physical symptoms of anxiety, such as a racing heart, trembling, or shaking. A betablocker may help you relax during an acute anxiety attack.
- **Anticonvulsants.** Used to prevent seizures in people with epilepsy, these drugs also can relieve certain anxiety disorder symptoms.
- **Antipsychotics.** Low doses of these drugs can be added to help make other treatments work better.
- **Buspirone (BuSpar).** This anti-anxiety drug is sometimes used to treat chronic anxiety. You'll need to take it for a few weeks before seeing full symptom relief.

Psychotherapy: This is a type of counseling that helps you learn how your emotions affect your behaviors. It's sometimes called talk therapy. A trained mental health specialist listens and talks to you about your thoughts and feelings and suggests ways to understand and manage them and your anxiety disorder.

- **Cognitive behavioral therapy (CBT):** This common type of psychotherapy teaches you how to turn negative, or panic-causing, thoughts and behaviors into positive ones. You'll learn ways to carefully approach and manage fearful or worrisome situations without anxiety. Some places offer family CBT sessions.

Managing Anxiety Disorder Symptoms

These tips may help you control or lessen your symptoms:

- **Learn about your disorder.** The more you know, the better prepared you will be to manage symptoms and roadblocks along the way. Don't be afraid to ask your doctor any questions you might have. Remember, you are a key part of your health care team.
- **Stick to your treatment plan.** Suddenly stopping your meds can cause unpleasant side effects and can even trigger anxiety symptoms.

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- **Cut down on foods and drinks that have caffeine**, such as coffee, tea, cola, energy drinks, and chocolate. Caffeine is a moodaltering drug, and it may make symptoms of anxiety disorders worse.
- **Don't use alcohol and recreational street drugs**. Substance abuse increases your risk of anxiety disorders.
- **Eat right and exercise**. Brisk aerobic exercises like jogging and biking help release brain chemicals that cut stress and improve your mood.
- **Get better sleep**. Sleep problems and anxiety disorder often go hand in hand. Make getting good rest a priority. Follow a relaxing bedtime routine. Talk to your doctor if you still have trouble sleeping.
- **Learn to relax**. Stress management is an important part of your anxiety disorder treatment plan. Things like meditation, or mindfulness, can help you unwind after a stressful day and may make your treatment work better.
Keep a journal. Writing down your thoughts before the day is down may help you relax so you're not tossing and turning with anxious thoughts all night.
- **Manage your negative thoughts**. Thinking positive thoughts instead of worrisome ones can help reduce anxiety. This can be challenging if you have certain types of anxiety, however. Cognitive behavioral therapy can teach you how to redirect your thoughts.
- **Get together with friends**. Whether it's in person, on the phone, or the computer, social connections help people thrive and stay healthy. People who have a close group of friends that support and chat with them have lower levels of social anxiety.
- **Seek support**. Some people find it helpful and uplifting to talk to others who are experiencing the same symptoms and emotions. Self-help or support groups let you share your concerns and achievements with others who are or who have been there.
- Ask your doctor or pharmacist before taking any over-the-counter meds or herbal remedies. Many have chemicals that can make anxiety symptoms worse.

Anxiety Disorder Outlook

It can be challenging and frustrating to live with an anxiety disorder. The constant worry and fear can make you feel tired and scared. If you've talked to a doctor about your symptoms, then you've taken the first step toward letting go of the worry.

It can take some time to find the right treatment that works for you. If you have more than one anxiety disorder, you may need several kinds of treatment. For most people with anxiety disorders, a combination of medicine and counseling is best. With proper care and treatment, you can learn how to manage your symptoms and thrive.



3. Personality disorders-

Borderline personality disorder is an illness marked by an ongoing pattern of varying moods, self-harm, and behavior. These symptoms often result in impulsive actions and problems in relationships. People with borderline personality disorder may experience intense episodes of anger, depression, and anxiety that can last from a few hours to days.

Signs and Symptoms:

People with borderline personality disorder may experience mood swings and display uncertainty about how they see themselves and their role in the world. As a result, their interests and values can change quickly.

