

Youth Defender Advocacy Program:

Lesson 42 – Raising Race

ANNOTATED BIBLIOGRAPHY

RACE AND ADOLESCENT DEVELOPMENT

Adolescent development manifests across all racial and socio-economic groups similarly. A number of studies have controlled for race and socio-economic status, finding no significant differences in key features of adolescence. Not only have studies confirmed that psychological and psychosocial development is similar across racial and socio-economic groups, but self-reported studies on adolescent behavior confirm that adolescent development manifests in similar behavior across racial and socioeconomic lines as well.

I. Adolescent Development Studies Controlling for Race and Socioeconomic Status

Grace Icenogle, Laurence Steinberg et al., *Adolescents' Cognitive Capacity Reaches Adult Levels Prior to Their Psychosocial Maturity: Evidence for a "Maturity Gap" in a Multinational, Cross-Sectional Sample*, 43(1) L. Hum. Behav. 69 (2019).

Purpose

- The present study expands prior research done in the U.S. and other Western countries to a large international sample examining two psychological phenomena relevant to legal questions about adolescent maturity: cognitive capacity, which undergirds logical thinking, and psychosocial maturity, which comprises individuals' ability to restrain themselves in the face of emotional, exciting, or risky stimuli.

Methodology

- This study assessed cognitive capacity and psychosocial maturity in 5,227 individuals (50.7% female), ages 10–30 ($M = 17.05$, $SD = 5.91$) from eleven countries – China, Colombia, Cyprus, Jordan, Kenya, India, Italy, the Philippines, Sweden, Thailand, and the US.
- Cognitive capacity was measured through tasks that evaluated working memory, ability to hold and manipulate numbers in memory, and verbal fluency (i.e. generating as many words as possible belonging to a given category in one minute).
- Psychosocial maturity was measured by giving participants tasks that evaluated:
 - sensation seeking, using the Stoplight Game
 - In this task, participants approached a series of twenty intersections at which they decided whether to run a stoplight as it turned yellow, or to

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- stop safely. They were instructed to arrive at their destination as quickly as possible without causing any wrecks.
- future orientation, using a delay discounting task
 - In this task, participants made hypothetical decisions between an immediate but smaller reward and a delayed but larger reward.
- impulse control, using the Tower of London task
 - Participants saw pictures of two sets of three colored balls distributed across three rods, one of which can hold three balls, one can hold two balls, and the last, only one ball. The first picture showed the starting positioning of the three balls and the second picture depicted the goal position. The purpose of the task is for participants to match the goal arrangement in as few moves as possible by moving the balls from peg to peg. Participants were timed before making their first move, and impulse control was measured by whether participants allotted efficient time to plan the complex tasks.
- cost-sensitivity (i.e. the ability to learn from negative outcomes) using a modified version of the Iowa Gambling Task
 - Participants played from four decks of cards to earn money. Two of the decks resulted in a monetary gain over repeated play (advantageous decks), whereas the other two resulted in a net loss over repeated play (disadvantageous decks). The more individuals resist the disadvantageous decks over the course of the task, the better they are at learning to avoid harmful decks despite their potential for reward.
- Resistance to peer influence was measured through a self-report survey.

Results

- Findings from the present study are consistent with previous reports that cognitive capacity, the ability of an individual to reason and consider alternative courses of action—undergirded by executive functions—reaches adult levels during the mid-teen years, whereas other elements of maturity, specifically psychosocial functioning (such as self-restraint), tend to reach adult levels into adulthood. That these abilities reach adult levels on different timetables suggests a “maturity gap” between these elements of psychological development.
- Except in Jordan, cognitive capacity increased steeply from age 10 to around age 16, when it plateaued. In Jordan cognitive capacity declined significantly after 16.
- Psychosocial maturity increased into the mid-20s for all countries except Jordan and Kenya (which evinced no significant age pattern for development). After the mid-20s, psychosocial maturity continued to increase for most countries (China, Cyprus, India, Italy, Philippines, Sweden, Thailand). In the US psychosocial maturity increased through the teen years and leveled off in the mid-20s. In Columbia psychosocial maturity improved until the mid-20s, after which it declined.
- Importantly, whereas cognitive capacity reached adult levels around age 16, psychosocial maturity reached adult levels beyond age 18, creating a “maturity gap” between cognitive and psychosocial development. Youth may be capable of deliberative decision making by age 16, but even young adults may demonstrate “immature” decision making in

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arousing situations. This aligns with research from previous studies in the US and Western countries.

