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Editorial

Improving Adolescent and Young Adult Health Through Evidence From Add Health

With this issue of the *Journal of Adolescent Health*, we bring you a unique supplement that explores what we have learned from 25 years of data gathered through the National Longitudinal Study of Adolescent Health, better known now as Add Health. The six articles in the supplement focus on topical areas—substance use, violence exposure, sexual health and behavior, union and family formation, mental health, and physical health—exploring how these longitudinal data provide a better understanding of how health and wellbeing unfold during adolescence and how they impact the second and third decades of life.

In a comprehensive editorial, Kathleen Mullen Harris and Carolyn Tucker Halpern give us a brief overview of the history of Add Health [1]. The study was developed in the 1990s in response to a mandate from the United States Congress to fund a study of adolescent health. The eventual study was designed by a team of multidisciplinary investigators who sought to understand the causes of health and health behavior with a special emphasis on the multiple contexts of adolescent life. Harris and Halpern's description of Add Health as a "data treasure for understanding the implications of adolescence for adult health and wellbeing" captures the unique contributions that Add Health has made and continues to make to our understanding the life course in the United States. In 2014, the name of the study was changed to the National Longitudinal Study on Adolescent to Adult Health to reflect a focus on understanding the comprehensive nature of the five waves of data (through young adulthood and early midlife), which began in 1994 with a national sample 20,000 adolescents representing diverse subgroups including gender, race and ethnicity, immigrant status, sexual identity, socioeconomic status, and geographic location. The scope is unprecedented. The sample of young people has been followed with numerous measures, including environmental, psychological, biological, and genetic, in an effort to unravel key factors that impact positive and adverse health outcomes through midlife.

The first review, by Austin et al., documents significant linkages between adverse experiences and later substance use, with the resultant negative impact on health and downward social mobility [2]. The authors reaffirm the bidirectionality of substance use and mental health disorders. Austin et al. also highlight the critical role of protective factors for substance use, which include connectedness to parents, schools, and prosocial peers.

The second review, by Turanovic, highlights the complex nature of the broad scope of violence assessed in Add Health [3]. In her analytic review, she first notes that most violence research focuses on individual characteristics, which include risky behaviors and heightened vulnerability. The role of contextual factors measured in Add Health further emphasizes disadvantages that are rooted in community structural problems, with biomarkers capturing the impact of chronic stress. For those of us in Adolescent and Young Adult Medicine, one of the key points of her review is the role of precocious transitions (e.g., early pubertal development) out of adolescence, which have the potential to influence trajectories in education and jobs, social networks that include older individuals, and early family formation.

The third review, by Vasilenko, examines the predictors (neighborhood, family, genetic, and individual) and health outcomes (sexually transmitted infections and mental health) of sexual behavior among adolescents and young adults [4]. The prospective longitudinal data allow for a better understanding of sexual behavior as normative by describing how the complex association of early sexual behavior and mental health differs by developmental stage and by gender. Vasilenko points out that the longitudinal design suggests that early sexual behavior is associated with negative physical health outcomes (such as sexually transmitted infections). However, there is limited evidence of long-term negative effects of adolescent sexual behavior on mental health outcomes in adulthood.

The fourth review, by Brown, builds upon Vasilenko's review by providing us with an analysis of Add Health studies that document union and family formation during young adulthood, supporting other evidence of a retreat from marriage and increases in cohabitation and nonmarital childbearing [5]. The Add Health analyses include partnership histories for both different and same-gender partnerships during young adulthood and the racial and ethnic diversity of the sample allows for continued exploration of the differences in cohabitation, marriage, and childbearing by a number of unique characteristics. One critical message from Brown's review: Early marriage offers few health benefits and cohabitation does not seem to confer health advantages either. But these are early analyses and it will be important to assess the long-term consequences of early union formation as the cohort ages.

The fifth review, by Cosnoe and Thorpe, focuses on two indicators, Depression and Suicidal Ideation, using both a developmental and population perspective [6]. Developmental

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trajectories suggest that depressive symptoms tend to decline after adolescence and increase in mid-30s to late-30s, with different patterns for women and men. Protective factors are similar to those of other areas that have been reviewed, with family belonging and closeness being prominent. As is documented in the other topical articles in this supplement, mental health status is highly influenced by race, ethnicity, gender, LGBTQ status, and immigrant generation, with all of these factors increasing negative mental health problems.

The final paper, by Wickrama et al., focuses on physical health. Their analyses document the link between early socioeconomic adversity in childhood and adolescence and negative physical health outcomes in young adulthood, identifying several pathways to explain their outcomes [7]. The Wickrama review also highlights important practical implications for interventions focusing on early socioeconomic adversity and subsequent disparities in health disparity. Interventions should target physiological, stress, and resource pathways earlier in the life course to reduce the incidence and severity of health risks in later years. The paper identifies intervention and prevention opportunities stemming from psychosocial resources that have been identified in Add Health—self-control, mastery, and self-esteem—that appear to be moderators of multiple pathways for the adversity health associations.

A series of common themes emerge from these six reviews articles: being connected to one's family is protective; normal developmental processes can be protective but can also be problematic if your developmental processes are precocious; early sexual behavior may have negative biological consequences but is not associated with long-term negative mental health; early marriage and cohabitation are not associated with any positive health consequences; depression tends to decline from adolescence to young adulthood; early socioeconomic adversity in childhood and adolescence has negative health outcomes in young adulthood; and there are opportunities to implement some of the recommendations that have emerged.

A Legacy of Scientific Inquiry

As I reviewed the editorial by Harris and Halpern introducing this supplement, I was reminded of the foresight of the U.S. Congress in 1990 when it mandated and funded a study to understand the causes of adolescent health and health behavior with a special emphasis on the multiple contexts of adolescent life [8]. Without that Congressional leadership, the United States would not today be benefiting from what we have learned about the importance of adolescence as a critical developmental period with a long-term impact on the health and wellbeing of our population. We are fortunate to have inherited the work of the multidisciplinary team of investigators from the social, biobehavioral, and biomedical sciences that led the initial phases of the study. Those early investigators were based at the University of North Carolina at Chapel Hill in the Carolina Population Study and included J Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris.

In their editorial, Harris and Halpern explain how the six topical areas represented in this supplement—substance use, violence exposure, sexual health and behavior, union and family formation, mental health, and physical health—provide illustrative examples how young people in this country develop during adolescence and young adulthood and how the second decade of life influences health and wellbeing in the years that follow. As they say, Add Health is a treasure trove, providing data for more than 4,600 peer-reviewed publications and several books and chapters as of this publication. They remind us that "Add Health is an ongoing study and data collection for Wave VI is underway as the cohort is moving through their 40s." They conclude by describing opportunities explore new areas in the dataset, including diverse sexual and gender identities, genomic data to show how environmental exposures across life course effect epigenetic processes, and other biomarkers of aging.

The Add Health study has moved us away from societal assumptions about adolescence and young adulthood to a scientific understanding of this critical period in life course and its impact on life beyond adolescence and young adulthood. The second and third decades of life are a prime time for ongoing biopsychosocial development and our preventive interventions need to be driven by the kind of science that has been articulated in this supplement.

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