

# THE APPLICATION OF A MULTI-COMPONENT PROGRAMME ON A SET OF DISRUPTIVE BEHAVIOURS IN A CASE OF MENTAL RETARDATION

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*This paper analyses the application of a multi-modal treatment to a complex set of disruptive behaviours in a case of mental retardation. The patient was a twenty-four-year-old woman, with a moderate level of deficiency and a long history of institutionalisation. The multi-modal treatment combined extinction with instructions, response cost, differential reinforcement of other behaviours and overcorrection, all of which were applied by trained co-therapists from the contexts in which the behaviour problems first appeared (residence and occupational workshop). Findings show the treatment to be effective in both contexts. The discussion refers to the implications of the results, the importance of each technique and the need for a prolonged follow-up in this type of intervention.*

*El presente trabajo analiza la aplicación de un tratamiento multimodal sobre un conjunto complejo de conductas disruptivas en un caso de deficiencia mental. Se trata de una mujer de 24 años de edad, con un nivel de deficiencia moderado y una larga historia de institucionalización. El tratamiento multimodal consistió en la combinación de la extinción con instrucciones, costo de respuesta, reforzamiento de otras conductas y sobrecorrección, aplicado por coterapeutas entrenados procedentes de los contextos (residencia y taller ocupacional) en los que se desatan las conductas problema. Los resultados mostraron la efectividad del tratamiento en ambos contextos. Se discute la implicación de los resultados, la importancia de cada una de las técnicas y la necesidad de un seguimiento prolongado en este tipo de intervenciones.*

**D**isruptive behaviour, particularly if it involves a high degree of aggression, is a matter of great concern for those who deal with mentally retarded people, given that it interferes with their proper adaptation to their context and hinders the process of educational development (Carr and Durand, 1985; Haring and Kennedy, 1990).

Since the historic contributions of Watson and Rainer (1920) with little Albert, and the important work of Skinner, behavioural techniques have constituted an efficient tool for dealing with behaviour problems. Subsequently, other researchers have emphasised the importance of behavioural analysis in the search for factors that maintain disadaptive behaviour (Desrochers, Hile and Williams-Moseley, 1997), both antecedent and consequent elements (Haring and Kennedy, 1990; Repp, Felce and Barton, 1988), and processes of positive and

negative reinforcement that control behaviour (Carr and Durand, 1985). Special emphasis has been placed, not so much on the type of techniques, as on the development of programmes according to the elements that sustain the disadaptive behaviour.

Among the techniques used in the therapeutic treatment of behavioural problems, special mention should be given to those emphasising the acquisition and maintenance of positive behaviours. Examples of these include positive reinforcement (Herbert, 1987; Lovaas, 1990), shaping, based on the programmed use of reinforcement and extinction through successive approximations (Gelfand and Hartman, 1989; Reynolds, 1974), and forward chaining, consisting in combining simple behaviours in order to establish other more complex ones (Sulzer-Azaroff and Mayer, 1983). For treating problem behaviours, in addition to aversion techniques, a number of techniques aimed at the reduction of operant behaviours have been developed. Examples of these include: extinction (Sulzer-Azaroff and Mayer, 1983), consisting in the suppression of the reinforcers contingent on the problem behaviour, such as attention (Bregelman, 1975); response cost, involving the removal of some positive reinforcer in a way contingent on

The original Spanish version of this paper has been previously published in *Apuntes de Psicología*, 1998, Vol 16, No 1 and 2, 5-20