People with borderline personality disorder also tend to view things in extremes, such as all good or all bad. Their opinions of other people can also change quickly. An individual who is seen as a friend one day may be considered an enemy or traitor the next. These shifting feelings can lead to intense and unstable relationships. Other signs or symptoms may include:

- Efforts to avoid real or imagined abandonment, such as rapidly initiating intimate (physical or emotional) relationships or cutting off communication with someone in anticipation of being abandoned
- A pattern of intense and unstable relationships with family, friends, and loved ones, often swinging from extreme closeness and love (idealization) to extreme dislike or anger (devaluation)
- Distorted and unstable self-image or sense of self
- Impulsive and often dangerous behaviors, such as spending sprees, unsafe sex, substance abuse, reckless driving, and binge eating. **Please note:** If these behaviors occur primarily during a period of elevated mood or energy, they may be signs of a mood disorder—not borderline personality disorder
- Self-harming behavior, such as cutting
- Recurring thoughts of suicidal behaviors or threats
- Intense and highly changeable moods, with each episode lasting from a few hours to a few days
- Chronic feelings of emptiness
- Inappropriate, intense anger or problems controlling anger
- Difficulty trusting, which is sometimes accompanied by irrational fear of other people's intentions
- Feelings of dissociation, such as feeling cut off from oneself, seeing oneself from outside one's body, or feelings of unreality

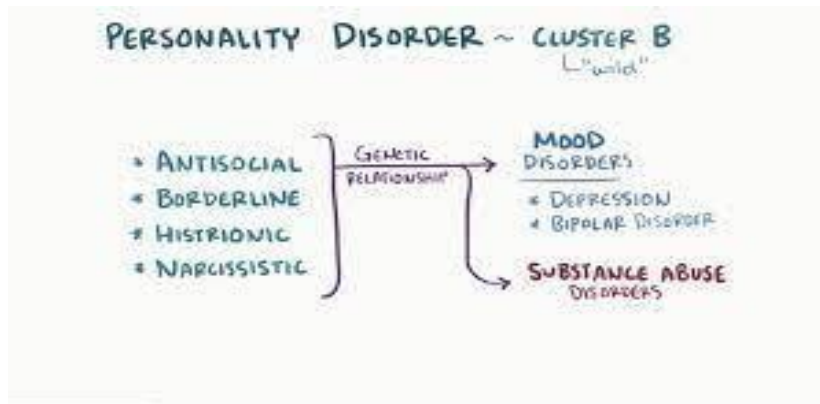
Not everyone with borderline personality disorder experiences every symptom. Some individuals experience only a few symptoms, while others have many. Symptoms can

n be triggered by seemingly ordinary events. For example, people with borderline personality disorder may become angry and distressed over minor separations from people to whom they feel close, such as traveling on business trips. The severity and frequency of symptoms and how long they last will vary depending on the individual and their illness.

The cause of borderline personality disorder is not yet clear, but research suggests that genetics, brain structure and function, and environmental, cultural, and social factors play a role, or may increase the risk for developing borderline personality disorder.

- **Family History.** People who have a close family member, such as a parent or sibling with the disorder may be at higher risk of developing borderline personality disorder.
- **Brain Factors.** Studies show that people with borderline personality disorder can have structural and functional changes in the brain especially in the areas that control impulses and emotional regulation. But is it not clear whether these changes are risk factors for the disorder, or caused by the disorder.
- **Environmental, Cultural, and Social Factors.** Many people with borderline personality disorder report experiencing traumatic life events, such as abuse, abandonment, or adversity during childhood. Others may have been exposed to unstable, invalidating relationships, and hostile conflicts.

Although these factors may increase a person's risk, it does not mean that the person will develop borderline personality disorder. Likewise, there may be people without these risk factors who will develop borderline personality disorder in their lifetime.



