

Verbal aversive control in clinical interaction

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Abstract

Background: Aversive control techniques involve aversive stimuli to generate behavioral change. The purpose of this work is to analyze the use of verbal aversive control by psychologists during the clinical interaction, combining respondent and operant explanations. **Method:** Observational methodology is used to analyze 26 session recordings of three different cases of anxiety disorder, relationship problem and low mood problem (27h 32') carried out by two psychologists of the Therapeutic Institute of Madrid. The variables considered were psychologists' aversive and non-aversive verbalizations and clients' antitherapeutic verbalizations. **Results:** There is a strong relationship between clients' antitherapeutic verbalizations and psychologist's aversive verbalizations, both potential punishments (aversive verbalizations contingent on the client's response) and aversive pairings. Additionally, the possible psychologists' aversive verbalizations are accompanied by other verbalizations aimed to induce clients' non-problematic behaviors. **Conclusions:** This work opens a new way to an explanation of therapeutic change using learning processes (both respondent and operant conditioning) that take place through verbal interaction in clinical context.

Keywords: Verbal interaction, therapeutic process, aversive control, respondent conditioning, operant conditioning.

Resumen

Control verbal aversivo en la interacción clínica. Antecedentes: el término control aversivo se refiere a las situaciones en las que se genera un cambio conductual mediante el uso de estímulos que provocan algún tipo de malestar. En este trabajo analizamos el uso de verbalizaciones aversivas por parte del terapeuta durante la interacción clínica, combinando explicaciones pavlovianas y operantes. **Método:** mediante metodología observacional se analizaron 26 grabaciones de tres casos de ansiedad, problemas de pareja y bajo estado de ánimo (27h 32') tratados por dos terapeutas del Instituto Terapéutico de Madrid. Las variables consideradas fueron las verbalizaciones aversivas y no aversivas del terapeuta y las verbalizaciones antiterapéuticas del cliente. **Resultados:** hay una fuerte correlación entre las verbalizaciones antiterapéuticas de los clientes y las verbalizaciones aversivas del terapeuta, tanto en forma de potenciales castigos (verbalizaciones aversivas contingentes a la respuesta del cliente) como de emparejamientos aversivos. Además, se comprueba que el posible control aversivo que ejerce el terapeuta se acompaña de otras acciones verbales encaminadas a desarrollar comportamientos no problemáticos en los clientes. **Conclusiones:** trabajo preliminar que abre una nueva vía a la explicación del cambio terapéutico a partir de los procesos de aprendizaje (pavlovianos y operantes) que ocurren durante la interacción verbal en el contexto clínico.

Palabras clave: interacción verbal, proceso terapéutico, control aversivo, condicionamiento pavloviano, condicionamiento operante.

Aversive control of behavior involves all situations in which a change in the behavior of an organism is produced by its association with some stimulus that causes discomfort for the organism. Thus, it implies learning that can be explained through respondent or operant conditioning, though commonly both types of conditioning work together. Generally, aversive control techniques involve an association between a behavior -and/or the stimuli that evoke it- and some unpleasant stimulation; or they involve an arrangement in the environmental variables in such way that the consequences of the unwanted behavior are unpleasant for the organism. In both cases, the goal is to establish an association between the unwanted behavior and aversive variables, with the

expectation to decrease the frequency of the unwanted behavior. Long-established behavioral explanations about how and why aversive techniques work use three different approaches. The first of these explanations involves respondent conditioning (also called *Pavlovian* or *classical conditioning*, terms that we will use interchangeably henceforth), while the other two involve an explanation based on operant conditioning principles (Cáceres, 1993). In addition, recent publications on aversive control have focused on neuropsychological aspects, linking the aversive processes with neurological correlates and cerebral activation patterns (Kim, Yoon, Kim, & Hamann, 2015; van Meel, Heslenfeld, Oosterlaan, Luman, & Sergeant, 2011; Potts, Bloom, Evans, & Drobos, 2014).

