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Effectiveness of a Single Session Protocol of Behavioral Activation in College Students with Depressive Symptomatology

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ABSTRACT

Previous research has analyzed the effectiveness of a single session intervention of Behavioral Activation (BA) for reducing depressive symptoms, however, it is important to replicate findings in different populations. The aim of this study was to determine the effectiveness of a single session intervention protocol of BA in college students with depressive symptomatology. The study was experimental pretest posttest with reference group in waiting list (*N*= 60). Students who scored more than 36 points in the Zung Self-Rating Depression Scale (SDS) were selected and were randomly distributed to the reference group or experimental group. The results showed a remarkable decrease of depressive symptomatology in experimental group students compared to control group and it was found that the effect size of the treatment was 0.74, which contributes to the empirical evidence about BA especially regarding college population.
Key words: behavioral activation, depressive symptomatology, college students.

Novelty and Significance

What is already known about the topic?

- Behavioral Activation for depression is an empirically supported psychotherapy.
- College students are particularly more likely to develop depressive symptomatology and they are not receiving the deserved attention due to lack of mental health staff. Also, Latinos are more likely to drop out psychotherapy.

What this paper adds?

- More evidence about the effectiveness of Behavioral Activation in Latin American college students.
- An effective, short, easy to apply and to train treatment for depressive symptomatology in college students.
- A treatment option for private therapists, college counsellors and universities in order to attend this mental health issue.

The need to work with college students was identified based on the theoretical and empirical review carried out, since the numbers indicate that this population is vulnerable to present a high prevalence of depression, which means that rapid and effective interventions are required.

According to the World Health Organization (2015), depression is considered as one of the four main diseases in the world and the most common cause of disability, showing that records have reached to more than 350 million people (Sarokhani, Delpisheh, Veisani, Sarokhani, Manesh, & Sayehmiri, 2013).

Different studies show that college students are highly likely to develop depressive symptoms (American College Health Association, 2009; Wei, Shen, Ren, *et alii*, 2014) due to changes that they experience at that stage of life, such as change of residence, adaptation difficulties, higher economic costs or leaving home (Buchanan, 2012).

In Colombia, the numbers of college students with depressive symptomatology oscillate between 30% to 70% according to some studies conducted in different educational institutions in departments such as Cundinamarca, Valle del Cauca, Risaralda and

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Magdalena (Arrivillaga, Cortés, Goicochea, & Lozano, 2004; Ministerio de la Protección Social, 2003; Ferrel, Celis, & Hernández, 2011; Miranda, Gutiérrez, Bernal, & Escobar, 2000; Posada Villa, Aguilar Gaxiola, Magaña, & Gómez, 2004; Ramírez, 2012).

Other studies show that depressive symptomatology in Latin community is greater because of the low treatment adherence that they maintain (Acosta, 1979; Barrera, 1978; Kanter, Santiago Rivera, Rusch, Busch, & West, 2010; Sue, Fujino, Hu, Takeuchi, & Zane, 1991). Also, other studies indicate that Latinos tend to under-use mental healthcare services by dropping out. Moreover, depression is the problem why most students attend Counseling and well-being dependencies within college (Agudelo Vélez, Casadiegos Garzón, & Sánchez Ortíz, 2008; Ramos, Hoyos, Toro, & Arredondo, 2008). Moreno, Rozo, and Cantor (2012) found that college students are less committed to psychotherapy by pointing out that in a counselling center 60.8 % of students dropped out psychotherapy. In addition, they found that the demand was so high that this center had not enough mental health staff to attend these patients. For this reason, it is important to generate short treatment alternatives that decrease the possibility of psychotherapy dropout, that are able to deal with high amounts of patients and that are empirically validated for this problem and in this population (Gallagher, Lovett, Rose, *et alii*, 2000).

Gawrysiak, Nicholas, and Hopko (2009) developed a single session intervention protocol of Behavioral Activation (BA). In their investigation, they found that the group that received the single BA session had significantly greater reductions in depression. Also, the same authors stated the importance of doing further research with similar characteristics to the original study with the aim of having a more heterogeneous sample and to control some limitations and variables that could not be controlled in the past.

