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# Research in Developmental Disabilities



## An investigation of self-injurious behaviors in adults with severe intellectual disabilities



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### ABSTRACT

Self-injurious behavior (SIB) is commonly observed among individuals with intellectual disability (ID) living in state-run supports and services centers. Specific examples of SIB include poking oneself in the eye; harming oneself by hitting, scratching, or pinching; and pica (i.e., swallowing objects causing bodily harm). Previous research has focused on SIB in individuals with ID more generally without focusing on specific levels of ID or taking into account other important personal variables. This study examined 45 adults with severe ID living in two large state-run facilities in the Southeastern United States who were separated into groups for comparison (ASD and non ASD; verbal and nonverbal). Data was collected on the presence of SIB using the *Autism Spectrum Disorder-Problem Behavior Adult Version (ASD-PBA)*. A two-way analysis of variance (ANOVA) was conducted to determine if there were significant differences between groups on rates of SIB. Individuals with ID and ASD exhibited significantly higher rates of SIB than individuals with only ID,  $F(1,43) = 50.84, p < 0.05$ . Furthermore, verbal individuals had significantly higher rates of SIB than nonverbal individuals,  $F(1,43) = 57.612, p < 0.05$ . There was a significant interaction between the effects of ASD diagnosis and verbal ability on rates of SIB,  $F(1,43) = 50.84, p < 0.05$ . The implications of these findings in the context of other research on ID, ASD, SIB, and verbal abilities are discussed.

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## 1. Introduction

Self-injurious behavior (SIB) is one of the most commonly observed aberrant behaviors among individuals with severe intellectual disability (ID; Di Nuovo & Buono, 2007; Matson, Bamburg, Mayville, & Khan, 1999; Matson, Cooper, Malone, & Moskow, 2008; Matson, Dempsey, LoVullo, & Wilkins, 2008; Mayes & Calhoun, 2011). Rojahn, Matson, Lott, Esbensen, and Smalls (2001) defined SIB as a behavior or set of behaviors that can result in injury to the person's body and that occurs repetitively. This behavior develops early in life and is most often chronic, lasting from early childhood through adulthood. SIB can be severe and even life-threatening in its intensity (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994). Clinical reports indicate that SIB among individuals with ID has led to injuries and medical complications ranging from mild scarring of the skin to bone fractures and, in some instances, death (Yang, 2003). Rojahn (1994) found self-scratching, self-biting, and head banging to be the most common forms of SIB among individuals with ID (Matson, Cooper, et al., 2008; Matson, Dempsey, et al., 2008; Matson, Wilkins, et al., 2008). Other examples of SIB include pica (i.e., ingesting inedible objects), hitting the head with the hand, biting oneself, and pulling out one's hair (Poppes, van der Putten, & Vlaskamp, 2010). A meta-analysis

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examining rates of maladaptive behaviors among individuals with ID estimated the prevalence of SIB to be between 4.4 and 21% (Rojahn & Meier, 2009, Chapter 9).

SIB has far reaching consequences, affecting not only the individual but also direct care staff and other professionals involved in providing supports for that individual. The support providers often suffer stress and negative psychosocial effects as a result of these behaviors (Duffy & Healy, 2011; Mossman, Hastings, & Brown, 2002). Individuals with SIB require increased supports and often one-to-one supervision, which drains the already limited resources available at institutional or community support centers.

Additionally, these persons are more likely to be prescribed psychotropic medications and suffer the serious side effects that can accrue (Matson & Neal, 2009; Matson & Wilkins, 2008a; Matson, Mayville, Bielecki, Barnes, Bamburg, & Baglio, 1998; Matson, Rivet, & Fodstad, 2009). Researchers have identified numerous comorbid conditions that are related to increases in the rates of SIB among individuals with ID. Level of intellectual functioning, for example, is negatively correlated with rates of SIB with the highest incidence observed among individuals with severe or profound ID (McClintock, Hall, & Oliver, 2003). Rojahn, Borthwick-Duffy, and Jacobson (1993) reported a sample of adults with multiple levels of ID. They found that 25% of those with profound ID exhibited SIB while only 4% of individuals with mild ID evinced SIB. The majority of research in the area of self-injury has therefore been focused on individuals with severe and profound ID as an aggregate or individuals with profound ID only. Conversely, the current study specifically focused on individuals with severe ID (i.e., IQ between 20 and 34). Rates of SIB have also been associated with certain physical conditions including gastroesophageal reflux diseases, menstrual periods, and disrupted sleep cycles (Thompson & Caruso, 2002). Considerable overlap has been shown to exist between SIB and certain psychiatric conditions such as obsessive-compulsive disorder, bipolar disorder, and major depressive disorder among individuals with ID (Charlot, Doucette, & Mazzacappa, 1993; Kearney & Healy, 2011; Matson, Boisjoli, Hess, & Wilkins, 2011; Matson, 1986; Smith & Matson, 2010; Sturmey, Laud, Cooper, Matson, & Fodstad, 2010).

