

## Caffeine Use in Tennessee and the United States

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### Caffeine Abuse: A Growing Health Concern

A growing health concern is the use of caffeine in energy drinks (The DAWN Report, 2013) and the use of caffeine powder to boost energy prior to physical exercise or sports events (Food and Drug Administration, 2013). Nationwide, emergency department visits due to adverse reactions to energy drinks or the mixing of energy drinks with alcohol and or other drugs doubled from 10,068 visits in 2007 to 20,783 visits in 2011 (The DAWN Report, 2013). Although the number of visits for both men and women doubled from 2007 to 2011, the number of energy drink emergency department visits for men in 2011 (14,905) was more than twice the number of visits for women (5,878).

### Caffeine Abuse by Children and Youth

The marketing of energy drinks and caffeine powder to young youth and young adults is a special concern because of the recent death of an 18-year-old athlete who took caffeine powder prior to a sporting event (Jalonick & Sanner, 2014). A lethal dose of caffeine is equivalent to 3,000 mg (3 grams) in a few hours (Sepkowitz, 2012). Small amounts of powdered caffeine may result in an accidental overdose and death. The Food and Drug Administration (FDA) has warned consumers to avoid powdered caffeine because “a single teaspoon of pure caffeine is roughly equivalent to the amount in 25 cups of coffee” (Food and Drug Administration, 2013). The amount of caffeine in different products is shown in Table 1 below.

Table 1: Amounts of caffeine in select products

Product	Size of Beverage	Amount of Caffeine
<b>Brewed coffee</b>	8 ounces (oz.)	95-200 milligrams (mg)
<b>Coca-Cola</b>	12 oz.	25-35 mg
<b>Mountain Dew</b>	12 oz.	42-55 mg
<b>Red Bull (energy drink)</b>	8.4 oz.	75-80 mg
<b>5-Hour Energy Shot</b>	2 oz.	200-207 mg
<b>Semi-sweet chocolate chips</b>	1 cup	104 mg

Source: (Mayo Clinic, 2014)

Although caffeine is widely used in the general population in the form of coffee and soft drinks, the use of energy drinks has increased access to caffeine for a broad range of age groups. An estimated 73% of children in the United States consumed caffeine on a given day during the time period from 1999 to 2010 (Branum, 2014). Children’s coffee consumption increased from 10% to 24% of caffeine intake during this period. Energy drinks did not exist in 1999-2000 but accounted for 6% of children’s caffeine consumption in 2009-2010 (Branum, 2014). The American Academy of Pediatrics recommends schools prohibit energy drink use, even for athletes, and prohibit the sale of caffeinated beverages (Committee on Nutrition and the Council on Sports Medicine and Fitness, 2011).

## Caffeine Abuse by Adults

Caffeine can have both positive and negative effects for adults. Moderate caffeine intake (fewer than 6 cups of coffee daily) is associated with fewer depressive symptoms and better alertness, attention and cognitive function (Lara, 2010). Conversely, large amounts of caffeine can cause adverse effects such as insomnia, nervousness, headache, fast heartbeat, and seizures that are severe enough to require emergency care. (The DAWN Report, 2013).

## Caffeine Abuse in Tennessee

Although little data exists about the use of caffeine in Tennessee, the Tennessee Department of Mental Health and Substance Abuse Services analyzed demographic and diagnostic data on 96,320 clients receiving mental health services in Tennessee in FY 2013 and found that caffeine-induced disorder ranked fifth among diagnosed substance use disorders (behind alcohol, polysubstance, cannabis, and opioid use disorders) in this population. As shown in Table 2, about 1,200 Tennesseans or about 6% of clients with a substance use diagnosis were diagnosed with a caffeine-induced disorder by a mental health service provider. Almost one-fifth (19% or 18,642 clients) of clients receiving services from mental health agencies in FY 2013 had a substance use diagnosis. The top ten substance use diagnoses are shown in Table 2 below.

Table 2: Top 10 substance use diagnoses among clients receiving mental health services, Tennessee: FY 2013.

