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## Depressive Symptoms in The National Longitudinal Study of Adolescent to Adult Health (Add Health)

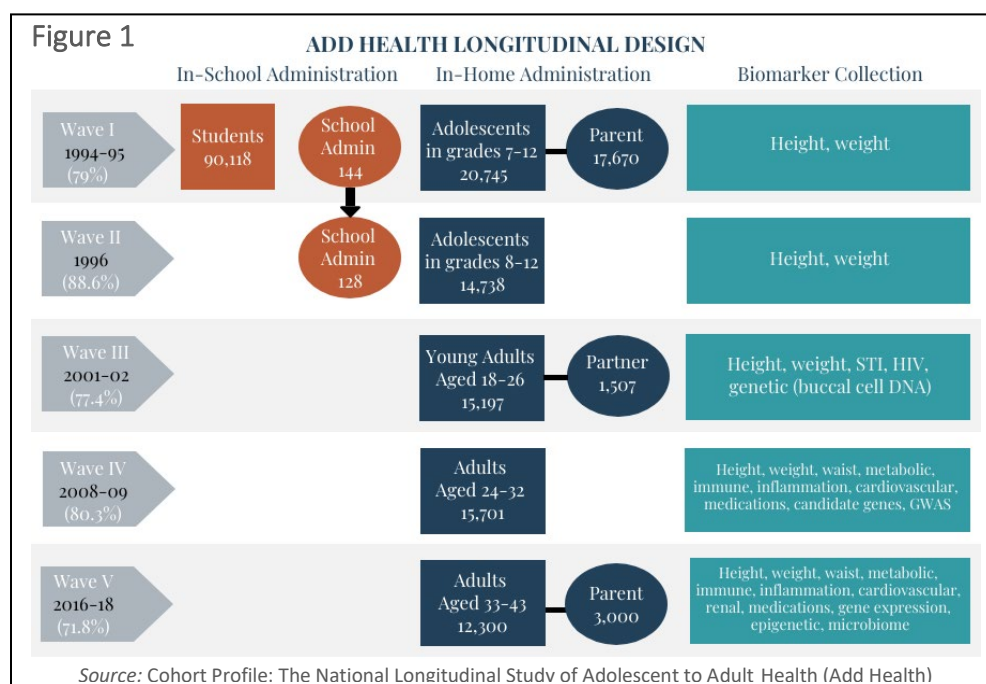
By Alexis C. Dennis, Sydney Will, Kathleen Mullan Harris, and Robert A. Hummer

### Depressive Symptom Burden among U.S. Adults

Depressive symptoms are common, affecting an estimated 18.5% of adults in the United States (US) in a recent two-week period (Villarroel and Terlizzi 2020). The prevalence of depressive symptoms rose sharply among US adolescents and young adults between 2012 and 2018 (Keyes et al. 2019) and tripled among adults ages 18 and over from 2019 to 2020 during the early stages of the COVID-19 pandemic (Ettman et al. 2020). The burden of depressive symptoms is also unequally distributed across the US population, such that some sociodemographic groups tend to experience higher depressive symptom levels than others. This data brief highlights the utility of using the National Longitudinal Study of Adolescent to Adult Health (Add Health) to study depressive symptoms among US adults.

### Data, Measures, and Methods

Add Health is a nationally representative survey of over 20,000 US adolescents who were enrolled in grades 7-12 in the 1994-95 school year (Figure 1). This cohort has been followed across five waves of data collection to date. Each wave of Add Health contains rich data regarding participants'



sociodemographic characteristics, social and geographic contexts, relationships, and physical and mental health status (Harris et al. 2019). This data brief highlights depressive symptom data that were collected during Waves I, IV, and V of Add Health, in 1994-1995

