

## Examining and understanding the joint role of caffeine and alcohol in facilitating violent offending and victimization

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*The study draws attention to the importance of considering and controlling for caffeine and the interactive effects between caffeine and alcohol when investigating aggressive and violent behavior. Various pathways between caffeine and alcohol consumption and aggression and violence are examined. Given recent changes in preferences and availability of caffeine and energy drinks among licit and illicit substance users, this study argues for the importance of focusing research attention on the role of caffeine, particularly when combined with alcohol, in facilitating violent outcomes. Evidence suggests that both caffeine and alcohol are linked to aggression and violence and that both substances should be considered within the context of our efforts to manage the negative consequences of drugs. Caffeine, via energy drink consumption, may contribute to violent offending and victimization in a variety of ways. Evidence suggests that caffeine/energy drink consumption is popular among a subculture of toxic jock users, may motivate and facilitate increased alcohol consumption particularly in late night-time economies, and can potentially contribute to disrupted decision-making. Recent increases in caffeinated-product availability, marketing, and consumption necessitate focused research and policy attention. Many of these products are consumed with alcohol and/or in late evening settings by individuals that are already at increased risk for violent offending and victimization.*

**KEY WORDS:** *Caffeine, energy drinks, aggression and violence, methodology.*

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Recently, there has been a substantial increase in the availability and marketing of caffeinated substances, including energy drinks, and increased use of these drinks along with alcohol. These products are often marketed toward youth and young adult populations, which also tend to report higher levels of aggressive and violent behavior. This article draws attention to this recent pattern of caffeine consumption, often in conjunction with heavy drinking, explores the ways in which it might impact aggressive and violent behavior, and attempts to explain the motivations behind this drug preference shift.

### **Caffeine and energy or stimulant drinks**

Caffeine is the most widely consumed licit substance and is readily available in a plethora of beverages, foods, and medicines (Bernstein, Carrol, Thuras, Cosgrove, & Roth, 2002; Rockett & Putnam, 2002; Griffiths, Juliano, & Chausmer, 2003; Rogers, 2007; Ciapparelli et al., 2009). However, unlike other legal psychoactive drugs, caffeine is not regulated by the Food and Drug Administration. Thus, users may assume that caffeine and caffeine-based products, such as the increasingly popular energy or “stimulant” drinks, are rather benign and many may be unaware of the quantity of caffeine found in these commonly consumed drinks. For example, on average, an 8 oz. cup of brewed coffee contains 85 mg of caffeine, a cup of brewed tea contains 40 mg, and most cola drinks contain at least 24 mg (Griffiths et al., 2003). Dairy-derived products, such as coffee ice creams and flavored yogurts, provide an average of 50 mg of caffeine. Widely used over-the-counter medications, such as NoDoz<sup>®</sup> and Vivarin<sup>®</sup>, contain as much as 200 mg of caffeine and are commonly used to diminish lethargy and sleepiness (Griffiths et al., 2003; Rogers et al., 2005). The average caffeine content of two tablets of common pain relievers, such as Excedrin<sup>®</sup> and Midol<sup>®</sup>, is 64 mg or 130 mg respectively (Griffiths et al., 2003).

In recent years, highly-caffeinated energy drinks have become far more popular. Since the American debut of Austria’s Red

Bull<sup>®</sup> in 1997, the number of energy drinks has increased to over 500 brands (Reissig, Strain, & Griffiths, 2008; Simon & Mosher, 2007). The United States has rapidly emerged as a global leader in consumption (Zenith International, 2007, as cited in Reissig, Strain, Griffiths, 2008). In 2006, energy drink sales exceeded \$500 million (Miller, 2008a).

Consisting of caffeine, sugar, taurine, vitamins, and herbal ingredients such as ginkgo biloba and ginseng, the seemingly vigor-enhancing properties of energy drinks are appealing to many younger consumers (Miller, 2008a; 2008b). Indeed, the typical 8 oz energy drink contains 80 mg of caffeine (although some brands may contain several times that amount) which is comparable to one strong cup of coffee or two 12 oz. caffeinated soft drinks (Malinauskas, Aeby, Overton, Carpenter-Aeby, & Barber-Heidal, 2007). Many energy drink manufacturers include various natural ingredients (including flavoring from coca leaves) in their recipes in order to be classified under the 1994 Dietary Supplement Health and Education Act, which allows them to exceed caffeine content limits. In fact, some energy drinks contain 150-300% of the amount of caffeine that the FDA allows in soft drinks (McCluster, Goldberger, & Cone, 2006; see also Marczinski & Fillmore, 2006). Continued concerns that are raised from the legal and medical communities, as well as the public, have so far failed to change the current non-regulation status (Ari Kapner, 2004; Reissig et al., 2008).

