Do You Know What You Are Drinking?

Do you know what you are drinking? Do you know what your patients/clients are drinking? Can you distinguish among a drink, beverage, energizer, fortified beverage, sports drink, shot, or dietary supplement? If you drink coffee or tea, do you know how much caffeine is in each ounce?

These questions came about when consumers of mental health services were assisting high energy drink (HED) researchers to design a revision of an existing HED survey. The original survey, designed for teenagers and college students, and modified for psychiatric nurses, was reported in the January issue of the *Journal of Psychosocial Nursing and Mental Health Services* (Smoyak, Nowik, & Lee, 2015). Consumers attending the Freehold Community Wellness Center, sponsored by Collaborative Support Programs of New Jersey (access http://www.cspnj.org), were approached. In this editorial, they will be referred to as consumers collaborating with Rutgers researchers (CCRC).

The new project, with CCRC, was to create an instrument that would provide answers to questions about the knowledge, attitudes, and practices of individuals with mental illness about HED. Nothing in the literature exists about the use patterns of consumers of mental health services regarding HED and psychoactive agents. Use patterns, such as consuming HED before a psychiatric diagnosis or afterwards or instead of (i.e., in place of filling their prescription for psychoactive agents), have not been studied and reported.

The earlier article, reporting on the knowledge, attitudes, and practice of psychiatric nurses (Smoyak et al., 2015) noted this deficit in the research literature. Psychiatric nurses were urged: “When mental health professionals and psychiatric nurses administer certain drugs, such as clozapine (Clozaril®), fluvoxamine (Luvox®), imipramine (Tofranil®), olanzapine (Zyprexa®), and clomipramine (Anafranil®), they should be aware of the interactions between these medications and caffeine” (Smoyak et al., 2015, p. 41). There is no allusion to the caffeine in HED.

“The main difference between caffeine in coffee and caffeine in HED is that hot coffee is drunk slowly or sipped, whereas HED are consumed cold and quickly. Depending on how it is brewed, coffee has an average of 10 mg of caffeine per liquid ounce, whereas HED products have 16 or ≥18 mg per ounce” (Smoyak et al., 2015, p. 41). Thus, someone who drinks four 6-ounce cups of coffee takes in only 24 mg of caffeine, whereas someone who drinks eight 10-ounce cups of coffee takes in 80 mg of caffeine. Newspapers and lay journals are increasing the publication of opinions stating that up to 400 mg of caffeine per day is not a problem and may enhance concentration (U.S. Food and Drug Administration [FDA], 2013).

The FDA (2013) states that overall consumption of caffeine is said to be safe up to 400 mg per day. However, because caffeine has grown increasingly common in individuals’ diets (e.g., beverages, jelly beans, waffles, gum), the FDA (2013) has announced that they will investigate the safety of caffeine in food products.

Caffeine, or 1,3,7-trimethylxanthine, derives from a methylxanthine group and includes theophylline and theobromine. Methylxanthine inhibits the neurotransmitter adenosine by stimulating beta 1 and beta 2 adenosine receptors from the release of catecholamines. Caffeine affects individuals differently. Caffeine tolerance can develop over time, sometimes affected by genetics. For many individuals, clinical manifestations will usually begin at approximately 100 to 150 mg of caffeine consumption daily. Effects such as increased alertness and reduced fatigue are desired. However, at approximately 300 mg, caffeine can
cause headaches, diuresis, tachycardia, rapid breathing, tremors, and insomnia, while also increasing anxiety. Adverse effects of caffeine on the central nervous system generally include agitation, irritability, headache, restlessness, insomnia, delirium, and hallucinations. Cardiac effects include vasodilation, increased cardiac output, angina, flushing, palpitations, and tachycardia. Caffeine also affects the gastrointestinal tract by causing inflammation of the lining of the stomach, or gastritis. Neuromuscular effects of caffeine include fasciculation, or short and spontaneous contractions affecting a small group of muscle fibers. Studies of caffeine consumption suggest decreased bone density (Pohler, 2010).

