

Efficacy of Eye Movement Desensitization Reprocessing (EMDR) in Improving Self-Regulation of In-House Filipino Clients with Substance-Use-Disorder

Andres V. Virrey Jr. and Jemerson N. Dominguez

Department of Health – Treatment and Rehabilitation Center, Tagaytay City, Philippines
A-max Psychological Services, General Trias City, Philippines
De La Salle University-Dasmariñas, Dasmariñas City, Philippines
anders.virrey@gmail.com and jndominguez@dlsud.edu.ph

Abstract

Drug addiction is considered as a global epidemic which drastically affects millions of people worldwide, damaging an individual's physiological, social, and psychological facets. One of the constructs that has been determined as an essential factor in the development of a variety of addictive behaviors is self-regulation. It plays an important role in predicting, maintaining, and treating addiction. In this study, the efficacy of Desensitization of Triggers and Urge Reprocessing (DeTUR), an Eye Movement Desensitization Reprocessing (EMDR) addiction protocol, in improving self-regulation was tested among fourteen (14) in-house clients of two drug treatment and rehabilitation centers using sequential explanatory mixed method research design wherein Self-regulation Inventory-Short Version (SRI-S) and individual interviews were employed. Results explicitly proved that self-regulation scores obtained significantly differed before, after, and even the delivery of delayed posttest using the EMDR as an intervention. The study confirmed that EMDR enhances the clients' self-regulations (Overall SRI) and the sub-areas: positive actions, controllability, expressions of feelings and needs, assertiveness, and well-being seeking. Themes generated using thematic analysis further established a basis for the efficacy of EMDR.

Keywords: *drug addiction, self-regulation, Eye-movement Desensitization Reprocessing (EMDR), Desensitization of Triggers and Urge Reprocessing (DeTUR)*

INTRODUCTION

Every major personal and social problem affecting a large number of modern citizens such as alcoholism, drug addiction, obesity, excessive spending, and violence involves failure of self-regulation (Vohs & Baumeister, 2017). Self-regulation has a vital role in the development and maintenance of impulse related problems particularly addictive behaviors (Kelley, Wagner, & Heatherton, 2015). Even identified as a predictor of substance use disorder (Abolghasemi & Rajabi, 2013), alcoholism, and other drug-related problems (Percy, 2008). It was also found out that self-regulations of persons diagnosed with Substance-Use-Disorder (SUD) are significantly low in

comparison with non-dependent individuals (Bakhshani & Hossienbor, 2013). Conversely, researches confirmed that high self-regulation is positively related to the length of substance use abstinence (Ferrari, Stevens, & Jason, 2009; Chavarria, Stevens, Jason, & Ferrari, 2012) as it buffers urges to use (Neal & Carey, 2007; Wills, Ainette, Stoolmiller, Gibbons, & Shinar, 2008). Glassman et al. (2007) also identified that self-regulation strategies are the best predictor of alcohol consumption, such that self-regulation refrains people from alcohol consumption.

The addiction treatment industry has grown over the past decade. Treatment modalities range from residential rehabilitation programs, outpatient facilities, drug and alcohol counseling, and sober

living housing (Rothenberg, 2018). In the Philippines, common approaches are Multidisciplinary Team Approach, Therapeutic Community Approach, Hazelden-Minnesota Model, Spiritual Approach and Eclectic Approach (Dangerous Drugs Board, 2013). Adjunct to these approaches is evidence-based psychological therapies such as Cognitive Behavioral Therapy (CBT) and motivational interviewing.

One of the growing psychotherapy approaches is the Eye Movement Desensitization Reprocessing (EMDR). Its efficacy is primarily known in treatment of Post-traumatic Stress Disorder (PTSD). In recent years, foreign studies have provided some evidence that EMDR therapy is also effective in the treatment of a variety of behavioral and substance addiction. Application of EMDR to addiction problems such as substance abuse (Rougemont-Bucking & Zimmerman, 2012), sexual addiction (Cox & Howard, 2007), internet addiction (Bae & Kim, 2012) and other compulsive behaviors have emerged in the literature.

The term “addiction” is regarded as the equivalent of substance use disorder, as labelled by the Diagnostic and Statistical Manual of Mental Disorders (DSM-V; American Psychiatric Association, 2013). It is concretely defined by the National Institute on Drug Abuse (2017) as “a chronic, relapsing brain disease characterized by compulsive drug seeking and use, despite harmful consequences”. Hence, any person who tries any addictive substance has the risk for addiction. However, the propensity of a drug user to become addicted and dependent to drugs rest on several factors ranging from genetics, physical health, mental health and environment (Currie-McGhee, 2011). Personality and life experiences increase the risk for developing the disorder. A person suffering from low self-esteem is more at risk in becoming dependent on drugs or alcohol than those who have higher self-esteem (Taylor, Lloyd, & Warheit, 2003). Moreover, people who experienced extreme and chronic stress have an increased likelihood of developing addiction to substances. Professionals believe that behind every drug addiction there is an underlying

emotional trauma that has remained unresolved and unexplored (Currie-McGhee, 2011).

Drug addiction has become a global epidemic contributing to millions of deaths per year, and drastically lowering the quality of life for millions of individuals worldwide. Specifically, it was reported that around 27 million people worldwide suffer from severe drug problems. In relation, over five percent of the global burden of disease is attributable to alcohol and illicit drug use, and alcohol abuse accounts for about 2.5 million deaths per year (Brandon et al., 2007). The impact of drug addiction is far-reaching, affecting almost every organ of the body and collectively with social and psychological consequences.

Indeed, addiction is an undying problem that is faced globally with a greater prevalent effect on developing countries like the Philippines. In the 2015 Nationwide Survey on the Nature and Extent of Drug Abuse in the Philippines, the prevalence rate of current drug users in the country is currently more than two percent or equivalent to 1.8 million people of the population within the age range of 10-69 years old (Dangerous Drugs Board, 2015).

Philippine Drug Enforcement Authority (PDEA) contended that the estimated number of drug users nationwide is equivalent to 4.7 million (The Manila Times, 2017). The demographic data gathered by PDEA (2017) further indicated that the majority of the drug abusers are males and employed adults with at least a high school education. The two leading substances of abuse among Filipinos are marijuana (58%) and methamphetamine (34%). However, methamphetamine owns the largest share of the market in terms of monetary value of consumption and is considered as the most popular substance for Filipinos. Supplementary results of desk review show an increase in the occurrence of drug abuse in the country from 2010 to 2015 as evidence from the number of arrests and inmates reported by PDEA, Philippine National Police (PNP) and Bureau of Jail Management and Penology (BJMP; Dangerous Drugs Board, 2015).