Respondent conditioning explanations of the aversive procedures were the first to be developed. Although they are still widely accepted, it is generally agreed that this approach is limited when attempting to fully address the complexity of aversive procedures (Cáceres, 1993). According to this approach, aversive techniques achieve a decrease in undesirable behaviors as a result

of the Pavlovian association between some stimuli commonly present when the unwanted behavior occurs, -that function as conditioned stimuli- and the aversive stimulus used in each case -that function as unconditioned stimulus-. These stimuli will end up eliciting similar discomfort responses to those caused by the aversive stimulus, thus decreasing the probability of undesirable behavior. However, classical conditioning is an insufficient approach to fully explain the reduction of inappropriate behaviors and the maintenance of such reduction, in particular with regard to the treatment of self-reinforced behaviors such as undesirable sexual behaviors or drug-abuse (Lovibond, 1980). Thus, apart from classical conditioning, there are two operant accounts of the effectiveness of aversive techniques: (1) the escape/avoidance paradigm and (2) the punishment paradigm. According to the former, the reduction or elimination of undesirable behavior is achieved through the association between such behavior and an aversive consequence -avoidable by interrupting the unwanted behavior and/or carrying out a desirable alternative behavior-. The anxiety derived from the anticipation of the aversive stimulus would become the discriminative stimulus of the avoidance operant, thus preventing the appearance of the associated aversive consequence. One of the advantages of this type of procedure is the operant avoidance extinction resistance. Avoidance behaviors become reinforcing after being repeatedly paired to the non-occurrence of aversive events. This type of learning ensures that the reduction or elimination of unwanted behavior is maintained over time even if the subject does not come into contact with the aversive consequences associated with it (Lovibond, 1980).

On the other hand, the operant punishment paradigm requires the presentation of an aversive stimulus and/or removal of an appetitive stimulus contingent to undesirable behavior, that will reduce the probability of its future occurrence. Positive punishment procedures are, likely, the most used aversive procedures, not only in clinical context but in all applied settings (Lerman & Vorndran, 2002). Hence, it is common to relate aversive behavior modification techniques only with punishment, leaving aside procedures based on classical conditioning or escape/avoidance conditioning. Nonetheless, the three paradigms actually coexist in clinical practice. With few exceptions, most of the stimuli used as punishment acquired their aversive properties through classical conditioning processes. Similarly, the decrease in behavior frequency -achieved through the application of punishment in clinical settings- is generalized outside the clinical context as a result of Pavlovian processes and/or escape/avoidance learning. As Mowrer stated in 1960, the respondent conditioned fear of the internal stimulation produced by the punished response is the basis of punishment.

Aversive control contingencies can occur by chance in the natural environment of the organism (*naturally existing contingency*) or it can be contrived, designed and implemented to achieve behavioral change (*contrived contingency*). In this sense, aversive control is a daily phenomenon; individuals are constantly exerting this type of control among each other. The widely held idea that *aversive control* is synonymous with physical aggression, humiliation and/or coercion must be dismissed (Hunziker, 2017). Although they could constitute a form of aversive control, fortunately, their use is relatively infrequent compared with all the possible ways that aversive control can be established in our daily lives and in specific contexts, such as psychological therapy.

The study of these three processes in the field of verbal behavior and, more specifically, of verbal interaction in the clinical setting,

can reasonably explain the psychologist's control over the clients' behavior both inside and outside of session. Moreover, in their professional practice, all psychologists use aversive control to some extent, either contrived through the implementation of intervention techniques or in a more intuitive or unsystematic fashion (i.e. when they disapprove of some of the client's behaviors within the clinical session). Since Pavlovian conditioning may occur through verbal behavior, psychologists can pair functionally aversive verbalizations with other verbalizations, which could have had an appetitive or reinforcing value before such pairing, in order to reduce or eliminate specific behaviors (Froján-Parga, Núñez de Prado-Gordillo, & de Pascual-Verdú, 2017).

The combination of respondent and operant processes allows to explain not only how undesirable behavior acquires an aversive value, but also why its decrease or elimination can occur outside the clinical setting through the implementation of aversive behavior modification techniques inside the clinical setting. In this sense, what psychologists say and how they say it -knowing or not the effect of their words- will not only affect the client's in-session behaviors, but also the client's behaviors outside the clinical center, which is the ultimate goal of the therapeutic intervention. A clinician might then use functionally aversive verbalizations in either two ways to reduce the frequency of a specific problem behavior: a) by making negative judgments about a behavior that the client has just shown; or b) by verbally pairing that behavior with potentially aversive terms that, assuming a history of conventional learning in the verbal community, might elicit a series of responses that the client would describe as unpleasant or uncomfortable (Froján, Galván, Izquierdo, Ruiz, & Marchena, 2015). Following Mowrer's meaning transfer approach (1954), we may consider that the psychologist's verbalizations are functionally equivalent to what they refer to. In that sense, when the client is in an extra clinical context where he might perform the behavior treated in session -with the objective of reducing it-, this behavior would give rise to a series of aversive emotional responses that would discriminate a new competing behavior. This way, problem behavior could be reduced without the need to directly intervene on the extra-clinical context (Froján-Parga et al., 2017).

