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A Comparison of Behaviour Functions in Community and Facility Settings

Abstract

This study sought to compare the functions of challenging behaviours (physical aggression, self-injurious behaviour and property destruction) displayed by persons with developmental disabilities living either in a community or a facility setting. A sample of 30 individuals, half from each setting, was assessed via familiar informants using a specially devised checklist (the GB Motivating Screening Tool), which was developed from items of commonly used functional assessment checklists. The results showed similar behaviour functions across settings, e.g., escape-attention for aggression, and sensory-discomfort for both self-injury and property destruction. Predominant functions were also found to be closely associated with specific psychiatric diagnoses, notably Autism and Pervasive Developmental Disorder (PDD).

Functional assessments are a means of generating hypotheses about the functional relationships between a behaviour of interest and the environment in which that behaviour occurs (Paclawskyj et al., 2000). There are a number of commonly used clinical checklists aimed at identifying these functional relations. Some of the best-known in the field are the Motivation Assessment Scale (MAS: Durand, 1986), the Questions About Behavioural Function (QABF: Vollmer & Matson, 1992) and the Functional Analysis Screening Tool (FAST: Iwata, 1996). These checklists have identified several behaviour functions that may act as maintaining variables for a specific behaviour in a specific environment, such as escape or avoidance from tasks, or access to social attention, to sensory stimulation, or to preferred tangibles and activities, among others.

The purpose of our study was to determine if different environments resulted in different behaviour functions for similar behaviour disorders. That is, for example, would aggressive behaviour have different functions if it occurred in different environments? To achieve this objective we developed a new functional assessment checklist, the GB Motivation Screening Tool (GBMST), in order to overcome some limitations of other functional assessment instruments for this study. For example, the FAST cannot be used for aggression; neither the QABF nor the MAS collect any diagnostic information, other than functioning level; and none have any reference to the frequency of occurrence of the behaviour of interest.

Method

Participants

OursamplesizewasN=30individualsdiagnosed with developmental disabilities, as determined by their medical records, in accordance with the DSM-IV-TR (2000) or earlier versions. Half of the participants lived in a community setting and the other half in a provincial residential facility. Ages ranged from 11 to 55 years, and except for one child, all participants were adults over 25 years of age. Sixty percent of the community clients and 67% of the facility residents were male. Physical aggression, self-injurious behaviour and property destruction were chosen as the target behaviours based on their criteria of easily definable and physically observable qualities.

Six participants apiece from the community and the facility settings were selected for presenting with physical aggression. Another six participants from each setting were selected for their presentation of self-injurious behaviour. The remaining three from each setting were selected for their presentation of property destruction. Permission was obtained from the respective community and provincial agencies involved, and consent for participation was obtained from each participant's next-of-kin or legal guardian. As the study collected only information provided by informants, and there was no direct involvement with the participants, none of the agencies deemed review by their respective ethics boards necessary.

Instrumentation

The study used the GB Motivation Screening Tool (*GBMST*), a checklist that we developed by combining items from commonly used functional assessment checklists. Questions were chosen from the *FAST* (Iwata, 1996), the *QABF* (Vollmer & Matson, 1992), and the *MAS* (Durand, 1986). The completed *GBMST* contained 25 questions, five for each of the following functions: attention, tangible, escape, sensory and (physical/psychological) discomfort. The attention function referred to behaviours exhibited to gain either positive or negative social responses, such as praise or reprimand. Tangible and sensory functions likewise referred respectively

to behaviours exhibited to gain access to a preferred item or activity, or to a specific sensory stimulations experience. The escape function referred to behaviours exhibited to remove or terminate an unpleasant or aversive situation, such as social demands or unwanted tasks. Lastly, the physical/psychological discomfort function referred to behaviours that occurred in response to internal or external stressors that caused physical or psychological distress. A Likert scale ranging from never (0), almost never (1), seldom (2), half of the time (3), usually (4), almost always (5), to always (6) was used to score each question.

A Likert scale was also used to estimate the frequency of behaviour, ranging from more than once per day (1), daily (2), twice per week (3), weekly (4), twice a month (5), monthly (6), to less than once per month (7). Using these scores, a behaviour was ranked as *high frequency* (ranks 1–3, i.e., more than once per week), *medium frequency* (rank 4–5, i.e., once weekly or less), or *low frequency* (ranks 6–7, i.e., once monthly or less).

