



National multi-cohort time trends in adolescent risk preference and the relation with substance use and problem behavior from 1976 to 2011[☆]



Katherine M. Keyes^{a,*}, Justin Jager^b, Ava Hamilton^a, Patrick M. O'Malley^c,
Richard Miech^c, John E. Schulenberg^{c,d}

^a Department of Epidemiology, Columbia University, New York, NY, United States

^b T. Denny Sanford School of Social and Family Dynamics, Arizona State University, Tempe, AZ, United States

^c Institute for Social Research, University of Michigan, Ann Arbor, MI, United States

^d Department of Psychology, University of Michigan, Ann Arbor, MI, United States

ARTICLE INFO

Article history:

Received 5 March 2015

Received in revised form 8 June 2015

Accepted 10 June 2015

Available online 2 July 2015

Keywords:

Risk preference
Sensation seeking
Adolescence
Time trends
Marijuana
Alcohol
Cocaine
Conduct disorder

ABSTRACT

Aims: Preference for risky activities is an important developmentally graded predictor of substance use. Population-level trends in adolescent risk preference, as well as the way in which risk preference may be a conduit to risk behavior, have never been documented. The present study examines population-level trends in risk preference among U.S. high school seniors for the 36 years from 1976 to 2011, as well as trends in the association between risk preference and substance use and other problem behaviors.

Methods: Data were drawn from yearly nationally representative cross-sectional surveys of US high school seniors ($N = 91,860$). Risk preference was measured consistently with two items. Marijuana and cocaine use, binge drinking, and conduct problems were assessed. Trends were tested using JoinPoint software.

Results: The mean level of reported risk preference among US 12th graders has increased over time, especially in the 1980s. For example, the proportion of high school females who reported enjoying activities that were “a little dangerous” more than doubled, from 4.9% in 1976 to 10.8% in 1988. While risk preference reports among adolescent males leveled off in 1992, risk preference reports among females show a continued positive overall slope through 2011. The magnitude of the association between risk preference and marijuana use has increased over time.

Conclusions: Reported preference for risky activities has increased among adolescents in the US, especially among young women. Reported risk preference is increasingly associated with a higher use of marijuana. Our findings argue for the importance of placing risk preference within a multi-level framework that attends to historical variation.

© 2015 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Preference for risky activities, defined by the need for varied, novel and complex sensations and experiences (Steinberg, 2004; Zuckerman, 2007), tends to increase during adolescence, peak in mid-adolescence and decline during the transition to adulthood (Casey et al., 2011; Luna, 2009); it also varies considerably across individuals (Hansen and Breivik, 2001b; Zuckerman, 2007).

Sensation seeking personality traits are strongly linked to risk taking and preference for risky or dangerous activities, which also tends to increase during adolescence and then drop off during the transition to adulthood (Spear, 2000; Steinberg, 2007). Adolescents higher on the continuum of risk preference are more likely to experience conduct problems and engage in substance use (Arnett, 1996; Blaszczyński et al., 1986; Miles et al., 2001; Pilgrim et al., 2006; Quinn and Harden, 2013), gambling, vandalism and truancy, and experience unintended pregnancy (Hansen and Breivik, 2001a; Kong et al., 2013; Miles et al., 2001). Higher risk preference is also associated with greater risk of injury morbidity and mortality (Minino, 2010; Mirman et al., 2012). Substantial animal and human neurobiology indicates sensation seeking and risk preferences have a strong neurobiological component, through demonstrations of ventral striatal activity in response to rewards (Casey et al., 2011;

[☆] Supplementary material can be found by accessing the online version of this paper.

* Corresponding author at: Department of Epidemiology, Columbia University, Mailman School of Public Health, 722 West 168th Street, Suite 503, New York, NY 10032, United States.

Weiland et al., 2013), the observation of sensation seeking and risk taking during adolescence in non-human primates (Stansfield and Kirstein, 2006) and the genetic underpinnings of individual variation (Harden et al., 2012); however, the ways in which these biologically influenced processes of risk taking unfold through historical time under varying social contexts remains unexplored.

While it is well understood that risk preferences are associated with increased risk of substance use, much remains to be understood about these associations across different contexts. Specifically, given that substance use among adolescents varies across historical birth cohorts (Johnston et al., 2012), the extent to which risk behavior covaries with such trends is necessary to evaluate and interpret within a historical context. But to what extent is adolescent risk preference also a history-graded construct, one that varies across cohorts? By examining historical trends it is possible to observe how the broader social and cultural context shapes the experience of risk preference for adolescents. Specifically, two types of variation in historical trends are potentially informative for understanding social and cultural influences on risk preference: (a) mean level and (b) association with other problem behaviors. With respect to mean levels of risk preference, research to date typically examines individual and developmental differences in single or a few tightly grouped cohorts of adolescents; given that broader contextual influences may be ubiquitous at any given time period, they are likely to go unrecognized in such studies (Rose, 1985). Yet the cultural and social context in which adolescents develop clearly has implications for risk preferences (Resnick et al., 1997), as it is influenced by the immediate social context including peers, family, schools, and neighborhoods (Crone and Dahl, 2012; Schulenberg and Maggs, 2002), which themselves are conditioned upon the broader context (Jager et al., in press).

