



Behavioural Interventions in Challenging Behaviours

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Serafino Corti, Roberto Cavagnola, Giovanni Miselli,
Francesco Fioriti, Mauro Leoni, Davide Carnevali,
Laura Galli, Giovanni Michelini, and Giuseppe Chiodelli

12.1 Differential Diagnosis of Challenging Behaviour, Psychopathology or Other Health Problems

People with ASD have a very high prevalence of challenging behaviour and psychopathological problems. Several scientific studies demonstrate that the severity and intensity of these states are directly correlated to the severity of the patients' autism, their communication and social difficulties, and adaptive skills [1]. However, some psychoeducational treatments may significantly decrease the frequency, duration or intensity of challenging behaviour. The choice of a suitable treatment for challenging behaviour means identifying a clear methodology for the analysis of the problem and finding the most appropriate psychoeducational and behavioural treatments [2].

The first step of this methodological approach is to make a correct differential diagnosis of challenging behaviour, psychopathologies or other health problems. In the autism spectrum, these phenomena may very often be either overlapping or confused. It is therefore crucial to understand the condition of the individual in order to identify the best treatment.

A brief summary of the threefold differential analysis follows:

1. *The observed behaviour is challenging behaviour.*

In this case, it means that the learning history of the person with ASD is the “cause” of the observed behaviour. In this situation, it is necessary to proceed as indicated in the following pages:

S. Corti (✉) · R. Cavagnola · G. Miselli · F. Fioriti · M. Leoni · D. Carnevali · L. Galli
G. Michelini · G. Chiodelli

Department of Disability, Fondazione Istituto Ospedaliero di Sospiro, Sospiro, Italy
e-mail: serafino.corti@fondazionesospiro.it; roberto.cavagnola@fondazionesospiro.it;
giovanni.miselli@fondazionesospiro.it; francesco.fioriti@fondazionesospiro.it; mauro.leoni@fondazionesospiro.it;
davide.carnevali@fondazionesospiro.it; maria_laura.galli@fondazionesospiro.it;
giovanni.michelini@fondazionesospiro.it; chiodelli.giuseppe@fondazionesospiro.it

- By defining in operational terms the challenging behaviour
- By measuring its intensity, duration, frequency and latency in order to establish a baseline
- By carrying out a functional analysis in order to identify the function of the challenging behaviour
- By implementing behavioural strategies both to increase skills in the person with ASD and decrease their challenging behaviour

When the observed behaviour is clearly defined as challenging, the main treatment strategy should be behavioural, whereas pharmacological therapy should only be used as a second-choice approach [2].

2. *The observed behaviour is not challenging behaviour, but it is the expression of a form of psychopathology or other health problems.*

In this case, psychopathologies (such as depression, anxiety disorder, obsessive-compulsive behaviour and psychosis) or other health problems (such as pain) are co-morbid with ASD. These conditions are often expressed in very different forms in people with ASD as opposed to the neurotypical population. The communicative and social deficits of people with autism and the condition of intellectual disability, often associated with ASD, may in fact mask (diagnostic overshadowing) the presence of psychopathologies or other health problems, chief among them pain. In this case, it is necessary to understand whether the observed behaviours are the behavioural equivalents of some forms of psychopathologies or the atypical expression of pain. This differential diagnosis is carried out both by applying a functional analysis (i.e. verifying the relationship between the observed behaviour and the changes in its context) and by using tools for the assessment of pain and specific psychopathologies for this population, such as the Diagnostic manual—Intellectual Disability (DM-ID-2) [3], Diagnostic Criteria for Psychiatric Disorders for Use with Adults with Learning Disabilities (DC-LD) [4], SPAIID-G [5], Pain and Discomfort Scale (PADS) [6]. In this latter case, pharmacological treatment is no longer a second choice, but it is an option that should be used from the beginning of treatment, in addition to psychoeducational and psychotherapeutic treatments. The present chapter will not address the treatments related to this second case.

3. *The observed behaviour is a form of challenging behaviour in co-morbidity with a psychopathological problem.*

In this third case, the observed behaviour derives both from a learning history and from a psychopathological problem. It is not of paramount importance to understand whether the challenging behaviour is secondary to the psychopathological problems or the psychopathological problem is secondary to the challenging behaviour. In both cases, it is necessary to apply multi-component strategies for the treatment of the psychopathological problem and the lessening of the challenging behaviour. The present chapter will not address the treatments for this third case.