In addition, the *GBMST* also obtained a description of the behaviour topography, current or past diagnoses including pertinent medical conditions, the informants' relationship to and familiarity with the client, the setting description, and any behavioural interventions in use for the behaviour of interest. The screening tool was pre-tested with staff volunteers, as to wording, clarity and ease of scoring, and modifications were made as deemed fitting. Copies of the *GBMST* are available at no cost from either author.

Procedure

The *GBMST* was administered to all informants by the same interviewer (EEG) in the setting where the client resided. The tool was explained following the same script for all informants, who were all interviewed separately and had no knowledge of the other informants' responses.

The reliability of informants with regard to behaviour function was determined by having two separate informants, per client, complete a checklist. Wherever possible, informants that had a lengthy familiarity with the individual and his/her behaviours were chosen. Inter-rater

reliability was determined by the Rule of ± 1 (Bateson & Martin, 1988), i.e., rankings for all functions were deemed a match if they were within ± 1 from the ranking by the other informant's score for that function for the same individual. Reliability was also determined for the total sample, as well as for the community and facility sub-samples using Spearman's Coefficient of Rank Correlation (Ferguson & Takane, 1989) in which $\rho = 1 - [6\sum d^2 / N(N^2 - 1)]$.

Results

Function of Behaviour

The primary maintaining function for all behaviours combined in both settings was sensory (39.7%; community: 41.9%; facility: 37.5%). The escape function followed as the secondary overall maintaining variable (19.1%).

With regard to specific behaviours, *physical aggression* was primarily motivated by escape (32.4%) followed by attention (23.7%). In the community, escape was ranked first (41.7%) and attention scored second (16.7%). In the facility this was reversed, with attention ranked first (30.8%) and escape second (23.1%).

For *self-injurious behaviour*, the average for both settings placed sensory (62.5%) as the primary maintaining function, followed by physical/psychological discomfort (16.7%). These rankings were very comparable between the community and facility settings, with sensory ranked first (66.7% and 58.3% respectively), and discomfort rated second (16.7% in each setting).

For *property destruction*, both settings placed sensory (42.9%) as the primary function, followed by discomfort (21.4%) as the secondary function. In the community both functions were tied for the primary rank (42.9%), and in the facility sensory was ranked as the sole primary function (42.9%).

Behaviour Function by Diagnosis

The primary function for each type of behaviour was examined in relation to the diagnosis provided for each individual to determine if there

was any correlation between psychiatric diagnoses (other than intellectual disability) and behaviour functions.

For *physical aggression*, the primary function of escape in the community was associated with Autism/PDD disorders (50%). In the facility the primary function of attention was associated with various personality and adjustment disorders (e.g., Borderline or Paranoid Personality disorders) and only 33.3% of cases were associated with Autism/PDD.

For *self-injurious behaviour*, the primary function of sensory in both the community and the facility settings was associated with Autism/PDD diagnoses (50% in each setting).

For *property destruction*, the primary function of sensory in both settings was associated with Obsessive Compulsive Disorder or Autism/PDD (66.6% combined, 33.3% each).

Frequency of Behaviour by Setting

Participants with high frequency behaviours, i.e., those occurring more than once per week (ranks 1-3), were twice as prevalent for individuals in the community relative to those in the facility (80% and 40% respectively).

Participants with medium frequency behaviours, i.e., those occurring once per week or less (ranks 4-5) were identical in both settings (13.3%).

Participants with low frequency behaviours, i.e., those occurring once per month or less (ranks 6-7) were almost seven-fold more prevalent in the facility (46.7%) than those in the community (6.7%).

Instrumentation Reliability

The reliability of the GBMST was determined across each of the three behaviours of interest, as well as across each of the three behaviour frequency ranks by analyzing the inter-rater comparison results.

Reliability of behaviour function was higher in the community than in the facility when examining physical aggression (85.8% vs. 76.7%). Reliability was also higher in the community

when looking at self-injurious behaviours (85.8% *vs.* 73.3%). For property destruction, the reliability was equal in both settings (86.7%).