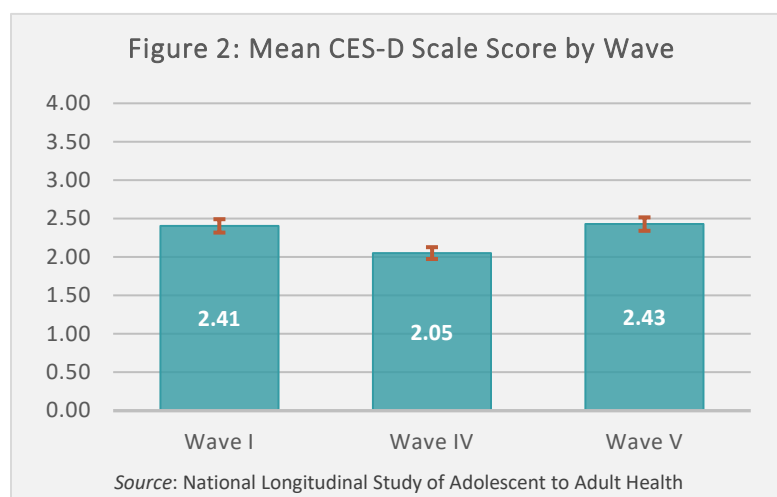
(N=20,745), 2008-2009 (N=15,701), and 2016-2018 (N=12,300), respectively. Waves I, IV, and V correspond with adolescence (average age 15, young adulthood (average age 28), and early midlife (average age 38), respectively.

The Center for Epidemiologic Studies-Depression scale (CES-D) is one of the most commonly used measures for assessing the frequency and severity of depressive symptoms in the general population (Radloff 1977), and is available in Waves I-V of Add Health. Wave 1 contains 19 CES-D items, Wave IV contains 10 CES-D items, and Wave V contain five CES-D items from the CES-D negative affect subscale. This brief highlights depressive symptom data from the five-item negative affect CES-D subscale at Waves I, IV, and V, which are validated as appropriate for measuring depressive symptoms across racial/ethnic and nativity groups in the Add Health cohort (Perreira et al. 2005). These items ask respondents how many days in the last week they felt: “depressed,” “sad,” “like they could not shake off the blues,” “happy (reverse coded),” and “like life was not worth living.” The response scale for each item ranges from 0 (rarely, 0 days) to 3 (severe, 5-7 days).

Here, we calculated the sum of the five CES-D items to yield a continuous measure ranging from 0-15, with 0 indicating no depressive symptoms and 15 indicating the highest frequency and severity of depressive symptoms. We also used measures for race/ethnicity (non-Hispanic Black, Hispanic, Asian American or Pacific Islander, Native American or American Indian, non-Hispanic White), gender (women, men), parent’s educational attainment, and immigrant status (Immigrant, US Born) that were measured at Wave I, and respondent’s educational attainment that was measured at Wave IV. Below, we present the means of depressive symptoms for the overall sample at Waves I, IV, and V, as well as by race/ethnicity, gender, immigrant status, parent’s educational attainment, and respondent’s educational attainment. All statistics are weighted to represent the population of US adults who were in grades 7-12 during the 1994-95 school year.

