Harsh environments, life history strategies, and adjustment: A longitudinal study of Oregon youth[☆,☆☆]

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ABSTRACT

We modeled the effects of harsh environments in childhood on adjustment in early emerging adulthood, through parenting style and the development of fast Life History Strategies (LHS; risky beliefs and behaviors) in adolescence. Participants were from the Oregon Youth Substance Use Project (N = 988; 85.7% White). Five cohorts of children in Grades 1–5 at recruitment were assessed through one-year post high school. Greater environmental harshness (neighborhood quality and family poverty) in Grades 1–6 predicted less parental investment at Grade 8. This parenting style was related to the development of fast LHS (favorable beliefs about substance users and willingness to use substances at Grade 9, and engagement in substance use and risky sexual behavior assessed across Grades 10–12). The indirect path from harsh environment through parenting and LHS to (less) psychological adjustment (indicated by lower life satisfaction, self-rated health, trait sociability, and higher depression) was significant (indirect effect −.024, $p = .011$, 95% CI = −.043, −.006). This chain of development was comparable to that found by Gibbons et al. (2012) for an African-American sample that, unlike the present study, included perceived racial discrimination in the assessment of harsh environment.

1. Introduction

Children growing up in harsh environments face numerous disadvantages, including negative effects on mental and physical development that persist into adulthood. Harsh environments may have enduring effects through the increased likelihood of less parental investment and the development of fast life history strategies (LHS) characterized by risky behaviors including substance use. This investigation drew from evolutionary development theory (Ellis & Bjorklund, 2012) and the prototype willingness model (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008) to hypothesize a pathway to optimal development spanning childhood to early emerging adulthood. The model was tested on a predominantly White sample to evaluate whether environmental harshness experienced by White working class children had comparable effects on subsequent development to the harshness experienced by Black youth (Gibbons et al., 2012).

Gibbons et al. (2012) used a LHS framework from evolutionary developmental psychology (Ellis & Bjorklund, 2012) to guide their study of the effects of harsh environments on youth development. These strategies have evolved to maximize reproductive success under

different environmental conditions (Belsky, Steinberg, & Draper, 1991; Brumbach, Figueredo, & Ellis, 2009; Ellis et al., 2012). A harsh environment signals the threat of a short life expectancy. In response, adaptation results in fast LHS that include aggression, dominance, risk taking, early puberty and sexual debut, which promote early reproductive fitness. In more benign environments, adaptation results in the development of slow strategies that promote long-term as opposed to short-term reproductive success by accumulating social, psychological, and tangible resources to invest in offspring. From an evolutionary perspective, adolescence is a particularly important developmental period in which to study LHS because pubertal changes mark the transition to reproductive maturity (Figueredo et al., 2006).

Risky sexual behavior, such as unprotected sex with multiple partners, often occurs in association with substance use and other problem behaviors (Hendershot, Magnan, & Bryan, 2010; Jessor & Jessor, 1977). Previous research has demonstrated that these adolescent behaviors indicative of fast LHS are preceded by the development of beliefs that increase the likelihood of future risk taking through both intentional and reactive processes. According to the prototype willingness model (Gerrard et al., 2008), in addition to deliberately intending to take risks, risky behavior can occur as a result of being open to risk-taking if the opportunity arises (i.e., willingness). Also, having more positive images (i.e., prototypes) of those who engage in risky activities increases the likelihood of risk taking. Consistent with the model, adolescents who believe that they would be willing to use substances if offered them, and who have more favorable social images (prototypes) of their

substance-using peers are more likely to become substance users themselves (Andrews, Hampson, & Peterson, 2011; Andrews, Hampson, Barckley, Gerrard, & Gibbons, 2008; Gerrard, Gibbons, Stock, Vande Lune, & Cleveland, 2005).

Integrating evolutionary development theory with the prototype willingness model, beliefs and behaviors concerning substance use and risky sex may be viewed as part of a fast LHS (Olderbak & Figueredo, 2009; Olderbak, Gladden, Wolf, & Figueredo, 2014). Those who develop faster LHS, are likely to be have poorer outcomes including being less well-adjusted, as defined by dominant, middle-class, Western values (Simpson, Griskevicius, Kuo, Sung, & Collins, 2012). Gibbons et al. (2012) tested this integrated model in an African-American sample: the Family and Community Health Study (FACHS; Wills, Gibbons, Gerrard, & Brody, 2000). They observed an indirect pathway from measures of childhood harsh environment (perceived racial discrimination, parental investment, and environmental risk) through adolescent LHS beliefs and behaviors to poorer adjustment at age 21–22. In the present study, we investigated a similar model for the primarily White participants in the Oregon Youth Substance Use Project, a major difference between studies being the measurement of harsh environments. We hypothesized that children with greater exposure to harsh environments (neighborhood quality and family poverty but no measure of discrimination) would experience less parental investment (less monitoring, more inconsistent discipline, less positive parenting) (Hypothesis 1), which would lead to faster LHS characterized by more favorable beliefs about substance users and greater willingness to use substances (Hypothesis 2), and higher and increasing levels of risky behaviors (risky sex and substance use) across late adolescence (Hypothesis 3). We predicted that high and increasing levels of risky behaviors would predict poorer adjustment (less life satisfaction, self-rated health, and sociability, more depression) measured in early emerging adulthood at one year post high school (Hypothesis 4).