This paper aims to analyze the psychologist usage of aversive verbalizations during the clinical intervention, testing significant associations between clients' antitherapeutic verbalizations (verbalizations that work against the functional assessment-based therapeutic goals) and the psychologists' aversive verbalizations. We consider that psychologist's verbalizations may either function as: a) a potential punishment for client's unwanted behaviors (i.e., verbalizations contingent upon the appearance of client's unwanted behaviors, with the presumable aim of reducing them); or b) as aversive associations (i.e., verbal pairings of descriptions of the client's unwanted behavior with aversive terms). The psychologist's aversive verbalizations, as will be explained in detail in the procedure section, would not occur unaccompanied but as groups of verbalizations that together function as *aversive blocks*; these blocks could be contingent (potential punishment function) or not contingent (potential respondent associations) on the client's verbalizations. Psychologist's aversive verbalizations -or aversive blocks- could be presented in a specific order or sequence that makes possible the punishment and/or the aversive conditioning of client's antitherapeutic behaviors. In this regard, we hypothesize that: (1) clients' antitherapeutic behaviors -whether they are in-session antitherapeutic behaviors or in-session descriptions of

antitherapeutic behaviors occurring outside the session- will be significantly followed immediately by contingent aversive blocks of the psychologist. (2) The contingent aversive blocks will begin with an aversive verbalization more likely than with any other verbalization, as a result of their potential punishment function over client's antitherapeutic verbalization that always precedes this type of verbalizations. (3) Psychologist's non-contingent aversive blocks will begin with aversive associations -whether aversive pairings or abolishing operations- more likely than with any other category, because of their potential aversive conditioning function or counterconditioning of the client's descriptions of their antitherapeutic behaviors.

Method

Participants

Recordings of three complete cases of different psychological problems were analyzed. The 26 clinical sessions -27 hours and 32 minutes of observation- were conducted by two behavioral psychologists with different levels of clinical experience of the Therapeutic Institute of Madrid. As it is explained in the procedure section, all included sessions were conducted after the functional analysis of the client's behavioral problem. Table 1 describes the sample characteristic in detail. For recording and information analysis the informed consent of the psychologist, the client and

the center's administration were required. In order to protect the client's privacy and guarantee the confidentiality, a storage system for recordings, private information and data analysis of these information was developed. This procedure was authorized by the Committee Research Ethics of the Autonomous University of Madrid (CIE-UAM).

Instruments

Psychologist's verbal behavior -labeled as: aversive, non-aversive and aversive blocks- and client's verbal behavior were the analyzed variables. Tables 2, 3 and 4 provide a detailed description of these variables.

Sessions were recorded using a closed-circuit video camera system installed at Therapeutic Institute of Madrid. The Categorization System of Aversive Verbal Control in Therapy (COVAT) was used to code psychologist's and client's verbal behavior. To create this coding system an experimented -six years of expertise working in observation methods and coding- observer (Observer 1) conducted an unsystematic observation aimed to develop a first draft of the coding system. The advice from several experts in behavioral treatment and development of verbal behavior systems was useful to establish the first version of the coding system. Once this part of the development was finished, the coding system was tested. For this, a second observer was required (Observer 2). Observer 2 also was an expert in behavioral therapy trained in the

Table 1
Participants' characteristics

Case	Sessions	Psychologist's characteristics			Client characteristics	
		Sex and age	Experience (years)	Therapy Approach	Sex and age	Problems
1	10	Female, 45	16	Behavioral	Female, 32	Couple derived problems
2	8	Female, 44	15	Behavioral	Female, 36	Anxiety problems
3	8	Male, 32	6	Behavioral	Male, 42	Low mood problems