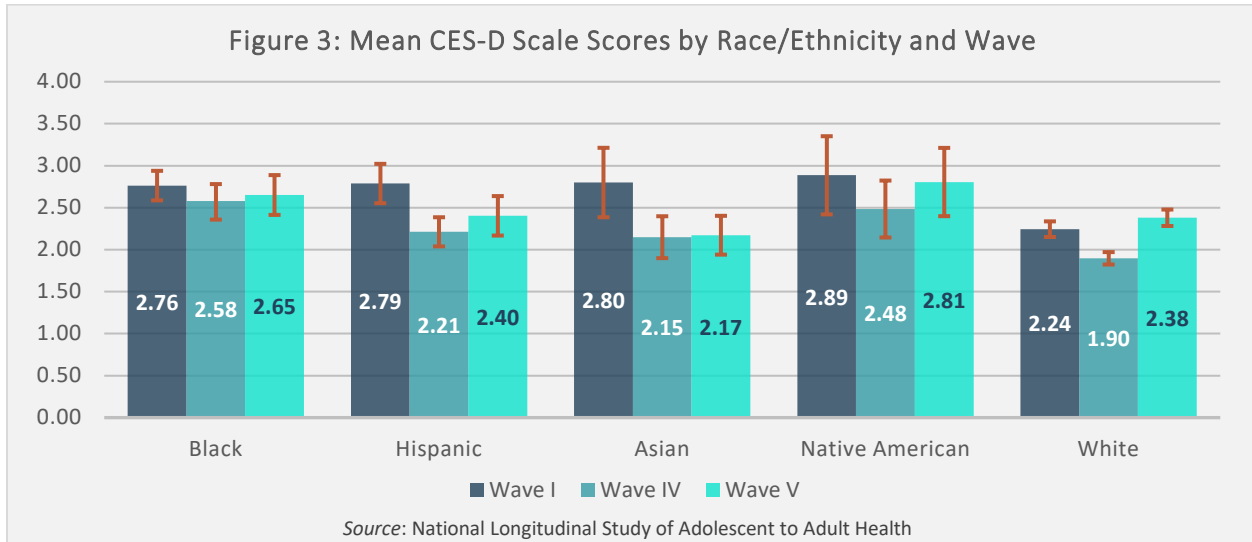
## Data Snapshot

### WHAT ARE THE MEAN CES-D SCORES FOR THE ADD HEALTH COHORT IN ADOLESCENCE, YOUNG ADULTHOOD, AND EARLY MIDLIFE?



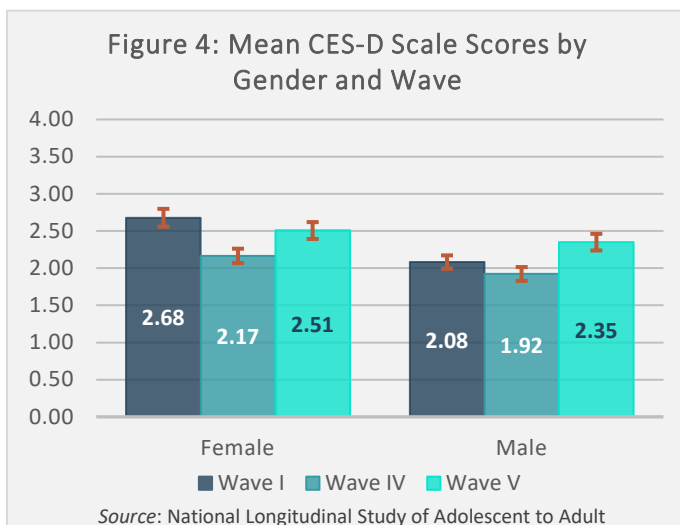
- The mean CES-D score in the Add Health cohort was 2.40 at Wave I, when respondents were in adolescence.
- The mean CES-D score in the Add Health cohort was 2.05 at Wave IV, when respondents were in young adulthood.
- The mean CES-D score was 2.42 when respondents were approaching early midlife at Wave V.

**WHAT WERE THE MEAN CES-D SCORES BY RACE/ETHNICITY AMONG THE ADD HEALTH COHORT IN ADOLESCENCE, YOUNG ADULTHOOD, AND EARLY MIDLIFE, RESPECTIVELY?**