Natasha Duell, Laurence Steinberg et al., *Age Patterns in Risk taking Across the World*, 47(5) *J. Youth Adolesc.* 1052 (2018).

Purpose

- Prior studies of risk taking propensity (using lab-based tasks to assess likelihood of engaging in risky behavior) have been limited to Western samples, leaving questions about the extent to which heightened risk taking propensity is an inherent or culturally constructed aspect of adolescence.
- While rates of risky behaviors (such as substance use or unprotected sex) are known to vary across the world, this is likely attributable to the fact that youth growing up in different parts of the world are exposed to different societal norms and have different opportunities to engage in risky behaviors. In most parts of the world, risky behavior increases over the course of adolescence before declining as individuals reach their 20s.
- This study looks at both risk-taking propensity and real-world risk taking across nations and cultures.

Methodology

- This study examined in a sample of 5,227 individuals (50.7% female) ages 10–30 ($M = 17.05$ years, $SD = 5.91$) from 11 Western and non-Western countries (China, Colombia, Cyprus, India, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the US).
- Age patterns in risk-taking propensity were measured using two laboratory tasks:
 - the Stoplight
 - In this task, participants approached a series of twenty intersections at which they decided whether to run a stoplight as it turned yellow, or to stop safely. They were instructed to arrive at their destination as quickly as possible without causing any wrecks.
 - the BART (Balloon Analogue Risk Task)
 - The task included 20 trials in which participants decided how much air to “pump” into a balloon; the larger the balloon inflated, the more points were earned. If the balloon was overfilled and popped, all points were lost.
- Real-world risk taking was measured using self-reports of health risk behaviors (e.g. drinking alcohol, smoking cigarettes, having unprotected sex) and antisocial risk behaviors (e.g. vandalizing, stealing, fighting, walking through a dangerous neighborhood) over the last 6 months.

Results

- Risk behavior on the Stoplight, BART, and self-reported antisocial risk taking generally demonstrated an inverted-U shape pattern across age groups, meaning risk taking

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increased from childhood through adolescence and then began to decrease. Adolescents evinced the highest risk scores in these categories.

- In contrast, self-reported health risk behaviors increased steeply across age groups before plateauing in the mid-twenties.
- Risk taking was significantly greater among males than females for all tasks.
- There were some differences between countries, but researchers concluded that “it is clear that around the world, individuals’ inclination to take risks, as well as their actual risky behavior, is higher in late adolescence and young adulthood than before or after.”

Laurence Steinberg et al., *Around the World, Adolescence is a Time of Heightened Sensation Seeking and Immature Self-Regulation*, 21 Dev. Sci. 2 (2018).

Purpose

- Few studies outside the United States and Western Europe have examined the developmental trajectories of heightened sensation seeking and immature self-regulation characteristic of adolescence.
- This study examines age differences in sensation seeking and self-regulation in adolescents from 11 culturally, racially, ethnically, and economically diverse countries.

Methodology

- The sample included more than 5,000 individuals between the ages of 10 and 30 years from China, Colombia, Cyprus, India, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States.
- Participants completed a 2-hour session that included several computerized tasks, self-report measures, a demographic questionnaire, tests of executive functions, and a measure of intellectual ability.
- Researchers analyzed the results to determine whether youth in different countries develop (in regards to sensation seeking and self-regulation) at different rates.

