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Emotion Regulation: An Exploratory Cross-Sectional Study on the Change and Grow Therapeutic Model

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Abstract**—**Emotion dysregulation has been linked to psychopathology in general and, in particular, to substance abuse and other addiction-related disorders, such as eating disorders, impulsive disorder, and gambling. It has been proposed that a lessening of the difficulties in emotion regulation can have a significant positive impact on the treatment of these disorders. The present study explores the association between the progress in the Change & Grow® therapeutic model (5 stages of treatment), and the decrease in the difficulties related to emotion regulation. The Change & Grow® model has five stages of treatment according to the model's five principles (Truth, Acceptance, Gratitude, Love and Responsibility) and incorporates different therapeutic approaches such as positive psychology, cognitive and behavioral therapy and third generation therapies. The main objective is to understand the impact of the presented therapeutic model on difficulties in emotion regulation in patients with addiction-related disorders. The exploratory study has a cross-sectional design. Participants were 44 (15 women and 29 men) Portuguese patients in the residential Villa Ramadas International Treatment Centre. The instrument used was the Portuguese version of the Difficulties in Emotion Regulation Scale (DERS), which measures six dimensions of emotion regulation (Strategies, Non-acceptance, Awareness, Impulse, Goals, and Clarity). The mean rank scores for both the DERS total score and the Impulse subscale showed statistically significant differences according to Stage of Treatment/Principles. Furthermore, Stage of Treatment/Principles held a negative correlation with the scores of the Non-acceptance and Impulse subscales, as well as the DERS total score. The results indicate that the Change & Grow® model seems to have an impact in lessening the patient's difficulties in emotion regulation. The Impulse dimension suffered the greater impact, which supports the well-known relevance of impulse control, or related difficulties, in addiction-related disorders.

Keywords**—**Addiction, Change & Grow®, emotion regulation, psychopathology.

I. Introduction

MODERN life provides human beings with a much safer environment than our ancestors encountered, and allows us to forget the role of emotions in our continual survival [1]. Emotion has a long history as an object of study in psychology, and although everyone has intimate knowledge of emotion, is a surprisingly difficult concept to define. Emotions involve various internal changes that result in visible actions, which have proven to be an advantage for humans over the course of our evolutionary history [2]. Emotions are generated when a situation is interpreted as central to one's goals (i.e. personal, social and cultural) [3], and involve changes in multiple domains, such as subjective experience (feelings), physiology and behavior [4]. The fact that emotions can be adjusted to suit our needs depending on the situation, allows for their modification or regulation [1].

Emotion regulation is the conscious or unconscious (controlled or automatic) process utilized to decrease, maintain or increase one or more of the domains (feelings, physiology and behavior) of an emotional response [5]. The strategies utilized to regulate emotions can be adaptive or maladaptive, depending on their function, timing, and context (e.g. [6], [7]) and, when maladaptive, emotion regulatory processes can potentially result in or aggravate negative mental health outcomes, such as anxiety and other psychopathology (e.g. [8]-[10]).

According to [11], emotion dysregulation is a core feature of addiction. Deficiency in emotional self-regulation can not only cause substance abuse problems [12], but also influence other addiction-related disorders, such as eating disorders, impulsive disorder, gambling and smoking [13].

A. Change & Grow Therapeutic Model

The Change & Grow® therapeutic model was designed and developed by the Villa Ramadas centre, through an investment in research of innovative therapeutic services for addiction-related disorders [14]. The model was developed with the goal of overcoming some existing limitations in the prevailing therapeutic options for addiction-related disorders: responses for homogeneous groups (mainly men of a certain age interval), very long or short-term programs, the use of substitution drugs, the belief of an occupational approach as core of the programs, as well as an approach too focused on chemical dependency and not inclusive of other addiction profiles [14]. The model includes five stages of treatment, that represent the five principles that serve as the main focus of each stage (1 –Truth, 2 – Acceptance, 3 – Gratitude, 4 – Love, and 5 – Responsibility).

In the first stage of treatment (Truth), the focus is on changing the tendency for deception and self-deception that can be observed in patients with addiction-related disorders. In the second, the concept of Acceptance of internal (thoughts and emotions) and external (life experiences) events is explored with an emphasis on third generation therapies. In the third stage, the development of Gratitude is the focus, with the use of various positive psychology techniques. The fourth principle is Love, and during this stage the focus is on concepts such as compassion, self-compassion, and forgiveness. Lastly, in the final stage of treatment

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(Responsibility) the emphasis is put on accountability, the establishment of goals and value-guided action, as well as relapse prevention.