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the emission of a response (Foxx, 1982; Sulzer-Azaroff and Mayer, 1983); time out, characterised by the removal of potentially reinforcing environmental conditions or the isolation of the subject from these reinforcing conditions, and described as one of the most effective techniques for dealing with tantrums and highly destructive and aggressive behaviour (Graciano and Moonin, 1984; Matson, 1990); differential reinforcement of other behaviours (DRO), which reinforces alternative behaviours or behaviours incompatible with the problem behaviour (Luce, Delquadri and Hall, 1980); differential reinforcement of incompatible or alternative behaviours (DRI) (Foxx, 1982); and overcorrection (Foxx and Azrin, 1972) in its basic components of restitution and positive practice, which has proved suitable for self-stimulatory and self-punitive behaviours (Del Barrio, 1986; Foxx and Azrin, 1974; Matson, 1983; Rodríguez Testal, Rodríguez Santos and Moreno García, 1996), though with less effect in the latter case (Foxx, 1978; Gelfand and Hartman, 1989). Finally, we come to aversion techniques such as electric shock or positive punishment (Foxx, Bittle and Faw, 1989). These are extremely controversial due to their ethical implications, but have demonstrated their effectiveness, particularly with regard to self-punitive and disruptive behaviours (Lovaas, 1990, p. 49; Tarnowski, Mulick and Rasnake, 1990).

Although the behavioural techniques are presented independently, in most studies, and indeed in practical treatment, there is a general preference for a combination of techniques (Foxx, 1982; Piazza, Moes and Fisher, 1996; Repp and Deitz, 1975), in what have been called multi-modal treatments or multi-component programmes. The complementary nature of the different techniques, resulting in increased effectiveness and the compensation of side effects, explains why many of them have been used in combination. A case in point is the combination of differential reinforcement of alternative behaviours with other behaviour-suppression procedures, such as time out and response cost. In some cases, this combination has led to a significant reduction of the inappropriate behaviour (Foxx, 1982; Fridman, 1990; Repp and Deitz, 1975). Piazza, Moes and Fisher (1996) combined the reinforcement of appropriate behaviour and demand fading with the extinction of escape from destructive behaviour in the case of an autistic child, successfully achieving a significant reduction in destructive behaviour. The training of an adaptive behaviour with the same function as the problem behaviour, in combination with other procedures of behaviour suppression, appears to be the key to achieving enduring results (Durand and Carr, 1992).

However, it is in the combination of techniques that treatment effectiveness seems to reside. Fisher, Piazza and Cataldo (1993) combined the reinforcement of an adaptive communication behaviour, functionally equivalent to the disruptive behaviour, with punishment, and found this to be more effective than the application of the former technique in isolation. Robinson and Owens (1995) obtained similar results by combining communicative behaviour with reinforcement. The reinforcement of alternative behaviours and overcorrection (Sisson, Herson and Van-Hasselt, 1993) is another combination that has produced positive results. These authors managed to control disadaptive behaviour in two severely mentally retarded young people (one 21 years old, the other 15) and to maintain the results for six months. Another effective combination was positive reinforcement of other behaviours with negative reinforcement of appropriate behaviours, in three subjects, two of them aged 19 and the other 21, with autism, mental retardation and Down's syndrome, respectively (Kennedy and Haring, 1993). Thus, the combination of techniques in multi-component programmes is a preferred form of treatment, given the effectiveness of the results obtained.

The applied intervention in the case presented here consists in the application of a set of techniques organised in a multi-modal programme, following an established sequence and carried out by trained co-therapists, to the multiple disruptive behaviours of a woman with moderate mental retardation, manifested in her everyday context.

## **METHOD**

### **Subject**

A 24-year-old woman with moderate mental retardation and a history of being interned from a very early age in a psychiatric institution, where she already had a long record of disadaptive behaviour. With a view to starting a programme of disinstitutionalisation, she was moved to a residential centre for a period before later entering a special employment centre and joining an occupational workshop. After six months in this centre without any indications of disadaptive behaviours, there is a request for intervention owing to the accumulation of disruptive behaviours preventing her adaptation to the new situation and to the educational work programme.

### **Situation**

The problem behaviours manifested themselves at varying times, involved different people and arose in two situations: in the occupational workshop and at the residential centre. Her case history showed that in the presence of certain persons who remained inflexible and

unmoved by her calls for attention, the problem behaviours decreased and obedient and respectful behaviour became more prevalent.

