Conceptual Proposal of a Technological Application for the Treatment of Addictions to Psychoactive Substances

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ABSTRACT

Psychoactive substances are natural or synthetic compounds that affect the central nervous system by depressing, stimulating or producing hallucinations, generating brain´s impairments, specifically in those mechanisms that regulate mood, thoughts, and motivations. These substances usage and dependency represent a significant fact

upon mortality rates worldwide, making necessary the creation of a conceptual proposal about a mobile application for the treatment of addictions to psychoactive substances, which, at the same time, is concordant with the addiction centered therapeutical methodology, conducted by mental health professionals, highlighting the necessity of psychiatric and psychological support, plus a technological advance. It should be noted that this is a fictitious exploratory study that provides guidelines for future development.

Keywords: addictions · mobile application · psychological treatment · psychoactive substances · technological proposal.

INTRODUCTION

The Pan American Health Organization (PAHO) (2005), affirms that the psychoactive substances are natural or synthetic compounds which affect directly the nervous system, these substances can generate cerebral impairments, specifically into the mechanisms that commonly regulate mood states, thoughts and motivations. Likewise, dependency to these substances affects beyond users, but their families, romantic and social relationships, and working networks, it must be addressed that at least 4,4 million of males, and 1,2 million of women in Latin America and the Caribbean suffer a diversity of disorders caused by drug abuse (Pan_American_Health_Organization, 2005). The usage of psychoactive substances implies negative consequences for human body and brain, such as intoxications, impairments in different organs, even death. Substance use and dependency represent a significant fact in the increase of the total rates of morbidity worldwide, according to the World Health Organization [WHO] (Oficina_de_las_Naciones_Unidas_contra_la_Droga_y_el_Delito_(UNODC), 2018) in 2015 approximately 450.000 people died as consequence of drug abuse, from these, 167.750 were directly related to drug abuse disorders, mainly by overdoses.

Psychoactive substances are divided, according their socio-legal status in the next three categories: the first one, substances used with medical purposes, to obtain these, it is mandatory to have a medical prescription; the second one has the category of illegal, most of the countries around the world have made the compromise of considerate opioids, cannabis, hallucinogens, among others as illegal. The third category belongs to the legal usage, referring to alcohol, tobacco, and psychoactive medical substances (National_Institute_on_Drug_Abuse, 2018). Within this proposal, a subdivision based on the effects that depressors, stimulants, and hallucinogen drugs cause on human body has been done. Central nervous system [CNS] depressor substances include sedatives, tranquilizers, and hypnotic medication, as well as alcohol, inhalant substances made of volatile synthetic compounds, marijuana, and heroin; these drugs able to slow brain activity, since the superior mental functions, as the awareness, and mood state are decreased (National

Institute on Drug Abuse, 2018).

On the other hand, the central nervous system stimulant substances increase awareness, augment conscious state, provoke euphoria, disinhibition, lower emotional control, irritability, aggressiveness, lower fatigue, sleeping decrease, motor excitement, and restlessness (Organización_Mundial_de_la_Salud, 2020). As stimulant substances it is possible to find amphetamines, caffeine, or energizing beverages, cocaine, and nicotine. Hallucinogen substances acts over CNS disrupting human perception, thinking, conscious state, and even mood. As hallucination it is understand as any image perception, object or exterior inexistent stimulus, considerate by the subject as real (López, 2017).

As hallucinogens, there is possible to find LSD, PCP or angel's dust, peyote, psilocybin (mushrooms), and Ololiuqhi (seeds). On the other hand, we have decided to implement synthetic substances to this subdivision, these can present depressor, stimulant, hallucinogen or combined effects. These drugs are made using as base another drugs, for example amphetamines, in clandestine laboratories, and as result, it is obtained a new substance with psychoactive properties. These are marketed as pills, with a surface drawing, used for its identification, the better known is the MDMA (ecstasy), as well as methamphetamines, and ketamine (Gil & Gil, 2009).

Thanks to this theoretical knowledge about psychoactive substances, it has been necessary the creation of new tools for drug's users in their rehabilitation process, detoxication or usage decrease of the elected substance. Nowadays, technology plays a fundamental role in human's life worldwide, and this conceptual proposal could not leave behind this fact, presenting a mobile application for drug users in rehabilitation. Also, it has been analyzed the urgency of these applications to be concordant with a therapeutical methodology from mental health professionals, generating like this, a supporting plus at home, work or studies place, that helps to hold the process, once the user is not at the psychological or psychiatric office.

Technological proposal for the addiction treatment

Once the theorization about technology and addictions has been provided, as researchers we ask ourselves the following question: Can a complete application be generated that helps in the treatment of addictions to psychoactive substances? To resolve this question, we set the following objectives: 1. Develop a fictitious mobile application that has the contents that from the psychotherapeutic experience are considered useful, 2. Describe the importance of the options placed in the fictitious application.

Mobile Application

This proposal consists in the development of an application where the user is able to sign in, to choose, and personalize his/her own avatar. Subsequently, the person using this application will be able to choose the type of substance that is consuming, among

depressors, stimulants, hallucinogens or synthetic. Once, the drug or drugs have been chosen, a menu with eight options will be displayed, each option is described as follows:

1. Psychoeducation: it aims to teach the user about the drug chosen, the adverse effects of using this drug in short and long term, its components, addressing the importance of seeking for professional help to guide and support the rehabilitation process.

