Depression Care

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***Abstract*—Non-communicable diseases are increasing dramatically globally. Depression, considered a common non-communicable disease, affects 300 million people worldwide and is one of the reasons for the increase in suicide rates. Although records indicate that one out of eight people suffer from mental illness in Sri Lanka, only 40% are noted to be receiving treatment. Some reasons for this could be cultural and behavioural patterns of Sri Lankan people and also the non-availability of resources.**

There is a general lack of awareness in Sri Lanka for patients with depression and their family members. It is difficult for employed individuals who care for patients diagnosed with depression to find a trusted caregiver, monitor the patient and obtain required information on depression. This situation is exacerbated as Sri Lanka's care industry is not yet fully developed, in comparison with developed countries.

This research - "Depression Care" focuses on addressing some aspects of this problem by assisting in locating caregivers for employed individuals and also monitoring the person with depression when employees are at work. Research indicates that depression could also result from loneliness. The recommended solution, "Depression Care" also offers a Chatbot as one of the means of addressing this problem. Quantitative and qualitative research was conducted for this paper and the recommended solution was developed as a mobile application using Flutter framework and Dart language. "Depression Care" is useful for working individuals, especially in urban areas, who also care for patients suffering from depression, and places importance on identifying suitable caregivers and monitoring such patients.

Keywords—Depression, working people, Employees, Depression patient, Caregiver, Trusted, Non-Communicable Disease.

I. INTRODUCTION

Globally, non - communicable diseases are increasing dramatically.. Therefore, an increasing population needs long-term care. The number of patients seeking care for mental disorders has increased over the past few years (1). Depression is determined in daily activities by sadness and loss of interest. Depression can be considered as mild, moderate or severe (2) and is treated as a common illness. Globally, three hundred million people are affected by depression. One of the reasons for the increase in the risk of suicide is depression. Suicide is the second leading cause of death to date (3). Depression is increasing in Sri Lanka and globally. The number of women with depression is greater than men. In Sri Lanka, over 800,000 people are recorded to have depression. One out of eight people in Sri Lanka suffer mental illness, but only 40% are receiving treatment. As a result of increasing depression, problems arise that affect the economy through increased health costs for the government, low productivity, and employee absenteeism (4).

The highest number of patients with depression is in the 55-74 age range. The reason why older people are isolated and face issues relating to lack of communication is because their loved ones are busy with their own professional and personal commitments (5). Labor force participation rate in Sri Lanka in 2017 was 53.6% (6). In keeping with Sri Lankan norms and behavioral patterns, generally depression patients, elders and children are cared for by family members. Due to the lack of time of family members who have professional commitments, loved ones are taken care of by family caregivers or hired professional caregivers who may not be very reliable. Someone who is weak, disabled or ill and needs help requires constant assistance and care.

One of the main problems faced by families is the lack of trustworthy caregivers in Sri Lanka for varying forms of illnesses and diseases. Currently, working people face these problems as around 65%

of their parents and elders suffer from depression in Sri Lanka (7).

Appropriate guidance, study material, and training are not available for caregivers.

Adequate guidance and training for caregivers in Sri Lanka is also not available, according to various studies, and especially compared with other developed and also developing countries.

Caregivers face emotional physical and mention problems themselves. Caring for patients with specific illnesses is a long-term responsibility. Therefore, the caregiver is responsible for the health of the patient. They themselves face emotional problems caring for difficult patients, while trying to control and manage their own emotions. They also face physical and mental pressure from patients.

Working people face difficulties in ascertaining the capabilities of the hired caregiver.

When a caregiver is hired, very often the capabilities and abilities of the caregiver is difficult to ascertain, in terms of caring for patients suffering from specific conditions. There are specific requirements when caring for patients with depression, such as patient handling techniques. Caregivers must be able to manage the patient with depression. The language barrier could also be a problem when managing patients.

Lack of trust in certain caregivers due to the increase of abuse

Abuse of the elderly and children is increasing. Some abuse occurs when patients are alone with their caregivers, which leads to a general lack in trust and reluctance to leave patients in the care of hired caregivers.

Dissatisfaction and unwillingness of patients, to be cared for by unknown caregivers.

Patients with depression are generally happy to be looked after by their family and loved ones. It has been the Sri Lankan cultural norm that patients and elders are cared for by their own family members. Increasingly, as family members are engaged in their professions, the caregiving is handed over to non-family members, who the patients are not happy or comfortable with.