### **Instrument**

A frequency register especially constructed for the case in hand was used to record the problem behaviours and their corresponding operational definition. The register was used by the instructors through participant observation.

### ***Problem behaviours and their assessment***

Numerous problem behaviours were observed, and all corresponded to the same type of response: disruptive behaviour. The problem behaviours and their corresponding operational definitions were as follows:

- Negativism and disobedience with respect to orders (A). Single or persistent and explicit verbalisations, expressing defiance of some norm of the centre.
- Insults (B). The utterance of offensive words or expressions within a context of argument and struggle.
- Physical threats (C). Attempts or movements similar to aggressive movements that do not lead to actual aggression. This behaviour may take various forms:  
Topography 1: The raising of one or both hands with the palm extended or the fist closed and a threatening gesture consisting in initiating an aggressive movement towards a person or object and then detaining it.  
Topography 2: The raising of one or both hands holding an object and threatening to throw it at a person or object, without actually doing so.  
Topography 3: Moving a leg towards a person or object as if to break it or do damage/harm, detaining the movement before impact and repeating the gesture or maintaining the leg in the initial position.  
In general, physical threats could precede an aggression that did not eventually occur, or they could take place during one or several aggressive incidents, sometimes being accompanied by verbal threats.
- Verbal threats (D). Words uttered once or several times, referring to a violent and/or dangerous act, and sometimes accompanied by physical threats.
- Throwing objects (E). Throwing clothes, stones or any object to the ground, at the walls, etc., or at a person in a context of violence, or disordering objects, sometimes resulting in their being broken.
- Destroying objects (F). Breaking objects in contexts of aggression or violence.
- Leaving the residence (G). Walking out of the residence after threatening to cause trouble. At times with persistent threats about what she was going to

do, amidst blows to doors and/or windows.

- Leaving the workshop (G). Leaving the worktable with different types of excuse and then walking out of the workshop.
- Undressing and/or touching the genitals. Taking off her clothes with the aim of annoying or creating conflict among colleagues or staff members, sometimes accompanied by the touching of the genital area with one or both hands.
- Throwing herself to the ground and kicking out (H). Throwing herself to the ground and remaining in a seated or kneeling position, resisting those trying to lift her and, on occasions, hitting people or objects. This is sometimes accompanied by brusque leg movements, blows to the floor or walls, rolling around, shouting, crying or thumb sucking.
- Somatic complaints (I). Through remarks about injuries to different parts of her body, requests for medical attention or self-administration of medication.
- Physical violence (J). Physical contact (pushes, blows with and without objects) with another person (colleague or caregiver), in which the recipient shows visible signs of discontent, complaint, pain or reproach with regard to her.
- Inappropriate search for affection (K). Emotional blackmail consisting in requiring physical proximity or contact (hugs, resting head on another person, insistent kissing) after a conflictive situation and in order to avoid reprimand or as a first step toward obtaining a future benefit or recovering a lost one; such contact is sometimes excessively intense and annoying for the colleague or caregiver.
- Persistent annoying of colleagues (L). Persistent physical contact with a colleague or caregiver that cannot be classified as aggression, since it does not involve pushing or striking (even though the victim asks to be left in peace), nor as inappropriate affection, as it is contact of a different nature.
- Shouts (M). The emission of sounds or words that are not insults, but at a volume higher than normal or inappropriate to a normal conversation. These utterances manifest themselves in tense or aggressive situations, and not in situations of celebration or happiness.
- Spitting (N). Spitting at colleagues, staff, objects or the floor.
- Threats or acts of self-injury (O). Harmful or injury-inflicting behaviour towards herself, or threats of such behaviour. This may take various forms:  
Topography 1: Audibly banging the head against walls or windows once or several times in a context of conflict, possibly accompanied by insults or threats.

Topography 2: Stripping the skin from fingers, but only when being observed.