Results

- Researchers found that the developmental patterns in sensation seeking and self-regulation observed previously in American and Western European samples are found in other parts of the world as well, including countries that vary considerably with respect to race, ethnicity, culture, and economics.
- Consistent with previous studies done in the United States, sensation seeking is higher during adolescence—peaking at age 19—than before or after, whereas self-regulation continues to develop into the mid-20s

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- Although there are minor variations in these patterns across countries, the similarities between the observed age trends are far more striking than the differences, and variations among countries in observed age trends are mainly in the magnitude of age differences rather than the overall developmental trajectory. A small subset of countries did not demonstrate the expected age patterns in development of sensation-seeking and self-regulation. These countries—Jordan, Colombia, Cyprus, and Sweden—differ from each other in culture, geography, and economics, among other variables, so it is hard to speculate about a common factor that might lead all of these countries to depart from the expected trend.
- Overall, the results of this study are consistent with portrayals of adolescence as a time of heightened sensation seeking in the face of still developing self-regulation, a combination that has been linked to the greater prevalence in risk taking during adolescence than before or after

Elizabeth Shulman et al., *Sex Differences in the Developmental Trajectories of Impulse Control and Sensation-Seeking from Early Adolescence to Early Adulthood*, 44 *J. Youth & Adolescence* 1 (2015).

Purpose

- To examine whether the pattern of high risk-taking in adolescence, partially attributable to increased sensation-seeking and lack of impulse control, holds true for both males and females.

Methodology

- Researchers analyzed self-reported impulse control and sensation-seeking in youth between the ages of 10 and 25 from the National Longitudinal Study of Youth 1979 Child and Young Adult Survey.
- The sample size for this study is 8,270 individuals (33 % Black, 22 % Hispanic, 45 % Non-Black, Non-Hispanic).
- Researchers controlled for race.

Results

- Results supported the generally accepted pattern of a rise and fall in sensation-seeking and a steady increase in impulse control for both males and females regardless of race.
- Males did exhibit higher levels of sensation-seeking and lower levels of impulse control than females. Females tended to reach peak levels of sensation-seeking earlier than males and also exhibited a more rapid decline than males. By contrast, sensation-seeking in males remained relatively high throughout adolescence.
- Sex differences in sensation-seeking and impulse control increased with age.

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Dustin Albert & Laurence Steinberg, *Age Differences in Strategic Planning as Indexed by the Tower of London*, 82 *Child Dev.* 1501 (2011).

Purpose

- To study strategic planning abilities in youth.

Methodology

- Participants were ages 10-30.
- Researchers controlled for ethnicity and socio-economic status.
- Researchers administered the Tower of London task, a tool developed to measure the ability to plan ahead and use complex, integrative decision-making skills.

Results

- Researchers found similar levels of maturation across socio-economic and ethnic groups.
 - Researchers found that although strategic planning improved steadily as youth mature, an *advanced* ability to strategically plan did not develop until ages 22-25.
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Elizabeth Cauffman et al., *Age Differences in Affective Decision Making as Indexed by Performance on the Iowa Gambling Task*, 46 *Developmental Psychol.* 193 (2010).

Purpose

- To investigate how youth of different ages make decisions, balancing short-term rewards versus long-term gains.

Methodology

- Participants were 901 adolescents, ages 10 to 30. Researchers controlled for ethnicity and socio-economic status.
- Researchers analyzed decision-making exhibited by participants as they completed a modified version of the Iowa Gambling Task.

Results

- Researchers found a preference in adolescents for risk taking and for short-term reward over long-term gain, with no significant differences between ethnicities or socio-economic status.
 - Researchers also discovered that adolescents are more responsive to positive feedback and less deterred by loss than adults.
 - Researchers concluded that decision-making and risk assessment improves throughout adolescence due to affective processing rather than cognitive maturation for all youth.
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Laurence Steinberg et al., *Age Differences in Future Orientation and Delay Discounting*, 80 *Child Dev.* 28 (2009).

Purpose

- To measure differences in future orientation and delay discounting in adolescence at various ages.

Methodology

- Participants were asked to undertake of a number of computerized tasks and complete self-report measures.
- Researchers controlled for both ethnicity and socio-economic status.

Results

- Researchers found that youth of similar ages in the study exhibited similar levels of weak future orientation across ethnicity and socio-economic status.
- Youth under the age of 16 of all racial groups had a willingness to accept a smaller reward delivered sooner than a larger one later. They self-reported that they were less concerned about the future and less likely to anticipate the consequences of their decisions than older youth.
- “[Researchers did not] find significant interactions between the repeated time factor and gender, ethnicity, IQ, or SES, suggesting that individuals of different ages, sexes, and ethnic groups, socio-economic back-grounds, and intelligence levels show comparable patterns of discounting over the delay intervals examined here.”

