'Identification of a Healthcare issue: "Mental Health" and a Probable Solution'

Course Name: Biology

Course Code: BL101

Name: Priyamvada

Roll No.: 23075060

Department: Computer Science

Submitted Date: 31-10-2023

CONTENT:

1.) Introduction

❖Introduce a healthcare problem
❖How the problem was identified
❖Validation of the problem through evidences from data

2.) A Probable Solution

❖At least one technological solution or non-technological solution

3.) Conclusion

4.) References

INTRODUCTION:

Health Care Issue: Mental Health

Mental health is a part of health and wellness that refers to a person's mind, emotions and health. Depression, anxiety, bipolar disorder, etc. Mental disorders can have a significant impact on a person's life and work.

These conditions can affect a person's ability to work, maintain relations and enjoy quality of life.

Mental health problems have a major impact on public health, affecting not only individuals but also their families, communities and societies. Recognizing mental illness as a health problem helps solve the social problems of untreated mental illness.

The burden of mental illness may be underestimated due to a poor understanding of mental illness and other conditions. (Prince et al., 2007)

Because these interactions are constantly changing, there can be no health without mental health.

It recommends a more holistic approach that recognizes the connection between the mind and the body, enabling the patient to navigate the path to health care.

Figure 1: Mental Illness (depression, anxiety, etc.)

Identification of Problem

Interaction with my friend suffering from this issue

Behaviour Changes:

1. Withdrawal: he becomes increasingly lonely or avoids socializing.

2. Irritability: frequent mood swings, anger or uncharacteristic irritability.

3. Academic Depression: Decline in academic performance, inactivity and lack of interest in learning things.

4. Attendance changes: often unavoidable or late arrivals in the class
5. Inattention: Difficulty, restlessness, or inability to complete tasks.

Physical symptoms:

1.Changes in sleeping or eating patterns: Significant changes in eating or sleeping patterns.

2. Physical discomfort: frequent headaches, stomach aches and other unexplained physical symptoms.

In this example, I observed signs of distress in my friend and initiated a conversation about his well-being.

This interaction demonstrates the importance of recognizing signs of potential mental health issues in peers and providing support and understanding.

Box 1.9. Key features of mental retardation

A person with mental retardation will experience some of the following symptoms:
- delays in achieving milestones such as sitting up, walking and speaking
- difficulties in school, especially coping with studies and repeated failures
- difficulties in relating to others, especially other children of the same age
- in adolescence, inappropriate sexual behaviour
- in adulthood, problems in everyday activities such as cooking, managing money, finding and staying on in a job, etc.

Figure 3: Identification of mental health issues (mental retardation) (Patel, 2003)

Validation of the problem through evidence from the literature data:

Mental healthcare for mildly disabled adults: a database study in the Netherlands

Among those with mild intellectual disability (MID):

48.7% have mental health problems, compared with 30.4% of those without intellectual disability. There were significant differences in drug use, suicide attempts, and mental disorders.

80.3% of general practitioners GPs in the MID group did not have coded intellectual disability GPs and MID, including consultations (on average 6.4 vs 4.0 times per year) and many medications (on average 2.7 times per year vs 4.0 times per year) compared to people without ID but with MH problems. (Pouls et al., 2022)

Mental health care issue is a significant area of concern.

Mental Health of Refugees and Non-refugees in war-torn countries :Data from Primary Healthcare and the Norwegian Prescribing Database

Immigrants from refugee-producing countries often experience more mental health problems.

Analytical results:

1. Refugees are more likely than non-refugees to use health services for mental health problems, even after controlling for community factors and health use.