Topography 3: Pretending to cut the veins with a knife.

Topography 4: Pretending to drink detergent or other dangerous liquid.

- Enclosing herself in a violent and/or argumentative context. Shutting herself in a room in order to be alone, blocking the door to prevent others entering.
- Telephone calls. The persistent desire to make calls on repeated occasions to her mother, another family member or others.
- Weeping. An intensifying series of moans, inappropriate in their intensity, disproportionate to the circumstances, and which cease when she is asked why she is crying or when she is given something she wants.
- Speaking to herself. Explicit and audible utterances about herself or other people of a delirious (feigned or otherwise) or violent nature.

The assessment of these behaviours was made using the above-mentioned register and following the operational definitions presented, taking note of the frequency in the patient's two contexts (residential centre and workshop).

The operational definitions without a letter in parentheses refer to behaviours recorded in the non-systematic registers (the Centre's daily log and reports on incidents) and which, like the remaining behavioural manifestations, formed the basis of the call for intervention. Although they were not observed during the baseline phase or during treatment, they are listed here because they also figured in the co-therapists' registers.

### **Design and control variables**

An within-series simple phase change (AB) design was used to check the effectiveness of the treatment, reversion designs being discarded due to the dangerous nature of many of the behaviours. The design used multiple baselines, since many of the behaviours occurred with low frequency.

The possible influence of certain variables, such as menstruation dates, family visits or telephone calls, was taken into account. Similarly, note was taken of the fact that tranquilliser doses were reduced to minimum levels (in order to apply the treatment), with doses of neuroleptic drugs remaining constant.

### **Procedure**

#### ***Baseline Phase***

The baseline or observation phase was made up of a total of 44 complete days for the residential centre context and 32 days for that of the workshop (divided into

22 periods of two days each for the residence context and 16 two-day periods for the workshop). All the observations were made in the natural context of the patient's daily life and within the framework of her activities. The members of the group of co-therapists who carried out the entire procedure were those who, on a daily basis, attended to the patient and recorded her behaviour. They were instructed not to alter their normal conduct or their way of addressing the patient.

Prior to treatment and in the course of the baseline phase, the co-therapists began training in the treatment programme designed for each of the two contexts. Weekly meetings were held for the purposes of unifying criteria, understanding the importance of an observation phase and analysing the possible problems that might arise subsequent to commencement of the treatment, since these were familiar with the problematic behaviour and its consequences. Talks were given on the behaviours that would be observed, the written material with the operational definitions, the registers that would be employed, and how the observation should be carried out (so as not to interfere, but without changing the style normally used). There were also rehearsals of how the techniques should be applied once the baseline phase had finished (how to give instructions, how to apply the extinction technique, criteria for the response cost technique, etc.). Also, the team drew up a list of reinforcers (objects, foods, activities, etc.) including those which were known to be liked by the patient and others which were known to be disliked. Finally, colleagues or fellow-residents with whom the patient's relationship was most difficult were interviewed, and trained to collaborate in the therapy.

#### ***Treatment phase***

Functional analysis of the behaviour revealed that in many of its manifestations, it corresponded to constant calls for attention, on the basis of which she attempted to achieve certain objectives, such as affection or control of other persons, the behaviour thus being maintained through positive reinforcement. Given the variety of the problem behaviours and their disruptive nature, a multi-component treatment was designed. It consisted of a set of techniques, and an instruction guide was produced so that all staff involved would apply the same criteria.

The treatment phase was divided into two clearly differentiated parts. One part consisted of the use of extinction and differential reinforcement of other behaviours (alternative and/or incompatible). The second part was made up of the application of diverse techniques, such as response cost and overcorrection. These latter techni-

ques were applied to certain behaviours and used when the explosion of responses resulting from the use of extinction was highly disruptive and even (based on the non-systematic observations of staff members) actually dangerous, both for her and others. The application of all these techniques was preceded by a series of previously-designed instructions.