Although the debate over whether caffeine and energy drinks should be regulated persists, the FDA recently notified 30 manufacturers of caffeinated alcoholic beverages that it will begin to explore the safety and legality of their products (FDA, 2009a, 2009b). Caffeine has only been approved as an additive in soft drinks, which raises the question of how safe alcoholic beverages containing the substance are and whether such products should legally be manufactured. According to the Federal Food, Drug, and Cosmetic Act, “a substance added intentionally to food (such as caffeine in alcoholic beverages)

is deemed 'unsafe' and is unlawful unless its particular use has been approved by FDA regulation or the substance is Generally Recognized As Safe (GRAS)" (FDA, 2009a). In order for a substance to be considered GRAS, scientific experts must determine that it can be safely consumed at the concentration level included in a particular food product. As such, the FDA has requested that companies provide evidence that their caffeinated alcoholic beverages have been deemed GRAS. If a manufacturer fails to satisfy the FDA's requirements, effort may be undertaken to remove their product(s) from store shelves (FDA, 2009a).

Regulation may be particularly important because the extant body of literature on energy drinks suggests that the primary group of users is comprised of teenagers and young, or emerging, adults. Identifying a particular type of user based on frequency of use, such as recreational use or chronic use, has not yet been subjected to empirical inquiry. However, it is important to consider demographic preferences in substance choice. According to a recent study, 31% of 12 to 17-year-olds regularly consumed energy drinks. However, among those between the ages of 18 to 24 years, 34% indicated that they recurrently consumed such beverages. After the age of 25, the percentage of users notably decreased (Simon & Mosher, 2007).

Most American adults and many children regularly consume caffeine. Despite the fact that caffeine is a licit substance commonly found in beverages, foods, and medicines, any individual who ingests such products could theoretically be considered a drug user (Griffiths et al., 2003). Researchers have also begun to classify caffeine consumers based on personality traits, although some studies indicate that personality is not a primary factor in determining who is likely to be a caffeine user (Liguori et al., 1999; Brice & Smith, 2002; Hewlett & Smith, 2006a, 2006b). According to Hewlett and Smith (2006a), personality is a stable and shared characteristic among consumers and nonconsumers alike. However, other researchers suggest that some personality traits are correlated to caffeine

use (Jones & Lejuez, 2005; Gurpegui et al., 2007). For example, Gurpegui and colleagues (2007) determined that individuals with an interest in novelty-seeking are more likely to regularly consume caffeinated products.

Caffeine users may also be classified according to a number of psychiatric syndromes identified both in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) and the World Health Organization's International Classification of Diseases (ICD-10) (American Psychiatric Association, 1994; Griffiths et al., 2003; World Health Organization, 2008). These diagnoses include caffeine intoxication, caffeine dependence, caffeine-induced sleep disorder, caffeine-induced anxiety disorder, and caffeine withdrawal (Griffiths et al., 2003). Along these lines, the 2007 Annual Report of the American Association of Poison Control Centers documented 5,448 caffeine-related calls to poison centers, of which 4,183 were single drug exposure events (i.e., no other drugs were involved). Sixty percent of the callers for whom age was recorded were 19 years old or younger, 1,573 of these events were categorized as "intentional" uses, and 1,561 of the users were medically treated in health care facilities. Over a third (36%) of these events was considered moderate or major in seriousness, including one documented death (Bronstein et al., 2008; Table 22B).

### **Exploring pathways between caffeine consumption and aggression or violence**

The specific role that caffeine may play in facilitating aggressive and violent behavior has been previously explored in humans and in animals (Peters, 1967; Cherek, Steinberg, & Brauchi, 1983; Istvan & Matarazzo, 1984; Lubit & Russett, 1984; Carmel, 1991). Yet, a substantial gap exists between past and current research efforts, and the cumulative body of research indicates a need to further investigate this connection given substantial recent increases in caffeine availability and consumption.