Autism spectrum disorder (ASD) is highly comorbid with ID, and recent findings have indicated that around 75% of people with ASD also have ID (LoVullo & Matson, 2009; Mashal & Kasirer, 2011; Matson & Kozlowski, 2011; Matson & LoVullo, 2009; Matson & Nebel-Schwalm, 2007). Conversely, an estimated 40% of individuals with ID have comorbid ASD (LaMalfa, Lassi, Bertelli, Salvini, & Placidi, 2004). Researchers have found that rates of SIB are significantly higher among individuals with comorbid ID and ASD than individuals with only ID (Baghdadli, Pascal, Grisli, & Aussilloux, 2003; Bodfish, Symons, Parker, & Lewis, 2000; Kaland, 2011; Matson, Dempsey, & Fodstad, 2009). Of note, some of the stereotyped behaviors that are commonly observed in individuals with ASD can be considered self-injurious including biting oneself, hitting oneself, and head banging. These restricted, repetitive behaviors (RRBs) are central to ASD (Matson & LoVullo, 2008; Matson & Wilkins, 2008b; Matson, Wilkins, et al., 2008; Volkmar & Klin, 2005). Researchers have postulated that SIB provides enough sensory input to the individual that the behavior is automatically reinforced, and thus is self-maintaining (Favell, McGimsey, & Schell, 1982; Matson et al., 2005; Sturmey, Lott, Laud, & Matson, 2005; Vollmer, 1994; Wolery, Kirk, & Gast, 1985).

Another core feature of ASD is significant impairment in communication (Hattier, Matson, Sipes, & Turygin, 2011; Van der Meer, Sigafoos, O'Reilly, & Lancioni, 2011). Researchers have found that rates of SIB are related to both receptive and expressive communication deficits (Dominick, Davis, Lainhart, Tager-Flusberg, & Folstein, 2007; Duncan, Matson, Bamburg, Cherry, & Buckley, 1999; Kearney & Healy, 2011; Matson & Nebel-Schwalm, 2007; Matson & Rivet, 2008; Matson, Boisjoli, & Mahan, 2009; McClintock et al., 2003; Thorson, Matson, Rojahn, & Dixon, 2008). A hypothesized function of SIB based on learning theory states that the behaviors can reduce stress, physical discomfort, and/or frustration (Guess & Carr, 1991). For individuals with these deficits, SIB may serve a communicative function by allowing the person to express his or her desire to escape or avoid aversive stimuli or task demands presented by caregivers (Carr, Newsom, & Binkoff, 1976; Sailor, Guess, Rutherford, & Baer, 1968; Weeks & Gaylord-Ross, 1981). These individuals may establish a cyclical pattern with their caregivers where they communicate by engaging in SIB and are reinforced by achieving their desired goal.

To allow for appropriate and effective treatment of challenging behaviors, clinicians must evaluate the specific function of the behavior for that individual (Gould, Dixon, Najdowski, Smith, & Tarbox, 2011). Typically, the recommended method for evaluating challenging behaviors is direct observation through an experimental functional analysis where the conditions are manipulated to elicit problem behaviors for examination. However, due to the potentially unethical and dangerous effects of eliciting self-injurious behavior, the majority of assessments on the rate and function of SIB use informant-based rating scales. Some examples of rating scales commonly used with adults with ID are the *aberrant behavior checklist* (Aman & Singh, 1986), *questions about behavior function* (Matson, Bamburg, Cherry, & Packlowskyj, 1999), *behavior problems inventory* (Rojahn et al., 2001), and *Autism Spectrum Disorders-Problem Behaviors-Adult Version Battery (ASD-PBA)* (Matson, Terlonge, & González, 2006b). The SIB subscale of the *ASD-PBA* was chosen for use in this study because it was specifically created to evaluate self-injurious behaviors in adults with ID and ASD who are residing in state-run supports and services centers (Matson, Terlonge, & Gonzalez, 2006a).

While some research has been done evaluating rates of SIB in adults with ID and ASD, there is a dearth of research examining relative rates in adults with ID who communicate verbally or nonverbally. The purpose of this study was to examine the impact of co-morbid ASD as well as the impact of verbal ability on rates of self-injurious behavior. A group of adults with severe ID residing at two state-run facilities in the Southeastern region of the United States were evaluated. Based on the available literature, it was hypothesized that individuals with comorbid ASD would have higher rates of SIB than individuals with ID only. Additionally, nonverbal individuals would have higher rates of SIB than individuals who communicate verbally.

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