Extinction (not giving reinforcers generally considered to be reinforcing) consisted in not paying specific attention (*ignoring*) (Marcos and Canal, 1985; Repp and Brulle, 1984) to the behaviours isolated as being problematic, either by not saying or doing anything or by directing attention to another person. In sum, by not giving the attention that supposedly maintains the behaviour (attention). In those cases where her behaviour caused material damage (she broke objects, caused untidiness, threw things, etc.) overcorrection (Foxy, 1982) was employed. After the behaviour she was given a clear and neutral instruction to make good the damage (restitution) and also to carry out a task related to the damage: tidying, cleaning or clearing up other similar objects (positive practice).

Response cost consisted in the loss of some reinforcer (activity, object...) contingent on the endurance of behaviours subsequent to the extinction. For this purpose, a list of behaviours and their corresponding costs was drawn up. Given that these costs could accumulate according to her behaviour, the possibility of making up for them was considered, reinforcing the incompatible behaviours in such a way that the first cost would always be applied and, starting from the second, good behaviour for a complete day would allow costs to be recovered. If several costs had been accumulated by the end of a day, she always lost the first reinforcer, but she could recover costs accumulated from the first day, starting from the third day of good behaviour. If the number of days of cost accumulation were greater than three, she would fulfil all of them until she achieved the three days of good behaviour. If a situation was reached where ten costs were applied, it was established that the patient would have a meeting with a staff member with authority over her, so that she could be informed of the costs and her behaviour.

The differential reinforcement of other behaviours (alternative or incompatible) consisted in reinforcing them, however insignificant they might be, by means of congratulation or praise ("very good", "that's the way I like it") or desired objects, specifying the behaviour for which she was being rewarded. At the beginning, this reinforcement was applied continually and frequently to diverse behaviours incompatible with the problem beha-

viours and, as the disadaptive behaviour decreased, reinforcement became intermittent. Reinforcement could also be acquired by the recovering of the costs applied, as long as the patient behaved appropriately, as indicated in the description of the response cost application.

In dealing with a problem behaviour, extinction was initiated. If the behaviour persisted, the instructions were given announcing the response cost and the reinforcements to be lost if the behaviour did not cease. The instructions were transmitted in a neutral and firm tone (Foxy, 1982); they were given only once, and never in the form of a threat. In the cases indicated overcorrection was applied, and in all cases of appropriate behaviour, positive reinforcement was used, as described above.

## RESULTS

### Baseline and application of treatment

In order to check the existence of consistent tendencies in the data and in the different baseline and treatment periods, an analysis was carried out using the Tryon C statistic (1982; 1984) transformed into  $z$  scores. The results obtained show that in the residential centre, during the baseline phase, there was no significant tendency, with  $z = 0.78$ . This reveals that during this period there were great fluctuations in the problematic behaviour (Graph 1). On adding the treatment phase data, a statistically significant downward tendency is produced, with  $z = 181.43$  ( $p < 0.0001$ ), a stage being reached where the behaviours disappeared. The same occurred in the workshop context, where the tendency in the baseline phase was not significant ( $z = 0.16$ ), with great fluctuations in the problem behaviours (Graph 2). However, on including the treatment phase, the tendency was highly significant ( $z = 8926.49$ ,  $p < 0.0001$ ), since the behaviours disappeared dramatically.

### *Frequency of emission of each behaviour and differences between contexts*

If we analyse the frequency of emission of each behaviour (Table 1), we can observe a marked decrease in all behaviours in the residential context, except shouting and somatic complaints. In the workshop context, the problem behaviours ceased or were practically eliminated. The behaviours produced most in both contexts were disobeying orders and negativism (A) and throwing objects (E). In the residential context, apart from these, verbal threats (D) and inappropriate search for affection (K) stood out, while in the workshop context insults (B) and leaving the workshop (G) were the most common.

The use of each one of the components of the multi-modal treatment for each of the behaviours can be seen in Table 2.