2.When focusing on people using primary care for mental health issues (thus eliminating the gap in seeking help), Refugees are less likely than refugees to use psychotropic medication. (Straiton et al., 2017)
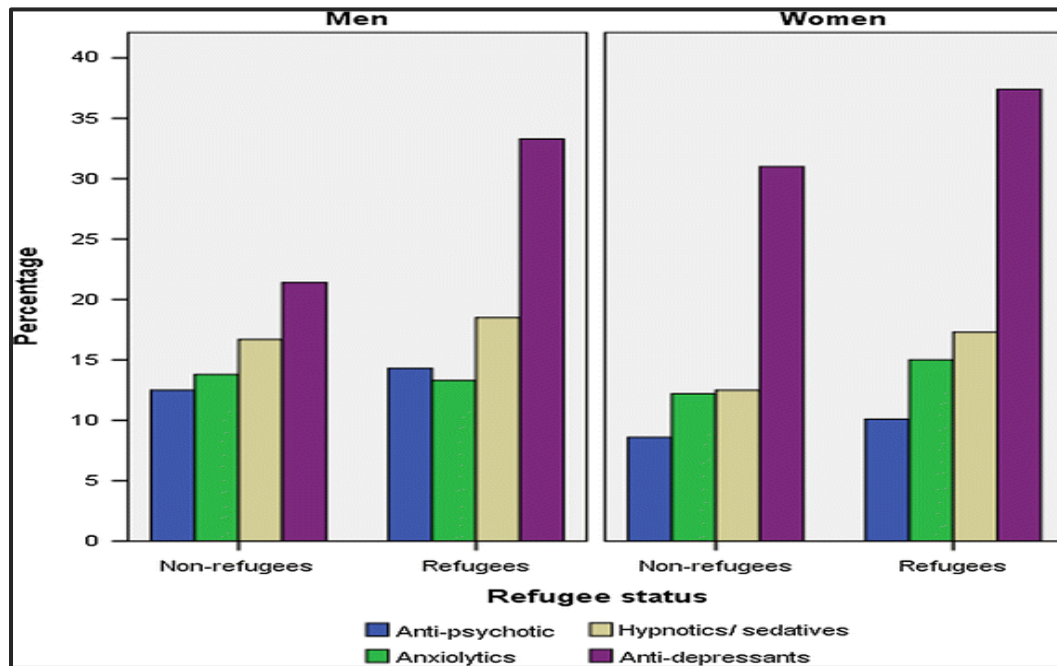
Percentage of refugees and non-refugees who purchased psychotropic medications by brand

Figure 3 (Straiton et al., 2017)

A Probable solution:

TECHNOLOGICAL SOLUTION:

Technologies that have the potential to improve mental health services are developing at an alarming rate. (Ben-Zeev et al., 2012)

TELEMEDICINE AND TELETHERAPY:

In many remote areas there is no accessibility to proper health care and in such situations it gets difficult for people suffering from mental health issue to seek its treatment, so through online communication system such as video conferencing, e-messaging and online reports they may get access to it's treatment.

WEARABLE DEVICES:

Wearable devices such as smartwatches and fitness trackers can help users and professionals track and manage mental health by monitoring physiological data such as heart rate, sleep patterns, and activities.

VIRTUAL REALITY THERAPY:

Virtual reality (VR) can be used in therapy and desensitization therapy to treat conditions such as post-traumatic stress disorder, phobias, and anxiety.

REMOTE MONITORING:

Continuous remote monitoring of patients with mental health issues could help doctors make more informed treatment decisions.

WEARABLE DEVICES FOR MENTAL HEALTH:

Devices designed specifically for mental health, such as EEG headsets and heart rate monitors, can provide more accurate data to monitor and manage conditions such as anxiety and depression.

PREDICTIVE MODELLING:

Machine learning algorithms can help predict mental health issues and identify individuals at risk, providing intervention and support.

MENTAL HEALTH SCREENING TOOLS:

Online screening tools and surveys can help people assess their mental health. These tools can direct users to appropriate resources and services.

GAMIFICATION:

Therapeutic games and interactive apps can make therapy and personal development engaging and empowering, especially for children and teenagers.

DIGITAL THERAPY:

These are evidence-based clinical software-based interventions designed to treat specific mental health conditions. They may be prescribed by the doctor as part of the treatment plan.

ELECTRONIC HEALTH RECORDS (EHRs):
They can improve collaborations and patient outcomes by connecting healthcare providers' mental health records.