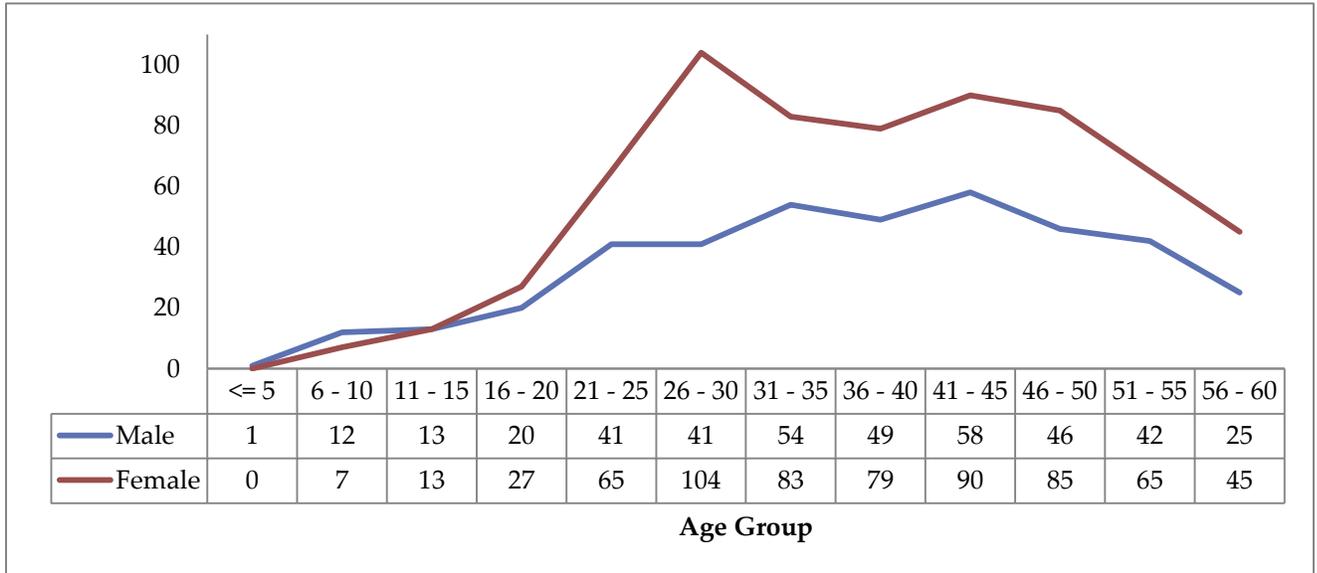
Rank	Top 10 Substance Use Diagnoses	Number	Percent
1	Alcohol disorders	5,298	28%
2	Polysubstance disorders	4,101	22%
3	Cannabis use disorders	3,282	18%
4	Opioid use disorders	2,009	11%
5	<b>Caffeine-induced disorders</b>	<b>1,196</b>	<b>6%</b>
6	Substance-induced disorders	930	5%
7	Cocaine use disorders	905	5%
8	Amphetamine use disorders	457	2%
9	Sedative, hypnotic, or anxiolytic use disorders	382	2%
10	Other (or unknown) substance use disorders	82	0%
	Total	18,642	100%

Source: Tennessee Department of Mental Health and Substance Abuse Services, 2014.

Chart 1 shows that the number of Tennessee women with a caffeine-induced diagnosis receiving mental health services was higher for adult women than adult men. The number of women with a caffeine-induced diagnosis peaked as they reach their late 20s. Caffeine-induced disorders begin to decline for both men and women as ages approached 50 years old. Except for a spike in the 26-30 age group, the percent of women with a caffeine-induced diagnosis does

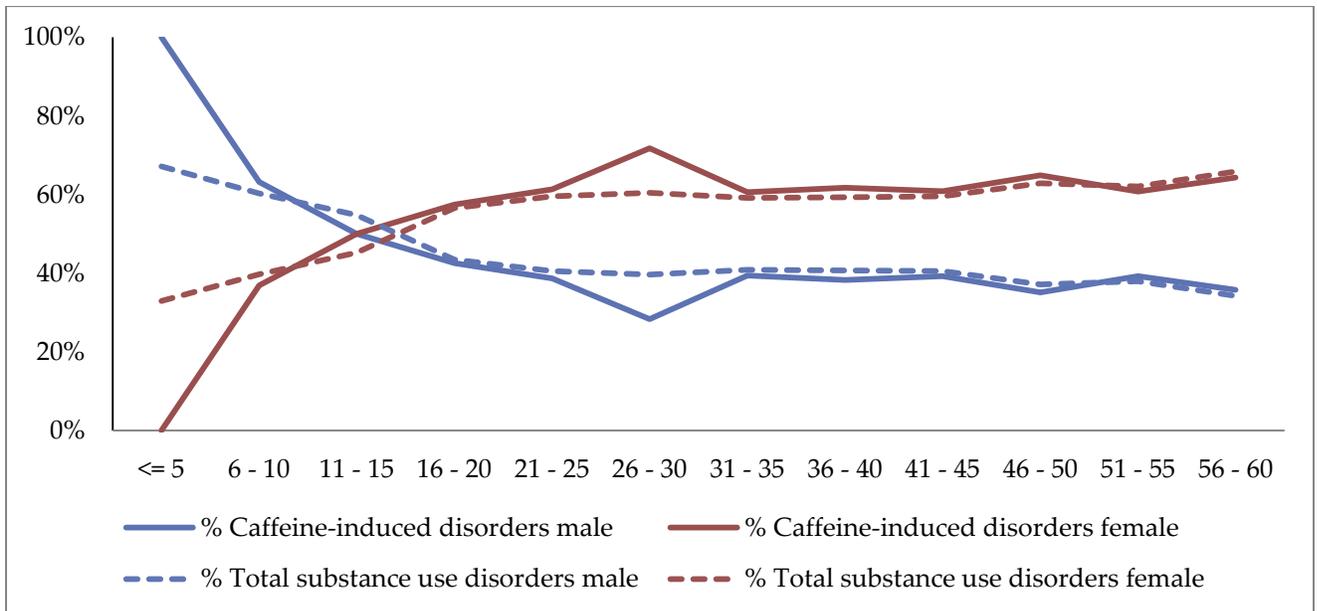
not differ from the percent of all women with substance use diagnoses. Chart 2 shows that women in both groups are proportionally more likely to receive mental health services than men.

*Chart 1: Number of clients receiving mental health services with a caffeine-induced disorder by gender and age group, Tennessee: FY 2013*



Source: Tennessee Department of Mental Health and Substance Abuse Services, 2014.

*Chart 2: Percent of clients with caffeine-induced disorders compared to percent of clients with all substance use disorders by gender and age group, Tennessee: FY 2013*



Source: Tennessee Department of Mental Health and Substance Abuse Services, 2014.

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