Despite serious and rigorous efforts of the government in dealing with this massive and destructive problem in drugs, only few of those who are deemed drug dependents are willing to undergo rehabilitation to change and modify their behavioral patterns and lifestyle. It was reported that three-fourths of the drug users in the Philippines thought of quitting the use of drugs. Yet only three percent of the current users had undergone rehabilitation programs (Dangerous Drugs Board, 2015). In the Philippines, there are 53 DOH-accredited Drug Abuse Treatment and Rehabilitation Centers and only 15 centers are operated by DOH (Parrocha, 2018). The data showed that a total of 8,662 clients have successfully completed the residential treatment program from 2016 to July 2018. There are still 8,826 remaining residential clients and 5,450 aftercare clients. Large portion of the clients in the Philippines are under the custody of the aftercare program.

Self-regulation. Self-regulation refers to autonomy, emotional independence, and the ability to actively regulate one's own life in order to achieve one's needs and aims, and to engage in appropriate health-seeking behaviour (Marques, Ibanez, Ruiperez, Moya, & Ortet, 2005). It is considered as a vital personality process from which an individual controls own thoughts, feelings, impulses, and behaviors (Bakhshani & Hossienbor, 2013). Self-regulation encompasses planning, formulating goals and acting accordingly and entails controlling of conscious efforts and the ability to act on self-guided arrangements away from any internal reward and support (Abolghasemi & Rajabi, 2013). This construct is also considered as mental efforts in monitoring internal conditions, processes, and functions to attain higher goals. It comprises skills such as paying attention, inhibiting reflexive actions, and delaying gratification (Berger, 2011).

The development of self-regulatory mechanisms has been the association of genetic predisposition, early experiences, and later adult functioning in society. Onset of self-regulation begins in infancy and continues until adolescence. However, a recent

research showed that the development of self-regulation continues during adulthood (Belsky & De Haan, 2011) because certain brain processes occur during the development. It is identified that when a person experiences adverse experiences such as family instability, exposure to violence or abuse, harsh parenting, neglect, and food instability, brain circuits responsible for self-regulation can be disrupted (Cavadel & Kauf, 2018).

Cognitive theories propose that self-regulation is an essential aspect in the development of drug use problems. As cited by Xu et al., (2015) from the works of Bandura (1999), addictions can be avoided through self-regulation and the failure of self-regulatory mechanisms can mark the process of addiction. Berger (2011) stated that poor self-regulation is indicative of impulsive and unregulated behavior which might have a significant negative consequence for the individual and their surroundings. Several researches substantiated the link between self-regulation and substance use disorder. In the study conducted by Percy (2008), it was identified that poor self-regulation, particularly during adolescence, predicts long-term alcohol use and drug-related problems. Comparative study showed that those individuals diagnosed with substance use disorder have lower self-regulation and self-control skills in comparison with non-dependent individuals (Bakhshani & Hossienbor, 2013). Self-regulation also plays an important role in predicting substance use disorder as well as relapse in drug abuse (Abolghasemi & Rajabi, 2013). Researchers, on the other hand, have confirmed that high self-regulation buffers substance use (Neal & Carey, 2007; Wills et al., 2008). It has been found out that self-regulation scores are positively related to the length of substance use abstinence (Ferrari, Stevens, & Jason, 2009). Those recovering drug dependents who have higher scores in self-regulation measures have longer periods of abstinence from drug use (Chavarria, Stevens, Jason, & Ferrari, 2012).

Eye Movement Desensitization Reprocessing (EMDR). EMDR therapy is defined by Francine Shapiro (2001) as "a phased, integrative psychotherapy

approach guided by the Adaptive Information Processing (AIP) model". The standard protocol of EMDR is composed of eight phases which aims to address the continuum of psychopathology which ranges from past, present, and future. The therapy resolves the past events that established the foundation for pathology, processes current triggers or stressors and incorporates templates for appropriate future actions that allow the client to excel individually and within the interpersonal system. The eight phases of the EMDR consist of history taking, preparation, assessment, desensitization, installation, body scan, closure, and reassessment. The core of the process is the desensitization phase which involves bilateral stimulation (BLS) through horizontal eye movements, alternative tapping, or alternative sounds. The methods stimulate the information processing system of the brain and facilitate the decrease in physiological and psychological arousal, negative emotions, and vividness of images. Subjective Unit of Disturbance (SUD) and Validity of Cognition Scales are utilized to assess the progress of the session and determine the cognitive restructuring of the target image and event (Wise & Marich, 2016).

EMDR is known for its efficacy in treating post-traumatic stress disorder. EMDR and cognitive-behavioral therapy are the only therapies recommended by the World Health Organization (WHO) for the treatment of PTSD in children, adolescents, and adults (Elkins, 2018). Vast reviews of research in the field have shown aggregate findings regarding the effectiveness of EMDR in treating wide range of trauma population. In recent years, studies have been conducted which provide some evidence that EMDR therapy is also effective in the treatment of variety of behavioral and substance addiction. Application of EMDR to addiction problems such as substance dependency, sexual addiction, internet addiction, and other compulsive behaviors have emerged in the literature. Cox and Howard (2007) conducted a case study that observed the effects EMDR therapy on a client who was diagnosed with sex addiction. Findings have shown that EMDR is

effective in treating addiction through processing of trauma. Authors also found a clear connection between the role of trauma and maintenance of the cycle of addiction. EMDR was also utilized in treatment of internet addiction (Bae & Kim, 2012). After four sessions during which DeTUR protocol of EMDR was used, the participant reported a decrease in his internet usage and the amount of time that he thought about or craved in playing internet game had reduced significantly. The result of the study provides further evidence that even as few as four sessions of EMDR therapy can lead to significant and enduring results when treating addictive behaviors. Moreover, Marich (2010), Rougemont-Bucking and Zimmerman (2012), Abel and O'Brien (2010), and Brown et al. (2015) provided evidence that implementation of EMDR therapy could lead to successful treatment of patients with substance use disorder because of its effect on periods of sobriety and recidivism. Hase, Schallmayer, and Sack (2008) conducted a study with a relatively large sample (34) to identify the effectiveness of EMDR therapy on clients with substance use disorder. The results of the study revealed that research participants who underwent EMDR have experienced a significant decrease in cravings for substance compared to those who did not receive EMDR and underwent only the treatment-as-usual program. EMDR have demonstrated efficacy and adaptability across a wide range of cultural contexts. It is a clinical model that supports cultural attunement and a growing body of research have demonstrated its applicability to a variety of cultural populations. One of the strengths of EMDR over language-based therapies is the non-necessity of the clients to talk about their experiences either before or during the processing. Moreover, the EMDR protocols have provided guidelines in adapting the therapy for diverse populations with consideration to social identities, cultural concerns, sexual and gender diversities, and specific social stigmas (Nickerson, 2017).