NEUROFEEDBACK AND BIOFEEDBACK:

These technologies help people learn to manage their stress, anxiety, or attention by providing immediate feedback about brain and body responses.

The findings show that when developers build systems, the focus is on implementing treatments rather than compliance support. Additionally, self-management systems that do not require human guidance are equivalent in skills but have one-third fewer features than apps. (Burger et al., 2020)

Technology	Description
Body language and gesture recognition	Recognition of meaningful body movements involving the fingers, hands, face, head or body (Mitra and Acharya 2007; Kleinsmith and Bianchi-Berthouze 2013)
Facial expression analysis	Measurement and interpretation of facial expressions (Zeng et al. 2009; Sariyanidi et al. 2015)
Facial recognition	Recognition of human faces, including if background clutter and variable image quality (Zhao et al. 2003; McPherson et al. 2016)
Natural language processing	Automatic extraction of meaning from human languages, both text and speech, requiring ambiguity resolution (Nadkarni et al. 2011)
Pattern recognition	Automated recognition, description, and classification of patterns, often involving statistical classification and neural networks (Jain et al. 2000)
Sensors	Identification of emotion using physiological signals such as heart rate, breathing, skin conduction, physical activity (Calvo and D'Mello 2010; Jerritta et al. 2011; Sun et al. 2010)
Sentiment analysis	Binary classification of subjective opinions in text such as positive versus negative, like versus dislike (Liu 2010)
Smartphone usage patterns	Identification of mood based on measures such as number and duration of incoming/outgoing calls; outgoing text messages, app usage (LiKamWa et al. 2013; Faurholt-Jepsen et al. 2016)
Speech emotion recognition	Recognition of the emotional content of human speech (El Ayadi et al. 2011; Zeng et al. 2009)
Speech recognition	Identification and understanding of human speech, converting into text or commands (Meng et al. 2012; Xiong et al. 2016)

Figure 4: Tools used in cognitive impairment. (Bauer et al., 2017)

NON TECHNOLOGICAL SOLUTIONS:

PSYCHOTHERAPY AND COUNSELING:
By physically consulting mental health professionals such as psychiatrist, psychologist and counselor discussing with them regarding your mental sickness face-to-face will help in identifying the cause of mental illness and will ensure it's proper treatment.

SOCIAL SUPPORT:
Society, family and friends have great influence in overcoming mental health problems. Communicating with your friends and sharing your issues with them will help you face mental illness.

EXERCISE:

Daily exercise and work out help in bursting stress, anxiety and other health issues. Depression and mental sickness are also buried by regular exercising.

HEALTH AND NUTRITION:

There is significant impact of proper nutrition and balanced diet in our lives, they not only keeps us healthy but also helps in overpowering mental health issues such as depression, anxiety, impulsiveness and stress.

SLEEP MANAGEMENT:

A good sleeping pattern is crucial for healthy lifestyle. Ensuring good 7-9 hours sleep helps to reduce stree and other mental health problems.

MINDFULNESS AND MEDITATION:
Peacefulness and calmness are very important factors that one should possess and are deep cure to mental sickness. Daily meditation and yoga also boosts concentration and solace in our soul.

ART THERAPY:

Activities such as dance, music and pursuing your hobby will distract you and will keep you happy. Thus these activities may reduce mental health problems (depression and anxiety).

HOLISTIC APPROACH:

An integrated approach that considers mind, body and spirit, such as acupuncture, herbs and traditional therapies, may be beneficial for some people.

STRESS MANAGEMENT TECHNIQUES:

Learning stress management techniques, such as deep breathing, relaxing muscles, or writing, can help people cope with stress and anxiety.

LIFESTYLE CHANGES:

To cope up with stress and anxiety issues one should avoid use of toxic substances that cause damage to body and also disturbs our mental peace. Maintaining healthy lifestyle ensures healthy mind and peaceful soul.

VOLUNTEERING AND HELPING OTHERS:

Helping the person suffering from mental illness and by being kind to them, will ensure positive atmosphere and will also help them to cope up with their problems. This will also ensure healthy relation.