4. Psychotic disorders (such as schizophrenia)-

Psychotic disorders are mental disorders in which a person's personality is severely confused and that person loses touch with reality. When a psychotic episode occurs a person becomes unsure about what is real and what isn't real and usually hallucinations, delusions, off-the-wall behavior, chaotic speech and incoherency. A person behaving in this manner often referred to as being schizophrenic.

A hallucination is an internal sensory perception that isn't actually present and can be either visual or auditory. Smelling odors or having a funny taste in the mouth are other hallucinations that may occur. A delusion is defined as a false, inaccurate belief that a person holds on to. A grandiose delusion occurs when a person believes that their life is out of proportion as compared to what is really true. For example, a patient may believe that she is God or Jesus Christ. A persecutory delusion occurs when a person believes that there is a conspiracy amongst others to

attack, punish or harass him. Although these hallucinations and delusions appear odd to others, they are very real to the person with the disorder.

Symptoms

The main ones are hallucinations, delusions, and disordered forms of thinking.

Hallucinations means seeing, hearing, or feeling things that don't exist. For instance, someone might see things that aren't there, hear voices, smell odors, have a "funny" taste in their mouth, or feel sensations on their skin even though nothing is touching their body.

Delusions are false beliefs that don't go away even after they've been shown to be false. For example, a person who is certain their food is poisoned, even if someone has shown them that the food is fine, has a delusion.

Other possible symptoms of psychotic illnesses include:

- Disorganized or incoherent speech
- Confused thinking
- Strange, possibly dangerous behavior
- Slowed or unusual movements
- Loss of interest in personal hygiene
- Loss of interest in activities
- Problems at school or work and with relationships
- Cold, detached manner with the inability to express emotion
- Mood swings or other mood symptoms, such as depression or mania

People don't always have the same symptoms, and they can change over time in the same person.

Causes

Doctors don't know the exact cause of psychotic disorders. Researchers believe that many things play a role. Some psychotic disorders tend to run in families, which means that the disorder may be partly inherited. Other things may also influence their development, including stress, drug abuse, and major life changes.

People with certain psychotic disorders, such as schizophrenia, may also have problems in parts of the brain that control thinking, perception, and motivation.

In schizophrenia, experts believe that nerve cell receptors that work with a brain chemical called glutamate may not work properly in specific brain regions. That glitch may contribute to problems with thinking and perception.

These conditions usually first appear when a person is in their late teens, 20s, or 30s. They tend to affect men and women about equally.

Diagnosis

To diagnose a psychotic disorder, doctors will take a medical and psychiatric history and possibly perform a brief physical exam. The person may get blood tests and sometimes brain imaging (such as MRI scans) to rule out physical illness or drug use like cocaine or LSD.

If the doctor finds no physical reason for the symptoms, they may refer the person to a psychiatrist or psychologist. These mental health professionals will use specially designed interview and assessment tools to decide whether the person has a psychotic disorder.



5. Eating disorders-

Eating disorders are serious conditions related to persistent eating behaviors that negatively impact your health, your emotions and your ability to function in important areas of life. The most common eating disorders are anorexia nervosa, bulimia nervosa and binge-eating disorder.

Most eating disorders involve focusing too much on your weight, body shape and food, leading to dangerous eating behaviors. These behaviors can significantly impact your body's ability to get appropriate nutrition. Eating disorders can harm the heart, digestive system, bones, and teeth and mouth, and lead to other diseases.

Eating disorders often develop in the teen and young adult years, although they can develop at other ages. With treatment, you can return to healthier eating habits and sometimes reverse serious complications caused by the eating disorder.

Symptoms

Symptoms vary, depending on the type of eating disorder. Anorexia nervosa, bulimia nervosa and binge-eating disorder are the most common eating disorders. Other eating disorders include rumination disorder and avoidant/restrictive food intake disorder.

Anorexia nervosa

Anorexia (an-o-REK-see-uh) nervosa — often simply called anorexia — is a potentially lifethreatening eating disorder characterized by an abnormally low body weight, intense fear of gaining weight, and a distorted perception of weight or shape. People with anorexia use extreme efforts to control their weight and shape, which often significantly interferes with their health and life activities.

