Can Psychiatric Disorders Be Seen as Establishing Operations? Integrating Applied Behavior Analysis and Psychiatry

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In this paper, we describe a framework for integrating an understanding of an individual’s psychiatric diagnosis into a functional assessment of problem behavior. An interdisciplinary approach that considers both behavioral perspectives and psychiatric perspectives is necessary for supporting individuals with developmental disabilities and mental illness. A case report is presented, along with implications of this model for service providers.

Keywords: behavior, functional assessment, intellectual disability, mental retardation, psychiatric disorder

There are two primary modes of intervention for persons with the dual diagnoses of developmental disabilities and another psychiatric condition: behavioral intervention and psychiatric intervention. Behavioral interventions have a long history and evolved from early research in applied behavior analysis. 1,4 These research efforts emphasized the importance of analyzing the interaction between behavior and environment in order to understand the variables that maintain problem behaviors including aggression, self-injury, destructive behavior, pica, and tantrums. 5,21 Psychiatric interventions typically refer to psychotherapy or pharmacotherapy, and are driven by a diagnosis of a presenting psychiatric condition. In common clinical practice, these behavioral and psychiatric interventions are managed separately in the absence of cross-disciplinary collaboration. Effective treatment of problem behaviors for individuals with developmental disabilities and additional psychiatric disorders requires collaborative efforts between behavioral and psychiatric professionals, and being open to dialogue and a variety of theoretical and conceptual perspectives regarding behavior.

The purpose of this article is to encourage an interdisciplinary approach for supporting individuals with developmental disabilities and additional psychiatric disorder/mental illness (DD/MI) by discussing how an underlying psychiatric disorder can be seen as an establishing operation which changes the likelihood of problem behavior by altering the reinforcing and punishing value of consequences in an individual’s environment. One way to identify an establishing operation is by using functional assessment, a process used by professionals providing behavioral intervention.

A functional assessment of problem behavior is defined as a set of processes that gather information about an individual’s behavior and the variables that predict and maintain the occurrence of that behavior. 11 In recent years, functional assessment has become a standard in behavioral intervention for persons with disabilities. Many states require functional assessments for licensing requirements, and the Individuals With Disabilities Education Act (IDEA, 1997) has included requirements for the use of functional assessment for students who engage in serious problem behavior. Functional assessment implementation, clearly a part of the service landscape for supporting persons with developmental disabilities, has been spurred on by powerful evidence demonstrating its efficacy and is currently being employed by an ever-increasing scope of professionals. 24 In order to further understand the concepts of functional assessment, the authors will provide a brief explanation of terms. For a more detailed discussion of functional assessment, the reader is
A functional assessment has four goals: (a) to define the problem behavior in a clear and measurable manner; (b) to describe the events, times, and situations that predict both the occurrence and nonoccurrence of problem behavior; (c) to identify the consequences maintaining problem behavior; and finally, (d) to generate and confirm hypotheses regarding the function(s) maintaining problem behavior. For example, through this process, one often finds that behavior patterns are the result of either avoiding an unpleasant task (like a household chore which is no longer an issue after a problem behavior), or obtaining a social reinforcer (attention of a staff person or parent after a problem behavior).

The functional assessment process includes a significant focus on two categories of events that precede the occurrence of problem behavior: antecedent events and establishing operations. Antecedents are events that immediately precede the occurrence of problem behavior and are assumed to be controlling relations. Demands, critical feedback, or the types of tasks presented to an individual are all examples of antecedents that may evoke problem behavior.

Events or internal states that alter momentarily reinforcers and punishers in the environment are described as establishing operations or setting events. These terms come from two theoretical backgrounds, the operant analysis of behavior and interbehavioral psychology. Although the two concepts do not overlap entirely, they both refer to an event or internal state which occurs at one point in time and which changes the likelihood of a problem behavior occurring at a later point by momentarily altering the value of consequences.

For example, an antecedent event such as a demand from a teacher may not occasion problem behavior when a child is feeling well. However, when the child is sick, the same demand may occasion an aggressive response. An important distinction is that establishing operations alone will not elicit or produce a problem behavior, though they make the problem behavior more likely under certain antecedent conditions. The complex interplay of multiple establishing operations affects the evoking properties of antecedents and magnitude of reinforcement. These factors are a major influence on the frequency and intensity of problem behaviors.