12.2 Operationalisation of Challenging Behaviour and Problem-Solving

The first operational step towards decreasing challenging behaviour is the definition and description of challenging behaviour [7].

When challenging behaviours are described, usually general terms such as the following are employed: agitated, aggressive, nervous, etc.

However, this type of language creates difficulties because not only does it not allow for a common vision of the observed behaviour and treatment, but also because it prevents the use of a precise measurement system of the behaviour.

Behaviour can be said to be well described if it can be measured. Measurement is the cornerstone of the evidence-based philosophy. Operationalisation is therefore also a prerequisite for the subsequent observation and measurement. Operationalising behaviour means describing it very precisely by separating the phase of interpretation of the behaviour with that of its description and measurement. Behaviour generally described as “aggressive” can thus be operationalised in different ways according to the actual form of behaviour; for example: (a) “they punched people’s back”; (b) other people’s hair pulling; (c) “they bite people’s arms”; (d) “they spit in other people’s faces”; (e) “they shout insults such as ‘I hate you, I’ll beat you up’”.

Once behaviour has been operationalised, an assessment of how problematic it may be should be carried out in order to start the treatment of more severe behaviours. Evans and Meyer identify a series of indexes for the categorisation of behaviour as excessive, and aiding problem-solving decisions:

1. Does the behaviour represent a life threat?
2. Does the behaviour put the person’s health at risk?
3. Is the behaviour dangerous for others?
4. Does the behaviour cause damage to property?
5. Does the behaviour interfere with learning?
6. Could the extinction of the behaviour lead to the improvement of other behaviours?
7. Is there no positive evolution in the course of the behaviour, and/or is it worsening?
8. Could the behaviour deteriorate in the near future if not treated?
9. Is the behaviour of major concern to family members and educators?
10. Has the behaviour been a problem for some time now?
11. Does this behaviour interfere with community acceptance?

These indexes can be evaluated on a dichotomous scale of absence/presence which helps to identify an index of problematicity for each form of challenging behaviour.

12.3 Observation and Measurement of Challenging Behaviour

The key to understanding the functions of behaviour is the measure of variability of behaviour itself. In which context does it increase its frequency? In which others does it decrease? Each variation of a behaviour parameter is a valuable source of information about the variables that control and maintain it.

In the observation and measurement of the same individual's behaviour, therefore, there is an opportunity to verify both how this "moves" at different times and in different contexts, thus shedding light on the functions that govern it, and on the appropriateness of the interventions that have been implemented [7].

When approaching challenging behaviour, the first step is understanding how present and pervasive it is in the patient's life, from the point of view its frequency, duration and intensity. This type of measurement is called "baseline". The baseline thus represents a condition of control which allows for the verification of the efficacy of the interventions which have been designed at the same time as they are being applied. It is worth mentioning that not only do the recorded results represent a benefit for the patient receiving treatment, but they are also an important source of reinforcement for all the people involved in the treatment process. In this sense, monitoring the intervention represents the highest degree of flexibility. Appropriate and necessary changes to the intervention plan can only be put into action when there is full understanding of the progress of the intervention [7].

Continuously gathering and recording the occurrences of behaviour, especially if it is a prolonged phase and the behaviour is particularly pervasive, may be a costly practice. Alternative forms, such as auto-monitoring procedures, may be of great help from this point of view; however, the use of such a technique can only be carried out by people who are able to distinguish their own behaviours. For all these reasons, the frequent use of sampling observation and behaviour measurement procedures represent a far more economic approach.

As far as observation systems are concerned, there is a broad array of methods for collecting assessment data. The following is not a comprehensive analysis of such procedures, an in-depth review would go far beyond the purposes of this chapter, but it is only a simple overview to understand how, starting from the different characteristics of certain challenging behaviours, specific procedures could be identified.

A distinction can be made between continuous and sample recording [7]. Continuous recording registers all occurrences of behaviour. In other words, behaviour is measured by continuous recording when its entire frequency is recorded for a given time of observation, or when within a set time frame, all the behaviour's duration is measured. For example, data can be collected and observed for the entire period of wakefulness, and either during attendance at the day centre or during the activity hours. This procedure, as mentioned above, may represent a problem both for the observational load and for the human resources available to conduct such an observation.

