Journal of Adolescent Health xxx (2016) 1–8

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Original article

Social Determinants of Health and Adolescent Pregnancy: An Analysis From the National Longitudinal Study of Adolescent to Adult Health

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Article history: Received October 1, 2015; Accepted February 16, 2016
Keywords: Social determinants of health; Health disparities; Adolescent health; Adolescent pregnancy

A B S T R A C T

Purpose: Although rates of adolescent pregnancy are at an all-time low in the United States, racial/ethnic and geographic disparities persist. This research used National Longitudinal Study of Adolescent to Adult Health (Add Health) data to analyze empirical relationships between social determinants of health (SDoH) and adolescent pregnancy. Examining relationships between the SDoH and adolescent pregnancy provides support for funding priorities and interventions that expand on the current focus on individual- and interpersonal-level factors.
Methods: On the basis of the Healthy People 2020 Social Determinants of Health Framework, the identification of proxy measures for SDoH within the Add Health study allowed for an analysis of relationships to adolescent pregnancy (N = 9,204). Logistic regression examined associations between adolescent pregnancy and each measure of SDoH.
Results: Results indicated that 6 of 17 measures of SDoH had an empirical relationship with adolescent pregnancy. Measures negatively associated with adolescent pregnancy included the following: feeling close to others at school, receipt of high school diploma, enrollment in higher education, participation in volunteering or community service, reporting litter or trash in the neighborhood environment as a big problem, and living in a two-parent home.
Conclusions: Findings from this study support the need for increased research and intervention focus in SDoH related to areas of education and social and community context. Results of this study provide information for the allocation of resources to best address SDoH that show a link with adolescent pregnancy. Areas of future research can further explore the areas in which SDoH show a relationship with adolescent pregnancy.

IMPLICATIONS AND CONTRIBUTION

This research used National Longitudinal Study of Adolescent to Adult Health data to analyze empirical relationships between social determinants of health (SDoH) and adolescent pregnancy. Findings from this study support the need for increased research and intervention focus in SDoH related to areas of education and social and community context. Funds can be allocated to areas with supporting links to adolescent pregnancy and interventions can incorporate SDoH.

Adolescent pregnancy is a public health issue in the United States that negatively affects the well-being of adolescents, children born to adolescents, and society as a whole [1–3]. Although rates of adolescent pregnancy in the United States are at historic lows, marked variations exist across racial, ethnic, and geographic populations [4]. Adolescent pregnancy and birth rates in the United States are also substantially higher than in other developed countries [5]. In addition, in the United States, black and

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1054-139X/
http://dx.doi.org/10.1016/j.jadohealth.2016.02.006

Hispanic adolescents have more than twice the pregnancy rates compared with white adolescents [4]. Such disparities represent a health inequity that demands public health attention.

Adolescent pregnancy can be tied to physical, social, academic, and economic factors [1]. Negative physical health outcomes during pregnancy include increased risk of preterm birth, low birth weight babies, and infant death [6,7]. Nearly, two-thirds of births to adolescents aged <18 years are unintended, which increases the risk that the mother is not emotionally or financially prepared for pregnancy or to parent [1]. Unintended pregnancy can also increase the risk for infant injury and death and amplify the difficulty of meeting educational goals and gaining employment [3,8]. Only 50% of adolescent mothers earn a high school diploma by the age of 22 years, in contrast to 90% of adolescents who do not give birth [3]. In addition, adolescent fatherhood is associated with fewer years of schooling and lower receipt of high school diploma [9].

Adolescent pregnancy and births have consequences not only at the individual level but to society as a whole. Adolescents who give birth are more likely to have children who enter the foster care system [10]. In 2008, adolescent pregnancy and childbirth cost U.S. taxpayers nearly $11 billion [11]. These costs resulted from health care utilization, foster care, lost tax revenue due to lower economic potential, and increased incarceration rates of children born to adolescent parents [11].