Studies have shown that there is a high prevalence of trauma symptoms among people with SUD. The fact suggests that trauma-focused treatment approach

could lead to better treatment outcomes (Marich, 2010; Abel & O'Brien, 2010; Bae & Kim, 2012; Rougemont-Buckling & Zimmerman, 2012; and Brown et al., 2015), gaps include: (1) in the research body still remain which leave the efficacy of EMDR relative to addiction and self-regulation still in question (Franklin, 2015); (2) researches on the use of EMDR therapy in treating SUD are very limited and inconsistent (Carletto, et al., 2018); (3) repositories of researches (EBSCO, 2019), only seven (7) researches related to EMDR and addiction, hence, two utilized DeTUR Protocol in treatment of addictive behavior, most of the studies conducted utilized case studies and limited-subject quasi-experiments which made the results still questionable because of its generalizability (Cox & Howard, 2007; Bae & Kim, 2012); (4) formulated addiction-focused EMDR protocols that are being widely used such as Desensitization of Triggers and Urge Reprocessing [DeTUR] protocol (Popky, 2005), the Feeling State Addiction Protocol [FSAP] (Miller, 2010), and the Craving Extinguished [CravEx] protocol (Hase et al., 2008) only the CravEX underwent clinical evaluation in a randomized clinical trial (Carletto, et

al., 2018) and not the DeTUR as confirmed by Wise and Marich (2016). Therefore, the feasibility and efficacy of addiction focused EMDR therapy are still largely uninvestigated despite 20 years of development and research on EMDR (Markus & Hornsveld, 2017); and (5) published researches is the ambiguous association of the construct self-regulation and EMDR therapy as supported by EMDR Philippines (2019) confirming that there are no published local researches that evaluated the efficacy of addiction-focused protocols of EMDR on self-regulation of patients with SUD. Thus, this study wanted to fill the identified gaps of current research by making valuable findings related to clinical psychology, health psychology, and addiction. This present study aimed to prove the efficacy of EMDR in improving self-regulation of in-house clients with substance use disorder. Specifically, to determine the significant difference on the pretest, posttest, and delayed posttest scores on self-regulation among participants upon undergoing EMDR therapy and to describe the experiences narrated by the participants prior and after undergoing the therapy.

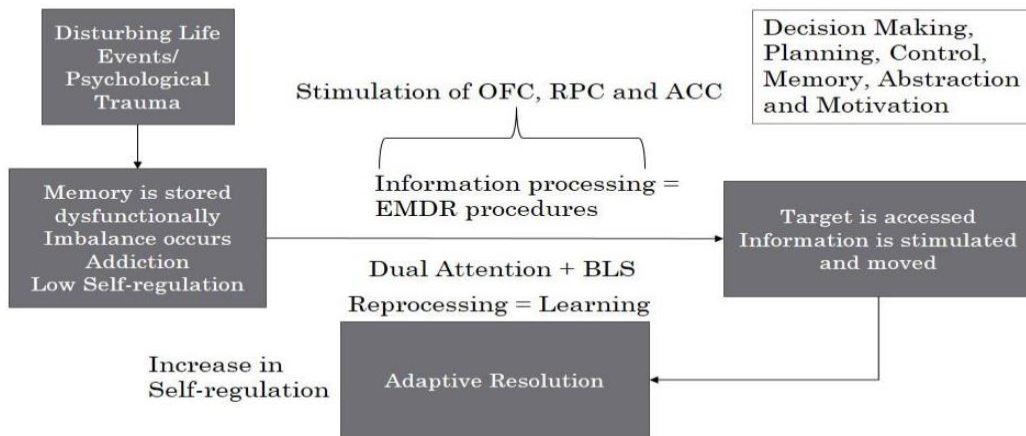


Figure 1. Diagram of the AIP Model

Theoretical Framework

EMDR utilizes the Adaptive Information Processing (AIP) Model. The key principle of the AIP model is that dysfunctionally stored and not

fully processed memories form the basis for future maladaptive responses. These dysfunctions are viewed as the cause of several mental disorders such as post-traumatic stress disorder, affective

disorders, addiction and other related psychological disorders (Hase et al., 2017).

The principle of psychological self-healing is highlighted by the AIP model which assumes that the human brain also has the capacity to process stressful information to complete integration by activating the information processing system (Solomon & Shapiro, 2008).

Activating the processing of negative memory will naturally move towards the adaptive information-processing system until it reaches the resolution. Dual attention and bilateral stimulation allow the processing to take place. The repetitive reorienting of attention may produce specific shifts in regional activation and neuromodulation like those produced during REM sleep. Bilateral stimulation activates the information-processing mechanism and with each set new, adaptive, information is assimilated into the neuro network, transforming the target material until it arrives at a healthy, functional state. Similarly, the AIP model is a psychological model. It offers a unifying theory that can be seen in all psychological modalities. It can be recognized as a combination of several known psychotherapeutic approaches used in treating psychopathologies. Aspects of psychodynamic approach particularly free association, catharsis, symbolism, and family-of-origin materials are highly adapted in the model. Behavioral approaches can also be observed through application of observed learning chains, generalization, associative material, and conditioned responses. Moreover, elements of cognitive theories are apparent with the progressive shifting of cognitive structures and beliefs and nature of gestalt approach is noticeable with the removal of emotional static.

AIP model is supported by neurobiological bases. Research has shown that there is a distinct neurobiological patterns of brain activations during EMDR bilateral stimulation which is associated with significant relief from negative emotional experiences. It was determined that during EMDR, higher cortical activation in the left orbitofrontal cortex, rostral prefrontal cortex and anterior cingulate

cortex occur (Pagani, et al., 2012). These areas of the brain are responsible for cognitive processing of decision-making and affect regulation which highlight the ability to control and manage uncomfortable emotions (Stevens, Hurley, & Taber, 2011). Analysis also indicated that interactions between prefrontal and cingulate cortex happen during bilateral stimulation. Prefrontal cortex is responsible for planning complex cognitive behavior which includes planning and abstraction. On the other hand, the cingulate cortex is involved in learning, memory and emotion formation which are linked to motivation. These findings provided evidence that there is highly significant activation shift following EMDR therapy which occurs from limbic regions with high emotional valence to cortical regions with higher cognitive and associative valence which apparently indicates strong neurobiological rationale of the efficacy of the therapy (Pagani, et al., 2012). After a successful EMDR therapy, results of activation of several regions of the brain would incur several noticeable physical and behavioral changes. The immediate effects of the therapy are changes in affect and facial expressions and accounts of positive feelings. Affective distress would be diminished, and negative beliefs associated with the target of the therapy would be reformulated (EMDR Institute, 2019). Moreover, decision making, and planning capabilities of the client would be activated.