With regard to behaviour frequency, the facility had a higher reliability than the community when examining high frequency behaviours (90% *vs.* 85.8%). However, with either medium frequency or low frequency behaviours the community had higher reliability rates (80% and 100% respectively) than the facility (50% and 74.3% respectively).

Lastly, application of Spearman's Coefficient of Rank Correlation to the data set yielded a statistically strong reliability (+0.89) for both settings combined, as well as for each separate setting (community: +0.94; facility: +0.84).

Discussion

This study sought to compare behaviour functions for individuals with developmental disabilities and behaviour disorders residing in two different environments: community settings (group homes, family residences) or a large provincial facility. To this effect, we used the GB Motivation Screening Tool (GBMST), a checklist specifically developed for this purpose.

The major finding was that behaviour functions for aggression, self-injurious behaviour and property destruction were very similar for the residents of these two environments.

For aggression, the predominant functions were escape first and attention second for the community individuals and attention first and escape second for the facility residents, with combined totals of 72.5% for escape and 39.8% for attention for both settings. This finding is consistent with clinical observations (e.g., Dawson, Matson, & Cherry, 1998) that aggression seems to be specifically related to attentional or social variables, whether they involve demands, requests or expectations by others that the individual seeks to escape or avoid, or whether they elicit staff or caretaker attention or socially mediated reinforcers. The ranking difference (escape first for the community and attention first for the facility) may have reflected environmental differences, such as a more demanding "normalizing" social

milieu in community settings, and a lower staff: client ratio in the institutional facility setting.

For self-injurious behaviour, the clearly predominant function in both settings was sensory, and to a lesser extent, physical or psychological discomfort, with combined total of 79.2% for both functions. These results are consistent with other functional assessment research (e.g., Applegate, Matson & Cherry, 1999) that suggests that the most common functions for self-injury are non-social. However, these results are also in sharp contrast with the findings reported by Iwata et al. (1994), which suggest that self-injurious behaviour is driven predominantly by escape and to a lesser extent by attention, i.e., by social or attentional variables, in that their data indicates that these two functions account for about 65% of self-injurious behaviour. This marked difference might be merely methodological, i.e., use of behaviour analog *versus* informant assessment tools. However, it could be more likely due to differences in age-related variables. Thus, whereas most functional analog research (e.g., Iwata, Dorsey, Slifer, Bauman, & Richman, 1994) involves participants that are school-age children and adolescents, and most of our participants were adults living in supported residential settings, it is conceivable that as individuals develop and age the functions of their behaviour will reflect the different social environments they are passing through (family home, school, adult residences). A functional analog study with infants and preschoolers (Kurtz et al., 2003) is noteworthy in this regard, in that it found that attention and "undifferentiated" functions accounted for approximately 76% of early onset self-injurious behaviour, with almost no evidence of the escape function so prevalent in older children.

For the third behaviour of interest, property destruction, the behaviour function of sensory was clearly the primary motivator in both settings.

When the predominant functions were examined in the light of each individual's psychiatric diagnosis, Autism/PDD appeared to play a prominent role in most cases, especially in the escape function of aggression for community cases, and the sensory function of self-injurious behaviour for both settings. Given that 50% of our sample had this diagnosis, this prominence is

not surprising. What was unforeseen was that, in searching solely for participants with challenging behaviours, our sample resulted in such a large proportion of Autism/PDD diagnoses.

Examination of the behaviour rankings of frequency indicated that most community clients had behaviours that occurred more than once per week (M rank = 2.2), whereas facility clients were almost equally split between behaviours that occurred more than once per day (M rank = 1.3) or less than once per week (M rank = 5.8).

Lastly, the reliability of our assessment instrument was notably strong with a +0.89 coefficient of correlation rank. By way of comparison, reliability studies for the MAS have ranged from +0.66 to +0.81 (Durand & Crimmins, 1988). Overall reliability was slightly higher for community clients (+0.94) than facility residents (+0.84), as would be expected in light of the community's larger proportion of clients with high frequency behaviours. Intuitively, a greater frequency of behaviour would make for more familiarity of its antecedents, triggers, and motivators, i.e., of its behaviour function (Singh et al., 1993).

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