The CCRC asked the HED research team to provide answers about the products that they were drinking, beyond HED. Unfortunately, the team could not do this. The CCRC suggested the research team investigate and provide answers about the ingredients, and how they compared with HED. They wanted to know about sodas and colas, other than HED, and also common sports drinks, such as Gatorade®. The reason to gain these facts was to then decide if they should be asked about specifically in the new survey.

Pomeranz, Munsell, and Harris (2013) provided a chart showing specific HED products and what they contained. A similar chart is not available for soft and sports drinks. Pomeranz et al. (2013) pointed out that: “The Food, Drug, and Cosmetic Act (FDCA) does not require caffeine disclosure for beverages or supplements” (p. 256). Husak (2015) added that some companies provide such data on their products voluntarily, but that all do not. For missing information, customers must contact the companies, but their phone numbers or web addresses are not necessarily shown on the bottles or cans.

Ancheta (2015) provided the information asked for by the CCRC. She sought sources on the Internet, product labels in stores, and existing literature on sports drinks. In summary, all three categories (i.e., HED, soft drinks, and sports drinks) contain: (a) carbonated water; (b) sodium citrate; (c) vitamins B3, B6, and B12; (d) citric acid; (e) vitamin C; (f) high fructose corn syrup; (g) taurine; (h) inositol; and (i) ginseng. There was also mention of flavoring or color, but these were not specified. The exact amounts of these ingredients were not detailed in the web databases or on the cans or bottles. A general, safe assumption is that the amount of these ingredients is listed in the order of the amount in which they occur in the product. The soft drinks on Ancheta’s chart included Coca Cola® Classic, Diet Coke®, Pepsi® Cola, Mountain Dew®, and Dr. Pepper®. The sports drinks included Gatorade, Powerade®, Gatorade G2, Vitaminwater®, and Propel® Zero.

Winkler (2015), another member of the Rutgers research team, collected references on how the products are marketed. For instance, words such as healthy, energy-producing, and enhancing strength are included; however, no scientific evidence exists for these words. Nurses, however, are aware of dietary cautions against high fructose corn syrup and that a limit exists regarding how much of any vitamin is needed for daily intake.

John D. Rockefeller, the previous Chairman of the Senate Committee on Commerce, Science, and Transportation, stated: “Companies are aggressively marketing their products to teens…even as public health experts are raising some serious, disturbing questions about these drinks” (Mitka, 2013, p. 1015). Although the focus has been on the dangers of HED specifically, the FDA (2014a) has a new interest in defining and regulating dietary supplemental products and dietary ingredients. The FDA (2014b) recently published Dietary Supplements Guidance Documents & Regulatory Information, which distinguished between liquid dietary supplements and beverages. Rules for the definitions, labeling, naming, and daily intake are described in complex paragraphs. What is now a suggestion or guideline may one day become an FDA regulation.

According to Lombardo (2015), whose role on the HED research team is to be informed on past and present statements, rules, and publications of the FDA:

The FDA does not regulate caffeine if it is found naturally in foods, such as chocolate, tea, and coffee. If added in beverages, however, the FDA declares caffeine generally recognized as safe (GRAS [FDA, 2011]) up to a level of 0.02 percent or 200 parts per million (FDA, 2014), which is approximately 71 mg of caffeine per 12 ounces.

A list of drinks and their respective caffeine contents is available online (access http://www.CaffeineInformer.com).
For healthy outcomes, it is important to know exactly what is being consumed. Caffeine, the most widely used legal drug worldwide, is safe to use in moderation. Knowing what is considered safe and when intake should be adjusted is important for nurses’ health, as well as those for whom nurses care.

An excellent approach to improving health outcomes is to make it a habit to read labels on beverages, supplements, and drinks and to eliminate those making claims to outcomes that cannot be proven or justified. Because of the FDA’s increased concern about these products, customers will find that more and more products have increased the specificity of their labeling.

Read them! Teach your patients/clients to read them! Remind yourself and others that water is an excellent alternative beverage.

REFERENCES

Shirley A. Smoyak, RN, PhD, FAAN
Editor
The author has disclosed no potential conflicts of interest, financial or otherwise.
doi:10.3928/02793695-20150319-01