

# Psychological intervention for post trauma victims supported by e-Health technologies

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**Abstract**— The conditions of violence in which a significant number of children, women and men live is a dramatic landscape in today's world. In Mexico, violence as an everyday condition is redefined as a medium-long term problem for society. Exposure to criminal violence has caused considerable impact within the Mexican population generally, such situations have negative psychological outcomes in victims. Some of the disorders that have been the result of criminal acts are Acute Stress Disorder (ASD), Post Traumatic Stress Disorder (PTSD), Adaptive Disorders (TA) and Pathological Mourning of Violent Death. In order to offer psychological interventions to this national problem, the School of Psychology of the National Autonomous University of Mexico developed a comprehensive program of mental care supported by latest generation technology with evidence-based psychological treatments.

This paper describes initial results of the implementation in Mexico of psychotherapy on line and virtual reality e-health systems on trauma victims with psychological disorders resulting from criminal violence. It is expected that this strategies of care and service with next-generation technologies will motivate people to participate in self applied programs developed contextualized to society and culture. Data base from assessments, will strengthen psychological treatments based on evidence using advanced technologies that will allow to benefit more people, regardless of distance and social divisions that have long been an impediment to provide psychological services.

**Keywords**—trauma, violence, psychological support, psychotherapy on line

## I. Introduction

In recent years, the criminal violence in Mexico has caused a considerable impact within the population, usually, such situations have negative psychological consequences for victims and witnesses of crime and criminal violence. Mexico has experienced a significant increase in violence. For example, the number of homicides, assaults, kidnappings, threats, disappearances, extortion, and civilian deaths has increased substantially.

The National Survey of Urban Public Safety conducted in 2013, reported that in September the same year, 68% of the population over 18 years, considered living in their own city is unsafe; reason being in the last 3 months we have seen and/or heard of alcohol consumption on the streets (70%) have suffered or have known victims of theft (66.2%), and vandalism has increased significantly (56.1%).

Meanwhile, the INEGI reported a total of 28,224 victims nationwide to population 18 years and over. 8.3% of youth, reported having been victims of crime, between the age of 18 and 29 years. UNICEF estimates that at least 16,000 teenagers, mostly girls, are victims of sexual exploitation. According to the National Citizen Observatory, and according to data SESNSP in January 2014, a kidnapping happens every 6 hours, 21 extortions a day and 16,748 robberies are reported every 24 hours. Also, every 24 hours, 190.52 businesses were attacked.

In general, within the public health, this problem affects in a psychological and physiological manner, which implies an important health system problem. In addition, it has been found that criminal violence is linked to mental problems such as depression, and alcohol and other substance abuse (De la Fuente and Medina Mora, 1987; Rosovsky, 1996); however, some of the most important consequences are characteristic symptoms of stress disorders related to trauma.

The major impact of traumatic situations arising from this problem, which can be reflected in the exacerbation and chronicity of mood and emotional disorders, which are characteristic of people suffering from trauma related disorders. Several studies have reported that criminal violence is linked to mental health problems such as: depression, alcohol and other substance abuse (De la Fuente & Medina Mora, 1987; Rosovsky, 1996); however, some of the most important consequences are characteristic symptoms of stress disorders related to post trauma. In another study by Medina-Mora et al. (2005) reported that one 1 out of 4 victims of criminal violence, have symptoms associated with trauma-related disorders, post-traumatic stress disorder specifically (PTSD) and Acute Stress Disorder (ASD).

Violence has adverse outcomes in people who have also suffered the expenses. For example, the victims monetary costs include medical expenses, plus low labor and low academic productivity. Meanwhile, within the non-monetary costs are the pain and suffering as well as the significant deterioration in their quality of life. Another aspect to consider is the great impact of traumatic situations arising

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from this problem, which can be reflected in the exacerbation and chronicity of mood and emotional disorders, which are characteristic of people suffering from disorders associated with trauma.

Criminal violence has caused considerable impact within the Mexican population, generally such situations have negative psychological outcomes in victims. Some of the disorders that have been the result of criminal acts are Acute Stress Disorder (ASD), Post Traumatic Stress Disorder (PTSD), Adaptive Disorders (TA) and Pathological Mourning of Violent Death.



Fig. 1 Psychological post trauma disorders.