The links among addiction, self-regulation, and EMDR are supported by the biological models. Psychoactive substances affect the brain stem, cerebral cortex, and limbic system with reference to the biological model of addiction. Dysfunctions on several regions of the brain cause disruptions in the primitive functions of the body, information processing, and brain's reward system (National Institute on Drug Abuse, 2017). The constant exposure to stimuli such as drug intake, causes physical changes in the anatomy of the brain which significantly affect motivation and self-regulation (Ranes, 2016). The specific part of the brain affected is the prefrontal cortex, including orbitofrontal and anterior

cingulate cortex which are important for executive functions (Crews & Boettiger, 2009). Damages incurred by psychoactive substances to these specific parts of the brain lead to loss of critical behavioral guidance which produce profound deficits in self-regulation. Moreover, lesions to the orbitofrontal cortex result in further impulsive and preservative behaviors such as gambling, hyperphagia, and higher dependence to substance abuse (Whitwell et al., 2007).

METHODS

The study utilized sequential explanatory mixed method research design which aims to acquire an in-depth understanding of the research problems (Creswell, 2013) involving the collection and analysis of quantitative data followed by the qualitative data for interpretation. Specifically, one-group pretest-posttest quasi-experimental design and six stage thematic analysis process were employed in the research (Braun & Clarke, 2006).



Figure 2. Sequential Explanatory Mixed Methods Design

Participants

Participants were in-house clients of Bahay ni Kuya Treatment and Rehabilitation Center, Lipa City (BNK-TRC) and DOH-Treatment and Rehabilitation Center, Tagaytay City (DOH-TRC) who were diagnosed with SUD. Identified institutions were chosen due to the most number of in-house clients in the CALABARZON Region added to the criteria as follows: 18-60 years old, male as available clients, have confinement period of at least one month, and not prescribed any antipsychotic drugs. While exclusion criteria were reluctance for participation in the treatment period, serious physical illness like musculoskeletal dysfunctions, diagnosis of any cardiovascular disease that could prevent adherence during treatment sessions, having previous exposure to EMDR therapy, and having a diagnosis with psychotic disorders.

Using a sample frame, about 284 of initial qualified clients from both institutions (172 from DOH-TRC, and 112 from BNK-TRC) were assessed by self-regulation measures. Clients who got extremely low scores on the self-regulation assessment tool were recruited and became the final participants,

whereas nine clients from DOH-TRC ($n_1=9$) and seven clients from BNK-TRC ($n_2=7$) were identified as eligible to become part of the study. They underwent medical screening and vital signs monitoring to ensure the health conditions of the clients, but two clients from BNK-TRC withdrawn from the being part of the study because of identified psychotic symptom and high-risk cardiovascular disease. Finally, only 14 in-house clients participated in the experimental phase of the study and seven further underwent individual interviews for the qualitative aspect of the research.

Measures

Self-Regulation Inventory-Short Version (SRI-S) was used to measure the primary construct of the study. The tool possesses sound internal consistency, reliability and high correlations with the scales of the long version. Self-Regulation Inventory consists of five factors namely: positive actions (PA), controllability (C), expression of feelings and needs (EFN), assertiveness (A), and well-being seeking (WS) (Ibanez, Ruiperez, Moya, Marques, & Ortet, 2005). Good psychometric properties with Cronbach Alpha test coefficients of 0.93, 0.87, 0.91, 0.92, and 0.90 have been established in Asian samples (Besharat,

2011). Adjunct to the primary tool, participants were also tasked to secure daily anecdotal records commencing during the first day of their encounter with the researcher to monitor possible relapse and abreactions. The researcher also utilized an EMDR Clinical Progress Note for each therapy session to document the progress of participants.

Procedures

During quasi-Experimentation Phase, the participants individually underwent EMDR therapy using Desensitization of Triggers and Urge Reprocessing [DeTUR] protocol (Popky, 2005). The DeTUR protocol varies from the basic EMDR protocol in terms of its primary focus on present situations, events, or stimuli that bring up uncomfortable feelings leading to urges to use. Moreover, the utilization of float-back to earlier traumatic memories is not required. The unit of measurement in DeTUR is level of urge (LOU) instead of SUD. Installation of positive resource goals, reducing triggers to use and developing greater resilience to relapse are highlighted in the process. This includes: (1) rapport building; (2) history taking, assessment, and diagnosis; (3) support resources; (4) accessing internal resource state; (5) positive treatment goal; (6) associated positive state; (7) identify urge triggers; (8) desensitize triggers; (9) install positive state; (10) test and future check; (11) closure and Relapse Prevention; and (12) re-evaluation.

Using the therapy's guided theory of EMDR, sessions of the participant varied as it was dependent on the severity and number of triggers and urges to be processed. The least number of sessions given was three and the most was five. The therapy session was facilitated on a weekly basis and the therapy took one to two hours. Twelve participants underwent basic EMDR protocol before proceeding to DeTUR because presence of traumas and "looping" were identified. On the other hand, the two participants directly proceed with DeTUR protocol.

The researcher utilized a parallel form of Self-Regulation Inventory – Short Form for baseline data to eliminate testing threat. The participants

completed the data collection tool (Self-Regulation Inventory-Short Form) at three measures during the study: pretest, posttest, and delayed posttest. Pretest was administered prior to EMDR therapy. Once the participants completed the therapy, they took the posttest after a week. Lastly, another week after the posttest a delayed posttest was administered. The intervals of the posttest and delayed posttest were about the EMDR guideline provided by Shapiro (2001).

Finally, the qualitative data were gathered through individual interviews. It was conducted by the researcher after gathering all the necessary quantitative data. A voice recorder was used to maintain the accuracy of the transcription. Moreover, debriefing and termination were also facilitated after the interview.

Ethical Considerations

The research proposal was reviewed by the DLSUD-Ethics Review Committee under certification of Philippines Health Review Ethics Board (PHREB) to ensure that safety and ethical considerations of the research procedures before, during and after administration of the study gained a certification DLSU-DERC-2018-084T2.

During the experimentation, the researcher as a trained EMDR practitioner, facilitated the therapy under the supervision of two psychologists in the addiction field and EMDR therapist/practitioner. The DeTUR protocol of EMDR was strictly followed and no alterations were made to guarantee the uniformity of the procedures. Moreover, post-therapy monitoring, and aftercare provisions were employed for possible abreactions or relapse.

