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Functional variables of challenging behavior in individuals with intellectual disabilities



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ABSTRACT

Research suggests that different types of challenging behavior (CB) may be maintained by different contingencies of reinforcement. In this study, we examined functional variables for nine types of CB (physical aggression, verbal aggression, self-injury, tantrums, non-compliance, property destruction, disruptive behavior, stereotypes and inappropriate verbal behavior) in 300 people with intellectual disabilities. The Questions About Behavioral Function (QABF) instrument was administered to 183 direct care staff members to assess a total of 328 challenging behaviors. Results of non-parametric analyses distinguished significant differences across behavioral functions. CBs associated with each subscale of the QABF were identified. Results were consistent with previous research, stereotypic behavior was scored significantly higher across the non-social functions measured by the QABF, whereas other types of CB (such as aggressive behavior) were scored significantly higher across social functions. The results of this study extend the literature on this issue, and implications for future research and direct care professionals are discussed.

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1. Introduction

Challenging behavior (CB) is one of the most studied issues in the field of intellectual disabilities (ID; Matson et al., 2011). Although prevalence rates can vary greatly according to the ages studied and the data collection methods and criteria used to define the behavior assessed (Cooper et al., 2009), high rates of CB among people with ID have been identified in several studies (i.e., Benson & Brooks, 2008; Collins & Cornish, 2002; Didden, Korzilius, & Curfs, 2007; Jones et al., 2008; Murphy, Healy, & Leader, 2009).

Research on treatment of CB among people with ID has long demonstrated that psychotropic medication (i.e., Deb, Sohanpal, Soni, Lentre, & Unwin, 2007; Tsiouris, Kim, Brown, Pettinger, & Cohen, 2013) and applied behavior analysis (i.e., Davis, Fuentes, & Durand, 2014; Fragale et al., 2012; Lomas, Fisher, & Kelley, 2010; McGinnis, Houchins-Juarez, McDaniel, & Kennedy, 2010; O'Reilly et al., 2009) are frequently used (Matson et al., 2011). The effectiveness of psychotropic medication

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(and specifically antipsychotic drugs) in reducing CB is questionable in light of their side effects (Matson, Tureck, & Rieseke, 2012) and a lack of rigorous empirical evidence (Brown, Brown, & Dibiasio, 2013). However, there is a growing body of literature demonstrating the effectiveness of applied behavior analysis in reducing the occurrence of CB (i.e., Brosnan & Helay, 2011; Campbell, 2003; Cannella, O'Reilly, & Lancioni, 2005; English & Anderson, 2004; Hanley, Iwata, & McCord, 2003; Lloyd & Kennedy, 2014; Matson et al., 2011; Tiger, Fisher, Toussaint, & Kodak, 2009; Van Camp et al., 2000).

Behavioral interventions involve antecedent and consequent-based interventions (O'Reilly et al., 2012). Antecedent-based intervention involves a wide range of strategies that typically entail the manipulation of certain environmental events to reduce the occurrence of the behavior (Kern & Clemens, 2007; Smith, 2011). Additionally, consequent-based interventions are specifically designed according to the maintaining contingencies of reinforcement (O'Reilly et al., 2012; Smith, 2011); that is, the functional properties of the behavior (Medeiros, Rojahn, Moore, & van Ingen, 2014). Maintaining variables identified in the literature include attention; escape or avoidance; and tangible, non-social and physical functions (Matson et al., 2011). Results from several studies stated that problem behaviors were significantly reduced when treatments were based on a particular behavioral function (i.e., Brosnan & Helay, 2011; Campbell and Anderson, 2011; Campbell, Rodríguez, Anderson, & Barnes, 2013); thus, research suggests that identifying an underlying behavioral function can play an important role in designing effective intervention plans (Dixon, Jang, Chung, Jung, & Matson, 2013).

