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# Serious Game for Serious Disease: Diminishing Stigma of Depression via Game Experience

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**Abstract**— Stigma is a common and serious problem for patients who suffer from depression and other mental illnesses. We designed a serious game to address this problem. The game enables player to experience and strive to overcome the disempowering aspects of depression during the journey to recovery. Through the game's interaction, player may gain a better understanding of the relationship between patient and the disease, which in turn may help to change the players' moral model with the disease model, and thereby diminish the stigma of depression.

**Keywords**— *serious game; depression; stigma; mental health*

## I. INTRODUCTION

Depression, or major depressive disorder, is a mental disorder characterized by a persistent low mood and loss of interest in normal activities[1]. Although it is caused mainly by the disturbance of neurotransmitters in the brain[1], more than half of the people in developed countries still believe that depression is “the result of a weak will” or “not a real medical illness”[2]. Such misinterpretations and negative stereotypes lead to the stigmatization of depression[3]. Stigma is a prominent issue in mental health. It prevents people from getting timely access to needed mental health services[4], and leads to drug or alcohol abuse, relationship breakup, or eventually suicide[5].

As an interactive medium, serious games provide a viable, engaging, and cost-effective approach that may help to reduce the stigma of depression. To date, only several serious games specialize in depression, and researchers who studied them reported positive impact on their treatment and prevention of the disease[6]. This shows that serious games are promising intervention for depression. However, there still exists no serious games to address the stigma problem of depression.

We designed a 2D platform video game to solve such problem. In the game, the experience of depression is materialized, separated but tied to the avatar. In this heroic journey from illness to recovery, the player experiences the real situation of depression suffering. By identifying with the avatar's journey, the player experience struggles and attendant affects of depression, and the cause-and-effect of behaviours that eventually lead to recovery. Thus the player may undergo cognitive changes to reach the idea that depression – like heart disease, diabetes, cancer, or any other serious physical diseases – simply defines what player is suffering, rather than who the

player really is. Although the game is initially designed for patients with depression and their families to overcome stigma, by bringing the game to public domain, it may also serve a larger purpose: to diminish stigmatization associated with mental diseases on larger societal levels.

## II. GAME DESIGN

### A. Gameplay

#### (1) Goal of the Game

Since the core symptoms of depression are 1) low mood, and 2) loss of interest, the game scores the "Mood" and "Interest" level to indicate the improvement of the two metrics. The player's goal is to increase the level of "Mood" and "Interest" as much as possible by collecting different pick-ups.

The pick-up system includes: a heart-shaped icon representing the "improved mood" which will increase the "Mood" score; and a star-shaped icon representing the "engaged in activities of interest" that will increase the "Interest" score. In addition, four supportive items indicate the help from health professionals, medication, family, and physical exercise, separately. The supportive items will both increase the "Mood" and "Interest" scores to respective degree.

When player reaches destination, the two scores will correspondingly achieve the recovery level. This means the player has successfully recovered from depression.

#### (2) Experiencing the Disempowerment

In the beginning of the game, the player stays in a cave, which represents his/her comfort zone. The player can manipulate his/her avatar to move and jump like in other

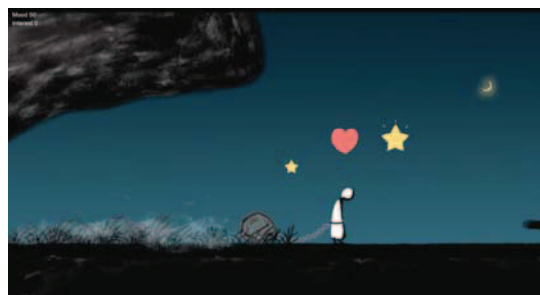


Fig. 1: The game screenshot, showing the relationship between player and the stone of depression.

platform games. However, once the player tries to walk out of the cave to the outer world, his/her action becomes extremely slow. Moreover, the player can not jump as high as in the cave to reach the star or heart pick-ups, and his/her breath gets heavy and depressed. Such behaviour is an instance of how one is easily led to make the moral judgement of the player as slow, lazy, and weak-will.

### (3) The Dispel of Stigma

Soon the reveal of disease object will break player's formation of the negative stereotype. Player now can see an overwhelming stone tied to his/her body via an iron chain. A dialog box pops up telling player that the stone is the metaphor of depression. It explains player's behavior change. Previously in the cave, player can walk effortlessly because the movement is within the length of the chain; the stone is unseen because it is hidden behind grass and fog. The appearance of the stone will dramatically change player's attitude towards his/her avatar. It prevents player from directly judging the patient. Rather, player will tend to focus on the causes of such behavior, which is the disease itself. Here, an illness model replaces player's moral model to explain the contradiction between ordinary task and unreasonable behavior.

With the stone attached, in order to collect pick-ups and make progress, player has to take considerable amount of effort to pull the stone. Player's understanding of depression patient's actual situation will be reinforced when a dialog box appears. It reminds player that depression patients are not as weak as they appear. On the contrary, they need to sustain tremendous determination to overcome the overwhelming burden of depression and accomplish the seemingly easy daily activities.

### (4) Recovery Journey

In the physical game world, player will experience four stages of challenge, throughout which he/she fully interacts with the stone of depression. In the beginning of each stage, player will face a seemingly unattainable goal. This reflects the real scenario of depression. At the moment when player almost gives up attempt and returns, a supportive pick-up will appear. Collecting it will notably decrease the size and mass of the stone. With lighter stone being tied down, player will walk faster, jump higher, and conquer the challenges. Such experience conveys the message that getting support will dramatically alleviate the patient's suffering and fasten the way to recovery.

"What doesn't kill you makes you stronger", this also happens in the game. When player successfully shrinks the stone, he/she is enabled to take advantage of the stone by stepping on it to reach higher.

By the end of the game, the stone of disease will disappear, thus the play's action achieves its full potential, and eventually the player reaches the depression-free state. Such progress

strengthens the message: "depression can not define who you are; it simply defines what you are suffering". Thus, the player learns to treat depression as other physical diseases without bringing in any moral prejudice.

### B. Technical and Artistic Details

Our game is developed by Unity 5.0.1. The game is planned to publish as a web game as well as a mobile game on iOS and Android App Store.

For art design, we employ Chinese ink wash painting as visual style (Fig. 1). This art style provides a distinctive aesthetics, as the brush stroke is an "imprint of the mind", according to Chinese philosophy, which reflects the intellectual, psychological, and spiritual state of being. The design of avatar uses an abstract style. Compared with concrete, detailed and cartoon-like character design, this style is more acceptable among adult and elder players. Besides, the simple iconic avatar creates a large space for players to easily fill their self image into it, therefore generates more empathy effects in the game experience. The background color indicates the recovery progress, as the sky will change from night to dawn.

## III. FUTURE WORK

Our future work includes publishing the game on web and mobile platform; conducting user testing on healthy and depression subjects. Since this game includes embodiment cognition, and incorporates a unique interaction between body and disease, a virtual reality version of the game may enhance empathy within the immersive environment. This will be a future development approach.

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