The main alternatives to continuous recording are sampling techniques which divide the observation period in time intervals, or the recordings of the permanent products of behaviour.

The observation period in the sampling techniques is divided into intervals and the observers record whether the behaviour occurs during each interval [7]. For this reason, these procedures provide an estimate of the behaviour.

The most common sampling observation procedures are:

- (a) whole interval
- (b) partial interval
- (c) momentary time sampling

The whole interval procedure consists in dividing the observation period into equal short intervals and record when and if the behaviour occurs for the whole duration of the interval. It is used when the behaviour denotes continuity or duration (cooperative game; or behaviours such as rocking back and forth, verbal or motor stereotypies). It provides a better estimate of brief behaviours with shorter intervals and it is possible to improve the estimate of the behaviour by shortening the interval.

The partial interval procedure is similar to the previous one, but the recording only takes place if the behaviour occurs during any part of the interval. It requires the observer's attention only until the behaviour is observed in that interval. It works well for momentary behaviours (such as punching someone sitting at the table, swearing and spitting) or actions of short duration.

During the momentary time sampling, in the same way as in the previous procedures, the observation period is divided into equal intervals and the behaviour is recorded only at the end of the interval. When the time interval expires, the observer records the presence or absence of the behaviour at that precise moment. It is particularly easy as it greatly reduces the observational load. It is also useful when recording multiple individuals of a same group engaged in particular behaviours, as well as recording different behaviours of a single individual. It is suitable for the observation of high-frequency (i.e. very frequent self-injury) and continuous behaviours (i.e. sleeping) [7].

12.4 Assessment and Functional Analysis

The essential and important skills for the successful and evidence-based treatment of challenging behaviour are knowing how to measure a behaviour's baseline and verifying the effectiveness of an ongoing intervention. However, another fundamental professional skill is needed and it should be put into practice in the intervention on challenging behaviours: isolating the behaviour's functions. Functional analysis represents, from this perspective, the set of useful procedures for understanding the reasons why specific challenging behaviour, following a learning history, has arisen and is maintained within the behavioural repertoire of an individual [8–10].

A truly effective intervention must necessarily focus on carrying out a functional analysis and identifying the hypothesis of the functional value of behaviour [11, 12].

For this reason, there are different methodologies of functional assessment that aim to help us provide answers to fundamental questions: why does a certain behaviour continue to manifest itself? What are the functions it performs? What are its motivations? What kind of relationship exists between the challenging behaviour and the context in which it manifests itself?

The ABC analysis (Antecedent, Behaviour, Consequence), through the three contingency terms, is what ultimately allows us to comprehend how the context affects the behaviour and vice versa.

Understanding or identifying the hypothesis of functional value of behaviour will not only enable the selection of effective psychoeducational procedures for decreasing challenging behaviour, but also and most importantly it will indicate which new behaviours should be taught, increased, or which new opportunities should be provided to the individual.

The functional analysis' systems can be classified in different ways. Here, we will limit the description to two different, though heterogeneous, categories of procedures:

Indirect functional assessment procedures in which the hypotheses regarding the functional value of behaviour are formulated through interviews, questionnaires, checklists or interviews with the parents, operators, people who know the patient with autism well. However effective these indirect tools may be, they should be considered as the first step towards the functional assessment process.

A few examples of functional assessment tools are:

- **Motivation Assessment Scale** (M.A.S., [13–16])
- **Functional Analysis Screening Tool** [17, 18]
- **Setting Events Checklist** [19]
- **Open-Ended Functional Assessment Interview** developed by Gregory P. Hanley, (Developed August, 2002; Revised: August, 2009)

In the **direct** procedures, unlike the previous ones, the observation and recording of the behaviour take place during, or immediately close to, the occurrence of the behaviour itself. In other words, the operators or parents themselves are the direct observers of the challenging behaviour in what may be called “real time” [7].

The direct measures of behaviour clearly require more time and precision from the users, but they concurrently guarantee a greater abundance of information than indirect measurements.

The descriptive ABC is the most common form of functional assessment of behaviour. This type of analysis requires a precise description of the antecedent event of the challenging behaviour, within which it will be possible to identify the discriminative stimuli that control the behaviour and all the motivational events that favour its manifestation. Then, a description of the behaviour's consequence is required. Such

consequences contain the main function of the behaviour itself. In particular, the description may provide correlations between the behaviours and consequences which may reinforce, positively or negatively, the challenging behaviour.