When you have anorexia, you excessively limit calories or use other methods to lose weight, such as excessive exercise, using laxatives or diet aids, or vomiting after eating. Efforts to reduce your weight, even when underweight, can cause severe health problems, sometimes to the point of deadly self-starvation.

Bulimia nervosa

Bulimia (boo-LEE-me-uh) nervosa — commonly called bulimia — is a serious, potentially lifethreatening eating disorder. When you have bulimia, you have episodes of bingeing and purging that involve feeling a lack of control over your eating. Many people with bulimia also restrict their eating during the day, which often leads to more binge eating and purging.

During these episodes, you typically eat a large amount of food in a short time, and then try to rid yourself of the extra calories in an unhealthy way. Because of guilt, shame and an intense fear of weight gain from overeating, you may force vomiting or you may exercise too much or use other methods, such as laxatives, to get rid of the calories.

If you have bulimia, you're probably preoccupied with your weight and body shape, and may judge yourself severely and harshly for your self-perceived flaws. You may be at a normal weight or even a bit overweight.

Binge-eating disorder

When you have binge eating disorder, you regularly eat too much food (binge) and feel a lack of control

over your eating. You may eat quickly or eat more food than intended, even when you're not hungry, and you may continue eating even long after you're uncomfortably full.

After a binge, you may feel guilty, disgusted or ashamed by your behavior and the amount of food eaten. But you don't try to compensate for this behavior with excessive exercise or purging, as someone with bulimia or anorexia might. Embarrassment can lead to eating alone to hide your bingeing.

A new round of bingeing usually occurs at least once a week. You may be normal weight, overweight or obese.

Rumination disorder

Rumination disorder is repeatedly and persistently regurgitating food after eating, but it's not due to a medical condition or another eating disorder such as anorexia, bulimia or binge eating disorder. Food is brought back up into the mouth without nausea or gagging,

and regurgitation may not be intentional. Sometimes regurgitated food is rechewed and reswallowed or spit out.

The disorder may result in malnutrition if the food is spit out or if the person eats significantly less to prevent the behavior. The occurrence of rumination disorder is more common in infancy or in people who have an intellectual disability.

Avoidant/restrictive food intake disorder

This disorder is characterized by failing to meet your minimum daily nutrition requirements because you don't have an interest in eating; you avoid food with certain sensory characteristics, such as color, texture, smell or taste; or you're concerned about the consequences of eating, such as fear of choking. Food is not avoided because of fear of gaining weight.

The disorder can result in significant weight loss or failure to gain weight in childhood, as well as nutritional deficiencies that can cause health problems.



Involving (Mental Health) Patients and Health-care Professionals

End users for more commercial application, such as a new supermarket app, are quite easy to find, as most people tend to visit supermarkets. When developing a web-based tool for, for instance, depressed patients, it is a challenge to find several groups of 5–10 depressed patients to test prototypes of a web-based intervention. Depending on their mental health condition, it can be quite difficult to actively involve them in the project. When developing products for (mental) health professionals, the time pressure and loss of production limit the availability of end users. Therefore, involvement of mental health patients needs to be carefully planned, which might make short-term development cycles (sprints) less feasible. In PatientTIME, flexibility in terms of planning and setup was experienced as a precondition to get seriously ill patients involved .