Table 2
COVAT's verbal behavior categories of the psychologists

<i>1. Aversive verbalization category</i>
<i>Aversive verbalization</i> Psychologist verbalizations that Can cause clients' discomfort, either because of its content, its form, other non-vocal cues or the combination of these factors
<i>Aversive pairing</i> Psychologist verbalizations in which outside antitherapeutic client's behavior descriptions (or other aspects that difficult the fulfillment of therapeutic goals) and words/expressions of an aversive nature are paired (apparently with the objective of conditioning or contracting them aversively). There are three kinds of aversive associations: - <i>Aversive pairing</i> : describes or refers, either directly or indirectly, to a client's behavior and presents it associated with a term or expression of an aversive nature. - <i>General abolishing operation</i> : Psychologist verbalizations in which the aversive consequences of an undesirable behavior, expressed in general terms and without explicit reference to the client's case are explained. - <i>Personalized abolishing operation</i> : Psychologist verbalizations in which the aversive consequences of an undesirable behavior, expressed in specific terms and/or making explicit reference to the client's case are explained
<i>2. Non-aversive verbalization category</i>
<i>Establishing operations</i> Psychologist verbalizations that: a) Provide technical knowledge to the client, about his problem or the therapy process, in order to favor the implementation of desirable behavior, or b) give information about the consequences of a desirable behavior, expressed in general and/or specific terms, are explained
<i>Instructional discriminative</i> Psychologists' verbalizations that indicate, recommend or prescribe a specific behavior to the client, which can involve both doing something and stop doing something

Table 3
COVAT's aversive blocks

A higher order category that delimits a potential aversive fragment, contiguous in time and related in content, of the psychologist's speech. The aversive block must necessarily include one or several aversive categories. There are two kinds of aversive blocks:
 – *Contingent aversive block*: Always follows an antitherapeutic behavior of the client occurred in session or a verbal description made by client in session of an antitherapeutic behavior occurred outside of session.
 – *Non-contingent aversive block*: It is insert in the psychologist's speech and refers to some antitherapeutic behavior of the client that occurred outside the session, never follows the client's verbalization describing it

Table 4
COVAT's verbal behavior categories of the clients

In-session antitherapeutic verbalizations
 Those behaviors that the client carries out within the space-time context of the therapy sessions and that make it difficult for psychologists to carry out they activity and/or go against the purposes set out after the functional analysis.
Description of out-session antitherapeutic behavior
 Clients' verbal descriptions of those behaviors carried out outside the clinical session that imply an obstacle to achieve the therapeutic objectives established after the functional analysis and/or prevent the psychologist after carrying out his activity

coding of verbal behavior in clinical contexts. In this phase, both observers individually coded the same therapy sessions, then they pooled the results, calculated the percentage of agreement and discussed disagreements. Also, during this process they had the advice of other experts in behavior therapy. Problematic coding categories were modified throughout different inter-observer agreements. All these modifications were noted in the agreement document that is added to the final version of the coding system. The Kappa coefficient (Cohen, 1960), which corrects for agreement made by chance, was used as an inter-observer agreement index to determine the end of the system development. The coding system development process ended when the Kappa coefficient between Observer 1 and Observer 2 reached values higher than those considered good -more than 0.60 Bakeman (2000) and Landis and Koch (1977)- with a tolerance interval of 2 seconds. The COVAT's final version was the result of this iterative process.

Procedure

Observer 1 conducted the observation and coding of the 26 clinical sessions using the COVAT and The Observer XT 12.5 software. Then, ten percent of the coded sessions were randomly selected. To compute the inter-rater reliability, Observer 2 independently coded this selection. The outcome was then compared with the data obtained by Observer 1. Also, the Observer 1 coded another ten percent of the sessions twice, to allow for the computation of intra-rater reliability. To control possible learning effects, the second coding was conducted once the sample had been fully recorded, never immediately after the first registration. Table 5 presents the COVA's intra- and inter-rater reliability, and interrater agreement percentage.

All analyzed sessions were conducted after the clinical explanation of the functional analysis results to the client. That is because psychologists test which words have functional aversive properties for the client -apart from the established aversive words that they share as members of the same verbal community- during the assessment sessions. In addition to coding aversive and non-aversive verbalizations, these verbalizations were also coded as blocks that included different verbalizations. In previous studies, it has been found that the psychologist usually says a series of

Table 5
COVAT's intra- and inter-observer reliability analysis results

Intra-observer reliability			Inter-observer reliability		
Session	Agreement %	Kappa	Session	Agreement %	Kappa
1	77.7	0.74	1	83.2	0.81
2	91.1	0.90	2	86.1	0.84
3	93.3	0.92	3	80	0.78
4	90	0.88	4	79.3	0.76
5	93.5	0.92	5	75.7	0.73
6	92.2	0.91	6	78.5	0.76

words or phrases that, together, evoke a specific client response (Calero-Elvira, Froján-Parga, Ruiz-Sancho, & Alpañés-Freitag, 2013; de Pascual, 2015; Froján-Parga, Calero-Elvira, & Montañó-Fidalgo, 2009). Thus, to better analyze the psychologist's verbal behavior effects on the client's behavior, the psychologists' blocks of verbalizations should be codified. Therefore, COVAT allows us to code blocks of aversive verbalizations. Aversive blocks are constituted as a higher order category that delimit a potential aversive fragment, adjacent in time and related in content, of the psychologist's speech; aversive blocks must necessarily include one or several aversive categories of those discussed above.