Laurence Steinberg et al., *Age Differences in Sensation Seeking and Impulsivity as Indexed by Behavior and Self-Report: Evidence for a Dual Systems Model*, 44 *Developmental Psychol.* 1764 (2008).

Purpose

- To measure age differences in sensation-seeking and impulsivity

Methodology

- The sample consisted of 935 participants.
- Researchers used both self-report questionnaires and behavioral tasks to assess sensation-seeking and impulsivity.
- Researchers controlled for ethnicity and socio-economic status.

Results

- Researchers found that youth across all ethnic and socio-economic groups exhibited similar patterns in sensation-seeking and impulsivity.

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- Researchers found that sensation-seeking behaviors increased between the ages of 12 to 15 (initiating around the beginning of puberty), and then steadily declined.
- Impulsivity was found to steadily decline from age 10 through adolescence and well into early adulthood. Adolescents younger than 16 demonstrated significantly less impulse control than 16- to 17-year-olds, and 16- to 17-year-olds demonstrated significantly less impulse control than 22- to 25-year-olds.
- After age 15, adolescent vulnerability to risky behavior steadily decreases as sensation-seeking decreases, and impulse control continues to increase into early adulthood.
- Evidence from this study is consistent with adolescent brain research that demonstrates that the brain systems (cognitive control system) linked to impulse control and self-regulation do not fully develop until early adulthood. In contrast, the brain systems (socio-emotional system) linked with sensation-seeking become more highly aroused in early adolescence.

II. Self-Report Studies on Adolescent Behavior Across Race and Socio-economics

Lloyd Johnston et al., *Monitoring the Future: National Survey Results on Drug Use, 1975–2019, Volume I: Secondary School Students (2020)*.

Purpose

- To examine trends in alcohol and drug use among high school students over time.

Methodology

- This is a self-report study, surveying students at 120-140 public and private high schools since 1975. Students answer questionnaires about their use of alcohol and various drugs.
- Demographic data is broken down by gender, race, education level of parents, population density, region and college plans, and grade level.
- The study shows results for 2019 as well trends since 1975.

Results

- Black youth consistently report the lowest levels of use for a large number of drugs, including hallucinogens, cocaine, prescription drugs, and narcotics other than heroin (heroin use is uncommon and varied little by race/ethnicity). In the last decade, they have also reported the lowest levels of cigarette smoking (and use of most tobacco products), as well as drinking.
- Among 12th grade students in 2019, marijuana use in the last 12 months did not substantially differ by race.

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High School YRBSS: United States 2019 Results, Centers for Disease Control & Prevention, <https://nccd.cdc.gov/Youthonline/App/Results.aspx> (last visited August 6, 2021).

Purpose

- To gather yearly self-report data on various health behaviors from thousands of youth throughout the United States.

Methodology

- Administered by the Center for Disease Control, the Youth Risk Behavior Surveillance System (YRBSS) has compiled and tracked various self-report surveys of youth since 1991.
- YRBSS data includes national, state, tribal government, and local surveys of 9th through 12th grade students.
- Tracked behaviors are those which commonly contribute to death, disability, and social problems, such as sexual behaviors, violence, and alcohol and drug use.

Results

- Driving Drunk: 6.6% of Hispanic youth, 5.1% of white youth, and 4.1% of Black youth.
- Carrying a Weapon (e.g., knife, gun, other weapon): 15% of white youth, 11.7% of Hispanic youth, and 9.4% of Black youth.
- Carrying a Gun (specifically): 7.1% of Black youth, 5.6% of Hispanic youth, and 3.3% of white youth.
- Current Electronic Vapor Product Use: 38.3% of white youth, 31.2% of Hispanic youth, and 13% of Black youth.
- Current Marijuana Use: 22.4% of Hispanic youth, 22.1% of white youth, and 21.7% of Black youth.
- Having Been in a Physical Fight on School Property: 15.5% of Black youth, 7.8% of Hispanic youth, 6.4% of white youth.