Challenges and Considerations When Involving End Users

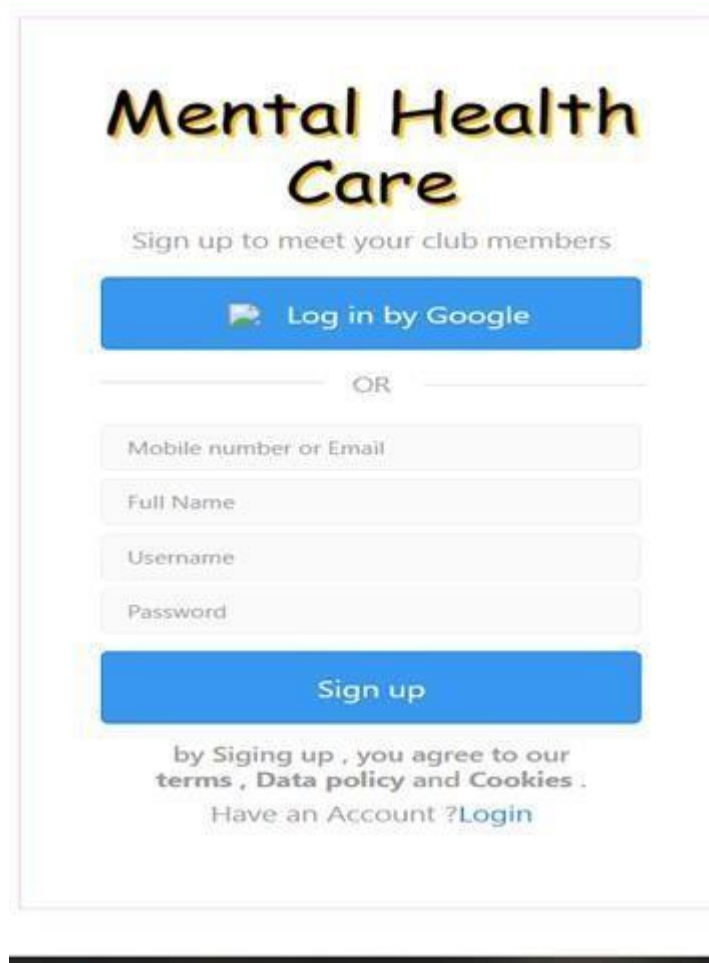
User involvement during the development process is an important aspect that may influence the successful uptake of a web-based intervention. As we have seen, there are several ways to involve end users. Bellow, we highlight the challenges and considerations when involving end users.

When to Stop?

Working actively with end users requires that smaller hypothesis are tested in fast feedback loops. As reported in Listening time, the sample size for short sprints was mostly small ranging from 1 to 14 people and homogeneous (as mainly male patients with prostate cancer were involved). The major challenge is how to determine if a hypothesis is false or not. UCD is mainly assessed qualitative (interview) methods . There are no psychometrically sound assessment tools. When can we say that enough users have given feedback on the product, and the product is ready (enough) to be implemented?

3. Project Design

For building any mental health app we should have the basic knowledge about it going to work and also we should have the basic architecture of it with us so we know that how is it going to work before we even go for building any mental health app. So, the basic architecture for any mental health is given below.



The image shows a mobile app interface for 'Mental Health Care'. At the top, the title 'Mental Health Care' is displayed in a large, bold, yellow font. Below the title, the text 'Sign up to meet your club members' is shown in a smaller, grey font. There are two main options for user authentication: a blue button with a white Google logo and the text 'Log in by Google', and a white button with a blue border and the text 'Sign up'. Between these buttons is a horizontal line with the word 'OR' in the center. Below the 'Sign up' button, there are four input fields: 'Mobile number or Email', 'Full Name', 'Username', and 'Password'. At the bottom of the form, there is a line of text: 'by Signing up, you agree to our terms, Data policy and Cookies.' followed by a link that says 'Have an Account ?Login'.

EASE OF USE:

One good thing that we can think of in using mental health apps personally is the cost. Most of these are free as a trial version. If you like it, you can pay for the whole thing to access other services. Come to think of it, it's very expensive nowadays to seek medical evaluation with a psychologist or psychiatrist. But with an app in your phone, you will receive some form of therapy without spending money or at a lower cost if you will buy the whole app.