The links between caffeine and aggression or violence can be explored across various perspectives. First, the association between caffeine and aggression might be examined within a subcultural context through the identification of specific users and observations of their behaviors, activities, and associations. Second, caffeine contains specific pharmacological properties which may directly or indirectly contribute to aggressive reactions, behaviors, and victimization, particularly for those who are routinely involved in late-night activities that place them at increased risk for involvement in violence. Third, some research is exploring the link between caffeine consumption and cognitive impairments caused by neurobiological dysfunction. These impairments may impact and interrupt decision making. Finally, the potential links between caffeine and alcohol consumption, night-time economies/activities, and increased risk for violent offending and victimization might be considered. While these bodies of research continue to evolve, each of these perspectives offers some insight into the potential direct and indirect relationships between caffeine consumption, caffeine and alcohol consumption, and involvement in, or risk of, aggression and violent behavior.

Caffeine  
consumption  
within a  
subcultural  
context

To understand the potential pathways between caffeine and aggressive and violent behavior, it may be helpful to consider the subculture from which users emerge. Traditionally, a subculture encompasses certain symbols and a shared sense of values and behavioral norms (Golub, Johnson, & Dunlap, 2005). To illustrate, consider a group of teenagers who gather to smoke marijuana. The “youths may insist on smoking their marijuana in a blunt, drink 40-ounce bottles of malt liquor, listen to rap music, wear baggy pants, define marijuana as not a drug, and socialize mainly with other blunt smokers” (Golub et al., 2005, p. 219). While past empirical investigations have principally explored illegal substances such as marijuana, cocaine, and ecstasy within a drug subcultural context, few studies have considered licit substances including caffeine. Some suggest that this is, in part, because a significant portion of the population regularly ingests caffeine, and consumption

of caffeine often persists throughout adulthood (Golub et al., 2005).

One potential subculture of caffeine users includes those who identify themselves according to their involvement in sports (Miller, Melnick, Farrell, Sabo, & Barnes, 2006; Miller, 2008a). The use of both licit and illicit drugs among athletes, ranging from high school team members to professionals, has been widely documented (Ambrose, 2004; Green, Uryasz, and Petr, 2001; McDuff & Baron, 2005). In one particular study, elite athletes engaged in “stimulant stacking,” which involved ingesting in excess of 500 mg of caffeine a day, along with consuming considerable dosages of nicotine and ephedrine or amphetamine (McDuff & Baron, 2005). Interestingly, to counteract the stimulants’ effects, many athletes also used alcohol (McDuff & Baron, 2005), a common poly-drug situation to be discussed later.

Although research on energy drink consumers is still fairly limited, a recent study offers a demarcation of one type of energy drink user emerging from the sports-related subculture, referred to as a “toxic jock” (Miller, 2008a, 2008b, 2009). Based on the perceptions among males and females, the typical toxic jock is a male, college undergraduate who self-identifies as a jock, engages in risk-taking behavior, and embodies traditional masculine characteristics. While investigators in the past have employed the term “athlete” and the colloquial idiom “jock” interchangeably, researchers have recently begun to note the distinction between the two as they are individually and socially constructed in contemporary society (Miller, 2008a, 2009; Miller & Hoffman, 2009). While both may share an interest in sports, their motivation and goals differ considerably. Indeed, the disciplined athlete is involved in pro-social activities and a variety of physical wellness pursuits. In contrast, the jock may be engaged in risk-seeking, violent behavior, and only a few high-profile sports (Miller & Hoffman, 2009). Thus, to the *toxic* jock, energy drinks more closely represent his lifestyle needs and preferences (Miller, 2008a).

Marketing researchers have been quick to study the demographics of energy drink users and to measure consumption patterns. If the toxic jock is the average energy drink consumer, perhaps it is not surprising that marketing strategies emphasize involvement in high-risk and potentially illicit activities (Miller, 2008b). Indeed, one need only consider the increasingly provocative brand names of energy drinks currently on the market. Alluding to both illegal and promiscuous activities, some of the latest energy drink names (available in different countries) include Cocaine<sup>®</sup>, Bong Water<sup>®</sup>, Crunk<sup>®</sup>, Playboy<sup>®</sup>, Pussy<sup>®</sup> and Sex Drive<sup>®</sup> (Miller, 2008a).