Consequences of certain responses select and maintain the behaviors that are observed. When an individual engages in a response that occasions a reinforcing event, that response is more likely to occur in the future. These reinforcing events may be positive or negative. An individual’s behavior may be maintained by positive reinforcement when the presentation of an event increases the likelihood of a response. Behavior may be maintained by negative reinforcement when behavior increases due to the withdrawal of an event. Common consequences maintaining problem behavior include escaping from requests or situations that the person finds aversive, gaining attention from staff, teachers, family, or peers, or securing access to activities. There are non-socially-motivated reasons for problem behavior as well. An individual may be accessing internal stimulation (i.e., by rocking or flicking objects in front of a light), or escaping from an unpleasant internal sensation (i.e., by masking an initial internal sensation such as pain or discomfort, by hitting oneself).

Functional Assessment and the Concept of Additional Psychiatric Disorder

The authors posit that in some cases, psychiatric illnesses may act as an antecedent or establishing operation for the occurrence of problem behavior in individuals with developmental disabilities. Physiological influences can be seen as internal events within a person’s biological system that partly determine an individual’s response to the environment. When a physiological event increases the likelihood that a person will engage in problem behavior, it is referred to as an establishing
The following case illustrates this point: consider the example of a person who lived in a small group home with three other individuals. On a given day, four staff persons were scheduled to work so that people could attend a long anticipated community event. Unfortunately, two of the staff people were sick. This left only two staff on-duty, thereby causing insufficient staffing which precluded attending the community event. Most of individuals were disappointed, but one man with an additional psychiatric condition reasoned that the two sick staff feigned illness and the other two were too busy to pay attention to him. He became suspicious whenever they interacted with others. When he and others were asked to assist in a household task, he refused and began to verbally assault staff and the individuals around him. When asked to calm himself, he physically attacked the staff on duty.

The example illustrates how a common establishing operation (staff calling-in sick, denying a preferred outing) and an antecedent (request to perform a common household task) evoked problem behaviors for the person with the psychiatric disorder. Privately occurring events described as delusional thought patterns served as an additional establishing operation affecting both the evoking properties of the antecedent event, the intensity of his response, and the internal reinforcing effects of the consequences.

Including psychiatric disorders in the functional assessment process will assure that attention is paid to all aspects of the individual's life rather than separately considering concerns related to behavior and concerns related to mental health. This process can be valuable in gathering information about the relationship between the mental health factors in a person's life and other factors occurring in the person's environment, including home, work, family, and social life. Information related to an individual's psychiatric disorders assists professionals in understanding the interaction between physiological and environmental factors that influence behavior. Considerations of behavior typically focus on the environmental influences while excluding private events (i.e., internal events known only to oneself). The authors argue that consideration of private events has a significant place within both functional assessment and treatment for persons with DD/MI. Gardner and Sovner noted this theme previously in an examination of self-injury in which this behavior was considered from a clinical psychologist's perspective (Gardner) and from a psychiatrist's perspective (Sovner). They integrated the relative contributions of the biochemical and psychosocial aspects of the originating and maintaining conditions of self-injury in people with developmental disabilities.

**How Can Knowledge of Psychiatric Disorders Be Combined With Environmental Assessments?**

The foundations of behavior analysis assert that behavior is lawful, rational to the individual, and understandable. The functional assessment process seeks to establish these relationships and make the internal logic of a behavior evident. Psychiatric illness often makes these relations difficult to ascertain, as private events are a part of the internal logic. Initially assuming that the behavior follows some lawful patterns, despite a lack of obvious logic to careproviders, allows for planful and proactive intervention. In a functional assessment, the events and situations that control and maintain a behavior are noted and examined, thus creating sense out of the behavior. Care providers for persons with DD/MI often describe problem behaviors as making no sense and coming out of the blue. Consider staff persons working in a home typically supporting persons with more severe disabilities. That group of staff persons would learn one skill set regarding understanding people who may have trouble communicating and independently meeting their needs. The set of skills developed by the staff people may not meet the challenges posed by a person with milder developmental disabilities and schizophrenia. However, in community-based programs throughout the United States and the world, persons with severe developmental disabilities are often supported together with persons who have mild developmental disabilities and psychiatric illness. Support staff people face great challenges in supporting a diversity of people. Staff may learn to understand the reasons for problem behavior in persons with more severe developmental disabilities (such as communicating the need to go to the bathroom), but have difficulty generalizing the use of functional assessment to a person who has frightening private events and mistakes staff people for delusional figures. As noted earlier, establishing operations are defined as broader factors that increase or decrease the probability of problem behavior by changing the salience of current environmental events. An understanding...
of why an event or situation would be upsetting to an individual with mental illness can be of great benefit to a staff person. The occurrence of private events related to the presence of mental illness may result in behavior that is maintained by escape or the opportunity to obtain certain events, people, or activities. Understanding that these behaviors serve a function for the individual, no matter how strange or unusual the behaviors may be, provides a method for linking services for individuals utilizing the best of both psychiatric and behavioral intervention. Combining information related to psychiatric symptoms into a behavioral model also eliminates the frequently asked dichotomous question, “Is it behavior or is it mental illness?” The most accurate answer to this question is often “both,” and without an understanding of how the two interact, a real understanding of the question is impossible. The authors recognize the complexity of mental illness in its myriad forms, and do not want to be misinterpreted as making mental illness too simplistic a construct. However, sharing information among the various professionals and care providers can help shed light on the behaviors of a population who traditionally has challenged existing service modalities due to the multiplicity of needs. Sharing information about these needs in a model of behavior that includes both behavior analytic and mental health perspectives will assist in supporting persons with challenging and complex needs. The following expanded example illustrates these points.