**Follow-up phase**

The duration of the formal follow-up phase was almost ten months in the residential centre (296 days or 148 periods) and 66 days (33 periods) in the workshop (see Graphs 3 and 4). The difference in duration of the follow-up in each context was due to the situational determination of the behaviour. Thus, when three months went by in the workshop without the behaviour reappearing to any significant extent, it was decided to terminate the follow-up in this context.

In the residential centre, the behaviour reappeared on six occasions (see Graph 3). On the first three occasions, separated by long gaps, the behaviour was not especially problematic, and receded rapidly on using the instructions (on the final occasion extinction was also employed). The next two emissions of the behaviour were consecutive (of two days' duration) and were the only ones in the entire process that really become dangerous. Two response costs had to be applied, one of which was able to be exchanged. The last episode took place a little over two months later, but was not serious, and once again receded when the instructions were used.

As already mentioned, the situation was less problema-

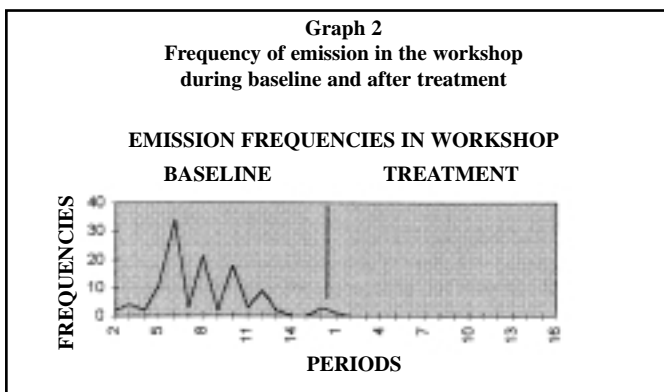
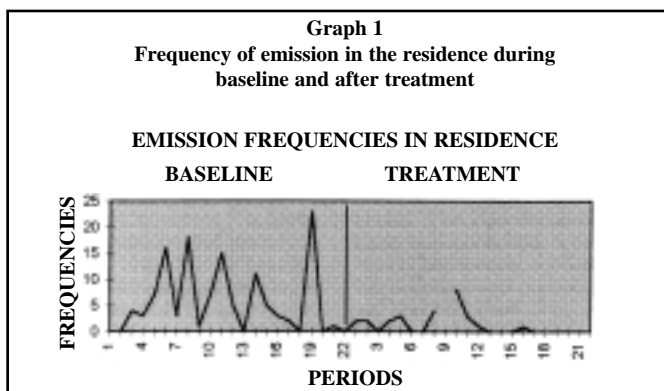
tic in the workshop. Only a slight increase in the behaviours was observed, and the use of the instructions was sufficient to control and eliminate them (see Graph 4).

Subsequent to the follow-up described, 3 informal reviews were carried out. Two of them were performed in the first two years after the termination of the follow-up and the other two years after that. These reviews were based on the Centre's records and incident reports, which served as a non-systematic register. During these four years, no episode or incident worthy of mention was observed, and the intervention was therefore considered to have finished.

**DISCUSSION**

The combined application of various behavioural techniques grouped and organised in a multi-modal programme proved effective in the significant reduction of different problem behaviours. The results presented here demonstrate this decrease both in the residential centre and pre-work contexts, in equivalent time periods, with the decrease being particularly evident in the latter context. Furthermore, these results were maintained in the follow-up period.