Experimental functional analysis (EFA) has been used frequently to identify maintaining variables of CB in a person's environment (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994) and develop consequent-based interventions (O'Reilly et al., 2012). EFA involves manipulating the context to identify environmental contingencies that control problem behavior (Nicholson, Konstantinidi, & Fureness, 2006). Although this is considered a useful strategy when identifying maintaining variables that influence CB (Matson et al., 2003; Watkins & Rapp, 2013), it requires specialized staff, is often costly (Miltenberg, 1998; Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2001) and can bring up some ethical considerations (Medeiros et al., 2014). Therefore, it has been necessary to develop alternative methods for identifying these variables (Matson & Minshawi, 2003); as a result, standardized tests have increasingly been used (Dixon et al., 2013). Indirect methods usually provide enough information to establish a hypothesis regarding the variable's contextual relationship to the behavior assessed; they require the opinion of a third person and less professional expertise (Kelley, LaRue, Roane, & Gadaire, 2011; Paclawskyj et al., 2001). The Questions About Behavioral Function (QABF; Matson & Vollmer, 1995) was designed to assess the functions of CB in people with ID. The QABF has emerged as the most studied measure (Matson et al., 2011), offering excellent psychometric properties across many populations (i.e., Dixon et al., 2013; Embregts, Didden, Schreuder, Huitink, & van Nieuwenhuijzen, 2009; Matson, Bamburg, Cherry, & Paclawskyj, 1999; Nicholson et al., 2006; Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2000; Paclawskyj et al., 2001; Simó-Pinatella, Alomar-Kurz, et al., 2013; Singh et al., 2009; Zaja, Moore, Van Ingen, & Rojahn, 2011), and moderate agreement with functional analysis has been found (Paclawskyj et al., 2001; Watkins & Rapp, 2013). Therefore, the QABF emerges as a good starting point when conducting a functional assessment (Matson et al., 2012).

Even though behavior analysts emphasize that behavioral intervention should focus on the function of the behavior instead of the form (Bambara & Knoster, 2009), it seems reasonable to assume that the form and function of the CB may be related (Rojahn, Zaja, Turygin, Moore, & van Ingen, 2012). For example, several case studies have suggested that aggressive behavior is maintained by social functions (i.e., Cautilli & Dziewolska, 2004; McComas, Thompson, & Johnson, 2003; Ringdahl, Winborn, Andelman, & Kitsukawa, 2002), whereas stereotypic behavior is maintained by non-social functions (i.e., Chung & Cannella-Malone, 2010; Lang et al., 2009; Lanovaz, Fletcher, & Rapp, 2009; Roantree & Kennedy, 2006).

This relationship between form and function has also been explored in large samples using the QABF. These studies have considered all levels of ID, from mild to profound (Medeiros et al., 2014), as well as some other disabilities such as autism (Healy, Brett, & Leader, 2013), Prader Willy syndrome (Didden et al., 2007) or Fragile X syndrome and Smith-Magenis syndrome (Langthorne & McGill, 2012). Participants have primarily been adults (i.e., Dawson, Matson, & Cherry, 1998; Matson et al., 2005; Rojahn et al., 2012), although some young adults have also been included (i.e., Embregts et al., 2009). The CB assessed includes aggressive behavior (i.e., Embregts et al., 2009; Matson & Mayville, 2001), feeding problems (Matson et al., 2005), self-injurious behavior (i.e., Applegate, Matson, & Cherry, 1999; Didden et al., 2007; Rojahn et al., 2012), and stereotypic behavior (i.e., Dawson et al., 1998; Matson et al., 1999). Overall, aggressive behavior seems to be associated with social functions (i.e., Embregts et al., 2009; Matson & Mayville, 2001). Specifically, some studies have indicated that these behaviors are attention maintained (i.e., Dawson et al., 1998; Rojahn et al., 2012), whereas according to others, the most scored behavioral functions were escape and "tangibles" (i.e., Applegate et al., 1999; Healy et al., 2013). Self-injurious behavior has usually been associated with non-social functions such as automatic reinforcement (i.e., Didden et al., 2007; Matson et al., 1999; Rojahn et al., 2012), although a significant percentage of the sample also had high scores in escape, which is a social function (Matson et al., 1999; Rojahn et al., 2012). In Dawson et al. (1998)'s study, no significant differences in self-injurious behavior among functions were found. Stereotypic behavior has been related to non-social reinforcement (i.e., Applegate et al., 1999; Dawson et al., 1998; Healy et al., 2013; Matson et al., 1999), and sometimes a relation to social reinforcement has also been identified (i.e., Applegate et al., 1999; Rojahn et al., 2012). Medeiros et al. (2014) did not identify significant functional differences among aggressive, self-injurious and stereotypic behaviors; however, differences were found depending on the level of ID. Finally, feeding problems have been related to all of the behavioral functions assessed using the QABF except for attention (Matson et al., 2005). Specifically, food stealing was primarily maintained by escape, rumination and pica were maintained by non-social function and food refusal was maintained by physical behavior.

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