To market these drinks, ads are strategically purchased and broadcast during television shows geared for teen and young adult male viewers. For example, in one large southeastern American city, ads for the energy drink Vault<sup>®</sup> are broadcast during teen and young adult male-oriented shows such as *Family Guy*, *American Gladiator*, and major sports events (L. Zannino, personal communication, September 27, 2009). Websites are another medium used to effectively market to teens and young men. As one example, the Website for Monster Energy drink welcomes visitors with the following rage-inducing rhetoric:

Tear into a can of the meanest energy supplement on the planet, MONSTER energy. We went down to the lab and cooked up a double shot of our killer energy brew. It's a wicked mega hit that delivers twice the buzz of a regular energy drink. The MONSTER packs a vicious punch but has a smooth kick ass flavor you can really pound down. So when it's time to unleash the beast within, grab a MONSTER and GO BIG! (Monster Energy, 2008).

Although some energy drink brand names, such as Red Bull, do not explicitly imply illicit or high-risk sexual or violent behavior, they are nevertheless decisively marketed to appeal to younger, image-conscious consumers (Jackson et al., 2000).

Effects of  
using caffeine  
and alcohol  
together

This global marketing strategy has also been employed to encourage co-consumption of alcohol and energy drinks. In Britain, Red Bull was estimated to increase alcohol sales by 20% in pubs and clubs (Jackson, Hastings, Wheeler, Eadie, &

Mackintosh, 2000). Further, advertisers in Africa have begun to market energy drinks and premixed concoctions including alcohol “not as commodities but as concepts, experiences and lifestyles” that are alluring to youth (Odejide, 2006, p. 28). Within the United States, caffeinated alcoholic beverages were marketed as “trendy cocktails” designed to meet the party-going needs of college students (Marczinski & Fillmore, 2006).

Combining alcohol with energy drinks, however, may increase the likelihood that an individual will consume greater quantities of alcohol. In addition to consuming more alcohol, college students who mix alcohol with energy drinks were more likely to be involved in alcohol-related injuries. More importantly, those who consumed a combination of alcohol and energy drinks showed a propensity for taking advantage of others sexually and for provoking and engaging in physical altercations (Reissig et al., 2008; Miller, 2008a, 2008b). As a result, the potential direct or indirect causal relationship between caffeine (via energy drink consumption and perhaps in combination with alcohol) and aggression and violence should be considered in future research, even if caffeine by itself may not represent a significant or primary cause of aggression or violence (Griffiths et al., 2003).

While alcohol alone affects motor coordination and visual reaction time, recent studies indicate that caffeine combined with alcohol may reduce the perceived impairment effect, despite the fact that impairment likely exists. Interestingly, these studies found that breath concentration of alcohol is not affected by the co-ingestion of caffeine. (Ferreira, de Mello, Pompeia, & de Souza-Formigoni, 2006; Marczinski & Fillmore, 2006). In addition, caffeine may augment an individual’s real or perceived tolerance for alcohol (Fillmore, 2003; Marczinski & Fillmore, 2006; Ferreira et al., 2006). As with the increased need for nicotine, the co-ingestion of caffeine and alcohol may therefore facilitate increased alcohol consumption, which may then directly or indirectly lead to aggression and violence or even self-induced harm (including excessive caffeine intoxication).

While some energy drink users are more likely to engage in activities such as smoking or illegal drug use, the majority combine these drinks with alcohol (Reissig et al., 2008). A recent study revealed that nearly one quarter (24%) of college students consumed a mixture of alcohol and energy drinks within the past month (O'Brien et al., 2008). Within another sample of 469 college students, nearly half (49%) of those who regularly combined alcohol and energy drinks used more than three energy drinks to create cocktails such as Vodka Red Bulls, Jager Bombs, and the like (Malinauskas et al., 2007). Recognizing this consumption pattern, several brewing companies manufactured premixed caffeine-alcohol combination drinks. In response, eleven State Attorneys raised legal challenges to these sales, and Anheuser-Busch, one of the largest beer brewers in America, agreed to cease production of premixed drinks (Idaho Office of the Attorney General Website, as cited in Reissig et al., 2008). As noted previously, the FDA has recently launched an investigation into the safety and legality of caffeinated alcoholic beverages that are still being manufactured. Nevertheless, such mixtures remain available in many countries and are routinely served in bars and restaurants.