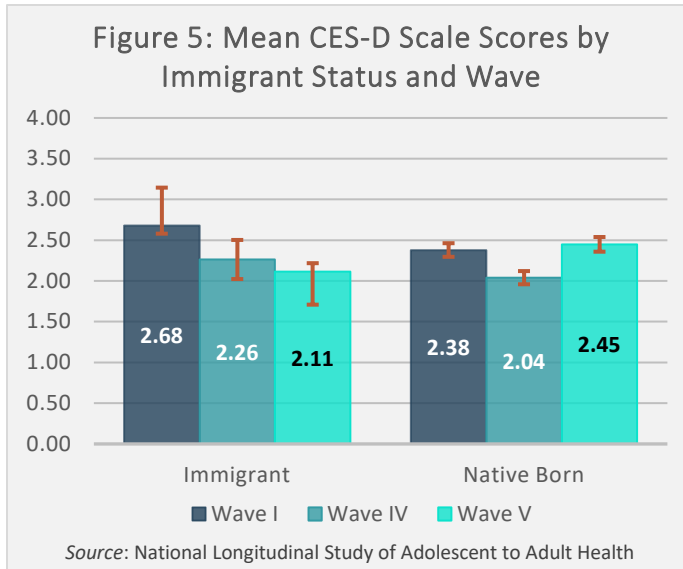
- Among Black, Hispanic, Asian, and Native American respondents, mean CES-D score was highest at Wave I, when respondents were adolescents, than at other waves. Among White respondents, however, the mean CES-D score was highest at Wave V when White respondents were in early midlife.
- Across all racial/ethnic groups at Wave I, mean CES-D score was highest among Native American respondents (2.89), and lowest among White respondents (2.24).
- At Wave IV when respondents were young adults, mean CES-D score across racial/ethnic groups was highest among Black respondents (2.58) and lowest among White respondents (1.90).
- When respondents were approaching early midlife (Wave V), mean CES-D score across racial/ethnic groups was highest among Black respondents (2.65), and lowest among Asian respondents (2.17).

**WHAT WERE THE MEAN CES-D SCORES BY GENDER AMONG THE ADD HEALTH COHORT IN ADOLESCENCE, YOUNG ADULTHOOD, AND EARLY MIDLIFE, RESPECTIVELY?**



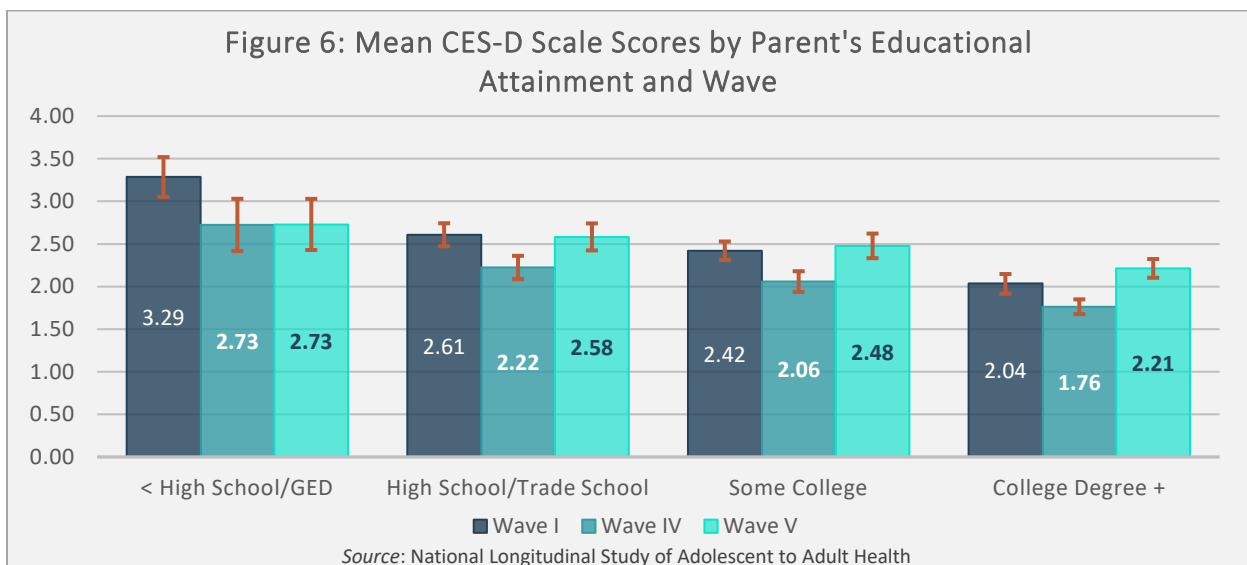
- Across adolescence (Wave I), young adulthood (Wave IV), and early midlife (Wave V), the mean CES-D score was higher for women than for men.
- Among women, mean CES-D scores were highest in adolescence (2.68, Wave I) and lowest in young adulthood (2.17, Wave IV).
- Among men, mean CES-D score was highest in early midlife (2.35, Wave V) and lowest in young adulthood (1.92, Wave IV).