Method

Participants

The Zung Self-Rating Depression Scale (SDS) was applied to a total of 318 day-time psychology students from the first to the eighth semester. The 35.2% corresponding to 112 students met the following inclusion criteria: (a) scoring 36 or more in the SDS, (b) to be at least 18 years old, (c) to be a college student, (d) not being in psychological or pharmacological treatment, and (e) not consuming psychoactive substances. When contacting them, 52 students declared they did not want to participate in the investigation for several reasons such as lack of time or lack of interest and did not attend to the initial interview. The sample consisted of 60 students ($N= 60$) that were randomly distributed to control group ($n= 30$) and to experimental group ($n= 30$). The control group consisted of 21 (70%) women and 9 men, whose ages varied between 18 and 25 years old ($M= 20.10$; $SD= 1.84$). Experimental group was defined by 26 (86.7%) women and 4 men, whose ages were between 18 and 32 years old ($M= 20.70$, $SD= 4.30$).

Instruments

Zung Self-Rating Depression Scale (SDS; Zung, 1965). A measure of depressive symptomatology contemplating affective, physiological, cognitive and psychological aspects (Lezama, 2012). It is a self-administered scale consisting of 20 items (10 positive and 10 negative) that are completed marking the frequency of depressive symptoms during the last fifteen days following the Likert type response options. The total score that can be obtained ranges from 20 to 80 points, where high scores reflect

higher levels of depression and low scores are indicators of absence of depressive symptoms. The cutoffs proposed in the validation in Spanish cited by Bobes, Portilla, Bascarán, Sáiz, and Bausoño (2003) are: absent depression (20-35), subclinical or mild depression (36-51), medium-severe depression (52-67), and severe depression (68-80). In Colombia, this instrument has been used in various researches and for the present study it will be used the validation in Colombian population carried out by Campo, Díaz, and Rueda (2005). The reliability the scale is of .80. This scale was applied to the sample selected as a pre-intervention, post-intervention and follow-up measurement.

Daily Monitoring Form (Gawrysiak *et alii*, 2009). Designed to know all the activities that the participant performs in a day. It is presented in grid format in which the participant had to write down their activities from 7:00 am to 11:00 pm every day for one week. This format is useful since it helps to identify the behavior patterns of the individual, and since it provides a current measure of activity, which could be compared to the level of activity later in the treatment. The format was adapted to Spanish for greater understanding of the participants.

Weekly Behavior Checkout (Gawrysiak *et alii*, 2009). Consists of a grid that describes 8 to 10 activities that the participant initiating the BA treatment must complete. Each activity must describe the time allocated to develop the activity, the number of times performed per day or week and indicate if it is approaching the goal that has been established in conjunction with the researcher. This format was adapted to Spanish for greater understanding of the participants.

Master Activity Log. List of observable and measurable activities that each participant decides to put into practice during the intervention period is completed. The Master Activity Log is distributed in columns. In the first column, the activity that each participant took during the week is written. The second column indicates the number of times that the activity is proposed to be carried out in a week and in the third column the time it can take to develop each activity. The following notes correspond to the days of the week, where the participant must indicate whether the activity was carried out or not. In this format, both the participants and the therapist can monitor the execution or not of the activities.

Semi-structured interview. A research tool that allows to determine in advance the relevant information that facilitates the identification of the behavior and the problem of the historical information of each operation areas of the participant (Fernández Ballesteros & Staats, 1992). In this research, an interview was designed based on the interview of the cognitive-behavioral protocol for the treatment of depression by Emery (2000). With this, we intend to identify aspects related to the current status of the participant, the history of the problem, the history of previous treatments or medication received, comorbidity, suicidal ideation, violence or self-harm, substance abuse, and the evaluation of the severity of depression.

Design and Procedure

This study was conducted using an experimental pretest-posttest design with a wait-list control group (Hernández, Fernández, & Baptista, 2007). Also, this study was ruled by the guidelines of 1090 Law of 2006, Ethics and Bioethics Psychologist Manual (Colegio Colombiano de Psicólogos, 2012) and scientific, technical and administrative standards for health research stipulated by Resolution No. 8430 of Ministerio de Salud of Colombia (1993).