Figure 5: Unused methods in psychotherapy(Patel, 2003)

Psychiatrists are increasingly using technology to treat mental health illness services. This advancement allows professionals to communicate, store information, and rely on software and hardware.

However, using advances in mental health services has implications for digital privacy and may bring luck to private clients. At the same time, psychologists continue to challenge all the technological advances in mental health care and services, as well as educational methods, honest, legal communication, and their use. (Lustgarten et al., 2020)

CONCLUSION:

In summary, the challenges and opportunities in psychiatry extend beyond traditional medicine and include areas of innovation and change in technology. We find ourselves at a turning point in clinical psychology as the disciplines converge.

Technology has unprecedented potential to change the way we understand, diagnose and treat mental illness. From high-tech technologies and wearable devices that monitor the body to telemedicine and remote health services, these advances have improved access to care, reduced the stigma associated with mental illness, and increased the accuracy and effectiveness of treatment.

The combination of engineering and technology with mental health issues provides hope. It is a powerful force in protecting mental health, expanding access, and improving the accuracy and efficiency of treatment.

As we embrace these technological advances, we must be careful to ensure that ethics, privacy, and participation are central to the development and use of solutions to this problem. By combining excellence, technology and compassionate care, we can pave the way for a better future in mental health care.

From social support to physical activity to mindfulness and simple listening, non-procedural solutions form the basis of all other interventions. This ongoing process brings life to those in need, improves mental health, reduces stigma, and elevates spirit.

Let's not forget that every smile hides a story, every tear carries a burden and every heart longs for understanding.
Mental health issues transcend borders, cultures and backgrounds and affect us all. In solving these problems, we open the way to a brighter, more compassionate world, a world where the warmth of understanding illuminates the corners of the soul.

As we move forward, let us unite in our passion for mental health with openness and unwavering belief, we can create a world where opportunities flourish for everyone
And where compassion has the healing power. A world without limits, where everyone can find comfort and tranquility. Their power on the road to mental health.

<u>REFERENCES:</u>

BAUER, M., GLENN, T., MONTEITH, S., BAUER, R., WHYBROW, P. C. & GEDDES, J. 2017.

Ethical perspectives on recommending digital technology for patients with mental illness. *International journal of bipolar disorders,* 5**,** 1-14.

BEN-ZEEV, D., DRAKE, R. E., CORRIGAN, P. W., ROTONDI, A. J., NILSEN, W. & DEPP, C. 2012.

Using contemporary technologies in the assessment and treatment of serious mental illness. *American Journal of Psychiatric Rehabilitation,* 15**,** 357-376.

BURGER, F., NEERINCX, M. A. & BRINKMAN, W.-P. 2020.

Technological state of the art of electronic mental health interventions for major depressive disorder: systematic literature review. *Journal of medical Internet research,* 22**,** e12599.

LUSTGARTEN, S. D., GARRISON, Y. L., SINNARD, M. T. & FLYNN, A. W. 2020.

Digital privacy in mental healthcare: current issues and recommendations for technology use. *Current opinion in psychology,* 36**,** 25-31.

PATEL, V. 2003. *Where there is no psychiatrist: a mental health care manual*, RCPsych publications.

POULS, K. P., KOKS-LEENSEN, M. C., ASSENDELFT, W. J., MASTEBROEK, M. & LEUSINK, G. L. 2022.

Primary mental healthcare for adults with mild intellectual disabilities: a Dutch database study. *European Journal of General Practice,* 28**,** 234-241.

PRINCE, M., PATEL, V., SAXENA, S., MAJ, M., MASELKO, J., PHILLIPS, M. R. & RAHMAN, A. 2007.

 No health without mental health. *The lancet,* 370**,** 859-877.
STRAITON, M. L., RENEFLOT, A. & DIAZ, E. 2017.

Mental health of refugees and non-refugees from war-conflict countries: data from primary healthcare services and the Norwegian prescription database.

Journal of immigrant and minority health, 19**,** 582-589.