The focus of this research is to provide a platform in the form of a mobile application, which will bring together caregivers and working people and guardians, who are in need of caregivers. The system is designed and developed for working people and guardian of patients who are diagnosed with moderate Level 3 depression. The research focuses on the problems faced by working people who find it difficult to focus on their professional commitments at their workplaces, while caring for their loved ones suffering from depression., The proposed solution does not address issues faced by caregivers of elders and children with emotional, physical and mental needs.

II. LITERATURE REVIEW

A. Depression and Its Impact on People

The establishment of the major disorders at the end of the 19th century was the main psychiatric nosology. The term depression in earlier days was wide and included all forms of insanity. Depression as a disease was interrelated with the humoral causation theory, specifically with black bile, as the term suggests. (8).

Depression is a common mental disorder, characterized by persistent sadness and a loss of interest in activities that a person normally enjoys, accompanied by an inability to perform daily activities for at least two weeks at a time. Moreover, people with depression usually have several habits of the following: a loss of energy; a change in appetite; more or less sleeping patterns; anxiety; reduced concentration; indecisiveness; restlessness; feelings of worthlessness, guilt, or hopelessness; and thoughts of self-harm or suicide (9).

Non-communicable diseases are dramatically increasing globally. Therefore, the need for long-term care is also increasing . The number of patients seeking help with mental disorders has increased in recent years. (10). Depression is determined in daily activities by sadness and loss of interest and can be regarded as mild, moderate or severe.

Depression is a common disease affecting more than 300 million people worldwide, increasing the risk of suicide. Suicide is the second most important cause of death. In Sri Lanka and globally, depression is increasing. More women are diagnosed with depressions, than men. In Sri Lanka, over 800,000 people are said to have depression.

One out of eight people in Sri Lanka suffer from mental illness, but only 40% are getting the treatment. As a result of increasing depression, problems arise that affect the economy through increased health costs for the government, low productivity, and employee absenteeism. (11).

Depression has a different impact on older people than on younger people and often occurs along with medical conditions and disabilities in the elderly. It is also linked with the isolation.

B. Types of Depressions

There are many different types of depression, such as major depressive order. Symptoms of major depressive order are: the person feels depressed most of the time, along with other symptoms such as trouble getting to sleep or feeling sleepy during the day, loss of interest or pleasure in activities, feelings restless and agitated, trouble concentrating or making decisions, weight loss or gain, being tired and lacking energy, feeling worthless or guilty and having thoughts of suicide.

As a result of increasing depression, problems arise that affect the economy through increased health costs for the government, low productivity, and employee absenteeism . Other types of depression are manic depression and bipolar disorder. These arespecific types of depression illustrated by mood episodes ranging from high-energy extremes with mood up to low depressive periods. Psychotic depression is another type illustrated by similar major depressive order symptoms as well as psychotic symptoms such as hallucinations, delusions, paranoia. Women also suffer from depression that occurs after childbirth. (12).

C. Reasons for Depression

There are a number of reasons for depression occurring in people : some people have major illnesses that co-exist with depression, the death or loss of loved ones, a family history of depression, personal problems including social isolation from social groups and family, certain medication that can cause depression, abuse including physical, sexual or emotional abuses, loneliness for no reason and feel overwhelmed with depression. Another reason is a person's stressful life, that can include heavy workloads and personal day-to-day management of work (13).

D. Caregving

Caregiving for the patient with depression helps the patient with daily routines. The main goal of home care is to keep the patient safe and comfortable, while reducing the sense of isolation. Care services include helping to prepare meals according to patient needs, reminders of medication, companionship and friendship (14).

E. Caregiving

Caregiving is defined as the provision of assistance to someone who is ill, disabled or in need of daily assistance. The person who is diagnosed with the disease or is in need of help needs physical, mental, social and psychological attention. Caregiving is stressful in general; caring for an older parent is especially stressful. For both service providers and caregivers, care provision is complex. Service providers report lack of communication, coordination and care continuity as some of the issues they face (15).

F. The Need for and Importance of Caregiving for Depression Patients

A caregiver's support for a patient with depression is essential. Helping with daily routines includes daily routine structure with more patient sense of control, goal setting for a specific recovery time processes, skill building including enabling a patient to work independently to some extent, and medication management including keeping track of medicines. Support for patients with depression is important once their hospitalization therapies have been completed as patients with depression face possible lapses and face risk of suicide (16)

G. Problem Faced by People Caring for Loved Ones

Work takes over the lives of people in today's fast-paced global environment and maintaining a balance between family and work is difficult, resulting in family conflicts because of long hours and excessive workload. In the global workplace, the percentage of active employed women has risen rapidly. Besides the many positive effects of women working, such as the productivity of the nation, the wealth and consumption power of families and financially independent women, there is some negative effects in the form of pressure on family time including taking caring of family members. Cultural impacts differ from one country to another as people focus on career success over quality of life. Work and family should ideally be complementary to each other, not conflicting with each other (17).