**WHAT WERE THE MEAN CES-D SCORES BY IMMIGRANT STATUS AMONG THE ADD HEALTH COHORT IN ADOLESCENCE, YOUNG ADULTHOOD, AND EARLY MIDLIFE?**



- Among immigrant respondents, mean CES-D scores were highest in adolescence (2.68, Wave I) and lowest in early midlife (2.11, Wave V).
- Among native-born respondents, mean CES-D scores are lowest in young adulthood (2.04, Wave IV) and highest in early midlife (2.45, Wave V).
- In adolescence and young adulthood, mean CES-D scores are higher among immigrant respondents than native born respondents, but in early mid-life, mean CES-D scores are higher among native born respondents than immigrant respondents.

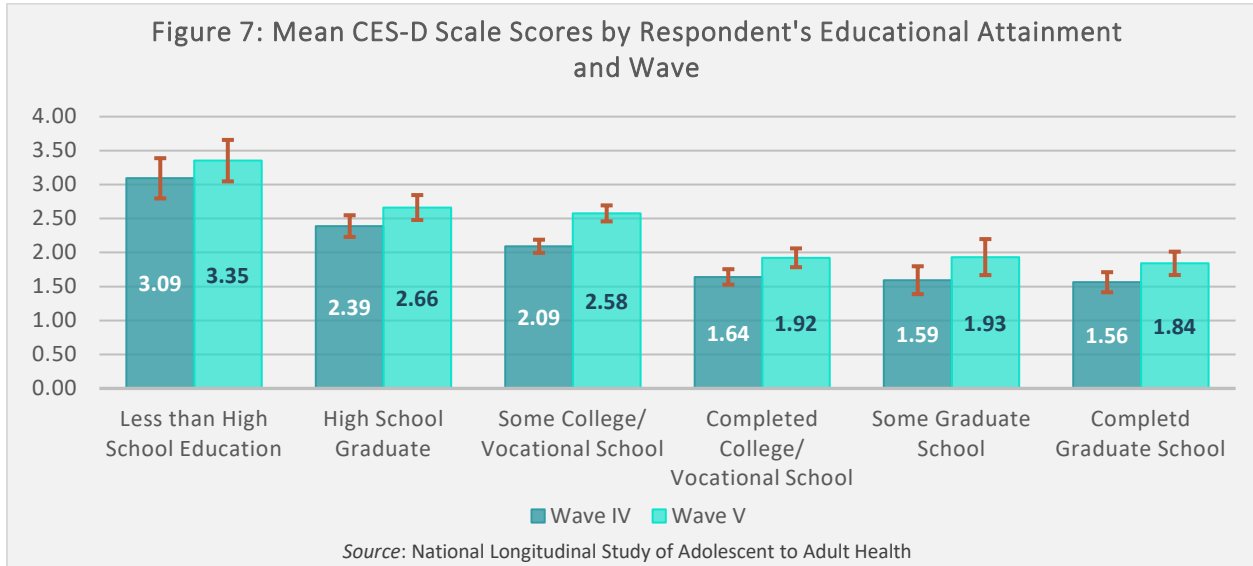
**WHAT WERE THE MEAN CES-D SCORES BY PARENT’S EDUCATIONAL ATTAINMENT AMONG THE ADD HEALTH COHORT IN ADOLESCENCE, YOUNG ADULTHOOD, AND EARLY MIDLIFE, RESPECTIVELY?**