In this study, we propose to explore the relationship between the five stages of treatment in the Change & Grow® model of intervention and the level of difficulties in emotion regulation, with the purpose of understating the impact of the Change & Grow® model on this important variable in the progress of addiction-related disorders.

II. Materials and Method

A. Participants

The sample of this study included 44 (15 women and 29 men) participants aged between 14 years to 58 years old, undergoing the Change & Grow® therapeutic program in the Villa Ramadas international treatment centre.

Regarding age, the group presented a mean of 30.61 (SD = 11.186). Regarding the marital status, 33 participants were single, five divorced and two lived with their partners but were not married. Concerning the existence of children, 32 did not have children of their own, and 12 had children. Relating to education level, 10 patients had only basic education, 19 had only secondary education and 15 had higher education.

Concerning the stage of the treatment, and subsequent principle, 16 participants were in the first stage (Truth), six in the second (Acceptance), nine in the third (Gratitude), eight in the fourth (Love) and five in the last stage (Responsibility).

B. Measurements

1. Sociodemographic Data

Sociodemographic Data are age, gender, education, marital status and children.

2. Stage of Treatment

The Change & Grow® therapeutic model is composed by five different principles (1 – Truth, 2 – Acceptance, 3 – Gratitude, 4 – Love and 5 – Responsibility), with their order indicating the stage of treatment. The days in treatment are divided into the different principles as follows: 1-42 (42 days – Truth), 43-59 (17 days – Acceptance), 60-76 (17 days – Gratitude), 78-119 (42 days – Love), and 120-136 (17 days – Responsibility).

3. Difficulties in Emotion Regulation Scale (DERS) [15]

In this study the Portuguese version [16] was used. DERS is a self-report measure of emotion regulation difficulties, consisting of 36 items that make up the six dimensions: Strategies (eight items), Non-acceptance (six items), Awareness (six items), Impulse (six items), Goals (five items), and Clarity (five items). The Strategies subscale assesses the access to strategies perceived as effective and the ability to influence emotional states. The Non-acceptance subscale evaluates the acceptance of emotional responses. The Awareness subscale measures the capacity to acknowledge the significance of emotions. The Impulse subscale measures the ability to refrain from impulsive behavior and to regulate behavior even while under emotional distress. The Goals subscale assesses the ability to participate in goal-directed behavior in the midst of emotional states. Finally, the Clarity subscale evaluates the extent to which the felt emotions are understood. Participants respond to each item using a five point Likert scale from 1 (Almost Never) to 5 (Almost Always). Total and subscale scores are achieved by summing all the responses, and higher scores suggest greater difficulty with emotion regulation.

The internal consistency was high in both the original (α = 0.93; [15]) and the Portuguese (α = 0.92; [16]) versions.

C. Procedures

The Ethics Committee of the institutions involved in this study reviewed and approved the research protocol. Firstly, the visits to center were planned with the goal of minimizing the disruption of the treatment routine. During the distribution of the protocol, at least one of the researchers was present to inform the participants of the confidentiality and voluntary character of their collaboration and the goals of the study. After giving their informed consent, participants received standardized instructions regarding the protocol.

The Change & Grow® therapeutic model is integrated in the Villa Ramadas center into an intense residential program, with the duration of a regular treatment being 135 days. Throughout all the stages of treatment, patients have five group sessions and one individual session every day during the week. On the weekends, they have three group sessions on Saturday and two on Sunday, and there are no individual sessions.

The inclusion criteria for the study were: patients with Portuguese nationally, the proficiency of the Portuguese language.

D. Data Analysis

Data analysis was completed using IBM SPSS 21. Descriptive statistics were used to explore the characteristics of the data. The Kruskal Wallis test was performed, as a non-parametric equivalent of the ANOVA, to assess for significant differences on the continuous dependent variable (DERS) by the main categorical independent variable (Stage of Treatment/Principle) that allows for five different groups. Spearman correlation analyses were performed to explore the relationship between the studied variables.

III. Results

A. Preliminary Analyses

The assumption of normality was confirmed through the visual inspection of the distribution as well as *Skewness* and *Kurtosis*' values analysis [17], [18]. However, taking into account the characteristics of the sample, its small size and lack of homogeneity, the data does not meet the necessary assumptions for the realization of parametric tests.

B. Descriptive Analyses

The descriptive statistics of the sample are presented in Table I.

TABLE I
MEANS (*M*), STANDARD DEVIATIONS (*SD*)

Variables	*n* = 44	
	M	*SD*
Age	30.6	11.19
DERS_pt Strategies	22.4	5.55
DERS_pt Non-acceptance	17.1	6.11
DERS_pt Awarness	20.0	5.85
DERS_pt Impulse	15.3	4.34
DERS_pt Goals	16.4	3.34
DERS_pt Clarity	13.9	2.77
DERS_pt Total	105	17.6

Note. n = sample size*;* Age; Subscale Strategies; Subscale Non-acceptance; Subscale Awareness; Subscale Impulse; Subscale Goals; Subscale Clarity; DERS_pt Total= DERS – Portuguese version Total score.