The compilation of different cards according to the scheme of the three contingency terms enables the identification of those contextual variables which activate and maintain the behaviour.

The direct functional assessment procedure (ABC) has several advantages; the main one is that the observer witnesses and records the antecedent events and consequences of the challenging behaviour immediately after its manifestation, thus contributing to increasing the objectivity and accuracy of the recording. However, the downside of this procedure is related to the large amount of time needed in comparison with the indirect methods.

Within direct functional analysis, in the last 30 years an important role has been taken on by experimental functional analysis. Experimental functional analysis implies, unlike the previous one which merely recorded the events in a naturalistic way, the manipulation of the antecedent events and consequences of the behaviour in order to identify a functional relationship between the behaviour and the context variables.

In the early 1980s, B. Iwata proposed an experimental model to evaluate the sensitivity of target behaviours to positive, negative, and automatic reinforcement contingencies [20].

This type of functional analysis involves direct observations and repeated measurements in some test situations intentionally constructed and manipulated by the operator (usually four experimental and one control situation) [21–23].

The experimental conditions that are generally implemented are the following:

1. Alone, the person is observed in the absence of stimuli or other people (it is useful to identify systems of automatic reinforcement).
2. The condition of attention provided contingently to the manifestation of the challenging behaviour (positive social reinforcement).
3. The condition of control (or more commonly defined as game for the youngest) in which reinforcements are provided continuously and not contingently.
4. The condition of request offered by the opportunity of escape contingent to the manifestation of the challenging behaviour (negative reinforcement).
5. The “tangible” conditions in which reinforcements, tangible ones, are given as a contingency to the manifestation of the challenging behaviour.

These and other forms of experimental functional analysis such as the one summarised above [24] have proved to be valuable tools for conducting functional analysis. This is mainly due to their ability to bring under experimental control those variables that in the indirect systems or in the descriptive functional assessments are only hypothetical or correlational.

12.5 The Psychoeducational Intervention

The use of functional assessment tools is a very useful support to identify the hypothesis of functional value of challenging behaviour. This phase of the intervention, besides being the most important, is certainly also the most complex because it requires the operator to analyse the collected data and construct hypotheses on the adaptive meaning of behaviour.

We know that it is not the form of the behaviour that explains its function [25]. It is therefore necessary that the clinician proceeds with the specific analysis of the antecedent events and consequences of the behaviour and its context. In this phase, the clinician is called upon to identify a hypothesis which, if correct, will be confirmed only after the intervention.

Challenging behaviours may be related to the consequences of behaviour observable in the outside world (e.g. in the form of situations experienced as aversive, the avoidance of tasks which are too difficult, or in the form of enrichment, such as the search for physical contact or attention or environmental control on things, people, etc.), rather than producing consequences on the inside world, on one's own belief systems, values and symbolic systems.

The next step towards the identification of the functional value of challenging behaviour is the choice of psychoeducational procedures and the continuation of data collection to verify the treatments' effectiveness. Cooper et al. [7, 26, 27] exhaustively list all the behavioural procedures that may be used for the constructions of new behaviours and reduction of maladaptive ones [2, 28]. The team will therefore work towards producing not only different hypotheses of functional value, but also identifying the psychoeducational treatment procedures coherent with the functional value attributed to the behaviour [29]. In short, it could be said that if the main objective of the intervention on the challenging behaviours is their reduction, the priority will be supporting and changing the person and/or their context so that they may increase or create new behaviours that will replace the challenging ones [30]. In other words, it will be necessary to identify those adaptive behaviours that share the same functional value.

In the choice of interventions, which are often multi-component, it is equally important to remember to maintain a balanced relationship between pro-active and reactive procedures. Indeed, even if the opposite is often true in clinical practice, an effective and respectful treatment of the quality of life and the person's context should tend towards more pro-active interventions rather than reactive ones [31–33].

A balanced ratio between pro-active and reactive procedures should amount to 80% and 20% respectively [34]. Pro-active interventions work on the antecedents and consequences to teach the person a replacement behaviour, whereas the reactive ones only manipulate the consequences of the challenging behaviour by minimising the possibility to reinforce it [35].

For these reasons, the first interventional steps to reduce the challenging behaviour should be anticipated by a precise study of the person's abilities, strengths and weaknesses, and by an in-depth evaluation of the preferences and values of the person [36, 37].

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