The researchers who applied the intervention were professionals in psychology, specialists in clinical psychology and went through a period of training in BA and specifically in the single session protocol, doing face-to-face activities and independent work. Moreover, they received a training course conducted by Dr. Carl Lejuez, in which they deepened in some of the topics working with BA, they could watch videotaped clinical sessions of psychologists who used BA as an intervention method in depression and could clear up any doubts about this kind of intervention. In order to guarantee that the two people who applied the intervention carried out the same procedure, a step-by-

step protocol was designed for the interview session, the application of the intervention session and the follow-up session. Once the university permission was obtained, the SDS was applied to psychology students from the first to the eighth semester and those who met the established inclusion criteria were selected. Subsequently, a session was cited, in which a semi-structured interview was conducted and the control and experimental group were randomly assigned. Participants in the control group were asked to continue their activities normally for two weeks and complete the Daily Monitoring Format. The participants of the experimental group were summoned to an individual 90-minute session that consisted of three parts. First, psychoeducation about depression (what it is, how it can develop, its maintenance according to BA, symptoms, effects on health, how the intervention was going to work, etc.). Second, identifying values and goals tailored to every single participant in eight life areas (family, social and romantic relationships, education/training, employment/career, hobbies/recreation, physical/health issues, spirituality, and mental health issues). The third part consisted of identifying around 8 or 10 specific activities that the participant had to do. These activities had to be observable and measurable and had to be recorded in the Master Activity Log. In addition, these activities had to be done or developed during two weeks and the participant had to monitor them in the Weekly Behavior Checkout. After two weeks of the intervention, participants (of both experimental and control group) were scheduled for a second interview where in one hand, all the registers where collected and the experience of developing their specific activities was discussed. On the other hand, the SDS was administered in order to be able to compare their answers from the screening process to their answers after the BA intervention. On the other hand, the protocol was applied to the control group. Finally after another two weeks every participant was summoned to a follow up session in order to check if the changes obtained by the intervention were kept in time.

RESULTS

With the aim of identifying the data normal distribution, the Shapiro-Wilk test was performed for both groups. For the control group, in posttest, the data was normally distributed ($p= .13$). However, the distribution was not normal for the pretest ($p <.01$) nor in the follow-up ($p= .04$). Regarding the experimental group, the data met the assumption of normality in pretest ($p= .44$), posttest ($p= .06$) and follow-up ($p= .13$). To verify the assumption of homoscedasticity, the Levene's test was conducted, showing homogeneous variances, except in posttest. Table 1 shows the obtained values in this test. Since the assumption of homoscedasticity was met, but because not all groups had a normal distribution, non-parametric analyses were conducted with a 95% confidence level.

Table 1. Levene Test. Homoscedasticity assumption.

Moment	N	F	df	p
Pretest	60	3.71	1	.59
Posttest	60	4.25	1	.04
Follow-up	60	1.09	1	.29

Notes: *N*= number of data; *df*= degrees of freedom; *p*= significance level.

To determine if there were statistical differences between the control and experimental groups, the Mann-Whitney U test was used. It was found that in pretest scores there were no statistical differences between control and experimental group (p >.05). Regarding the differences between groups in posttest, it was obtained a p <.05. This means that students that did not receive the intervention had a higher score in the SDS than students in the experimental group. No differences were found between groups in the follow-up. However, when observing the average scores in the follow-up, it was noted that the experimental group continued to score lower than the control group. Details regarding scores in SDS during all measurement points can be found in Table 2.

Table 2. Scores on Zung Self-Rating Depression Scale (SDS) by control and experimental group in the three measurements.

Moment	Group	*N*	*M*	*SD*	*U* Mann-Whitney	*p*
Pretest	Control	30	42.50	6.394	300.000	.06
	Experimental	30	45.97	7.495		
Posttest	Control	30	42.00	5.724	311.000	.03
	Experimental	30	38.60	6.976		
Follow-up	Control	30	42.17	5.133	363.000	.19
	Experimental	30	40.43	7.463		

Notes: *N*= number of participants; *M*= mean score; *SD*= Standard Deviation; *p*= level of significance.

To analyze changes between pretest and posttest measures for each group, a non-parametric analysis was carried out using Wilcoxon's test (W). In the control group, there were no significant differences between any of the measures (p >.05). This means that average scores in SDS in control group remained the same from pretest to posttest (W= -1.24; p= .21) and posttest to follow-up (W= -1.51; p= .13). These results indicated that the students who did not receive the intervention maintained their SDS similar throughout the experiment. In the experimental group, there were differences between pretest and posttest (W= -4.58; p <.01) and in scores between posttest and follow-up (W= -2.00; p= .04). This indicates that depressive symptomatology decreased for participants who received the intervention. Table 3 shows the number of students which scored in the absence of depression, low depression, and moderate depression ranks.

Table 3. Number of students according to the total score rank of Zung Self-Rating Depression Scale (SDS) for control and experimental group.