## I. Project Background

Since 2004, the Laboratory of Virtual Education and Cyberpsychology of the School of Psychology at the National Autonomous University of Mexico (UNAM), has implemented and worked with great dedication and effort in the area of Cyber-Psychology, incorporating technology to psychological interventions. An example of this is the Psychotherapy via Internet program, which began in 2004 as an alternative of face-to-face treatment sessions, a project which developed materials and strategic counseling programs derived from empirical support. It studied its effectiveness in patients with depression, using short treatment protocols with positive results in patients (Flores Cardenas, Duran and De la Rosa, 2013; De la Rosa, 2007; Moreno, 2009).

Psychotherapy on line, began in 2005 as an alternative to psychological care. It studied its effectiveness in patients with depression, using short treatment protocols with positive results in patients (Flores Cardenas, Duran and De la Rosa, 2013; De la Rosa, 2007; Moreno, 2009); working with patients with anxiety and the development of manuals to address anxiety attacks via the Internet (Frias, 2013).

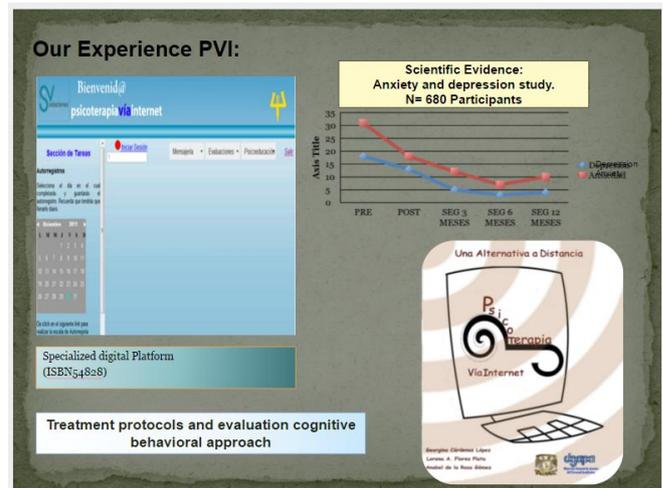


Fig. 2 Psychological therapy on line.

The backgrounds are promising, as there is scientific evidence that the tests are successful and applied programs. Strengthening the idea that tools like Psychotherapy Via the Internet is becoming more desirable, both for professionals, and patients who for various reasons (geographical, disability or choice) decide to initiate therapy in this mode (Cardenas et al., 2011). Martinez (2013) and Ramirez (2013) agree on the findings regarding the effectiveness of the use of Psychotherapy Via the Internet; Duran (2009) reported successful interventions in the use of psychotherapy via Internet for users with anxiety disorder and depression, also making an important contribution to therapists of this modality in proposing a playbook for the treatment of grief or loss, by mode via the Internet.

In general, within the public health, this problem affects psychological and physiological manner, which implies an important health system problem. In addition, it has been found that criminal violence is linked to mental problems such as depression health, and alcohol and other substance (De la Fuente and Medina Mora, 1987; Rosovsky, 1996); however, some of the most important consequences are characteristic symptoms of stress disorders related to trauma.

### Our objectives

To develop, implement and evaluate strategies of e-Health for the prevention of risk behaviors for witnesses of violence and psychological care for disorders resulting from violence that have been tested empirically and will be delivered with latest technologies to achieve effectiveness and efficiency/cost-benefit to the target population in México.

A control trial will provide differential efficacy of the intervention by age group:

A. Children's Programs Tele-psychology educational video games and digital animation prevention of adverse

outcomes and erroneous models troubleshooting aimed at children aged 5 to 11 years.

B. Youth Programs Telepsychology video games and animations early intervention for training in coping strategies and pro-social behavior aimed at young people 12 to 18 years.

C. Psychotherapy on line programs for adults for remedial intervention of dysfunctional behavior and training in coping strategies and use of social resources and family targeted adults over 18 years old.

D. Group psychotherapy online with virtual reality environments, which will serve synchronously victims and witnesses of violence post trauma of various municipalities.

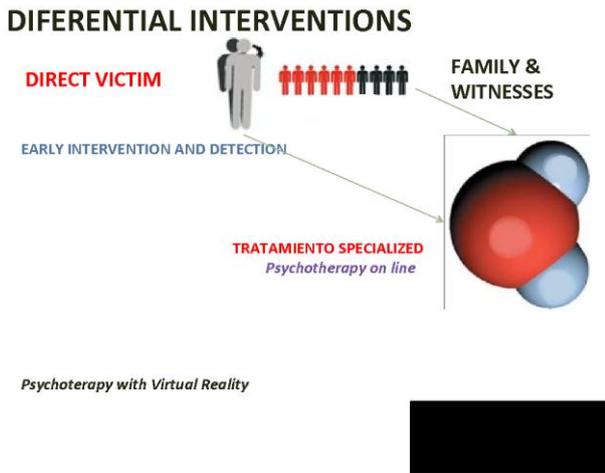


Fig. 3 Differential interventions for witnesses and victims.

