Journal of Adolescent Health 50 (2012) 565–571

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Original article

Contextual Amplification or Attenuation of Pubertal Timing Effects on Depressive Symptoms Among Mexican American Girls

Rebecca M.B. White, Ph.D., M.P.H.[a,*], Julianna Deardorff, Ph.D.[b], and Nancy A. Gonzales, Ph.D.[c]

[a] *School of Social and Family Dynamics, Arizona State University, Tempe, Arizona*
[b] *School of Public Health, University of California, Berkeley, California*
[c] *Department of Psychology, Arizona State University, Tempe, Arizona*

Article history: Received March 29, 2011; Accepted October 8, 2011
Keywords: Puberty; Mexican Americans; Neighborhood; Effect modifiers

A B S T R A C T

Purpose: To examine the role of neighborhood contextual variation in the putative association between pubertal timing and depressive symptoms among Mexican-origin girls.
Method: Mexican-origin girls (N = 344; $\bar{x}_{age}$ = 10.8 years) self-reported their total pubertal, adrenal, and gonadal events, along with levels of depressive symptoms in the 5th grade. Girls' residential addresses were geocoded into neighborhoods, and census data were obtained to describe neighborhoods along two dimensions: Hispanic cultural context and socioeconomic disadvantage. Two years later, when most of the girls were in the 7th grade, we reassessed the girls regarding depressive symptoms.
Results: Neighborhood Hispanic composition and neighborhood disadvantage were highly positively correlated. Using hierarchical linear modeling, we examined the moderating influence of neighborhood Hispanic composition and neighborhood disadvantage on the prospective associations between pubertal timing (total, gonadal, and adrenal) and depressive symptoms. Neighborhood Hispanic composition moderated the prospective association between total pubertal and gonadal timing and depressive symptoms. Neighborhood disadvantage did not moderate these associations.
Conclusions: Our results suggest that early maturing 5th grade Mexican-origin girls living in non-Hispanic neighborhoods are at the greatest risk for increased depressive symptoms in the 7th grade, even though these neighborhoods tend to be socioeconomically more advantaged. The protective cultural context of largely Hispanic neighborhoods may outweigh the potential amplifying effects of neighborhood disadvantage.

Adolescence is a critical period for the development of depressive disorders among girls. During the developmental period ranging from childhood to adolescence, girls begin to evince higher rates of depression than boys, and population prevalence rates increase threefold [1,2]. The Latino adolescent population, of whom Mexican Americans represent a large proportion [3], demonstrates high depression scores [4]; has been found to be twice as likely, compared with European American youths, to exhibit depressive symptomatology [5]; and displays similar gender patterns in the development of depression across adolescence [6]. Early puberty is a known epidemiological risk factor for depressive problems among adolescent girls [7,8]. Mexican American girls, on average, experience puberty (e.g., onset of breast development, menarche) earlier than their European American counterparts [8,9]. However, the effects of pubertal development are hardly universal, and not all girls experience the negative sequelae associated with early pubertal timing. Neighborhoods are critical contexts for adolescent development generally [10], and pubertal development specifically [11,12], that may help to explain variation in outcomes among early developing Mexican American girls.

* Address correspondence to: Rebecca M. B. White, Ph.D., M.P.H., School of Social and Family Dynamics, Arizona State University, PO BOX 3701. Tempe, AZ 85287-3701.
E-mail address: rebecca.white@asu.edu (R.M.B. White).

1054-139X/$ - see front matter © 2012 Society for Adolescent Health and Medicine. All rights reserved.
doi:10.1016/j.jadohealth.2011.10.006

Investigations of puberty and depression, which have often excluded Latinas, have generally supported a developmental readiness hypothesis [2,13]. This hypothesis suggests asynchrony between different developmental domains leaves early maturing girls ill-prepared to cope with the normative developmental challenge of transitioning from childhood to adolescence [14]. Pubertal development is associated with many different kinds of changes, including biological and social ones. Biologically, negative affect may spike as the endocrine system enters gonadarche [1,15,16], and hormonal changes associated with both gonadal and adrenal maturation may interact with the social contexts in which they occur [8]. Socially, puberty may impact adolescent girls' depressive symptoms via reactions of others to advancing development and the changes in expectations that members of the community have for the developing girl. According to the developmental readiness hypothesis, early maturing girls have fewer cognitive, social, and emotional resources than their later maturing peers for grappling with such changes [7].