**Case Report of Mr. A**

Mr. A is a 34-year-old, unmarried man who was diagnosed with mild mental retardation and schizoaffective disorder. Information regarding his biological family and birth was not available. He was placed for adoption shortly after birth. A long standing history of aggression and other problem behaviors resulted in multiple foster placements throughout his childhood, and ultimately caused him to be placed in juvenile detention. Upon reaching adulthood, Mr. A moved into an adult foster home in the Pacific Northwest of the United States, but problem behaviors continued and again resulted in multiple adult foster placements and supported living situations. He has had a number of different psychiatric diagnoses including paranoid schizophrenia and major depressive disorder. Mr. A has been treated with a variety of medications including thioridazine, chlorpromazine and lithium. Historically, symptoms leading to mental health intervention primarily included paranoid delusions accompanied by low intensity aggression (threats, shouting obscenities, etc.), particularly in times of stress. There was no organized history of other therapies or behavior interventions. Until recently, Mr. A lived in a supervised apartment complex and received residential support from a provider organization. A significant component of Mr. A’s support services included weekly meetings with a counselor/behavior specialist and monthly appointments with his psychiatrist. He was treated with carbamazepine for his mood disorder. During the intervention period, the counselor/behavior specialist and Mr. A’s psychiatrist met regularly to ensure collaborative treatment. One of Mr. A’s personal goals has been to live in his own home in the community with minimal supports. Recently, that dream was realized when he moved into a spacious two-bedroom home by himself. At Mr. A’s request, intermittent support continued to be provided by the supported living agency to help him with money management, diet and health maintenance. His weekly counseling sessions and psychiatric services continued.

Shortly after moving into his new home, however, Mr. A began to complain that his neighbors were watching him and looking into his windows. He also began to report that people on various television programs were talking about him. He began to display a continuous level of agitation, and began to speak about purchasing weapons for self-protection. At one point, he was reported to have been standing in front of his home yelling at neighbors, informing them that he was aware of their intent to harm him, and threatening to respond with force if necessary.

Mr. A’s counselor was knowledgeable concerning developmental disabilities and mental illness. The counselor conducted a functional assessment of Mr. A’s behavior by interviewing Mr. A and his support staff using the Functional Assessment Interview. Functional assessment information revealed that when there are significant changes in Mr. A’s environment and routines and when he is faced with very challenging situations, he often displays verbal aggression, angry outbursts and social withdrawal accompanied by refusals of support. A review of Mr. A’s history revealed that these periods of social withdrawal and problem behavior often continued for several weeks, and that in the past, Mr. A had responded well to increases in his
psychiatric medications. Mr. A’s psychiatrist reported that during the last such episode, Mr. A appeared to benefit from a slight increase in his carbamazepine. Prior to this intervention, Mr. A was opposed to a medication increase and his psychiatrist agreed to wait. The functional assessment process yielded information that was helpful in assessing the role that Mr. A’s persistent mental illness appeared to be playing as an establishing operation for his problem behaviors. The tentative hypothesis that emerged from the analysis of the functional assessment was that in response to significant changes in the environment and the stress of novel and challenging situations, Mr. A experienced an increase in the intensity of symptoms of his mental illness, such as paranoid delusions and ideas of reference. These symptoms of mental illness acting as establishing operations, make it more likely that typical environmental events, such as a neighbor walking by on the street, could be misinterpreted by Mr. A as a threat, which could then trigger a defensive reaction in the form of aggression (e.g., shouting or making threats). Additional ecological issues were revealed by the functional assessment. Mr. A reported that he had not yet met his neighbors nor had his telephone yet been installed. The supported living agency had not yet established a predictable schedule for contacting Mr. A, and without a phone, it was difficult for him to contact them. Cursory observation of the home revealed that Mr. A’s living room windows were uncovered, not allowing him much privacy in that room. This information lead to the hypothesis that these environmental variables contributed to Mr. A’s experience of stress and feelings that he was unsafe.