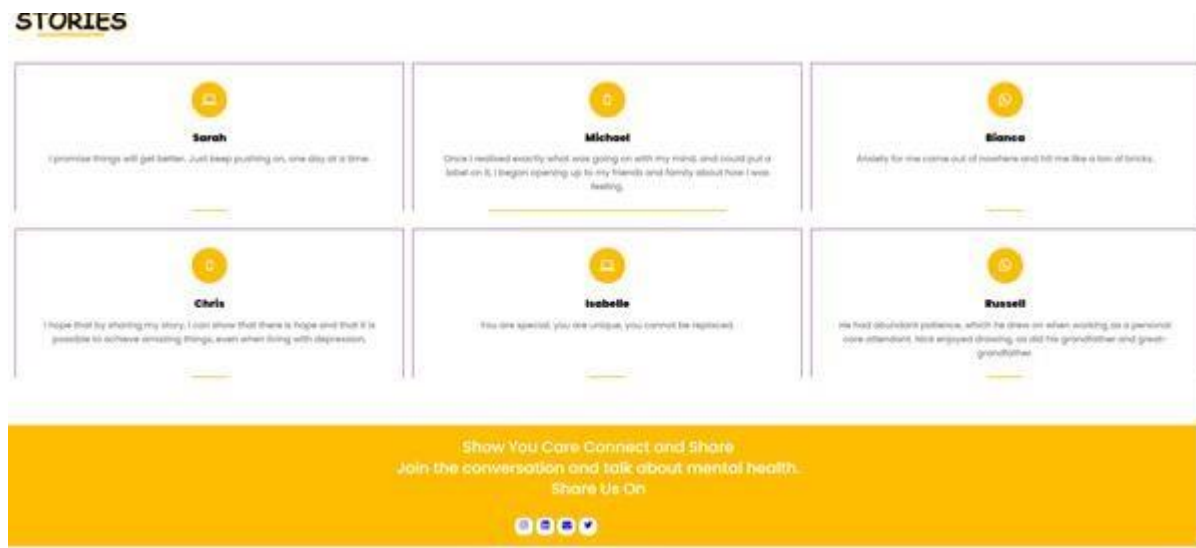
It's also available 24/7 and in any place, you go. As long as you have your mobile phone or tablet with you, there's no problem with this element.

The apps provide services like information about your condition, activities or therapies that can provide immediate help, coping strategies, support groups, online therapists, and a diary to record your progress and daily experiences.

Since so much of the population uses a smartphone—and the average user checks his or her phone as often as 150 times a day—it can be worthwhile to store your mental health progress in something that is such a part of daily life.

High patient engagement:

Also, apps offers the allure and sleekness of technological advancements. These technologies may be more appealing to certain participants over traditional therapy.



Anonymity and consistency:

Mental health services on your smartphone are completely confidential. While therapists are obligated to keep your information private, mental health apps don't require directly

communicating with another person, which may increase anxiety or similar symptoms for which someone may be seeking treatment .

While therapists and psychiatrists are highly trained professionals, there is always potential for slight variability from one patient to the next and for severe cases there will be ED where counsellors will provide their full attention to the patient.

Use at Home:

If someone were to seek therapy for anxiety, depression, or similar disorders, it's not unlikely he or she may face some kind of waiting list for a therapist. Similarly, therapy can be expensive, especially if the office doesn't take your insurance. Mental health apps are either free or very low-cost.

Interest :Some technologies might be more appealing than traditional treatment methods ,which may encourage clients to continue therapy. People can use their FOI to gain knowledge about what they are looking for.

Support :

Technologies can compliment traditional therapy by extending an in-person session, reinforcing new skills and providing support and monitoring.

Module Description-

On top of cost and inconvenience, people often have a plethora of reasons they don't think therapy is right for them. But an app isn't intimidating. They're usually designed with a userfriendly interface. People feel more comfortable doing something from their personal device rather than showing up in person.

All told, mental health apps can be a great way to get your feet wet with therapy or another form of mental health care. We're all for using an app to explore mental health care. Just know that if you want more, it might be time to make an appointment with a therapist.

Conclusion-

We discussed different types of mental disorders and their reasonable, affordable, and possible solution to enhance the mental healthcare facilities. Currently, the digital mental health revolution is amplifying beyond the pace of scientific evaluation and it is very clear that clinical communities need to catch up. Various smart healthcare systems and devices developed that reduce the death rate of mental patients and avert the patient to associate in any illegal activities by early prediction.

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