### A. *Expected results*

- It is expected that strategies of care and service with next-generation technologies motivate people to attend and participate in self applied programs for resilience and prevention derived from programs with rigorously developed content and contextualized to society and culture with the support of innovative technological resources, promote ways to teach and train users, promote coping resources successive challenges presented to them; as well as relieve and help victims and / or witnesses with successful methods and attractive to the population.
- Improve significantly the gap between the dissemination of prevention programs that have empirical evidence from research and their incorporation and dissemination to local community centers nationwide.

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### *References*

- [1] Cárdenas, G., Durán, X., Martínez, J., Ubaldo, C., De la Rosa, A., Flores, L. & Navarro, B. (2013). Informe final de programa de atención a migrantes. SER: México.
- [2] Cárdenas G., Flores L. y De la Rosa A. (2011). Psicoterapia Vía Internet. Una alternativa de Tratamiento. Universidad Nacional Autónoma de México, DGPA: México.
- [3] Cárdenas, G. & Carreño, V. (2012). La realidad virtual como herramienta para el tratamiento del trastorno obsesivo compulsivo. Revista Digital Universitaria. 13 (3). 1-10. UNAM.
- [4] Cárdenas, G. & de la Rosa, A. (2011). Posttraumatic Stress Disorder treatment with virtual reality exposure for criminal violence: A case study in assault with violence. International Journal of Disability and Human Development, 10, 379-383.
- [5] Cárdenas, G. & De la Rosa, A. (2012). Using Virtual Reality for PTSD Treatment in Criminal Violence Victims. Journal of CyberTherapy & Rehabilitation, 5 (1), 65-67.
- [6] Cárdenas, G., De la Rosa, A., Flores, L. & Durán, X. (2013, in press). A Controlled trial for PTSD in Mexican victims of criminal violence. Proc. IEEE Intl. Conf.
- [7] De la Rosa (2000). Resultados de la intervención psicoterapéutica vía Internet para pacientes con Trastornos de Ansiedad. Informe Profesional de Servicio Social. Facultad de Psicología. UNAM: México
- [8] Difede, J. & Hoffman, H. (2002). VR exposure therapy for World Trade Center PTSD, Cyberpsychology and Behavior, 5: 529-35.
- [9] Difede, J., Cukor, J., Jayasinghe, N., Patt, I., Jedel, S., Spieldman, L. et al. (2007). Virtual reality exposure therapy for the treatment of posttraumatic stress disorder following September 11. Journal of clinical psychiatry, 68 (11): 1639-47.
- [10] Durán, X. (2009). Manual de estrategias para el tratamiento del duelo y pérdida, vía Internet. Tesis de licenciatura. Facultad de Psicología. UNAM: México.
- [11] Flores, L., Cárdenas, G., Durán, X. & De la Rosa, A. (2013) Psicoterapia vía Internet: aplicación de un programa de intervención cognitivo conductual para pacientes con depresión. Revista Psicología Iberoamericana. 20(1).
- [12] McLay, R., Wood, D., Webb-Murphy, J., Spira, J., Wiederhold, M., Pyne, J. & Wiederhold, B. (2011). A randomized, controlled trial of virtual reality-graded exposure therapy for post-traumatic stress disorder in active duty service members with combat-related posttraumatic stress disorder. Cyberpsychology, behavior, and social networking, 14 (4): 223-229.
- [13] Moreno, F. (2009). Evaluación de una intervención en el entrenamiento de habilidades sociales vía internet. Informe de prácticas profesionales para obtener el grado de licenciatura. Facultad de Psicología. UNAM.
- [14] Rizzo, A., Difede, J., Rothbaum, B., Daughtry, M. & Reger, G. (2013). Virtual Reality as a tool for delivering PTSD Exposure Therapy. Chapter in Postr-traumatic Stress Disorder: Future Directions in Prevention, Diagnosis, and Treatment. Springer.
- [15] Rothbaum, B. O. & Schwartz, A. C. (2002). Exposure therapy for posttraumatic stress disorder. American Journal of Psychotherapy, 56, 59-75.

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