The effectiveness of the multi-modal treatment on different problem behaviours and, in some cases, even on the same behaviour with different topographies, leads us to confirm the initial functional analysis, showing that effective intervention depends more on the treatment of the functionality of the behaviour than on the behaviour itself. In the case we treated, the behaviour itself, considered in isolation, is not a cause of conflict; rather, this conflict results from the production of a chain of diver-



**Table 1**  
Frequency of emission of problem behaviours in baseline phase and after treatment in each context

	BEHAVIOURS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
RESIDENCE	BASELINE	28	7	5	13	14	4	7	1	1	7	31	5	0	0	1
	TREATMENT	15	0	1	1	1	1	1	0	1	1	0	0	4	0	0
WORKSHOP	BASELINE	20	14	8	8	16	1	20	1	4	5	1	10	3	2	1
	TREATMENT	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Table 2**  
Application of the multi-modal treatment elements to each of the contexts

BEHAVIOURS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
EXTINCTION	10	-	1	1	1	1	1	-	1	1	-	-	2	-	-
RESP. COST	6	-	-	-	-	-	-	-	-	-	-	-	1-	-	-
OVERCORRN.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
INSTRUCTNS.	10	-	-	-	-	1	-	-	1	1	-	-	1	-	-

se behaviours corresponding to the same type of response aimed at obtaining certain results (disruptive behaviour directed to fulfilling desires and to inappropriate demands for attention). Thus, the multi-modal treatment appears to constitute an appropriate therapeutic structure for dealing with a large number of behaviours corresponding to the same functionality, and the various techniques of control are implemented as the behaviours are seen to increase.

In a similar line, Sprague and Horner (1992) showed that the reduction of disruptive behaviour was effective only when all behaviours corresponding to the same response type could be controlled, and that the behaviour diminished when a functionally equivalent response was shown. The control of only one of these behaviours caused an increase in the remaining functionally equivalent behaviours. Thus, it is necessary to underline the importance, as in the case of the treatment presented here, not only of attention to the set of behaviours, but also of the reinforcement of alternative and incompatible but at the same time functionally equivalent behaviours (Fisher, Piazza and Cataldo, 1993).

With respect to the analysis of each technique in isolation, extinction has shown itself to be among the most relevant, owing to the attention given to the behaviours that serves to maintain them throughout the history of their reinforcement (Repp and Brulle, 1984).

Similarly, response cost in conjunction with the differential reinforcement of other behaviours (DRO) was

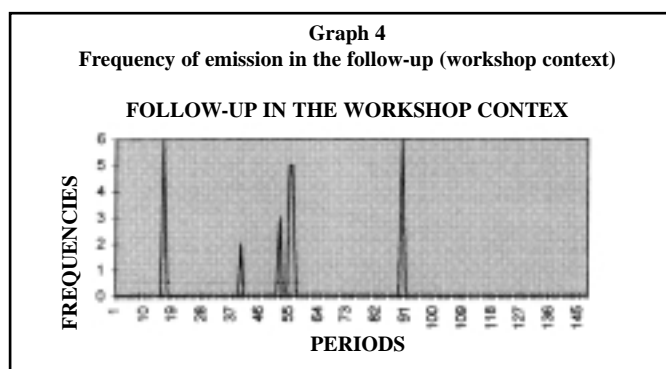
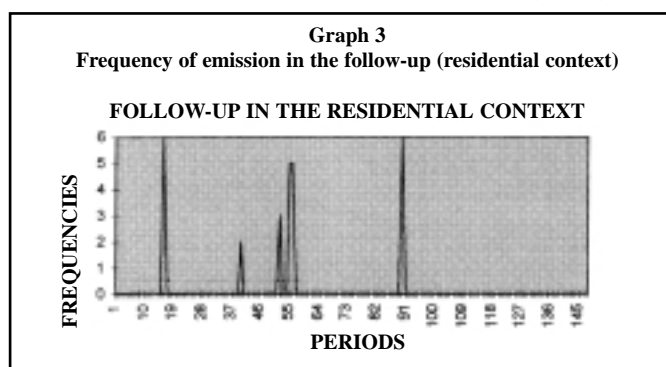
fundamental in the control of explosions of the behaviour after the application of extinction and in the maintenance of appropriate and functionally equivalent behaviours. The application of extinction prior to response cost and DRO in the intervention sequence helped extinction to become a discriminative element of the response cost and reinforcement, thereby contributing to the control of the patient's behaviour when faced with extinction.