Once the sample was coded, two sequential analysis were carried out in order to test the proposed hypotheses. The first aimed to study the relationship between the client's antitherapeutic verbalizations and the psychologist's verbalizations -both isolated verbalizations and blocks of verbalizations- with event lag +1. The second sequential analysis was conducted to identify which verbalization of the psychologist initiated the contingent and non-contingent aversive blocks.

Data analysis

The psychologists and clients' verbal behavior observation, coding and some data analysis were conducted with The Observer XT 12.5 software. It was also used to compute the percentage of

agreement and estimate the intra- and inter-rater reliability, as well as for some of the descriptive data analysis. The sequential analysis of the data was done using GSEQ 5.1 software, developed by Bakeman and Quera (1995). This type of analysis allowed us to compute lag transitional probabilities (r) between two behaviors, which is the probability that, having occurred a certain behavior in the sequence (given behavior), another behavior (conditioned behavior) will have occurred before or after that. Negative lag implies that the conditioned behavior occurs before the given behavior; on the contrary, positive lag implies that the conditioned behavior occurs after the given behavior. The GSEQ 5.1 software was used to find the adjusted residues (z) for given and conditioned behaviors. Next, the values of the adjusted residues were studied. Values higher than 1.96 indicate a significantly higher frequency than expected by chance, while values lower than -1.96 indicate a significantly lower frequency of expected by chance. Likewise, to have a measure of the intensity of the association, Yule's Q was computed. It is a coefficient of association, which ranges from -1 to 1, that is, from statistical independence to full association (Bakeman, McArthur, Quera, & Robinson, 1997).

Results

Table 6 presents the direction and intensity of the correlation between the clients' antitherapeutic verbalizations and the psychologists' verbalizations, with event lag +1. This sequential analysis outcome support hypothesis 1. There is a positive

Table 6
Correlation between antitherapeutic behaviors and psychologist verbalizations

	In-session antitherapeutic verbalizations	Description of out-session antitherapeutic behavior
CAB	$r = 22.64^*$ $Q = 0.91$	$r = 5.86^*$ $Q = 0.51$
NAB	$r = -2.38^*$ $Q = -1.00$	$r = -0.02$ $Q = -0.01$
AVV	$r = 17.06^*$ $Q = 0.84$	$r = -0.42$ $Q = -0.05$
APA	$r = -3.80^*$ $Q = -0.48$	$r = -3.24^*$ $Q = -0.69$
PAO	$r = -2.43^*$ $Q = -0.40$	$r = -1.44$ $Q = -0.35$
GAP	$r = -1.49$ $Q = -1.00$	$r = -1.49$ $Q = -1.00$
ESO	$r = -5.86^*$ $Q = -0.60$	$r = -0.08$ $Q = -0.01$
IND	$r = -3.33^*$ $Q = -0.70$	$r = -2.17^*$ $Q = -0.74$
IAV	$r = 0.77$ $Q = 0.07$	$r = 2.55^*$ $Q = 0.27$
OAD	$r = -0.73$ $Q = -0.10$	$r = 8.37^*$ $Q = 0.72$

Note: CAB= Contingent aversive block; NAB= Non-contingent aversive block; AVV= Aversive verbalization; APA= Aversive pairing; PAO= Personalized abolishing operation; GAP= Generalized abolishing operation; ESO= Establishing operations; IND= Instructional discriminative; IAV= In-session antitherapeutic verbalizations; OAD= Description of out-session antitherapeutic behavior; r = adjusted residuals; Q = Yule's Q ; * = Significant contingency. Statistically significant positive contingencies (** $p < .01$)

and significant correlation between clients' antitherapeutic verbalizations and contingent aversive blocks, being especially strong between in-session clients' antitherapeutic verbalizations and contingent aversive block (Yule's $Q = 0.91$).