Although some work with Latinas and Mexican Americans has replicated the developmental readiness hypothesis, there is considerable variability. Hayward et al [17] found that early timing was associated with depression among European American girls, but not among Latinas. Siegel et al [18] found that Latinas were more susceptible to the negative effects of early timing when compared with adolescents from other racial/ethnic groups. Others show that early timing among U.S. Latinas and African Americans is risky for depressive problems [19]. However, the studies on Latinas largely ignore neighborhood context, despite the fact that neighborhoods represent critical sources of culture and quality variability [20] for Mexican Americans that may exacerbate or attenuate the association between pubertal development and depressive symptoms [14].

According to contemporary contextual theory, the developmental consequences of early maturation should vary with contextual circumstances [7,21]. Poor neighborhood quality (i.e., degree of structural disadvantage) has been conceptualized as a source of stress for residents [22], and for adolescent girls, the added stress of living in disadvantaged neighborhoods has been found to exacerbate the early timing risk [11,23]. However, neighborhoods can also be sources of support for Mexican American adolescents [24]. Living in an ethnic enclave, where there is increased similarity in residents' values and expectations [25,26], may provide early maturing girls with additional psychosocial resources not available to their counterparts living outside of those enclaves. Further, early maturation is influenced by local maturation norms [27], so Mexican-origin girls (who, on average, mature earlier) may find early maturation even more problematic in non-Mexican/Hispanic contexts. Nevertheless, neighborhood Hispanic ethnic homogeneity is often positively correlated with census indicators of disadvantage, and previous studies have met with difficulty in disentangling ethnic differences from contextual socioeconomic differences [14]. Thus, it is difficult to predict whether the potential social advantages of an ethnic enclave will be a stronger or weaker force than the additive stress of living in low-quality neighborhoods. Given the stronger collectivist orientation found among Mexican Americans [28], the former may be a more salient feature of neighborhoods for this group.

The present investigation examined the roles that diverse neighborhood characteristics play in prospective links between early pubertal timing and depressive symptoms in a large, socioeconomically diverse sample of Mexican-origin girls first assessed in the 5th grade. To advance understanding of the ways contextual circumstances may moderate the putative association between early timing and depressive symptoms, we examined three main issues: (a) whether, on average, pubertal timing at baseline positively influenced depressive symptoms 2 years later among Mexican-origin girls, (b) whether pubertal timing specific to gonadarche and adrenarche predicted depressive symptom scores, and (c) whether neighborhood disadvantage and neighborhood cultural context (Hispanic composition) moderated the prospective effects of timing on depressive symptoms. We hypothesized that neighborhood disadvantage would amplify, and neighborhood Hispanic composition would attenuate the early timing-depressive symptoms link.

Method

Participants and procedures

Data for the current study were obtained from the first and second waves of a longitudinal study focused on Mexican-origin adolescents and their families. All study procedures were approved by the University's Institutional Review Board; details regarding the full sample and procedures are provided elsewhere [29]. Participants were recruited when they were students in the 5th grade (beginning fall 2004). Spanish and English recruitment materials were sent home with 5th grade students in selected schools explaining the project and asking parents to indicate interest in the study. Interested families were screened for eligibility according to the following criteria: (a) they had a target 5th grader attending a sampled school; (b) the participating mother was the child's biological mother, lived with the child, and was of Mexican origin; (c) the child's biological father was of Mexican origin; (d) the target child was not learning disabled; and (e) no stepfather or mother's boyfriend was living with the child. In-home computer-assisted personal interviews were completed with 73% (N = 749) of eligible families. Interviewers read each survey question and possible response aloud in participants' preferred language. Families were reinterviewed at follow-up, approximately 2 years after baseline data collection. A total of 710 families (95%) participated at follow-up. Families who participated at time 2 were compared with families who did not on several baseline demographic variables; no differences emerged on child characteristics (i.e., gender, age, generational status, language of interview), mother characteristics (i.e., marital status, age, generational status), or father characteristics (i.e., age, generational status). Families were paid $45 (baseline) and $50 (follow-up) per participating family member. Informed consent (parents) and assent (target children) were obtained during the baseline visit. The current study focuses on the subset of the sample of families, with a female participating child (n = 365) who had complete data for the first two waves of data collection (n = 342). Most (98%) of the girls were 10 or 11 years old at baseline. The final sample is described in Table 1.

Measures

Pubertal timing was assessed at baseline using girls' reports on the Pubertal Development Scale (PDS), a widely used noninvasive measure with established reliability and validity [30]. On a scale ranging from 1 (*no*) to 4 (*changes/growth seem complete*), girls indicated whether they had experienced pubertal growth in