2. Method

2.1. Participants

An average of 215 students in each of the 1st through 5th grades from one school district within a working class community in Western Oregon participated in the first assessment (T1). The average age for students at T1 was 9.0 years (SD = 1.45). The supplementary online material provides an overview of the cohort sequential design (see Supplementary Table 1), the representativeness of the sample used here, attrition, and justification for collapsing across cohorts. In general, this sample was representative of students in the school district (for details, see Andrews, Tildesley, Hops, Duncan, & Severson, 2003). The sample analyzed here (N = 988; 490 males and 498 females) consisted of participants who responded to at least four of the items used to assess cognitions, behaviors, and adjustment, and had at least one parent who reported on parenting at Grade 8 (or Grade 7 if Grade 8 was missing). The participants were European American (85.7%), Hispanic (6.7%), African American (1%), and other or mixed-race identity (6%); 48% were eligible for free or reduced lunch, an indicator of low income, at some time in elementary school, and 71.2% of mothers had more than a high school education. One or two parents of 942 students in the sample completed at least one mailed questionnaire and, for 599 students, two parents completed a questionnaire on at least one of the assessments.

2.2. Assessment procedures

The sample was assessed annually (except for one missing assessment due to a funding gap) through one-year post-high school. Students in the 1st through 3rd grades were assessed by interview, 4th grade and above by questionnaire (for further details on assessment procedures, see the online supplementary material).

2.3. Measures

2.3.1. Harsh environments (Grades 1–6)

Three indicators were used to measure this latent construct. (1) A neighborhood quality scale used Year 2000 census tract data for the child's address at the time of the first assessment: percent male unemployment, number of households in poverty, percent not graduating from high school, percent below the poverty line, and percent of vacant dwellings (Ennett, Flewelling, Lindrooth, & Norton, 1997). The variables were standardized within census tract and averaged to give each child's neighborhood quality score ($\alpha = .81$). Neighborhood quality could only be determined for the first assessment because a record of the child's subsequent addresses was not maintained. (2) Two items from the Neighborhood Safety Scale (Greenberg et al., 1999) assessed how parents felt about their neighborhood (1 = "very bad," 4 = "very good") and their perception of frequency of crime in the neighborhood (1 = "never," 5 = "very often."). Mothers' and fathers' responses were significantly correlated ($p < .01$) at each assessment. Their responses were standardized and averaged, and the means of reports from one or both parents at each of Grades 1–6 were used as indicators of a latent construct of neighborhood safety. (3) Exposure to family poverty was assessed by a dichotomous variable indicating whether or not the child was eligible for the free or reduced lunch program, as indicated in school records, in each of Grades 1–6, and used as indictors of a latent construct of poverty.

2.3.2. Parenting (Grade 8)

Three scales from the Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996) were indicators of this latent construct. At Grade 8 (or Grade 7 if no parental report was available for Grade 8), parents reported frequency (1 = "never," 5 = "always") for monitoring/supervision (moms' $\alpha = .76$, dads' $\alpha = .73$), inconsistent discipline (moms' $\alpha = .76$, dads' $\alpha = .75$), and positive parenting (moms' $\alpha = .79$, dads' $\alpha = .80$). Higher scores on each scale represented less parental investment (i.e., less monitoring, more inconsistent discipline, and less positive parenting). Where scores from both parents were available, they were averaged.

2.3.3. LHS beliefs about substances (Grade 9)

Social images of, and willingness to use, three substances were indicators of this latent construct. If their social images at Grade 9 were missing, their social images at Grade 8 were used. Participants were asked whether they believed kids who smoke cigarettes/drink alcohol/use marijuana are "cool or neat," "popular," and "exciting" (0 = "no," 1 = "maybe," 2 = "yes"); alphas ranged from .75–.82, and responses to the three items were summed with higher scores indicating more favorable social images (Andrews & Peterson, 2006). Participants rated their willingness to try each substance if they were offered it by a friend, 1 = "not at all willing," 5 = "very willing", and ratings were averaged across two items for each substance (Andrews et al., 2008). Willingness at Grade 9 was used if Grade 8 willingness was missing. Correlations between the two items ranged from .69 for cigarettes at Grade 8 to .83 for marijuana at Grade 9.

2.3.4. LHS risky behaviors (Grades 10–12)

Four indicators for constructs at each of Grades 10, 11, and 12 were: engagement in risky sex in the past year was measured at each grade by the sum of two items: the number of people with whom they had sex without a condom, and the number of people with whom they had sex without a condom when high, stoned, or drunk, 0 = "none," 4 = "more than 10 people;" and ratings for extent of use of each substance (alcohol, cigarettes, and marijuana) in the past year, ranging from 0 = "never" to 5 = "some each day".

2.3.5. Adjustment (one-year post high school)

There were four indicators. (1) Life Satisfaction (Life Dimensions Questionnaire; Roberts, Pascoe, & Attkisson, 1983), measured how