Data Analysis

Treatment analysis was intended to compare the outcomes obtained from the participants to determine the legitimacy of the numerical codes; data cleaning was performed to ensure data accuracy. Both graphical and descriptive statistics were generated to check for out-of-range values for categorical variables, mean, frequency, and standard deviations. General visual inspection of

graphed data was also done to evaluate the efficacy of experimental manipulations. The data was analyzed using Repeated-Measures ANOVA to determine the significant difference among the

pretest, posttest, and delayed posttest self-regulation scores. While the six-stage thematic analysis process by Braun and Clarke (2006) was conducted for the in-depth analysis of the qualitative data.

Table 1. Measures of Self-Regulation Index (N=14)

<i>Sources</i>	<i>Mean</i>	<i>SD</i>
Overall (Pretest):	86.00	11.052
Positive Actions	19.36	4.236
Controllability	14.00	4.540
Expressions of Feelings and Need	16.57	5.801
Assertiveness	18.36	2.560
Well-Being Seeking	17.71	4.393
Overall (Posttest):	106.64	11.946
Positive Actions	23.36	2.620
Controllability	18.50	4.146
Expressions of Feelings and Need	20.14	4.092
Assertiveness	21.86	3.900
Well-Being Seeking	22.79	4.371
Overall (Delayed Posttest):	108.36	14.367
Positive Actions	23.64	4.106
Controllability	17.29	5.045
Expressions of Feelings and Need	19.43	5.302
Assertiveness	23.14	3.880
Well-Being Seeking	24.86	3.820

RESULTS

Using the quantitative data, the impact of the EMDR therapy as an intervention for five weeks on self-regulation among the participants with SUD to test the theory of Adaptive Information Processing Model of Francine Shapiro.

Determining the significant difference on the self-regulation of participants upon undergoing EMDR therapy, the researcher determined that the EMDR therapy enhances the clients' self-regulations (Overall SRI) and the following factors/sub-areas: positive actions, controllability, expressions of feelings and needs, assertiveness, and well-being seeking.

Table 1 presents the descriptive measures (i.e. mean and standard deviation) of the overall self-regulation and its factors, namely positive actions (PA), controllability (C), expression of feelings and need (EFN), assertiveness (A), and well-being seeking

(WBS). Fourteen (14) clients rated their Self-Regulation Inventory-Short Version (SRI-S) by Marquez et al. (2005). In gauging the factors or sub-areas, they rated an overall score for *pre-test* (M= 86.00, SD=11.052), *post-test* (M= 106.64, SD= 11.946), and *delayed post-test* (M=108.36, SD= 14.367) using EMDR as an intervention to self-regulation.

Similarly, the clients' scores in each factor were confirmed. Specifically, their positive actions from an entry score of a mean=19.36 (SD=4.236), increases to a mean=23.36 (SD=2.620), and landed to of a score of mean=23.64 (SD=4.106) for its delayed posttest. Other factors respectively, the scores for before, after, and delayed posttest were provided, in *controllability* (m=14.0, SD=4.54; m=18.5, SD=4.146; and m=17.29, SD=5.045), *expressions of feelings* (m= 16.57, SD= 5.801; m= 20.14, SD= 4.092; and m= 19.43, SD= 5.302), *assertiveness*

($m=18.36$, $SD=2.5$; $m=21.86$, $SD=3.9$; and $m=23.14$, $SD=3.88$), and well-being ($m=17.71$, $SD=4.393$; $m=22.79$, $SD=4.371$; and $m=24.86$, $SD=3.82$).

Table 2 presents the collective measures of self-regulation (SRI) obtained among the 14 clients with SUD. Using the scores of pretest, posttest, and delayed posttest, the obtained value of $f(2,39) = 13.572$ is larger than the F_{crit} of 3.24 ($\alpha 0.05$) with the $p_{value}=0.000$ ($p<0.05$). Given the p -value of the F statistic computed in the ANOVA table, and given the significance level of 5%, the information

brought by the explanatory variables is significantly better than what a basic mean would bring. This confirms that the researcher is rejecting the null hypothesis (H_0) and accepting the alternative (H_a). This explicitly proves the idea that the overall self-regulation scores obtained significantly differ before, after, and even the delivery of delayed posttest using the EMDR as an intervention. Given the moderate effect size, 41% ($\eta=0.4104$) of the variability of the overall SRI is explained by the explanatory variable.

Table 2. Summary Measures of Overall Self-Regulation (N=14)

<i>Sources</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F_{obt}</i>	<i>p_{value}</i>	<i>Decision</i>
Between	4334.905	2	2167.452	13.572	0.000	Significant
Within	6228.429	39	159.703			
Total	10563.333	41				

Graphical analysis of scores using the level component of data shows that the means of self-regulation scores during the pretest falls under the moderate level category. Increase in the level from moderate to high is noticeable on the posttest and delayed posttest scores. The increase in the dependent variable in one condition than another suggests that the treatment had an effect. Moreover, analysis of the trend component of the data presented reveals that there is a pattern of change in the data over the course of the experimentation. There is a gradual increase in the dependent variable across observation as seen in the pretest, post-test and delayed post-test scores. However, changes in the trend direction are not identified. The increasing trend of the dependent variable with change in condition likewise signifies that the treatment had an effect on the self-regulation of participants.

The variability noticed in the level and trend are in the desired direction, immediate, readily discernible, and maintained over time. Thus, it is concluded that the changes in scores across conditions resulted from the implemented treatment and are indicative of positive treatment effects. Moreover, in terms of latency factor, it was seen that

changes in scores immediately occur after the average duration of treatment. Elevation in scores suggests that EMDR has an immediate effect on the self-regulation of the participants. The patterns of results strongly show that the EMDR therapy is responsible for the changes in the levels of self-regulation.

Table 3 presents the computed value of pretest, post-test, and delayed post-test. Factor 1 (*Positive Actions*) with obtained value of $F(2,39)=5.788^*$ is larger than the F_{crit} (3.24 at $\alpha 0.05$, $p_{value}=0.006<0.05$). This verifies that EMDR as an intervention provided a significant effect on the positive actions of the clients with a small to moderate effect size ($\eta=0.2289$). While factor 2 (*Controllability*), the obtained value of $F(2,39)=3.599$ is bigger than the F_{crit} (3.24, $p_{value}=0.037<0.05$). Noticeably, EMDR indicated a significant effect on the controllability of the clients having the effect size ($\eta=0.1558$). Followed by factor 3 (*Expression of Feelings and Needs*), $F(2,39)=1.911$ is lower than the F_{crit} with the $p_{value}=0.162$ ($p>0.05$). The fact that variables do not bring significant information to the model may be interpreted as EMDR does not contribute to the

model for causality. Despite the mean difference on the scores, the EMDR as an intervention generated a closely knitted scores of pretest, posttest, and delayed posttest ($\eta=0.0892$) of the variability of the expression of feelings and need is explained by the explanatory variable. Factor 4 (*Assertiveness*), $F(2,39)=6.998$ is larger than the $F_{crit}=3.24$ ($p_{value}=0.003<0.05$) affirming that EMDR served its purpose

to significantly affect the assertiveness of the clients with SUD with moderate effect size ($\eta=0.2641$). Lastly, factor 5 (*Well-Being Seeking*) confirmed that $F(2,39)=10.703$ is significant at $\alpha 0.05$ ($p_{value}=0.000<0.05$). EMDR served as a good intervention program to effectively change the well-being seeking of the clients with the moderate effect size ($\eta=0.3544$).