Furthermore, when we removed the aversive blocks of the sequential analysis between the antitherapeutic verbalizations of the clients and the rest of the COVAT categories, we found that the antitherapeutic behaviors in session were followed by psychologists' aversive verbalizations with more probability than the expected by chance. However, this outcome was not found with the description of out-session antitherapeutic behavior, whose correlation with aversive verbalization was not significant. This result implies that psychologists immediately and consistently apply aversive verbalizations to alter antitherapeutic behaviors in session, but they do not do the same with description of out-session antitherapeutic behavior. In fact, as we can see in Table 6, description of out-session antitherapeutic behavior has the strongest positive and significant correlation with another description of out-session antitherapeutic behavior. Thus, what most likely follows a description of out-session antitherapeutic behavior is not a verbalization of the psychologist, but another description of the client and, less likely, an antitherapeutic behavior in session. It should also be noted that there is a significant but negative correlation between the description of out-session antitherapeutic behavior and the aversive pairings and instructional discriminative verbalizations. This correlation was also found with in-session antitherapeutic behaviors. The latter category also maintains a significant negative relationship with personalized abolishing operations and with abolishing operations.

Table 7 shows the sequential analysis results between the beginning of the two types of aversive blocks and the different verbalizations of the psychologist that may include. These outcomes support hypothesis 2 and only partially hypothesis 3. That is, contingent aversive blocks begin with a psychologist's aversive verbalization and non-contingent aversive blocks with an aversive pairing, but not with an abolishing operation. However, surprisingly, the beginning of this type of non-contingent blocks in some cases start with an establishing operation or an instructional discriminative, possibilities that we had not considered. In addition, contingent aversive blocks can also start, although with a lower

Table 7
Psychologist's verbalizations that initiate both types of aversive blocks

	Contingent aversive block	Non-contingent aversive block
AVV	$r = 24.23^*$ $Q = 0.93$	$r = -1.91$ $Q = -0.70$
APA	$r = 1.48$ $Q = 0.14$	$r = 5.37^*$ $Q = 0.71$
PAO	$r = 2.70^*$ $Q = 0.30$	$r = -0.57$ $Q = -0.28$
GAP	$r = 0.11$ $Q = 0.05$	$r = -0.42$ $Q = -1.00$
ESO	$r = 3.08^*$ $Q = 0.23$	$r = 4.85^*$ $Q = 0.66$
IND	$r = 0.46$ $Q = 0.07$	$r = 2.39^*$ $Q = 0.55$

Note: * = Significant contingency. Statistically significant positive contingencies (** $p < .01$)

probability, with a personalized abolishing operation or with an establishing operation.

Discussion

A clear and strong relationship between the clients' antitherapeutic verbalizations and the psychologists' aversive verbalizations -both potential punishment verbalizations and aversive pairings- was found. This outcome supports the hypotheses of this study. The contingent relational analysis between the different COVAT categories of behavior provided the outcome that allow us to establish more precisely the behavioral sequences that characterize the verbal aversive control in psychological treatments. As we have seen, psychologists do not punish all clients' antitherapeutic behaviors. However, a significant correlation between the clients' antitherapeutic behavior and the psychologists' aversive verbal control was found. This significant correlation implies a systematic use of this procedure by psychologists. However, this contingency is not absolute; sometimes the client chains several antitherapeutic behaviors without the psychologists' aversive intervention. It occurs, for example, when the client describes the antitherapeutic behaviors outside the session (*description of out-session antitherapeutic behavior*). Thus, our data suggest that psychologists punish the client's in-session antitherapeutic behaviors, but they do not do so with regard to the *description of out-session antitherapeutic behavior*. This might be because the goal of psychologists is to gather more information before using some type of aversive control for these verbalizations.

These results allow us to go further in our analysis of the therapeutic process: the aversive blocks are not only a set of aversive verbalizations -contingent or not-contingent- but also they include other neutral verbalizations -or even appetitive ones- with the purpose of nudging the client to perform an alternative behavior -hence the association with the instructional discriminative- and let them know the benefits of behaving in that way (through an establishing operation association). Thus, it becomes clear that aversive strategies can lead to clinical change not only by eliminating problematic behaviors but also indirectly inducing appropriate ones, due to their effect on increasing behavioral variability. This effect makes it possible to question one of the most frequent criticisms about the use of aversive control, that is, that it does not teach, and it evokes fear reactions and helplessness in the people to whom it is applied (Hunziker, 2017).