Quite separate from historical variation in mean level, the association with, or connection to, other problem behaviors given a high preference for risk could also vary across historical time. Based on existing research we know with a good deal of confidence that risk preference is an important precursor or even conduit for adolescent problem behavior. But is this equally true across historical time? Moreover, does the answer to this question vary depending upon the problem behavior? For example, more than 60% of high school seniors in the US had used marijuana by 12th grade in 1979; in 2011, less than half (46%) of seniors had used by 12th grade (Johnston et al., 2012); if marijuana users in time periods of relatively low use are more likely to be adolescents with stronger preferences for risk, we might expect the association between risk preference and marijuana use to be stronger during periods of relative low use, even if mean levels of adolescent risk preference are historically stable. Documenting the extent to which the associations between risk preference and adolescent problem behaviors varies across historical time will offer unique insights into the health and behavioral consequences of preferences for risky behavior. Moreover, understanding variation in the association between risk preference and these outcomes across historical time periods, when such outcomes are more or less available and socially sanctioned, can provide an un-paralleled opportunity to understand the specificity through which risk preferences influence these outcomes.

Importantly, by documenting both types of historical trends (i.e., trends in mean level and trends in association), we are able to provide a more complete account of historical variation in preferences for risk. This is the case because the implications of historical changes in mean levels of risk preferences are altered depending upon historical trends in the association between risk preferences and problem behaviors. For example, if mean levels of risk preferences increase historically but the associations with other problem behaviors decrease historically (i.e., risk preferences are higher today than in the past, but connection to problems behaviors is weaker), then an increase in mean levels of risk preferences is less

likely to be a cause for concern. However, if mean levels of risk preferences increase historically and the association with other problem behaviors is stable or even increases historically (i.e., risk preferences are higher today than in the past and connection to problem behaviors remain strong or have strengthened), then increases in mean levels of risk preferences are likely to be a cause for concern as those adolescents who engage in high risk activities may be increasingly comprised of substance users. While examination of mean levels of substance use across the same time period can offer ecological correlations, conjoint examination of the individual-association between risk preference and substance use across historical time is necessary to understand how the potential for a changing population mean of risk preference may portend other consequences.

We examine historical trends in risk preferences among US high school seniors across 36 years (1976–2011) using data from the Monitoring the Future study (Johnston et al., 2012), testing differences by sex. We also examine 36-year trends in the association of risk preferences with substance use and externalizing behaviors such as conduct problems.

2. Methods

2.1. Sample

Since 1976, the Monitoring the Future (MTF) study has conducted each spring a cross-sectional survey of high school seniors in ~130 U.S. public and private high schools. High schools are selected under a multi-stage random sampling design with replacement. Schools are invited to participate for two years. Schools that decline participation are replaced with schools that are similar on geographic location, size, and urbanicity. The overall participation rates (including replacements) range from 95% to 99% for all study years. Student response rates have averaged 83%, with no systematic trend; they ranged from 77% (1976) to 91% (1996, 2001, and 2006). Almost all non-response is due to absenteeism; less than 1% of students refuse to participate. Self-administered questionnaires were given to students. Detailed description of design and procedures are provided elsewhere (Bachman et al., 2006; Johnston et al., 2012). Approximately 15,000 12th graders are sampled in total annually. The present study focuses on 12th graders who were randomized to a questionnaire that included the same wording and question placement of risk preference items in all 36 years. The total sample size for analysis was 91,860 12th grade students (mean sample size by year, 2552).

2.2. Measures

The MTF questionnaire covers drug use and related behaviors and attitudes. Respondents are randomized within classroom to one of five or six (depending on year) questionnaire forms in which different sets of questions are included. Importantly, data collection procedures were the same and all constructs used in these analyses were measured in the same way across the 36 years on one of the forms.

2.2.1. Risk preferences. Two items assessing risk preferences were included: "I get a real kick out of doing things that are a little dangerous" and "I like to test myself now and then by doing things that are a little risky". Respondents rated each question on a five-point scale from "Disagree" to "Agree". Consistent with past research (Dever et al., 2012; Pilgrim et al., 2006), responses were summed to create a scale that ranged from 2 (Disagree on both items) to 10 (Agree on both items) ($\alpha = 0.71$). The summed score, as well as each item alone, correlated with measured covariates for which risk preference is consistently associated, including substance use and conduct problems ($0.11 < r < 0.34$), suggested some evidence for concurrent validity. In supplementary analyses we also analyzed each item separately as a dichotomous indicator, comparing those who "agree" to all others (see Supplemental Figs. 1 and 2¹). We note that the substantial strength of these measures is that item wording and placement was invariant across all 36 years of the study.

2.2.2. Substance use. Three substance use correlates were analyzed: any consumption of 5 or more drinks "in a row" in the past two weeks (binge drinking), any marijuana use in the past 12 months, and any cocaine use in the past 12 months. The survey assessed the frequency of use of these substances (0 occasions, 1–2, 3–4, etc.) in past 12-months or past 2-weeks. The use of dichotomies reflects our interest in the association of risk preference with any engagement in substance use, and

¹ Supplementary material can be found by accessing the online version of this paper.

Download English Version:

<https://daneshyari.com/en/article/7504772>

Download Persian Version:

<https://daneshyari.com/article/7504772>

[Daneshyari.com](https://daneshyari.com)