6-2008

Implications of Sensory Defensiveness in a College Population

Mary-Ellen Johnson
Sacred Heart University, johnsonm@sacredheart.edu

Rebecca Irving

Recommended Citation

Johnson, M. E., & Irving, R. (2008, June). "Implications of sensory defensiveness in a college population." The American Occupational Therapy Association Sensory Integration Special Interest Section Quarterly, 31(2), 1–3.

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Sensory defensiveness is an inappropriate and exaggerated response to a typically harmless sensory stimulus (Kinnealey & Oliver, 2002). For persons with sensory defensiveness, sensory stimuli can elicit avoidance, increased arousal, and fight-or-flight behaviors. Some specific behaviors noted in persons with severe sensory defensiveness include crying, screaming, or lashing out from light touch; running away from touch; gagging or vomiting in response to certain food textures; hyperactivity in response to loud noises or bright lights; and extreme reactions to sound stimuli, such as fire alarms or vacuum cleaners. Unexpected and unpredictable stimuli are most likely to cause a reaction, and behavioral reactions may increase and intensify over time with repeated exposures to uncomfortable stimuli. Although behaviors indicative of sensory defensiveness have more often been studied in children, the occupational therapy literature has shown an increased emphasis on the impact of this disorder on adults. This article discusses the potential impact of sensory defensiveness in college students, a population not yet thoroughly studied.

Impact of Sensory Defensiveness in Adults

Watling, Bodison, Henry, and Miller-Kuhaneck (2006) described how sensory integration theory can be applied throughout the life span. Difficulties in sensory processing can persist beyond childhood. In adolescence and young adulthood, sensitivity can result in the avoidance of fulfilling careers and the choice of less attractive options that have less aversive sensory stimuli. Social and intimate situations may be avoided at a time when establishing a mature relationship is developmentally appropriate. The experience of increased sensory stimuli in larger school and work settings can result in emotional and psychological distress. The limited research that has been done to date, which will be discussed below, appears to support this theory.

The Adult Sensory Questionnaire (ASQ) is a self-report screening tool for sensory defensiveness in adults (Kinnealey & Oliver, 2002). To complete this tool, clients answer yes or no to items that describe behaviors typical of sensory defensiveness. A total score is obtained, and cut-off scores help to determine whether the client indicates sensory defensiveness. Research has established concurrent validity between the ASQ and the Adult Sensory Interview ($r = .94$, $p < .01$) (Kinnealey, Oliver, & Wilbarger, 1995) and between the Adolescent/Adult Sensory Profile and the Adult Sensory Interview ($r = .81$, $p < .01$) (Kinnealey & Smith, 2002).

The ASQ has been used in research to examine the relationship between sensory defensiveness and health quality of life in adults. In a sample of 14 persons with sensory defensiveness, a relationship

was found between scores on the ASQ and scores on six of the eight subscales of the RAND SF-36 quality-of-life measure, which includes bodily pain, general health, vitality, social functioning, role, and emotional and mental health (Tate, 2004). Adults with sensory defensiveness who function typically report more anxiety and depression than their counterparts without sensory defensiveness, may have poor coping skills that lead to unsafe behaviors (Kinnealey & Fuiek, 1999), and may have fewer or poorer social supports to assist them in dealing with these difficulties (Ma, 2006). Jerome and Liss (2005) examined the effect of sensory sensitivity and avoidance on the ability to form relationships. They found a significant positive correlation between sensory sensitivity and relationship anxiety and between sensory avoidance and relationship avoidance. Difficulty with forming relationships also may interfere with the ability to access the social supports that can help to cope with and adjust to sensory defensiveness.

Prevalence of Sensory Defensiveness in Adults

Little research is available on the prevalence rates of sensory defensiveness among the general population. Although one study with a pediatric sample suggested a prevalence of sensory processing disorders of 5.3% (Ahn, Miller, Milberger, & Mcintosh, 2004), we know little about prevalence in adults. Using the ASQ administered online, we investigated sensory defensiveness in a self-selected sample of students, faculty, and staff (N = 220) of a midsize New England university (Irving, Brown, & Johnson, 2007). Eighty-one percent of the respondents were women, and the majority of total respondents (67%) were between 18 and 30 years of age (with the remaining 33% between 31 and 60 years of age). The majority of respondents were single (68%). A possible high prevalence of sensory defensiveness was noted, with 23% of the sample scoring in the definite sensory defensiveness range and 45% in the moderate sensory defensiveness range (a total of 149 respondents).

Prevalence results from the study likely reflect the bias created by a self-selected sample. Respondents who have discomfort with sensory experiences might have had more interest in taking a survey that examined sensory defensiveness. The overall response rate to the e-mailed survey (to more than 6,000 individuals) was approximately 3.6%, which limits the validity of the results. If one assumes that none of the nonrespondents demonstrated sensory defensiveness, then the 149 responses would indicate a rate of approximately 3%, which is close to that found by Ahn et al. (2004), and likely close to the true percentage. Although prevalence of sensory defensiveness cannot be determined by this survey, the results were intriguing and presented us with a rationale for further investigation using different methods.