C. Kruskal Wallis Test

A Kruskal-Wallis H test showed that there was a statistically significant difference in the Impulse subscale score and the total score of the DERS between the different Stages of Treatment/Principles. In the Impulse subscale, $\chi 2(4) = 22.2$, $p = 0.000$, with a mean rank score of 31.72 for the initial stage of treatment (Truth), 24.50 for second stage (Acceptance), 23.33 for third stage (Gratitude), 11.75 for fourth stage (Love), and 6.30 for the last stage of treatment (Responsibility). In the total score of the DERS, $\chi 2(4) = 13.8$, $p = 0.008$, with a mean rank score of 31.25 for the initial stage of treatment (Truth), 16.67 for second stage (Acceptance), 21.56 for third stage (Gratitude), 17.44 for fourth stage (Love), and 11.30 for the last stage of treatment (Responsibility).

The complete results are presented in Table II.

TABLE II
CHI-SQUARE, P-VALUES

Variables	*n* = 44 Grouping variable: Stage of Treatment/Principle (1-5)	
	Chi-Square	*p-values*
DERS_pt Strategies	8.092	.088
DERS_pt Non-acceptance	7.333	.119
DERS_pt Awareness	2.595	.628
DERS_pt Impulse	22.237	.000***
DERS_pt Goals	1.049	.902
DERS_pt Clarity	2.999	.558
DERS_pt Total	13.765	.008**

Note. n = sample size; df = 4*;* Subscale Strategies; Subscale Non-acceptance; Subscale Awareness; Subscale Impulse; Subscale Goals; Subscale Clarity; DERS_pt Total= DERS – Portuguese version Total score; *p-values* = significance level (* $p < 0.050$. ** $p < 0.010$. *** $p < 0.001$).

TABLE III
INTERCORRELATION SCORES FOR THE SELF-REPORT MEASURES AND STAGES OF TREATMENT (PRINCIPLES)

	1	2	3	4	5	6	7	8	9
1.Age	-								
2.Stage of Treatment (Principles)	-0.025	-							
3.DERS_pt Strategies	0.071	-0.297	-						
4. DERS_pt Non-acceptance	0.042	**-0.385****	**0.481****	-					
5.DERS_pt Awareness	0.168	-0.104	-0.098	0.294	-				
6.DERS_pt Impulse	-0.048	**-0.699****	0.385	**0.446***	-0.128	-			
7.DERS_pt Goals	-0.179	-0.084	**0.567****	**0.668****	0.044	0.421	-		
8.DERS_pt Clarity	0.053	-0.145	0.302	-0.243	0.306	-0.303	-0.086	-	
9.DERS_pt Total	0.014	**-0.512****	**0.721****	**0.772****	**0.421****	**0.574****	**0.593****	**0.447****	-

Note. Age; Stage of Treatment/Principles (From 1 to 5); Subscale Strategies; Subscale Non-acceptance; Subscale Awareness; Subscale Impulse; Subscale Goals; Subscale Clarity; DERS_pt Total = Difficulties in Emotion Regulation Total score*; p* = significance level (**p* <0.050. ***p* <0.010. ****p* <0.001).

D. Spearman Correlation

Results indicated that the Stage of Treatment/Principles held a negative (low to moderate) correlation with the scores of the Non-acceptance subscale, a negative (strong) correlation with the scores of the Impulse subscale, and a negative (moderate) correlation with the total scores of the DERS scale.

As expected, some of the subscales held positive correlations between each other and the total score of the DERS held positive (moderate and strong) correlations with all the subscales.

The correlation coefficients regarding the studied variables are presented in Table III.

IV. DISCUSSION

Several of the models of substance abuse disorders directly implicate difficulties in emotion regulation as a key and primary reason for on-going addictive behaviors, including the affective processing model [19], and the relapse prevention model [20], among others. The fact that many of those who suffer from substance abuse or other addiction-related disorders display deficits in emotion regulation, suggests that emotion regulation may be an important factor in the clinical course of these disorders. This hypothesis is supported by the fact that self-reported emotion regulation skills are lower in participants with substance abuse (e.g. [21]) or other addiction-related disorders, such as eating disorders (e.g. [22]) and gambling (e.g. [23]).