Historically, adolescent pregnancy prevention efforts in the United States have been based on individual and interpersonal levels of behavior change. Changing behavior at an individual level includes modification of elements such as attitudes, beliefs, behaviors, and skills, whereas interpersonal levels of behavior change involve the interactions involved in relationships. Accordingly, most federally funded programs are designed to intervene at these levels [12]. Such programs intend to prevent adolescent pregnancy by modifying an individual's behavior, often through behavioral antecedents such as attitudes, beliefs, and other mediating factors [13]. However, these programs tend not to take into account the larger social factors—or social determinants of health—that may play a critical role in impacting pregnancy.

Currently, there is a call to action for a social determinants of health (SDoH) approach to reduce health disparities [14]. Although there are varying definitions of SDoH and what is included or excluded from being a social determinant, the term can generally be thought of as the differences in social conditions that lead to health inequities [15]. SDoH have previously been applied to studying adolescent pregnancy in a variety of ways, although there has been a call for additional research [16]. Few studies on adolescent pregnancy have used a framework or analyzed a broad range of SDoH in one study. It is important to understand whether empirical relationships—that is, data to confirm an association—exist between elements of SDoH and adolescent pregnancy, whether in a positive or negative manner. An approach based on the SDoH may identify and alter factors contributing to adolescent pregnancy that are not feasible with individual or interpersonal behavior change interventions.

This study used secondary data analysis to answer the following research questions:

1) Is there a bivariate association between adolescent pregnancy and each element of the SDoH?
2) If an association exists, then (1) what is the strength and direction of the association? And (2) does the association remain after controlling for additional factors?

Methods

Sample

The present study used the National Longitudinal Study of Adolescent to Adult Health (Add Health) as a secondary data source [17]. The original clustered sampling design for Add Health included a sampling frame of 80 high schools representative of U.S. youth. Wave I (N = 90,118), conducted in 1994–1995, surveyed students in grades 7–12 within schools and randomly selected a sample of these students for in-home surveys, with a stratified, core sample of n = 12,105 and total sample of n = 20,745, including special groups [18]. Add Health selected students for in-home surveys based on stratification by grade and sex within schools and by random sampling from each school to participate in the home survey. Add Health also conducted a parental in-home survey and, for each adolescent participant, a parent could elect to complete a survey on a range of topics. Follow-up of students selected for in-home surveys occurred in 1996 for wave II (n = 14,738) when in grades 8–12, in 2001–2002, and wave III (n = 15,170) as young adults (18–26). Of the original wave 1 sample, 77.4% students completed the survey again in 2008–2009 for wave IV as adults, with 15,170 of the wave I adolescents also answering wave III questions (24–32) [17–19].

For this research, using subpopulation analysis, the final sample size consisted of participants who reported information regarding pregnancy history and answered all questions representing variables in the present study (N = 9,204).

Measures

SDoH from the Add Health survey include measures from all five of the Healthy People 2020 Social Determinants of Health Framework areas of *education*, *economic stability*, *social and community context*, *health and health care*, and *neighborhood and built environment* [20]. Proxy measures identified for the key areas of these components enabled researchers to answer the research question of whether adolescent pregnancy is associated with a number of SDoH. Proxy measures of poverty and employment status were used to assess the social determinant area of economic stability. Proxy measures of high school graduation, school policies that support health promotion, school environment, and enrollment in higher education assessed education. Proxy measures for social and community context included those of family structure, social cohesion, perceptions of discrimination and equity, civic participation, and incarceration. Health and health care included measures of access to health services and access to primary care. Finally, neighborhood and built environment included proxy measures of crime and violence and environmental conditions.

Questions from Add Health waves I and III contain the most vital information for the purposes of the research questions for this study and, therefore, warranted inclusion in the current analyses. The creation of a variable from questions in the wave III adolescent in-home survey Table of Pregnancies and Table of Relationships measured the outcome of pregnancy before age 18 years. The variables to calculate whether a participant experienced a pregnancy before the age of 18 years included date of birth, the date a pregnancy ended, and a question regarding whether no pregnancies occurred.