Table 3. Summary Measures of Self-regulation Factors

<i>Sources</i>		<i>SS</i>	<i>Df</i>	<i>MS</i>	<i>F_{obt}</i>	<i>p_{value}</i>	<i>Decision</i>
Positive Actions	Between	160.762	2	80.381	5.788	0.006	Significant
	Within	541.643	39	13.888			
	Total	702.405	41				
Controllability	Between	151.762	2	75.881	3.599	0.037	Significant
	Within	822.357	39	21.086			
	Total	974.119	41				
Expression of Feelings and Needs	Between	100	2	50.000	1.911	0.162	Not Significant
	Within	1020.57	39	26.168			
	Total	1120.57	41				
Assertiveness	Between	171.762	2	85.881	6.998	0.003	Significant
	Within	478.643	39	12.273			
	Total	650.405	41				
Well-being Seeking	Between	378.143	2	189.071	10.703	0.000	Significant
	Within	688.929	39	17.665			
	Total	1067.07	41				

Moreover, the qualitative data was intended to explore the experiences of the participants prior and after undergoing the complete therapy process. Table 4 underscored the themes generated through analysis of the participants' experiences prior to therapy. Six-stage thematic analysis process developed by Braun and Clarke (2006) was utilized in the construction of themes.

Three themes were generated from the transcribed interviews. *Theme 1: Negative Emotional State* highlighted that most of the participants were preoccupied by several negative emotions ranging from nervousness, fear, guilt feelings prior to the

therapy session. Nervousness on uncertainties with associated physical discomfort such as difficulties in breathing, rapid heart rate, and physical discomfort were reported (e.g., *I felt a bit nervous and anxious, I do not know what I am feeling. My heart pounds fast and I breathe differently. [‘Medyo kinakabahan ako na hindi ko po maintindihan. Mabilis ang tibok ng puso ko at iba ang aking paghinga.’ P1, 45 years old]*). Fearfulness related to possible behavioral outcomes was identified from the transcribed interview responses of participants. Moreover, some participants reported preoccupation of guilt feelings regarding consequences of past actions.

Theme 2: Negative Thought Content described the thoughts of the participants before undergoing the therapy. Several clients mentioned that they were confused and preoccupied by negative thoughts (e.g. *I was so confused at that time. While thinking outside. I felt bored due to my long stay here. [‘Medyo magulo ang isip ko noon. Nag-iisip ako sa labas. sa tagal ko dito nakaramdam ako ng inip.’ P5, 39 years old]*). Some reported that they were doubtful of other people and perceived that they lack social support. Presence of denial and inhibitions regarding plans were further verbalized by participants.

Theme 3: Perceived lack of ability of the clients. It was said that most of them experienced difficulties in processing (e.g., *Before we have the therapy, if I have a problem, I end up not knowing what to do. I just let it be because I cannot do something about it. [‘Dati kasi bago tayo magtherapy, pag may problema ako ay hindi ko na alam ang gagawin ko. Hinahayaan ko na lang kasi wala nga ako magawa.’ P9, 31 years old]*) and handling themselves. They were also having difficulties in formulating plans. One participant highlighted that he was having extreme difficulties in expressing his feelings and thoughts prior to the therapy.

Table 4. Themes Prior to the Therapy

THEMES	SUBTHEMES
Negative Emotional State	Nervousness on uncertainties Fearfulness on possible outcomes of behaviors Guilt feelings regarding consequences of past actions
Negative Thought Content	Disorganized way of thinking Doubtful of other people Inhibitions regarding abilities Denial of problems and addiction
Perceived Lack of Ability	Inability to express and process feelings and thoughts Inability to handle personal problems

While table 5 highlights three themes extracted from the experiences of the clients after the therapy. *Theme 1: Experienced Positive Feelings* indicates that most of the participants encountered pleasant feelings after completing the therapy. Feeling of relief, serenity and calmness were apparent to the verbatim responses of the participants (e.g., *I felt relief, my chest has aid, nothing has been loaded heavy, no burden. [‘Maluwag ang pakiramdam ko. Maluwag ang dibdib, walang kabigatan na*

nararamdaman. Walang burden.’ P13, 38 years old]). They likewise experienced a relaxed state and freedom from their own apprehensions (e.g., *I have a great feeling while doing the therapy. I was able to release the heavy load in my chest. I did not know that it is possible to get relief when someone gave you guidance. [‘Maganda po ang pakiramdam ko habang nagtetherapy. Nailabas ko po ang bigat ng dibdib. Maari palang mawala ang bigat pag may nagpapayo pala.’ P2, 50 years old]*).

Table 5. Themes After to the Therapy

THEMES	SUBTHEMES
Experienced Positive Feelings	Feeling of relief Release of negative feelings
Attained Self-Realization	Recognize self-deficiencies Acknowledged that time is being wasted Realized that their family love them
Acquired Self-regulatory Skills	Expression of Thoughts and Feelings Controllability of Behavior Ability to plan and to figure out solutions to problems

While *theme 2: Attained Self-realizations* showed that clients were able to develop insights, realizations, and awareness after the therapy. It was verbalized that after the therapy, participants became aware of their issues and realized their self-deficiencies. In addition, some highlighted that they realized that their family members love them (e.g., *I was able to think, remembering memories before. I remember how much my family loved me... [‘Nakapag-isip ako. Naalala ko ang mga dati. Naalala ko na mahal na mahal ako ng pamilya ko...’ P5, 39 years old]*) and that their time is being wasted because of dependence to drug use.