Group	Zung ranks	Pretest	Posttest	Follow-up
Control	Absence of depression	0	3	2
	Low depression	25	25	26
	Moderate depression	5	2	2
Experimental	Absence of depression	0	11	8
	Low depression	24	18	20
	Moderate depression	6	1	2

The effect size was calculated from pretest to posttest using Cohen's δ (1988) (with sizes of 0.2, 0.5 and 0.8 considered to be low, medium and large, respectively). To analyze the effect, the difference between mean scores of the groups were used, and the difference of standard deviations of the scores as denominator. This analysis showed a medium size effect on the SDS (δ= 0.74).

Discussion

The goal of this study was to identify the effectiveness of a single session protocol of BA in college students with low or moderate depressive symptomatology. After the intervention of this single session protocol, significant differences were found regarding the scores obtained by the wait-list control group compared to experimental group, so that the average scores on the SDS obtained by the control group were higher than the experimental group in posttest. This means that after the intervention, participants of experimental group improved their mood, which was reflected in the instrument scores and in verbal reports from participants to researchers.

The fact of having planned important activities in this single session intervention (and that participants engaged in them) was the cornerstone to improve their mood, as Kanter, Manos, Bowe, Baruch, Busch, & Rusch (2010) or Gallagher *et alii* (2000) stated. Also, this is consistent with early explanations that set up the historical context of BA, specifically the statements made by Ferster (1973) who expressed that depressive behaviors were characterized by a decrease in frequency of healthy behaviors and an increase in the occurrence of avoidant and escape behaviors. This is why the treatment here presented was guided to stop the behavioral pattern of avoidance so the participant began to execute important activities to him or her, which is crucial to the investigation and that has been reported as a main component in treatments (Hopko, Lejuez, Ruggiero, & Eifert 2003).

This work provides for the first time information about the effectiveness of a single session of BA in Colombian college students. Also, findings presented here suggest that this intervention could offer another treatment option in educational contexts, taking into account that authors such as Moreno, Rozo, and Cantor (2012) noted that there are high psychotherapy dropout rates due to low commitment of college students to psychological treatment. This way, the single session intervention could be an effective intervention tailored to the particular needs of this population.

This type of brief interventions is easy to apply to patients who experience depressive symptomatology and the training of healthcare staff treating these issues is relatively quick and simple. Nevertheless, this does not mean that this investigation has been purely mechanic and adhered to a protocol. To the contrary, throughout this study, personal aspects of every participant such as personal history and motivation were considered, with the aim of building therapeutic alliance and increasing the patient's level of commitment to the execution of their activities. This technique is considered to be a way to boost the protocol and have more therapeutic impact in patients (Gawrysiak *et alii,* 2009). Likewise, both goals/values and activities were specially designed for each participant according to their interests, motivations, needs, etc. (Lejuez, Hopko, Acierno, Daughters, & Pagoto 2010; Martell, Addis, & Jacobson 2001). However, in a single session intervention, therapeutic contact is limited and restricted; thus, it would not be accurate to state that positive outcomes of this intervention were possible because of a strong therapeutic alliance.

On the other hand, it must be said that this investigation was conducted in different moments of the academic period (and given that the intervention worked). This implies that variables related to academic period, such as exams or holiday, did not have incidence in the completion of activities.

This study showed promising results with a single session intervention, but the follow-up did not result to be so effective. Namely, changes on SDS that appeared in posttest did not maintain one month later. This could be caused by some variables. On one hand, the therapist did not have control of the activities that a participant decided to do in their natural environment (see Kanter, Manos, Busch, & Rush, 2008), which may contribute to keep low mood. On the other hand, the Master Activity Log did not have to be filled with the same strictness and participants may have stopped to feel under pressure of monitoring their own activities. This is related to what Maero (2015) stated: "There is an old wisdom saying in behavior analysis: if you want to change a behavior keep a precise record of it" (p. 8); similar to studies about weight and eating record as a way to prevent weight gaining (see Boutelle, Baker, Kirschenbaum, & Mitchell, 1999). In addition, participants in this study expressed some obstacles in activity completion such as low income or physical illnesses (participant's illness or of people close to them). These two variables are related to depression: low income predisposes people to experience low mood or to maintain it (Cambron, Gringeri, & Vogel-Ferguson, 2015; Lennon, Blome, & English, 2001; Pratt & Brody, 2008) and physical illness is related to perceiving the future (one's own or the world's future) in a generally negative way (Alderson, Foy, Glidewell, & House, 2014). These two factors are very relevant in the participant's activities and goals, due to the fact that for example, they had to earmark some money for the development of an activity itself (such as paying for a gym, belonging to the Physical/health issues area, or paying for dance or music lessons, belonging to the Hobbies/recreation area). Physical illness could turn into a complication to the extent that some activities require physical mobility or even because of taking care of an ill relative (close one). Accordingly, they could not activate themselves in other activities. Both cases (low income, physical illness) were reported by some of the participants to the researchers stating that these types of inconveniences were an obstacle to their activities and became stress sources.

