

Using the Diagnostic and Statistical Manual of Mental Disorders – 5th Edition (DSM-5) to Identify Prevalence Rates of Acute Stress Disorder in a National Sample of U.S. Adolescents: Findings from the National Comorbidity Survey- Adolescent Supplement (NCS-A)

Bronte Torres-Pagan and Kayla Wyant
Criminal Justice and Psychology
Faculty Mentor: Kendell Coker, Ph.D., J.D.

Abstract

This study examined prevalence rates of Acute Stress Disorder (ASD) in a national sample of adolescents using data from the National Comorbidity Survey – Adolescent Supplement (NCS-A). The sample consisted of 10,148 youth aged 13-18 across the United States. The relationship between ASD and demographic variables such as age, race, gender, geographical region, and born in the United States were analyzed. Older youth (ages 16-18) were significantly more likely than younger youth (ages 13-15) to have a lifetime disorder of ASD. Females were significantly more likely than males to receive a diagnosis of ASD. Also, with regard to urbanicity, youth residing in “rural” areas were more likely than youth in metropolitan and “other urban” areas to receive an ASD diagnosis. Implications of these findings are also discussed.

Introduction

Acute Stress Disorder (ASD) has become a topic of discussion since being added to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) in 1994. According to the DSM-5, Acute Stress Disorder can occur in people who experienced, witnessed, or were involved in a situation in which “actual or threatened death, serious injury, or actual or threatened physical or sexual violation” occurred (2013). To be diagnosed with ASD, someone who experienced a traumatic event must have eight of the fourteen symptoms, including, but not limited to, a sense of detachment or numbing, recurrent memories of the event, avoidance of thoughts, and aggressive behavior (2013). Symptoms occur within three days of the event and last up to one month. A recent study concluded that 8-19% of adolescent trauma survivors have ASD (Meiser-Stedman et al., 2007). Research has shown that youth with ASD demonstrated greater emotional problems, higher subjective threat appraisal at time of their trauma exposure, and reported more cognitive misappraisals than trauma-exposed youth without an ASD diagnosis (Salmond et al., 2011). These studies highlight the importance of proper identification and treatment of youth with ASD. The current study utilizes data from the National Comorbidity Survey (NCS-A) (Merikangas et al., 2009) to identify updated prevalence estimates of ASD among youth in the United States using DSM-5 criteria, which is the most recent version of psychiatric disorders and associated symptomatology. This research adds to the current understanding by also examining the impact that various demographic variables have on the likelihood of receiving an ASD diagnosis.

Materials and Methods

Between February 2001 and January 2004, the Institute for Social and Political Research (ICPSR) at the University of Michigan conducted the NCS-A (Kessler et al., 2009). The NCS-A was the first epidemiological study to provide estimated national prevalence rates of mental disorders in youth across the United States. Diagnostic survey questions were adapted from The World Health Organization Composite International Diagnostic Interview (CIDI), which was modified for use on youth. The NCS-A consisted of 10,148 youth, comprised of a school-based sample and a household sample using a dual-framed design. The probability sample of students that participated in the survey was stratified. Survey data was gathered through computer-assisted personal interviews, computer-assisted telephone, and telephone interviews. The response rate of adolescents from the household sample was 85.9 percent, which included 904 interviews and the response rate of adolescents in the school sample was 74.7 percent, including 9,244 interviews. Survey data were weighted for within household probability of selection (only in the household sample) and for residual discrepancies between the sample and population on a wide range of census sociodemographic and geographic variables.

Mapping from the DSM-IV to the DSM-5

The focus of this study was Acute Stress Disorder, which is currently a DSM-5 recognized trauma disorder. Criteria of Acute Stress Disorder, listed in the DSM-5 were compared to the diagnostic criteria in the DSM-IV (NOTE: Trauma was not a category of disorders in the DSM-IV, but instead was recognized as an Anxiety Disorder). Differences in criteria between Acute Stress Disorder in the DSM-IV and the DSM-5 were recorded. The DSM-5 criteria for Acute Stress Disorder was then mapped to the NCS-A survey questions to locate

questions related to the each updated DSM-5 ASD specific symptom criteria. After the mapping process was completed, the Statistical Package for the Social Sciences (SPSS) computer program was used to conduct statistical analyses to identify estimated national prevalence rates of ASD using the NCS-A. Data were analyzed in terms of age, gender, race, birth in the United States, and urbanicity of residence.