Caffeine  
consumption  
and disrupted  
decision  
making

A separate body of research has started to explore the role of substances in disrupting decision-making processes. The cognitive process of decision making involves several distinct, but interrelated, stages (Ernst & Paulus, 2005; Schoenbaum, Roesch, & Stalnaker, 2006; Fishbein et al., 2005; Bechara & Damasio, 2002). Decision making occurs when individuals evaluate viable options, determine a preference, carry out an action in response to the selected preference, and reflect upon the experience of the outcome (Ernst & Paulus, 2005; Clark & Robbins, 2002; Schoenbaum et al., 2006). Calculating the expected value of viable options is expressed as the root of decision making and is embraced across social science disciplines including criminology, economics and neurobiology (Akers, 2000; Friedman, 2002). This conceptualization of rational choice has been extended by acknowledging that external factors can limit decision making outcomes

(Cromwell & Olson, 2006; Shover & Honaker, 2006). Neurobiological research has progressively examined the intricacies of these relationships and attempted to identify some of the external factors that disrupt the neurological activities.

A significant amount of research has examined cognitive disruptions attributed to external factors such as consumption and abuse of psychoactive substances (Ernst & Paulus, 2005; Shoenbaum et al., 2006). Much of the current research focuses specifically on alcohol (Attwood, Ohlson, Benton, Penton-Voak, & Munafo, 2009; Craig, Attwood, Benton, Penton-Voak, & Munafo, 2009; Reynolds, Richards, & Wit, 2006) and illicit psychoactive substances including opiates (Brand, Roth-Bauer, Driessen, & Markowitsch, 2008; Clair et al., 2009), ecstasy (Fox, Parrott, & Turner, 2001; Hoshi, Pratt, Mehta, Bond, & Curran, 2006), or combinations of various illegal substances (Clark, Roser, Robbins, & Sahakian, 2009; Goldstein et al., 2004; Verdejo-Garcia et al., 2007). Meanwhile, little research has examined the most commonly used and legal psychoactive substances.

Evidence regarding the direct impact of acute caffeine consumption on cognitive dysfunctions is scant. Most research in this area connects caffeine, particularly during withdrawal, to various psychological states including anxiety, depression, and aggression (Lubit & Russett, 1984; Wilson et al., 2000; Rogers, 2007), but does not investigate the underlying processes leading to these conditions. However, Majithia (2009) suggests that caffeine withdrawal facilitates a depletion of serotonin, which is often implicated in substance abuse research as a causal factor related to aggression.

Caffeine consumption has been shown to be inversely related to age (Ciapparelli et al., 2009), which corroborates findings that the marketing of energy drinks mixed with alcohol is targeted to younger consumers (Jackson et al., 2000). While it is currently unclear whether caffeine or energy drinks directly

impair cognitive functioning, the role of alcohol in negatively affecting thinking and behavior is widely supported, particularly among individuals with alcohol abuse or dependence diagnoses (Kuhns & Clodfelter, 2009; Attwood et al., 2009; Reynolds et al., 2006; Schuckit, 2009; Vik, Cellucci, Jarchow, & Hedt, 2004). Therefore, it would be prudent to consider the interactive effects of energy drinks (caffeine) and alcohol consumption on neurological disruptions and decision making in future research efforts.

**Caffeine and alcohol consumption and night-time economies**

Risk for involvement in violent offending or victimization might also increase simply as a function of consumption patterns, settings, and situations. Since caffeine may increase tolerance or impact the perceived effects of alcohol, it stands to reason that more alcohol might be consumed within a specific drinking episode if caffeine is also consumed simultaneously. Again, Red Bull was estimated to have increased alcohol sales by 20% in pubs and clubs in Britain (Jackson et al., 2000).

Further, the time and length of the consumption process might result in increased risk for involvement in violence. The relationship between late night and weekend drinking and increased risk of involvement in violent offending and victimization has already been documented in Britain (Finney, 2004; Donkin & Birks, 2007) and in other areas of the world, particularly among 18 to 24-year-old males (Finney, 2004), but also increasingly among females within that age group (Forsyth, 2006). Many of these late night or all-night partying and consumption events occur in and around bars (Home Office, 2009), restaurants, sporting events, raves, college campuses, and other areas or situations that are associated with night-time economies. Historically, younger males are most likely to be involved in violence as both offenders and victims (Donkin & Birks, 2007; Kuhns, 2005) and that same demographic subgroup is both the target audience for energy drink marketing campaigns and the major consumers of energy drinks. As a result, the widespread introduction of energy drinks (caffeine) into the pub and bar scene may generate increased concerns

with alcohol consumption among younger males and females interacting in late night settings and for longer periods of time. Such situations, while inherently risky, might also offer opportunities for situational crime prevention efforts (Clarke & Eck, 2007).