As results showed, the effect size of this intervention was medium to large; however, scores in SDS do not show absence of depressive symptomatology in every participant of the experimental group. The abovementioned, on one side supports the utility and functionality of this type of intervention but, on the other side, it casts doubt on the need of additional sessions and support that allows the consolidation of the participant's strategies acquired during the process. However, in the experimental group, 11 participants in posttest showed an absence of depression, 18 low depression and 1 moderate, whereas in the follow-up there where 8 with an absence of depression, 20 with low depression and 2 with moderate depression. Also, it is important to point out that the generalizability of data could be compromised since non-parametric statistics were used because the normality assumption was not met in some data. That is why conducting further studies with normal distributions would be an important aspect to consider, with the aim of generalizing the results.

On the other side, results in the posttest showed normality. It is possible that the intervention met some individual characteristics which implied that for some participants the intervention worked but not for others. With that said, in terms of group it may reflect differences between them, but when it comes to verify the internal variation this

could change making the distribution not normal. This could also be due to factors or variables of the participants such as gender, age, semester (year), individual issues, coping mechanisms, etc. which made that in posttest, for some participants, extreme scores changed the distribution. This point of view was stated by Santibáñez, Román, Lucero, Espinoza, Irribarra, and Müller (2008) who reported unspecific variables which could alter the outcomes of a psychological intervention such as demographic variables (gender, age, socioeconomic level), clinical diagnoses, beliefs and therapy expectancies, personality traits, level of functioning, symptom intensity and personal disposition. In addition, an aspect that may be considered is that some participants (given their more advanced academic level) might have known this therapy and that could have been another variable in their outcomes and in their adherence.

Although it is true that Cognitive Behavioral Therapy is a very relevant form of treatment, the intervention here proposed could reduce low mood progress and turning so in an alternative preventing mental disease such as depression (Callahan, Liu, Purcell, Parker, & Hetrick, 2012).

Regarding the limitations of the study, in the first place it is important to remark that even though this study was conducted with a larger number of participants than the original one, an even a larger sample would have permitted a better evaluation of the possible outcomes and variables (Fritz & MacKinnon, 2007; Ryba, Lejuez, & Hopko, 2014). In addition, given the limited contact of the therapist with their participants, there was no way to respond to the need of examining strictly unspecific factors of the therapy such as patient motivation in regard to treatment, support perception, previous therapy experiences or protective factors (Hunnicutt-Ferguson, Hoxha, & Gollan, 2012). This little contact with the therapist could have affected the therapeutic alliance, which is very important to conduct any psychological treatment (Gawrysiak *et alii*, 2009).

Furthermore, since early statements of Lewinsohn (1976), training skills is an important factor to be included in the treatment of people with depression. From an ideographic point of view, in every case it is discriminated if there is a need to include (or not to) this treatment component and determine the specific type of deficit, just like planning the treatment that therefore includes shaping, which may not be covered in a single session intervention. Accordingly, it is necessary to design intervention strategies (virtual/online or group format) that could complement these brief interventions.

To conclude, this study is the first step in verifying the effectiveness of BA in a single-session format in Colombian population. However, this implies that new studies must be conducted considering college population or applying it to other problems different from depressive symptomatology. It would be useful to develop this protocol in a specific point or time of the academic period, with the aim of establishing related variables which can change intervention outcomes. Also, it would be worth conducting further research not only in a single session format but also using Behavioral Activation Treatment for Depression (BATD; Lejuez, Hopko, & Hopko, 2001, 2002) in order to increase evidence about this therapy. It would be useful to introduce electronic and technological tools in Colombian context such as the novel idea of Lejuez about a mobile application called Behavioral Apptivation (http://www.behavioralapptivation.com) and verify its effects, scope and adherence given smartphones popularity.

Of course, this study could be replicated taking into account some of the limitations stated above in order to develop more effective interventions and have better understanding of BA single-session effects. Although this type of intervention could be useful in the treatment or prevention of depressive symptomatology, this does not mean

that clinical rigorous and detailed treatment must be replaced, but that single-session BA intervention may be another therapist option in a wide range of intervention possibilities.

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