- Across all waves, respondents whose parents attained lower levels of education reported higher mean CES-D scores than respondents whose parents attained higher levels of education.
- Among respondents whose parents attained less than a high school degree or GED, mean CES-D scores were highest in adolescence (3.29, Wave I) and stable across young adulthood and early midlife (2.73, Wave IV and Wave V).
- For respondents whose parents attained a high school degree or trade school degree, mean CES-D scores were highest in adolescence (2.61, Wave 1) and lowest in young adulthood (2.22, Wave IV).

- Among respondents whose parents attained some college, mean CES-D scores were lowest in young adulthood (2.06, Wave IV) and highest in early midlife (2.48, Wave V).
- Among respondents whose parents attained a college degree or more, mean CES-D scores were highest in early midlife (2.21, Wave V) and lowest in young adulthood (1.76, Wave IV).

**WHAT WERE THE MEAN CES-D SCORES BY RESPONDENT’S EDUCATIONAL ATTAINMENT AMONG THE ADD HEALTH COHORT IN YOUNG ADULTHOOD, AND EARLY MIDLIFE, RESPECTIVELY?**



- Across all waves, respondents who attained lower levels of education reported higher mean CES-D scores than respondents who attained higher levels of education.
- Within each level of educational attainment, mean CES-D scores were higher for respondents in early midlife (Wave V) than in young adulthood (Wave IV).

**Accessing Add Health Data**

The very rich longitudinal, individual- and contextual-level data available in Add Health provides scholars who are interested in mental health and mental health inequalities with ample opportunities to study and better understand the various predictors and consequences of depressive symptoms among a very large, nationally-representative cohort of US individuals. For those interested in Add Health data availability, please visit the [CPC Data Portal](#).

**Examples of Recent Add Health-Based Research on Depressive Symptoms:**

- Hoke, Morgan K. and Courtney E. Boen. 2021. “The health impacts of eviction: Evidence from the national longitudinal study of adolescent to adult health.” *Social Science & Medicine*. 273:113742.
- Hargrove, Taylor W., Carolyn T. Halpern, Lauren Gaydosh, Jon M. Hussey, Eric A. Whitsel, Nancy Dole, Robert A. Hummer, and Kathleen Mullan Harris. 2020. “Race/Ethnicity, Gender, and Trajectories of Depressive Symptoms Across Early- and Mid-Life Among the Add Health Cohort.” *Journal of Racial and Ethnic Health Disparities*. doi: [10.1007/s40615-019-00692-8](https://doi.org/10.1007/s40615-019-00692-8).

- Dansby Olufowote, Rachel A., Kristy L. Soloski, Natali Gonzalez-Casteñeda, and Nicholas D. Hayes. (2020). "An Accelerated Latent Class Growth Curve Growth Analysis of Adolescent Bonds and Trajectories of Depressive Symptoms." *Journal of Child and Family Studies*. 29(2):292-306.
- Deshpande, Sameer K., Raiden B. Hasegawa, Jordan Weiss, and Dylan S. Small. 2020. "The association between adolescent football participation and early adulthood depression." *PLOS ONE*. 15(3): e0229978.
- Chen, Ping and Kathleen Mullan Harris. 2019. "Association of Positive Family Relationships with Mental Health Trajectories from Adolescence to Midlife." *JAMA Pediatrics*, 173(12):e193336.

Please refer to the [Add Health Publications database](#) for a complete list of Add Health-based publications.

## Acknowledgement

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## Suggested Citation

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- Radloff, Lenore Sawyer. 1977. "The CES-D Scale: A Self-Report Depression Scale for Research in the General Population." *Applied Psychological Measurement* 1(3):385–401. doi: 10.1177/014662167700100306.
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