Rx

# Pharmacologic Implications of Marijuana Use During Pregnancy

HEIDI COLLINS FANTASIA

Marijuana use in the United States is at an all-time high. This is due in part to changing legal perspectives. As of January 2017, 28 U.S. states, the District of Columbia, Puerto Rico, and Guam have legalized use of marijuana for medical reasons, and other states have decriminalized small amounts of marijuana for personal use or have pending ballot initiatives that address personal use (National Conference of State Legislators, 2017). Although individual state laws vary, the federal government considers marijuana a Schedule I substance (Drug Enforcement Administration, n.d.). According to the Drug Enforcement Administration, Schedule I drugs are those that do not have an accepted medical use and have a high potential for abuse and physical/psychological dependence (see Box 1). The juxtaposition of state laws supporting legal use and federal laws declaring marijuana an illegal substance adds to

**Abstract** Marijuana is the most commonly used recreational drug in the United States, including among women of childbearing age and women who are pregnant. Changing legal statutes that allow for the use of medical marijuana and the decriminalization of marijuana for personal use reflect more permissive societal views on the use of this drug. Active compounds in marijuana cross the placenta rapidly and are excreted in breast milk. Results of studies of the effects of marijuana on a developing fetus and neonate are conflicting, but researchers have identified chronic marijuana exposure as a risk factor for preterm birth and small-for-gestational-age infants. This article reviews the pharmacology of marijuana and discusses implications for nurses who work with women of childbearing age. http://dx.doi.org/10.1016/j.nwh.2017.04.002

**Keywords** cannabis | marijuana | pharmacology | pregnancy





 


the confusion and controversy for the lay public and for health care providers.

According to researchers from the Substance Abuse and Mental Health Services Administration (2014), marijuana was the most commonly used illicit drug in the United States when data were last collected in 2013. Nearly 20 million individuals ages 12 years and older reported past-month use. Among pregnant women between the ages of 18 and 44 years, approximately 4% of women reported marijuana use in the past month, and another 7% reported use within the past 12 months (Ko, Farr, Tong, Creanga, & Callaghan, 2015). Effects of maternal marijuana use on offspring are difficult to determine, especially if prenatal exposure to additional substances such as tobacco, alcohol, and other drugs also occurred (Metz & Stickrath, 2015). Considering the changing legal climate and more accepting social norms surrounding marijuana use, this article examines the pharmacologic implications of maternal marijuana use and discuss evidence-based strategies for nurses who work with pregnant women who may be using marijuana. For a review of two recent studies on marijuana and pregnancy, see another article in this issue by Harris and Okorie (2017).

## Overview of Marijuana

Although marijuana is often referred to as one substance, from a pharmacologic perspective it is actually composed of more than 100 different chemicals, the most common of which is delta-9-tetrahydrocannabinol, which is abbreviated to THC (Wilkinson, Yarnell, Radhakrishnan, Ball, & D'Souza, 2016). THC is the primary psychoactive compound in marijuana and is responsible for the drug's effects of drowsiness, altered mood, and hallucinations (Richardson, Hester, & McLemore, 2016). In addition to THC, other active compounds include cannabidiol and cannabinol, which also influence the central nervous system and can have synergistic effects with THC on mood (Wilkinson et al., 2016). Additionally, THC interferes with the endocannabinoid signaling system, which affects motor control and memory (Chasnoff, 2017).

Marijuana is derived from the leaves and other components of the hemp plant *Cannabis sativa*. Although synthetic forms of marijuana exist, discussion of synthetic marijuana is beyond the scope of this article. The concentration of active compounds in each cannabis plant varies; therefore, it is not possible to determine the potency of individual marijuana products such as dried leaves or edible products that contain hemp (Wilkinson et al., 2016). The variation in chemical composition among marijuana plants and products results in wide differences in potency and a broad range of responses among individuals exposed to

Box 1.
### Federal Drug Schedule

**Schedule I: No accepted medical use/high potential for abuse**
Heroin, LSD, marijuana (cannabis), ecstasy

**Schedule II: High potential for abuse/dependence**
Cocaine, methamphetamine, methadone, hydromorphone, meperidine, oxycodone, fentanyl, dextroamphetamine, amphetamine and dextroamphetamine, methylphenidate

**Schedule III: Moderate to low potential for abuse/dependence**
Acetaminophen with codeine, ketamine, anabolic steroids, testosterone

**Schedule IV: Low potential for abuse/dependence**
Alprazolam, carisoprodol, diazepam, lorazepam, pentazocine, zolpidem, tramadol

**Schedule V: Lowest potential for abuse/limited narcotic content**
Cough preparations with less than 200 mg of codeine or per 100 ml, diphenoxylate and atropine, difenoxin HCl and atropine, pregabalin, attapulgite

Source: Drug Enforcement Administration (n.d.).

*Heidi Collins Fantasia, PhD, RN, WHNP-BC, is an assistant professor in the College of Health Sciences, School of Nursing, at the University of Massachusetts Lowell in Lowell, MA, and a nurse practitioner at Health Quarters in Beverly, MA. The author reports no conflicts of interest or relevant financial relationships. Address correspondence to: heidi_fantasia@uml.edu.*