2. Consumption Calendar: in this option, the user will be able to write down the frequency of consumption. According to this data, the application will identify abstinence periods (short - long), and rewards are presented.

3. Appointment Reminder: Information about the necessity of psychiatric and/or psychological support during the rehabilitation process is presented. Also, there is a calendar where appointment reminders can be set.

4. Consumption Diary: this option displays questions series where in each one a block of notes opens to show one question, such as, ¿Why do I consume?, ¿How do I feel when I use this drug?, ¿How do I feel in my own rehabilitation process?, among other. These questions will allow the dialogue topic in psychological therapy or are useful as self-discovering.

5. Consumption Thermometer: this option allows the user to observe the variations on the desire of consumption, and how high it is at a specific moment. Once this information is weekly counted, these data can be used wisely with the professional in charge to make modifications on pharmacological or psychological treatment, depending on the case.

6. Dishabituation: In this option, the user is allowed to create in its own or with the psychologist in charge, a process of dishabituation, where the consumption will be reduced along with medical alignments to avoid abstinence symptoms periods.

7. Mindfulness: in this option mindfulness and meditation techniques are presented as tool to manage anxiety.

8. Help Button: This button connects with 911, as well as sends a text message of help to a user's friend or relative in case it is needed. Este botón conecta con el 911 y se envía un mensaje de ayuda a un familiar o amigo del usuario en caso de ser necesario.

Content

Home Page

In this section, the user is able to sign in, and to personalize his/her avatar, as it can be seen in Figure 1.

Character

This section aims to personalize the avatar to user's better like and as same as the real user physical characteristics. Changes in hair, eye, and skin colors, as well as in clothing, among others are possible (Figure 1).

Fig. 1. Prototype of the content for the application

Choosing from the substance's classification

In this section, the user will be able to choose the category where the drug/drugs of consumption belong to. Also, there is presented the option of looking for, in case the classification is not known (Figure 2).

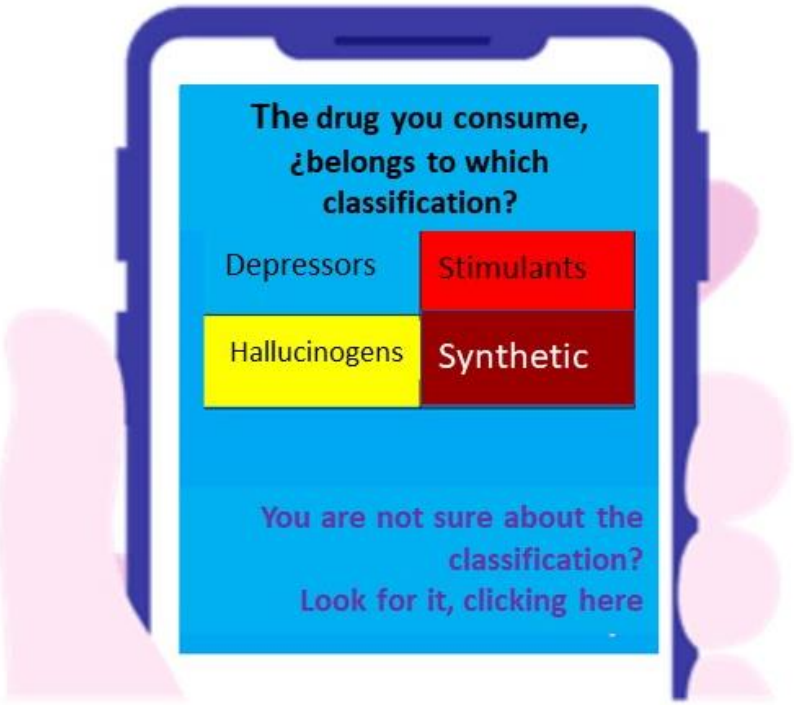

Fig.2. Prototype of choosing from the classification of psychoactive substances

Menu Options Display

The eight application options are presented here graphically, these are: psychoeducation, calendar consumption, appointment reminder, consumption diary, thermometer of consumption, dishabituation, mindfulness, and help button (Figure 3).

Fig. 3. Menu Option Display

CONCLUSIONS

Dependency and consumption of psychoactive substances, as it was previously mentioned, imply a high risk of suffering adverse consequences in the human body and brain, such as overdoses or intoxication, organs impairment, cognitive and

superior functions alterations, even death in extreme cases, making necessary the creation of new tools from the technological era, and technological advances, since, at least 5,6 million people in Latin America and the Caribbean suffer of dependency to any psychoactive substance. This work reports the conceptual development of a mobile application, that looks for being interesting to drug users, who want to discontinue with this habit and, at the same time, to obtain an additional tool for the treatment with professional in mental health, focusing on the rehabilitation process. Also, it has been managed to add in this application psychoeducative resources, dishabituation programs, and highlights the importance of seeking for a psychological and medical advisory throughout the journey of decreasing the consumption, and at the end, quit it (Ramos-Galarza et al., 2017; Ramos-Galarza, Bolaños-Pasquel, García-Gómez, Suárez, & Jadán-Guerrero, 2019).

We consider that the development of a fictitious application may be the first step to generate a developer and possible future tests in a real population, but this research provides an option for technological creation from a psychotherapeutic perspective. As limitations of the study, we have the fact that the application created is fictitious and that it has not been tested in a real population. We see this limitation as a door to future research.

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