As a result of the functional assessment of Mr. A’s problem behaviors, some initial support strategies were implemented to address the establishing operations and environmental concerns. Mr. A was assisted in arranging for the installation of his phone, and a phone list was developed of his friends, emergency services and paid support providers. Blinds were installed on his living room windows. A regular schedule was developed that allowed Mr. A to anticipate when his contacts with support providers would occur. The amount of residential support would initially be increased and then faded as Mr. A’s behavior improved. Support staff would assist Mr. A to meet some of his neighbors so that they would become more familiar and less threatening. Mr. A would be assisted to learn about the geography and resources of his new neighborhood. Specific mental health interventions also were implemented. The counselor assisted Mr. A in considering alternative explanations to the paranoid, delusional interpretations that Mr. A was assigning to typical environmental events. The counselor also helped Mr. A to think about his past experiences of significant lifestyle changes and identify what seemed to help him adjust. Mr. A met with his psychiatrist, and as a result, his medication regimen was changed.

Within a few weeks of the implementation of these support strategies, Mr. A’s symptoms of mental illness had diminished, and his problem behaviors, including agitation, aggression, and social withdrawal were virtually eliminated. He expressed feelings of safety and satisfaction in his new home. Mr. A began to return to typical activities independently, with friends and paid support providers.

**Implications for Service to Persons With Developmental Disabilities and Psychiatric Disorders**

People with developmental disabilities and additional psychiatric disorders can suffer needlessly when their support system cannot integrate the concepts of applied behavioral analysis and psychiatry. In this paper, the concept of “setting events” was discussed as often including the existence of a psychiatric condition. By utilizing this concept, applied behavior analysis professionals will be better able to collaborate with psychiatric professionals, and better able to develop successful support plans.

The authors recommend five specific steps in which care providers should engage to address problem behaviors among persons with dual diagnosis.

1. Understand the psychiatric diagnosis/ clinical formulation for the psychiatric clinician prior to completion of a functional assessment. Ideally, the psychiatrist will have some specialized experience in developmental disabilities. It is recognized that not all psychiatrists have had specialized training in developmental disabilities, and that not all regions have psychiatrists with disability-related knowledge. Particularly if an individual has difficulties communicating relevant information, it is important for care providers to accompany the individual and provide necessary information to the psychiatrist.
Prior to the visit, it is useful to contact the psychiatrist and ascertain what types of information the psychiatrist would like to see or find useful.  

2. Complete a functional assessment that includes consideration of any relevant psychiatric disorder as a potential establishing operation. It is important as well to consider how the psychiatric disorder might increase the salience of environmental events. Professionals in applied behavior analysis should seek readings on the specific psychiatric disorder so that they might better understand the interplay between the behavior and symptoms.

3. Complete a plan of treatment and intervention that addresses both psychiatric and behavior analytic components of the problem behavior. Be sure that lifestyle issues are addressed as well.

4. Use the functional assessment process to help determine times and situations that are associated with higher probabilities of problem behavior and the occurrence of establishing operations and antecedents. Intervention approaches that involve changing the time of day an activity occurs or teaching an individual to identify signs of increasing arousal and engage in a relaxation routine should be considered.

5. It is important for care providers to note that behavior initially maintained by physiological influences can be maintained by social attention or release from demands as well. One individual, for example, learned that episodes of unusual speech typically resulted in excuse from work-related tasks. That individual learned to produce such comments when asked to do chores, regardless of whether he or she was experiencing delusions. Similar learning occurs when an individual is receiving unusual amounts of attention while presenting evidence of depression. The problem behavior may continue after the illness has abated because the individual is reinforced by extra attention from caregivers.

In summary, persons with developmental disabilities and mental illness often require both behavior and psychiatric supports. A functional assessment including the mental illness as an establishing operation can be of great assistance in guiding efforts to consider both points of view and integrating physiological, psychological, and behavioral intervention and understanding. A psychiatric disorder can be seen as an establishing operation that affects the evoking properties of antecedents and reinforcing or punishing consequences. A thorough knowledge of these effects will produce high-quality intervention strategies including mental health intervention and behavior supports. With a comprehensive functional assessment in place, a treatment plan can be developed which identifies and addresses both internal and environmental establishing operations. Effectively addressing a mental illness as a setting event will minimize problem behaviors and enhance quality of life.

Although the knowledge that psychiatric events can be establishing operations was established some time ago, continued dialogue in this area is needed to ensure that professionals use this information to provide quality supports to individuals with developmental disabilities and mental illness. Effective collaboration between professionals providing psychiatric and behavioral services requires an interdisciplinary team who share a similar language and are able to embrace different theoretical perspectives.

The points of view expressed herein are those of the authors, and do not indicate official endorsement from the authors’ employers.

References


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