Lastly, *theme 3: Acquired Self-regulatory Skills* represents internal control attributions of both actions and mood states. The theme has three sub-themes namely: expression of thoughts and feelings (e.g., *It helped me a lot because now I can voice-out all. It is only now I can express these because I am not the vivid type. But now I can express freely. [‘Malaki ang naitulong sa akin dahil ngayon ko lang na voice out ang lahat ng inilahad ko. Ngayon lang ako nakapagrelease ng load. Hindi talaga ako palakwento. Hindi ako expressive pero nakapagexpress ako ngayon.’ P13, 38 years old]*), controllability of behavior (e.g., *I have learned to control myself. By the time I will be outside this center, I may be doubting myself if I can stop myself*

from using it again or will I ever look for it? What I learned from the sessions are ways valuable to get rid of drugs. [‘Natutunan ko ang pagpigil sa sarili. Tapos pag dumating yung panahon na nasa labas na ako eto kaya ay mapipigilan ko o hahanap hanapin ko pa din? Ang natutunan ko ay ang mga pamamaraan na nandito na tayo at para makaiwas kahit nandyan na ang droga.’ P1, 45 years old]), and ability to plan and figure out solutions to problems (e.g., *With the therapy, I was able to get ways, like planned not to take it even someone right before your eyes are using it and asking you to join them. [‘Sa pamamagitan ng therapy, nakapulot ako ng mga pamamaraan. Maari palang magplano muna para hindi ko sya matikman kahit gumagamit na sila at niyaya ako gagawa na lang ako ng dahilan.’ P1, 45 years old]*). Expression of thoughts and feelings theme defines that ability of a person to vent-out inner thought and emotions. Further, it focuses on perceived confidence for self-expression.

DISCUSSION

The study was participated by in-house clients of government institutions. All were males, mostly belonging to low socioeconomic classification and others were confined as outcome of legal plea-bargaining agreement. The probable impact of their

profiles in the results of the research were not explored.

Presently, this research gave weight on the following: (1) the quantitative aspect of the research utilized one-group pretest-posttest design which did not include a controlled group provided the strengths of this design are its efficiency and lower variability of participants; (2) several strategies were conducted to further strengthen the design such as obtaining baseline data, using parallel test form; and (3) obtaining qualitative narratives like anecdotal record. Although several strategies were applied to further strengthen the design, minimal threats were inevitable. The effects of their existing residential therapeutic program and other external threats cannot be quantified. Thus, the qualitative aspects of this research provided strong validation of the strength of the DeTUR therapy in improving self-regulation of in-house clients with SUD. The researchers confirmed the idea that overall self-regulation scores obtained significantly differed before, after, and even the delivery of delayed posttest using EMDR as an intervention. The results provided empirical data that EMDR therapy explicitly enhances clients' self-regulation on the following sub-areas: positive actions (PA), controllability (C), assertiveness (A), and well-being seeking (WS).

Specifically, PA as affirmed by the clients being able to cope and solve problems through execution of various actions obtaining positive emotions with their actions, excitement and avoiding negative emotions for instance unhappiness. However, in the factor expression of feelings and needs (EFN), significant differences in the data were not determined despite the mean differences in closely knitted scores of pretest, posttest, and delayed posttest. This factor is associated with the identification and expression of needs, wishes and feelings, both positive and negative. However, the improvements in both subscales of self-regulation were confirmed by *theme 3: Acquired self-regulatory skills*. This theme showed that the participants were able to develop the ability to seek solutions to their identified problems after the therapy. They were

able to learn how to contemplate before acting out, to redirect their negative thoughts, and to develop appropriate plans to solve their problems. Related to these, clients expressed their perceived ability to identify strategies to avoid negative action and capacity for self-expression of thoughts and feelings.

Moreover, EMDR significantly upshot on the controllability and assertiveness factor of self-regulation. Controllability factor represents internal control attributions of both mood states and personal development. Assertive factor, on the other hand, comprises actions that allow the adequate satisfaction of one's own wishes and needs, and defense of one's own interests, autonomy, and self-confidence. The result is supported by the generated subtheme, controllability of behavior. After the therapy, participants reported that they were able to develop perceived self-efficacy and control. It was also claimed that they were able to control their impulsivity and developed a perceived ability to regulate one-self. Likewise, EMDR as a good intervention effectively changes the well-being seeking (WS) of the clients. The well-being seeking factor is associated with the aim of achieving well-being through one's own resources. The factor is likewise related to regulation of behaviour to feel satisfied with oneself and others as confirmed on *theme 2: Attained self-realizations*. After completing the therapy, the clients were able to develop insight, realizations, and positive life outlook. Changes in perceived self-worth, appreciation of their current treatment and apparent drive to perform positive actions related to recovery were identified. Self-awareness and hope for recovery were likewise reported.

Comparison of the generated themes prior and after the therapy supported the results of the quantitative data. Generally, themes on experiences of participants prior the therapy were composed of *manifestations of negative feelings, negative thoughts and inabilities* which were considered as counterparts of several components of self-regulation as seen from the theoretical framework cited by Marquez et al. (2005). Congruence to the themes

generated are the behavioral observations and clinical reports gathered by the researcher. Prior to the therapy, most clients manifested anxiousness as evidenced with their difficulties in staying calm, shortness of breathing, and noticeable rapid heart beating. Reservations and discomfort were noticed during the initial session.

On the other hand, the themes *Experienced Positive Feelings*, *Attained Self-realizations* and *Acquired Self-regulatory Skills* formulated after the therapy are considered as converse of the themes identified prior to therapy. The gap between two arrays of themes showed the psychological changes that had happened to the participants and provided a sufficient basis for the treatment outcomes of the therapy. Immediate effects of the therapy such as changes in affect and facial expressions and reported positive feelings were identified from the participants after undergoing the session. The session outcomes were supported also by clinical observation reports generated by the researchers. All the client's Subjective Unit of Distress (SUD) decreased to zero and no abreaactions were reported during the quasi-experimentation phase. The effects noticed were supported with the reports of EMDR Institute, Inc. (2019). Based on the data, clients' affective distress is relieved, negative beliefs are reformulated and physiological arousal is reduced after successful EMDR therapy. It was also supported by *theme 1: Experienced Positive Feelings*, which indicated that most of the participants experienced a pleasant feeling after undergoing the therapy. Participants expressed feelings of relief, relaxation, calmness, and independence from self-apprehensions. Similar observations were noticed by Bae and Kim (2012) and Wise and Marich (2016). Researchers perceived that after the successful reprocessing using DeTUR, clients reacted differently to previous uncontrollable and irresistible cues and they spontaneously came up with better choices.