What concerned us was that these persons with sensory defensiveness came from a sample that was taken from a primarily young university population and that the data suggested that this population was prone to issues with mental health and difficulties with occupational performance. According to the Fall 2006 National College Health Assessment, 12.7% of college students reported experiencing anxiety; 17.5% reported experiencing depression within the preceding 12 months; and 15.2% reported depression, anxiety, and seasonal affective disorder interfering with their academic performance (American College Health Association, 2007). The Depression/Anxiety Disorders item from this survey ranked 7th out of 24 factors that negatively affected academic performance. A recent British study compared the psychological well-being of students over time, beginning with the period before they began their first year of university and monitoring them at four timepoints throughout their first year of study (Cooke, Bewick, Barkham, Bradley, & Audin, 2006). Based on the students' responses to a measure of well-being, the researchers established that students experience greater strain during their first year of study than the period before beginning the university. Additionally, the students' scores on the measure of well-being never returned to the baselines measured before starting postsecondary studies. The researchers suggested that elevated anxiety levels may evolve into depression for a vulnerable group. Further, first-year students are at the greatest risk of not advancing to the next year of college compared to subsequent years (National Center for Higher Education Management Systems, 2007).

Transition from high school to college can result in major changes in a student's areas of occupation, performance patterns, and contexts. While in primary and secondary school, students more than likely live at home and function in familiar settings, can manage their environment, engage in established habits and routines, fill familiar roles, and have stable social supports. For a student with sensory defensiveness, adjustment to the postsecondary education setting may involve functioning in a much more stimulating environment, including larger classes; coping with an unfamiliar roommate; and living in a residence hall. Residence halls often have varying uncontrollable noise levels throughout the day and night. If avoidance and predictability were coping strategies previously used, a student with sensory defensiveness may find them harder to use or ineffective in this novel setting (Kinnealey et al., 1995). Students who were once able to cope and adjust to a changing sensory environment may now find coping more difficult, which could lead to exacerbation of feelings of anxiety and depression.

Implications for Occupational Therapy

The finding of a large raw number of young college students with sensory defensiveness from a small university (Irving et al., 2007) indicates a need for further research to examine the prevalence and effect of sensory defensiveness within the college-age population. We plan to conduct another study

with first-year students that will use different sample selection methods. If high prevalence rates are found, significant implications exist for occupational therapy interventions with this population. Occupational therapy can contribute to a better understanding of why a subpopulation among first-year postsecondary students may be experiencing adjustment difficulties, anxiety, and depression and recommend interventions and environmental modifications that can help students to cope with sensory defensiveness in the new environment.

Research also has shown that with treatment and the development of healthy coping strategies a person with sensory defensiveness can increase his or her ability to function in daily life. For example, sensory diets have been found to be effective in reducing sensory defensiveness (Pfeiffer & Kinnealey, 2003), and persons with sensory defensiveness have identified avoidance, predictability, mental preparation, talking through, counteraction, and confrontation as effective coping strategies (Kinnealey et al., 1995). Occupational therapists who provide services or consultation in the postsecondary education setting can advise administrators and directors of residential life about making alterations to the environmental conditions that may be problematic for students with sensory defensiveness. Therapists can work with schools to screen for sensory defensiveness and provide support by teaching students sensory diets and coping strategies and helping them to identify barriers to desired activities or career paths. Interventions could be provided individually or through treatment or support groups.

Further investigation should begin with research to establish the validity of the ASQ. Future research needs to determine the actual prevalence of sensory defensiveness in the college-age population through the use of the ASQ, the Adult Sensory Interview, and the Adolescent/Adult Sensory Profile (Brown & Dunn, 2002; Kinnealy et al., 1995). Research examining the effect of sensory and coping strategies on occupational performance in late adolescence and associations between sensory defensiveness and retention, grades, and negative behaviors (e.g., substance abuse) could be an additional fruitful line of study.

Summary

Occupational therapy traditionally has addressed the needs of students in primary and secondary education; however, we also can make significant contributions in postsecondary education. If a high prevalence rate of sensory defensiveness is identified among postsecondary education students, particularly those in their first year, then they can be given the opportunity to receive services that may lead to a more successful and fulfilling educational experience. These first-year college students with sensory defensiveness provide an opportunity to expand the application of sensory integration theory.

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Author Affiliation

Mary Ellen Johnson, MHSM, OTR/L, is Clinical Assistant Professor, Graduate Program in Occupational Therapy, Sacred Heart University, 5151 Park Avenue, Fairfield, Connecticut 06825-1000; johnsonm@sacredheart.edu

Rebecca Irving MS, OTR/L, is Occupational Therapist, Preferred Therapy Solutions, East Hartford, Connecticut.