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Commentary on Kerr *et al*. (2018): Marijuana, drug use, and mental health in the United States—a tale of two generations

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Abstract

Adults and adolescents in the United States are experiencing unprecedented increases in depression and suicide, yet while marijuana and other drug use are increasing among adults, they are decreasing among adolescents. The causes and, therefore the remedies, of this public health burden may be fundamentally different between the two generations.

Keywords

Adolescents; age–period–cohort; depression; marijuana; policy; trends

Kerr *et al.* [1] report data from the National Alcohol Surveys (NAS), showing that the prevalence of past-year marijuana use among adults in the United States doubled from 2004–05 to 2014–15 from 6.7 to 12.9%, and that this increase is explained predominantly by period effects.

The past-decade increase in marijuana use documented in NAS is slightly larger than other large national US data sources. In the National Survey on Drug Use and Health (NSDUH), from 2004 to 2014, the prevalence of adult past-year marijuana use increased from approximately 10.2 to 13.3% [2,3]. In NESARC, from 2001–02 to 2012–13, rates of adult past-year marijuana use increased from 4.1 to 9.5% [4]. Despite differences in base rates, both surveys note approximately 3–5 percentage-point increases, compared with a 6-point increase in NAS. It is worth nothing that the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) findings have been criticized as implausibly large [3,5], yet Kerr *et al.*, with an independent data source, document an even larger increase. Some measurement invariance in the assessment of marijuana use in NAS (e.g. the addition of 'pot' as a descriptor of marijuana to respondents in 2010) may underlie at least some of the increase. Nevertheless, throughout three independent data sources, marijuana use is increasing in the United States by an order of magnitude of between 3 and 6 percentage points, indicating that there are between 10 and 20 million more adult marijuana users in the United States now than a decade ago.

Declaration of interests

None.

Kerr *et al.*'s careful demonstration that period effects underlie adult increases, rather than cohort effects, is an important addition to the literature. The troubling state of drug-related health in the United States has been documented across a number of outcomes [6,7]. Overdose and suicide are increasing at exponential rates [8,9], and available evidence also suggests that these increases are, at least in part, indicative of period effects [10]. While many individuals can use marijuana without harm, the increases in marijuana use coincident with these broader increases in drug use signals the need for capacity building to offer evidence-based services for those who desire to stop using. Furthermore, the finding that period effects underlie these increases indicates that at least some causes of increases in drug use and drug-related outcomes are occurring across all ages (of adults). It should be noted that the birth cohort currently in middle age, particularly men with low education, have a high risk of drug-related (and non-drug related) injury [8,11]. While much has been made of these findings, the Kerr *et al.* findings underscore the fact that drug use and injury in the United States is a widespread phenomenon that crosses multiple outcomes and age groups. Further, contrary to some large data sources (reviewed in [12]), Kerr *et al.* do not find medical marijuana laws to be plausibly among the potential causes of marijuana increases; defining, measuring, and understanding the impact of rapidly evolving and heterogeneous marijuana policies remains an active area of research for which best practices are not solidified.

However, the period effects in drug use and drug-related injury across adults do not extend to adolescence. For marijuana use, data from both Monitoring the Future and NSDUH indicate overall declines in past-year marijuana use across the past decade [3,13], especially for young adolescents. These declines are even more pronounced, surprisingly, among adolescents in states with medical marijuana laws [14,15]. Further, binge drinking is at a 40-year low among adolescents [13], as is problem behavior such as stealing and fighting [16], as well as having sex and dating [17]. These trends stand in stark contrast to the trends among adults, and are indicative of cohort effects that cannot be captured in national data sets of adults only. The reasons underlying the decline in problem behavior among adolescents are probably a combination of many factors, including that technology has enabled adolescents to engage with each other without the need to be face to face. Indeed, the number of evenings that adolescents spend outside the home without their parents has also declined precipitously during the past decade [16]. However, major depressive episodes have increased among adolescents [18], and completed suicides have tripled since 1999 [9], especially among young girls. Thus, adolescents in the United States may also be experiencing a mental health crisis, one that is different in nature and consequences than their generational counterparts. Both deserve attention from a public policy, public health and mental health service industry investment, as well as continued surveillance, as we tease apart period and cohort effects that underlie rapidly changing trends across the entirety of the life-course.

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