Results of the present study were consistent with previous research on a variety of addictive disorders that utilized EMDR addiction protocol. Two Korean research highlighted the usefulness of

DeTUR aside from the basic EMDR protocol. The study conducted by Bae and Kim (2012) explored the efficacy of DeTUR in an adolescent with internet addiction. After using four times of 45-minute sessions of DeTUR, symptoms of internet addiction declined, and he was able to reduce his internet consumption. The therapeutic outcomes were maintained after 6 and 12-month follow-up. The outcomes were also like the study conducted by Park et. al. (2016), their single-case study with a man suffering from paruresis demonstrated that after eight times of 60-minute DeTUR session, absence of clinical symptoms can be observed. The maintained period of the therapeutic gains in their research was 1 year. Both published case studies provided the sole evidence for the efficacy of DeTUR. Due to limited number of researches about EMDR addiction protocol, researchers have highlighted that there is a profound need to conduct research regarding this topic (Abel & O'Brien, 2015). Moreover, it was claimed by Markus and Hornsvelde (2017) that there is no available controlled research on the subject matter yet.

Despite the scarcity of research on DeTUR, few addiction-focus EMDR research that employed other protocol supported the results of the study with randomized control trial research like the findings on the inclusion of EMDR therapy significantly decreased the cravings and rates of relapse of the clients (Hase, Schallmayer, & Sack, 2008) and efficacy of EMDR therapy in treating sex addiction (Cox & Howard, 2007) highlighted that trauma often underlie sex addiction and trigger relapses.

One possible explanation for the efficacy of the DeTUR-EMDR protocol is the nature of addiction and self-regulation. EMDR plays an important role in addiction treatment given that the underlying etiology of addictive behaviors is trauma. Professionals believe that behind every drug addiction is an underlying emotional trauma that has remained unresolved and unexplored (Currie-McGhee, 2011). The claims were supported by the National Comorbidity Survey (2007) which revealed that more than half of people with PTSD are also

inclined into addictive disorders. Trauma may have happened prior to addiction or it may occur as consequences of addictive behaviors. Since EMDR therapy is originally designed in treating traumas, it relatively has a promising impact on addiction and self-regulation. In reference to the participants, 11 out of 14 clients underwent basic EMDR protocol prior to DeTUR because of identified presence of traumatic experiences. After the first phase of the therapy, immediate positive treatment outcomes as result of trauma processing were identified and recorded by the researcher. Strengthening of the outcomes were further done through facilitation of DeTUR protocol. The Adaptive Information Process model (Shapiro, 2001) can also be accounted for in explaining the research outcomes. The memory representations of high arousal are dysfunctionally stored in the emotions, physical sensations and beliefs which initiated addictive disorder and had impacted to individual self-regulatory mechanisms. The model postulates the principle of human self-healing which could be activated through dual attention and bilateral stimulation. The process activates the information-processing mechanism, and with each set new, adaptive, information is assimilated into the neuro network, transforming the target material until it arrives at a healthy, functional state. As cited by Markus and Hornsveld (2017), neuroscience research described that the brain possesses a type of neuroplasticity known as “memory reconsolidation” which opens synaptic neural connections. Once memory is reprocessed, it would generate fewer distressing impacts such as decrease in cravings, drug-seeking behavior, and increase in self-regulation.

The physiological and sensational characteristics of EMDR therapy are likely contributed to the efficacy of the therapy. Some authors assumed that EMDR is a body psychotherapy which accesses sensorimotor elements from the brain stem (Ogden, Minton, & Pain, 2006). This feature of EMDR plays a role in the immediate treatment responses compared to cognitive therapies alone (Bae, Han, & Kim, 2013). During the experimentation phase, one participant

verbalized that as the researcher facilitated the bilateral stimulation through tactile process, his mind gradually worked rapidly and his negative thoughts and feelings progressively subsided.

DeTUR is a motivationally inclined psychotherapy that promotes therapeutic alliance. The initial phase of the protocol builds and enhances the psychological resources of the client which create empowerment and motivation. Moreover, the non-judgmental and less confrontational modality of DeTUR are its primary benefits (Bae & Kim, 2012). According to Evans and Delfabbro (2005), two of the most important aspects in addiction treatment are empowerment and motivation. These features of DeTUR can also be reflected in Motivational Interviewing (MI), one of the well-studied evidence-based treatments for substance use disorder (Dickerson, et al., 2017). DeTUR shared some of the relational components of MI such as being empathic, empowering, and compassionate. The technical component of MI that resolves client’s ambivalence through drawing out and reinforcing his own motivations for change can be reflected in the facilitation of DeTUR.

Another element of EMDR that can be accounted for its efficacy in improving self-regulation is the use of exposure techniques which involve mental and physical activities. In EMDR, the client develops a hierarchy of traumatic events and triggers which is like systematic desensitization. Visualization and expression of experiences and feelings associated with the target memory were done simultaneously to desensitize the client. Adjunct with this process, the client learns relaxation and self-regulatory techniques which are apparently embedded cognitively through bilateral stimulation. The process ceased once the client was able to regulate his thoughts and emotions. It is claimed that exposure of clients to negative stimuli causes them to gain control of the distress that it is caused (Horvath, 2013). Observations from the participants of the study showed that as they were exposed to the triggering situations that they have presented, they gradually learned how to adapt with

their thoughts and feelings and eventually learned to self-regulate. Moreover, EMDR also uses cognitive restructuring, a main component of CBT.

To conclude, using EMDR therapy protocol the client's dysfunctional attitudes and beliefs are altered in conjunction with bilateral stimulation. Immediate alteration of negative cognitions and beliefs of the participants were highly noticeable from the participants of the study. Equally, the qualitative data and themes generated after the therapy evidently showed that participants were able to develop self-realizations and changes in negative thoughts such as being insightful of their worth and acknowledging their negative beliefs.

Recommendations

Research on addiction protocols of EMDR particularly DeTUR is currently limited and there is an intense need to conduct various studies to universally accept the protocol. Future researchers are recommended to venture on using other research methodology particularly using controlled group. Larger randomized controlled group trials are needed to provide stronger evidence regarding the efficacy of DeTUR. Comparison to treatment-as-usual group or other psychological treatments such as motivational interviewing, cognitive-behavioral therapy, and hypnotherapy would likewise incur significant advances in the addiction research field. Several limitations of the study offer pathways for specific future inquiry. The lack of diversity among the participants should be addressed by future researchers. It is advised to include clients from private and non-government organizations with a variety of gender, educational attainment, number of confinement and civil status. Further exploration of the demographic profile in relation to efficacy of EMDR therapy can also be done. In addition, future research on the roles of co-occurring psychological disorders in the efficacy of DeTUR would generate highly valuable outcomes. Comparative studies on the effectiveness of DeTUR protocol on in-house and outpatient clients with SUD would also yield meaningful data in the

adaptation of the therapy. Lastly, measuring further the length of treatment effects of DeTUR would supplement the reliability and credibility of EMDR.

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