The interaction between operant and Pavlovian processes is constant and unavoidable. For example, the categorized aversive verbalizations -whose role is essentially of potential operant punishment- in most cases have acquired their aversive character and, therefore, its potential role of punishment, as a result of common classical conditioning processes in our verbal community. The exclusive use of operant control could be limited to those in-session clients' behaviors and that would be under control of the stimuli of that context. However, the combination of operant and responding procedures increases the possibilities of generalization of what has been learned in the therapeutic context: what the psychologist says in session has an impact on the client's behavior outside of it and that can be explained, at least in part, based on the Pavlovian associations that the psychologists' establishes during the sessions through their verbal behavior.

On the other hand, the combination of associative learning processes could be the appropriate way to overcome the limitations

derived from attending exclusively to operant approaches (i.e. Relational Framework Theory) (Hayes, Barnes-Holmes, & Roche, 2001). As we have already discussed in other works (Froján-Parga et al., 2017), the Relational Framework Theory (RFT) explanation of change in stimuli functions -necessary condition for the therapeutic change- presents many weaknesses. Authors such as Tonneau (2004), suggest that RFT uses concepts that are confusing from a theoretical point of view, as well as introducing explanatory devices that suppose an enormous departure from their foundational principles (Sidman & Tailby, 1982). On the other hand, works such as Leader, Barnes, and Smeets, (1996) or Gutiérrez-Domínguez, García-García, & Pellón (2018) suggest that equivalence classes can be obtained through respondent conditioning processes.

Verbal aversive pairings and *verbal abolishing operations* could function as classical conditioning trials, in which verbal descriptions of the problematic behaviors that the client performs outside the session are systematically associated with aversive verbal stimuli. These aversive verbal associations could function firstly as an aversive counterconditioning device of verbal descriptions of the problem behavior and, secondly, of the problem behavior itself, through the functional transference and the functional equivalence processes that operate in language. This way, the anti-therapeutic behaviors may change from being appetitive and/or reinforcing to being aversive and generating clients' conditional responses of discomfort. Such unpleasant conditioned responses facilitates the decreasing of the problem behavior (1) because they function as potential punishments for such behavior and (2) because they can also function as discriminative stimuli for the operant to avoid the problem behavior, which would be negatively reinforced by the elimination of the discomfort responses. Avoidance learning would also explain why the behavior problem does not reappear over time once the therapy is over. This brings us back to the interaction between classical and operant conditioning processes that we discussed previously. Psychologists use language to establish certain Pavlovian associations, through operant processes, that lead to reduce or eliminate the problematic behaviors that the subject displays outside the therapeutic context.

In addition, there is the possibility that the aversive emotional state generated by the psychologists' aversive verbalizations are functioning as an establishing operation, increasing the potential appetitive value of desirable behaviors described by the psychologists. Works such as Hayes, Kohlenberg, & Hayes (1991) or Valdivia, Luciano, & Molina (2006) support this interpretation. In fact, people's motivational states can be altered through previous verbal interactions and, more specifically, through changes in the meanings of words. Understanding *meaning* as proposed by Mowrer (1954) -as the set of responses elicited by a word-, it seems clear that what the psychologist says about the client's behavior, either through contingent aversive verbalizations or through aversive pairings, could lead to emotional effects that could control the client's behavior outside the clinical setting. The change of words meaning through aversive term pairings, what we have called Pavlovian pairings, opens a new way to the explanation of the therapeutic change as a result of the learning processes that take place during the verbal interaction in the clinical context -explanations that nowadays are dominated by operant approaches and the RFT (Dougher & Hackbert, 1994; Hayes et al., 2001; Luciano, Rodríguez, & Gutiérrez, 2004)-.

However, this study presents certain limitations. First, the sample size of this study is small. Secondly, due to the observational

methodology used in this study, it has not been possible to comply with the requirements that the experimental analysis of behavior requires to label a behavior as aversive. In trying to overcome this limitation, we have coded these verbalizations after the assessment sessions in which the psychologists had verified the annoying effect of their words. Even so, we believe that this paper can open the way to recover explanations of the clinical change that had been abandoned years ago. This would imply the incorporation of aversive procedures (which have been usually unfairly judged

for prejudiced reasons improper of scientific work) and Pavlovian learning processes, ignored by some operant approaches such as the third wave of therapies.

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