Results

Analyses were conducted to show the estimated number of youth in the NCS-A sample ($N = 10,148$) that met criteria for Acute Stress Disorder. Descriptive analyses revealed a rather bell-curve shaped distribution of prevalence rates based on age. However, the percentage of males with ASD was smaller than the percentage of females with the disorder, 0.4% and 1.6%, respectively. Furthermore, youth not born in the United States made up a larger percentage (1.9%) of youth with ASD in comparison to those who were born in the United States (0.1%). These results are displayed in Table 1.

Table 1

Table 1^a

Acute Stress Disorder Prevalence *

	Total N = 10,148 (%)
Age	
13	16 (0.2%)
14	27 (0.3%)
15	40 (0.4%)
16	39 (0.4%)
17	45 (0.5%)
18	25 (0.3%)
Gender	
Male	36 (0.4%)
Female	156 (1.6%)
Race	
Hispanic	35 (0.4%)
Black	31 (0.3%)
Other	10 (0.1%)
White	116 (1.2%)
Not born in the U.S.	
False	185 (1.9%)
True	7 (0.1%)
Urbanicity **	
Metro	86 (0.9%)
Other Urban	77 (0.8%)
Rural	29 (0.3%)

^a Table does not account for survey design or sampling weights

* Acute stress disorder is a lifetime diagnosis

** Metropolitan means a county with a population greater than 1,000,000, other urbanized county is a metropolitan county with a population less than 1,000,000 and rural is a nonurban, nonmetropolitan county.

Analyses were conducted to determine the impact of demographic variables on the likelihood of receiving an ASD diagnosis. The results revealed that 16-18 year olds were 1.72 times more likely to be diagnosed with ASD than youth aged 13-15. Also, females were more than four times as likely to be diagnosed with ASD than males ($OR = 4.40$). Youth living in “other urban” areas were approximately half as likely to be diagnosed with ASD than youth living in “rural” areas ($OR = .50$). There were no significant differences based on race or status of being born in the United States. These findings are displayed in Table 2.

Table 2

Table 2
Acute Stress Disorder Prevalence Statistics *

	Odds Ratio	95% Confidence Intervals
Age^a		
13-15	-	-
16-18	1.72**	[1.326, 2.370]
Gender^b		
Male	-	-
Female	4.402**	[3.056, 6.342]
Race^c		
Hispanic	1.074	[0.721, 1.599]
Black	1.267	[0.847, 1.896]
Other	1.234	[0.636, 2.294]
White	-	-
Born in the U.S.^d		
False	.571	[0.260, 1.254]
True	-	-
Urbanicity^e		
Metropolitan	.630	[0.409, 0.971]
Other Urban	.504**	[0.327, 0.779]
Rural	-	-

