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The relationship between stereotyped movements and self-injurious behavior in children with developmental or sensory disabilities

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ABSTRACT

We assessed whether the stereotyped movements (SM) that are a defining characteristic of autism are discriminable from those observed in other disorders, and whether stereotyped self-injurious movements, which are excluded as exemplars of SM in DSM-IV, differ from other SM in severity or in kind. We used the Stereotyped and Self-Injurious Movement Interview to assess self-injurious and other SM in children with autism ($n = 56$), intellectual disability ($n = 29$), vision impairment ($n = 50$), or hearing impairment ($n = 51$) and in typical children ($n = 30$). Cross-tabulation of scores indicated that self-injurious behavior is rarely performed in the absence of other SM. Reliability analyses indicated that patterns of covariation among SM items differ across groups so that different item sets are necessary to reliably measure SM in each group. Analyses of variance indicated the autism group exceeded one or more other groups in the frequency of 15 SM, the vision impaired group exceeded others on 5 SM, and the hearing impaired group exceeded others on 1 SM. Discriminant function analysis of SM items indicated that although only 66% of participants were accurately classified, it was rare for a child with a different disorder to be misclassified as having autism or visual impairment. We concluded that self-injurious behavior is a more severe form of SM, and there is a distinctive pattern of SM, including self-injurious behavior, that characterizes children with autism.

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Apart from their capacity to cause harm, the self-injurious behavior of people with developmental or sensory disorders (Baumeister, 1978; Baumeister & Forehand, 1973; Berkson, 1983; Tate & Barroff, 1966; Tröster, Brambring, & Beelmann, 1991; Turner, 1999a) appears to have nothing in common with the self-harming behavior of other clinical groups (Alderman, 1997; Baroff, 1974; Briere & Gil, 1998; Favazza, 1996; Schroeder, Schroeder, Smith, & Dalldorf, 1978). Rather, as Matson et al. (1997) noted, the self-injurious behavior of people with developmental disorders is frequently rhythmic and repetitive, that is, it closely resembles the repetitive and stereotyped movements (SM) that are a defining characteristic of autism (American Psychiatric Association, 2000; Schopler, 1995) and are also common among persons with an intellectual or sensory disability (Murdoch, 1996; Rojahn & Sisson, 1990; Tröster et al.).

Until recently, self-injurious and other SM were both included in a class of behavior marked by repetition, rigidity, invariance, and inappropriate continuation (Baumeister & Rolling, 1976; de Lissavoy, 1961; Turner, 1997; Wing, 1976), and self-injurious SM were classified as a "substrate of stereotyped behaviors" (Gorman-Smith & Matson, 1985). More recently, self-injurious and other SM have, with aggressive/destructive behavior and noncompliance, been construed as distinct subcategories of "problem" (Rojahn, Matson, Lott, Esbensen, & Smalls, 2001) or "challenging" behavior (Matson & Nebel-Schwalm, 2007), and self-injurious SM are being excluded from some definitions of repetitive behavior (Leekam et al., 2007). These changes may not be helpful in terms of understanding which characteristics differentiate persons with different developmental disorders, and what processes are responsible for those differences.

The first problem is that because "restricted repetitive and stereotyped patterns of behavior, interests, and activities" is one of the criteria for diagnosing autism (American Psychiatric Association, 2000), whether or not self-injurious behavior is regarded as a form of SM affects how autism is diagnosed (self-injurious SM are currently listed among the associated features of autism, not as examples of stereotyped behavior), and how self-injurious behavior is construed among persons with autism. Because of the way autism is defined, there would be a presumption that the processes responsible for self-injurious behavior are also responsible for the other ways in which this criterion can be met or in which the specific impairment is manifest, namely, stereotyped and restricted patterns of interest, inflexibility in adhering to schedules and routines, and a preoccupation with parts of objects. If self-injurious behavior is a form of SM, then it is not only behavior that is challenging, but behavior which, when accompanied by other defining symptoms of autism, is essentially autistic-like.

The second problem is that self-injurious and other SM are not specific to autism but are common among young typically developing children (Leekam et al.) as well as among children with other disabilities. Even if self-injurious and other SM are a symptom of the impairment responsible for autism, they also reflect normal developmental processes and other impairments. This means that unless there is some measurable difference between the self-injurious and other SM of persons with and without autism, there is little point in including SM of any kind in the criteria set for the diagnosis of autism. To date, there is little evidence of such a measurable distinction between autism and related conditions like Asperger's Disorder (South, Ozonoff, & McMahon, 2005) or intellectual disabilities (Bodfish, Symons, Parker, & Lewis, 2000; Matson et al., 1996; Reese, Richman, Belmont, & Morse, 2005), only with unrelated conditions like Obsessive Compulsive Disorder where the focus was on non-stereotyped forms of behavior (Zandt, Prior, & Kyrios, 2007).

In raising this specificity issue, we are not suggesting that there is no distinction between the self-injurious and other SM characteristic of autism versus other conditions, only that there is little evidence of such a distinction. Research on sensory disorders suggests that different forms of impairment may result in some distinctive SM. For example, eye poking and pressuring the eyeball appear to be relatively specific to children with a vision impairment, and especially to those with an intact optical nerve but a damaged cornea (Tröster et al.). Other SM, although not specific to vision impairment, do appear to be related to a specific cause of vision impairment when a child is vision-impaired. Rocking, for example, appears to be strongly associated with retinopathy of prematurity (Jan, Freeman, & Scott, 1977; McHugh & Lieberman, 2003; McHugh & Pyfer, 1999).

The third problem is that if there are differences in self-injurious and other SM as a function of which disorder or impairment a person has, then assessment tools designed for use and validated with one population may not be valid, or may be less valid, when used with another population. For