Instructions are another important element (Repp and Deitz, 1975), above all, as underlined by Foxx, Bittle and Faw (1989), in conjunction with the loss of reinforcers and the possibility of recovering them through socially acceptable behaviour. Walker (1993), in a review of problem behaviours in mentally retarded subjects, found that these behaviours are more likely to occur when the instructions emitted are vague and some are interrupted by others, so that various demands are made or several petitions are attended to at the same time.

Overcorrection was applied only once, for the behaviour of breaking objects, and the behaviour decreased significantly. The minimal use of this technique makes it difficult to assess its true relevance in relation to the other techniques. Furthermore, there were no occurrences of self-punitive behaviours—for which this technique was especially chosen. It is, therefore impossible to comment on the effectiveness of the technique with respect to such behaviours.

Despite the fact that we were able to see the effect of each of the techniques on the behaviours at a descriptive level, we cannot precisely delimit which elements of the therapeutic programme were responsible for the behavioural change or the extent of their influence on this change. As already mentioned, the techniques were selected on the basis of the functional analysis and the dangerousness of the behaviours, and were therefore organised hierarchically, with a prevalent role being given to extinction and instructions. This structure corresponds to the *strategy of constructing the treatment* (Kazdin, 1982), but it was not possible to check separately the precise effectiveness of each technique, since the behaviours decreased relatively quickly. Nevertheless, the descriptive analysis to which we have referred allows us to place the techniques in the following order of importance: extinction, instructions and response cost combined with DRO.

There were differences in the behavioural results as regards the incidence of problem behaviours in the two contexts, with frequency of emission of the observed behaviours being higher in the workshop context than in



the residential one. It is, however, important to point out that many of these behaviours were more frequent than serious (for example, incidents of leaving the residence were often followed by more aggressive behaviours than was the case with similar incidents in the workshop context). After the treatment, the changes in behaviour were evident in both environments, though they were more enduring in the residential centre. It is difficult to offer an explanation for these differences, due to the number of variables involved in each of the contexts. However, among the variables that might explain them, we would highlight the more structured nature of the workshop tasks and their control by male co-therapists. The fact that these activities took place at the beginning of the day also implied a lower level of personal and direct contact with colleagues because of the need to get on with the task in question.

With regard to the follow-up, we should underline the need for it to be one of the longest phases in the behavioural intervention, especially in the case of these types of behaviour (Foxx, Bittle and Faw, 1989). We certainly believe that the proper application of the techniques, the high degree of structure within the centre and the positive results themselves helped in the adaptation to the centre, with all the benefits derived from that adaptation. The disruptive behaviour reoccurred only on isolated occasions, but the application of the programme by the staff members was exemplary, in spite of the fact that, on one occasion, the behaviour was extremely dangerous—even more dangerous than that registered during the treatment phase.

Once the follow-up phase had finished, informal reviews were carried out in the following two years (one follow-up per year). Finally, there was one more review four years after the formal follow-up phase had finished. In these periods, solid adaptation, both to workshop activities and the residential centre, could be observed. We might mention, in an incidental way, that the patient was gradually given tasks of responsibility that enabled her to become fully integrated in the Centre and with respect to the other people there. Her serious behavioural problems disappeared and, according to the staff, the everyday difficulties that arose were no different from those presented by the other mentally retarded people at the Centre.

Finally, we should bear in mind the relevance of the role played by the co-therapists and their co-ordination. Their efforts and approach permitted a contextualised treatment, the control of contingencies in the patient's everyday environment and the generalisation of the results. We feel that the meetings for unifying criteria,

the efficient behaviour registration systems and the staff's excellent work, together with their desire to contribute to the patient's adaptation to the Centre, were essential ingredients in the success of the behavioural intervention (Del Pino and Borges, 1985; Rodríguez Testal, Rodríguez Santos and Moreno García, 1996; Tamarit, 1983).

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