Acute stress disorder is a lifetime diagnosis

** $p < .05$; Indicates statistical significance

^a Age group 16-18 is the reference group

^b Females are the reference group

^c The race “white” is the reference group

^d Those born in the U.S. (true) are the reference group

^e Rural areas are the reference group

Discussion

This study provides an update to data gathered via the National Comorbidity Survey of Adolescents (NCS-A) that was administered from 2001-2004. Analysis of the DSM-5 and the NCS-A allowed for identification of estimated prevalence rates of youth who meet criteria for ASD. Data revealed that older youth (aged 16-18) and females were significantly more likely to receive a lifetime diagnosis of ASD than younger youth (aged 13-15) and males, respectively. Also, youth living in rural areas were significantly more likely than youth living in “other urban” areas to receive a lifetime diagnosis of ASD. There is literature to support the notion that trauma disorders like Post-traumatic Stress Disorder (PTSD) in older youth is similar to PTSD in adults and younger youth may be limited in their ability to express their traumatic stress (Kaminer, Seedat, & Stein, 2005). Together, these findings could support the finding that older youth are more likely than younger youth to have ASD or receive the diagnosis from clinicians or evaluators. Also, research has shown that being female was among the best individual-level predictor of emotional distress and females have greater rates of traumatic symptoms following traumatic events (Posick, 2014; Tolin & Foa, 2006; Bryant & Harvey, 2003). Although there is little to no existing literature on geographical differences in ASD or trauma related disorders, one study found no difference between rural and urban areas in the number of mental health diagnoses (McDonald et al., 2014). The implications of this study are crucial. The main difference between ASD and PTSD is the duration of symptoms. PTSD may be considered by some clinicians to be more severe in symptomology due to the longer duration of symptoms. Studies have shown

that ASD is a positive predictive factor for PTSD, meaning that a large portion of those diagnosed with ASD are eventually re-diagnosed with PTSD (Bryant 2011). This study provides data that can help pinpoint those youth most at risk for ASD and develop potential early intervention/treatment strategies to ensure ASD is treated

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*, 5th Edition.

Bryant, R. A. & Harvey, A. G. (2003). Gender differences in the relationship between acute stress disorder and posttraumatic stress disorder following motor vehicle accidents. *The Australian and New Zealand Journal of Psychiatry*, 37, 226-229.

Bryant, R.A. (2011). Acute Stress Disorder as a predictor of Posttraumatic Stress Disorder: A systematic review. *The Journal of Clinical Psychology*, 72, 233-239.

Kaminer, D., Seedat, S., & Stein, D. J. (2005). Post-traumatic stress disorder in children. *World Psychiatry*, 4, 121-125.

Kessler, R. C., Avenevoli, S., Costello, E. J., Green, J. G., Gruber, M. J., Heeringa, S., Merikangas, K. R., Pennell, B. E., Sampson, N. A., & Zaslavsky, A. M. (2009). Design and field procedures in the U.S. National Comorbidity Survey Replication Adolescent Supplement (NCS-A). *International Journal of Methods in Psychiatric Research*, 18, 69-83.

McDonald, T. W., Curtis-Schaeffer, A. K., Theiler, A. A., & Howard, E. M. (2014). Providers' perceptions of prevalent mental and behavioral health problems: Differences and similarities across urban, rural, and frontier areas. *Journal of Rural Mental Health*, 38, 36-49.

Merikangas, K. R., Avenevoli, S., Costello, E. J., Koretz, D., Kessler, R. C. (2009). National Comorbidity Survey Replication Adolescent Supplement (NCS-A): I. Background and measures. *Journal of the American Academy of Child and Adolescent Psychiatry*, 48, 367-369.

Meiser-Stedman, R., Dalgleish, T., Smith, P., Yule, W., & Glucksman, E. (2007). Diagnostic, demographic, memory quality, and cognitive variables associated with acute stress disorder in children and adolescents. *Journal of Abnormal Psychology*, 116, 65-79.

Posick, C. (2014). Victimization and reporting to the police: The role of negative emotionality. *Psychology of Violence*, 4, 210-223.

and does not intensify in severity and duration. The prevalence rates of ASD in adolescents gained from this study allow for further studies to be conducted to more accurately determine risk and protective factors for this mental health disorder.

Salmond, C. H., Meiser-Stedman, R., Glucksman, E., Thompson, P., Dalgleish, T., & Smith, P. (2011). The nature of trauma memories in acute stress disorder in children and adolescents. *Journal of Child Psychology and Psychiatry*, 52, 560-570.

Tolin, D. F. & Foa, E. B. (2006). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychological Bulletin*, 132, 959-992.

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Bronte Torres-Pagan is a junior at the University of New Haven studying in the Henry C. Lee College of Criminal Justice. She is planning to apply to graduate school, possibly law school.

Kayla Wyant is a senior in the Department of Psychology, concentrating in forensic psychology at the University of New Haven. She is currently planning on applying to graduate school programs to obtain a Ph.D. in clinical psychology, concentrated in forensic psychology, and also apply to the Peace Corps.