Considering the impact of emotion regulation on the clinical course of addiction-related disorders, the current study intended to explore the association between the progress in the Change & Grow® therapeutic model (five stages of treatment), and a possible change in the participant's difficulties related to emotion regulation. The main objective was to better understand the influence of the model's principles (Truth, Acceptance, Gratitude, Love, and Responsibility) on this variable.

Despite the small sample, the results suggest that the model

may have a positive impact and lead to a lessening of the difficulties related to emotion regulation. It was possible to observe that the changes in the total score of the DERS, as well as in the Impulse subscale, throughout the progress in the Change & Grow® model, were significant. Furthermore, the progress in the Change & Grow® therapeutic model correlates negatively and significantly with not only, the total score of the Portuguese version of the DERS, but also with the Non-acceptance and Impulse subscales.

In Fig. 1, the graphic representation of the DERS total mean score for the five stages of treatment/principles, is shown.

The Impulse subscale showed the highest negative correlation with the progression in the model, as well as the highest level of significance when the mean scores were compared between the stages of treatment/principles.

In Fig. 2, we can see the graphic representation of the Impulse subscale mean scores for the different stages of treatment/principles.

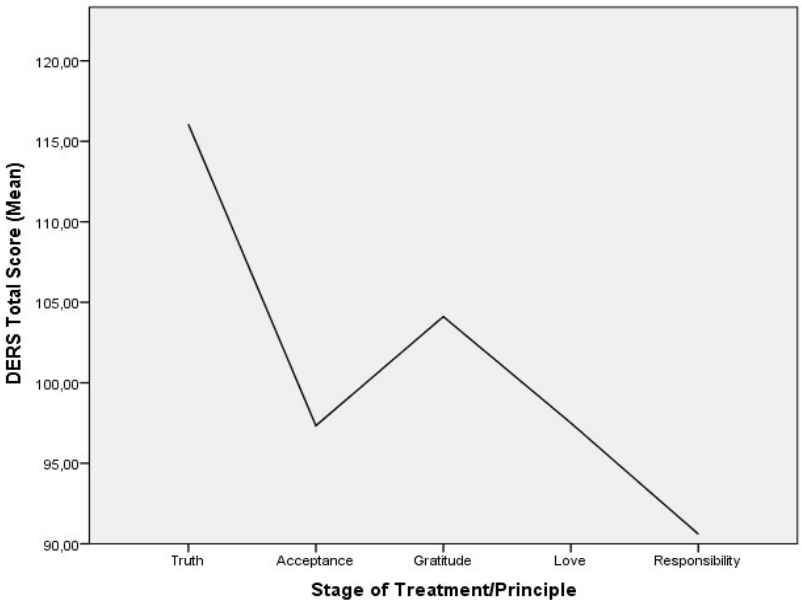

Fig. 1 Graph of DERS Total Score (Mean) vs. Stage of Treatment/Principles

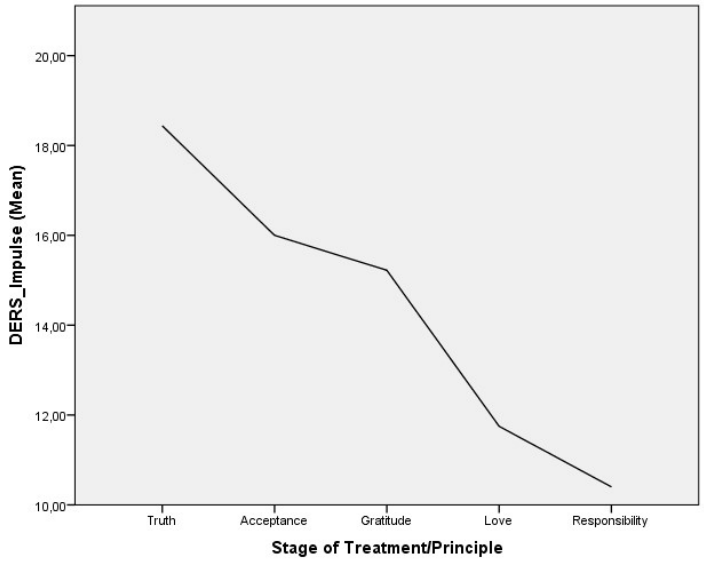

Fig. 2 Graph of DERS Impulse (Mean) vs. Stage of Treatment/Principle

The present study is only exploratory and has, consequently, many limitations that would need to be corrected in future studies: sample size, cross-sectional design (vs. longitudinal), and nonparametric statistics. Despite these limitations, the results could guide future research both with regard to addiction-related disorders, and the Change &

Grow® model. Taking into account the results with relation to the Impulse subscale, future studies should focus on investigating more in depth the impact of the Change & Grow® model on the various dimensions of impulsivity, and the mechanisms that mediate or moderate this impact.

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