Loneliness and boredom became problems for the isolated family members needing care. This has often been diagnosed in elderly parent with depression. Although the main priority of family members is to take care of their elderly parents, if a caregiver is hired, the aging parent is not satisfied. The reason for this is the lack of communication and

satisfaction that they would normally obtain from a family member. There's a gap between the hired caregiver and patient with depression (18). The proposed solution resulting from this research will aim to reduce the gap between caregiver and patient with depression.

H. Caregiving in Sri Lanka

Compared to developed countries, Sri Lanka is not very advanced in the care industry. Care for elderly people who have diagnosed communicable and non-communicable diseases in Sri Lanka remains the responsibility of their adult children, but migration patterns, increasingly common dual-earning households, and a shift from the extended family structure to a nuclear family structure all contribute to reducing caregiver's availability although, in general, Asian countries boasts a strong family support system. Caring for elderly family members is increasingly becoming difficult and addressing this problem has now become a pressing need.

III. QUANTITIVE ANALYST

Sixty questionnaires were distributed among those who have had or are experiencing the care of their loved ones with depression. This consisted of both females and males between the ages of 20 to 60. The following information was gathered from the respondents.

A. Long working hours resulting in reduced time spent with loved ones

36.6 % of respondents indicated that they spend more than nine hours at their work places. This clearly demonstrates that there is a pressing need for carers who are either hired or non-family members to care for loved ones of employed people.

B. Lack of extended family to assist with care giving.

Most families consisted of three to four family members. Although historically and culturally, Sri Lankan families cared for their elders, drawing in extended family members. Modernization is key factor for the lack of extended family. In general, in urban areas in Sri Lanka, most families are small.

C. Working people face many problems when they hire a caregiver

70.7% of the respondents indicated that they planned to or were hiring caregivers. However, their requirements were often not met by the caregivers and they found it difficult to find suitable caregivers through available channels.

IV. DISCUSSION

The focus of the project is to provide a platform in the form of a mobile application, which will connect caregivers, working people / guardians who are in need of caregivers. The system is designed and developed for working people / guardians of the patients who are diagnosed with moderate depression level 3 and attempts to address the problems they face in the caregiving process. For guardians, the following features are available in the solution: the ability to look for and hire trusted caregivers through the mobile application, the provision of a daily check list of activities to be completed for the depression patient, providing depression patients with a chatbot to reduce loneliness, the ability to track the location of the caregiver via GPS, and the ability to check the patient through the camera in the mobile application. For caregivers, features such as availability of caregiver activity scheduling, the patient's medical details, information on caregiving techniques and relevant hospitals and doctors' details will be provided though the mobile application.

The proposed solution, Depression Care, is a working prototype, developed in response to the problems highlighted through the research. Initially, implementation of the system is proposed for urban areas in Sri Lanka, addressing problems faced by the working community, who also need to care for their elders suffering from depression. It is hoped that this system will contribute to reducing the stress involved with providing care to depression patients. Partnerships can be encouraged through the solution, with caregiving and home care service providers in Sri Lanka. Depression Care is a new entrant to the market. To increase career opportunity of caregivers, trainings and workshops for caregivers could be conducted. An option of selecting and publicizing the best caregiver each week via the system's mobile app and other social media platform, is an additional option. This would assist in encouraging a better quality of service among caregivers, while acknowledging their hard work.

The solution, Depression Care, could be promoted through advertisements in locations such as hospitals and via digital marketing methods, thereby gaining more customers. Future enhancements of Depression Care will involve the

inclusion of Sinhala and Tamil languages to the application, adding IOT devices to Depression Care to enhance the accuracy of the services and aid in tracking and monitoring of the caring process and expanding the scope of the solution to include more generalized elderly care. It could also be further extended to include childcare and adding a payment gateway to the system.

The depression care system was implemented after continuously observing the difficulties faced by working people when taking care of their aged family members who have non-communicable diseases. While caregiving services are available through service providers in Sri Lanka, they do not always meet the requirements of the customer and do not provide a means of monitoring patients when alone with the caregiver.

The project aims to develop a solution to cover the all problems mentioned above, going forward The platform is designed for working people, depression patients and caregivers, working together on one platform. Despite some barriers faced when developing this solution, the project provides a starting point to achieving its aim. Key stakeholders who evaluated the proposed solution, found it helpful and were encouraged by it. The solution will have continuous improvements and it is hoped that it will become an invaluable solution for the key stakeholders of the project in Sri Lanka.

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