### **Summary and conclusion**

As the most widely used and readily available stimulant, caffeine has received considerable research attention with respect to its positive and negative health consequences. However, criminologists have generally focused significantly more research attention on alcohol and illicit drugs when exploring drug-violence relationships. As a result, there may be a tendency to dismiss, overlook, or otherwise ignore the potential consequences of daily or excessive caffeine consumption on behavioral patterns, poly-drug use, decision making, and late-night experiences and exposure.

Past studies have documented weak relationships between alcohol and caffeine consumption (Istvan & Matarazzo, 1984). However, recent trends in caffeinated energy drink development, availability, production, marketing, and consumption of alcohol/caffeine combination drinks requires researchers to pay closer attention to this relationship and consider the impact as an alternative explanation of, or a contributor to, violent outcomes. Caffeine and energy drinks may be particularly attractive to certain aggressively predisposed users (toxic jocks), may interact with alcohol and other drugs which do facilitate aggression and violence, may impact or impair decision making processes, and may be linked to specific geographical locations and timeframes (nightlife) that represent inherently risky settings.

Past research has suggested that poly-drug users tend to score higher on measures of aggressiveness and hostility (McCormick & Smith, 1995). To the extent that late night partying (includ-

ing alcohol and caffeine coconsumption) includes increased exposure to, experimentation with, and involvement in other licit and illicit drug use, potential concerns with violent offending and victimization may escalate. The anticipated effects of caffeine on subsequent aggression within an experimental setting has been documented (Taylor, O'Neal, Langley, & Butcher, 1991), suggesting that aggressively-motivated males and females who "think" that energy drinks can impact their behavior may simply act accordingly, regardless of any pharmacological effect or lack thereof. In addition, some consumers of energy drinks use these beverages so that they can remain alert and subsequently drink more alcohol (Safefood, 2009). Regardless of whether the caffeine does or does not impact real or perceived intoxication levels, the net result may be that young males and females ultimately continue drinking for longer periods during late-night hours when offending and victimization are already more likely to occur. Again, the social settings for many of these events are already inherently risky.

In Britain, some evidence suggests that a "culture of intoxication" is recently evolving as a function of several factors. First, there appears to be growing acceptance that use of psychoactive substances is considered "normal" within late-night dance and music-oriented environments. Second, there have been substantial changes in development and marketing strategies within the alcohol industry, including increases in alcohol content in some beverages. Third, evidence suggests broader acceptance, across a larger segment of the population, of binge drinking and drunkenness as routine expectations of late-night socialization and leisure activity. Finally, there are perceived shifts in societal regulations and restrictions on hedonistic behavior accompanied by changes in tolerance and acceptance associated with bounded, yet determined, alcohol and other drug consumption (Meashan & Brain, 2005). Arguably, caffeine and energy drinks are contributing to, and perhaps further fueling, this culture of intoxication.

To the extent that regulations, laws and policies are directed toward managing the consequences of drug use, it is important to consider caffeine and energy drinks within that context. Historically, drug enforcement efforts and resources have mostly focused on alcohol and illicit substances, based in part on the psychopharmacological, economic-compulsive, and systemic relationships to violence (Goldstein, 1985). Meanwhile, the numbers of deaths attributed to two licit drugs (alcohol and nicotine, via tobacco) far exceed those associated with all illicit drug use combined (Mokdad, Marks, Stroup, & Gerberding, 2004). Again, in 2007 there were 5,448 caffeine-related calls to poison centers in the United States, of which 4,183 were single drug exposure events (i.e., no other drugs were involved; Bronstein et al., 2008).

These early warning signs can hopefully serve as catalysts for more careful consideration of the direct and indirect consequences of widespread availability, marketing, acceptance, and consumption of caffeinated beverages, particularly when combined with alcohol. The failure to act in a timely manner with respect to the known consequences of tobacco resulted in millions of needless deaths in the United States. Alcohol continues to contribute substantially to the annual death toll. It would be equally irresponsible if we failed to pay close attention to the potential consequences of a highly-caffeinated, alcohol-intoxicated, young male and female population that spends considerable late-night hours interacting in environments that are inherently risky.

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