

Marijuana Use in Pregnancy

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Marijuana use in Pregnancy

- Is it safe to use in pregnancy
- Risks to mother and baby
- Why pregnant women use marijuana
- Is it effective for morning sickness
- Is vaping safe during pregnancy ?
- Medical marijuana use in pregnancy
- Recommendations
- Summary

What is marijuana

- Marijuana, refers to dried leaves, flowers, stems and seeds of the plant cannabis Sativa
- Two main cannabinoids are THC(Tetrahydrocannabinol) and CBD(Cannabidiol)
- THC is the primary psychoactive component
- CBD is not psychoactive but may interact with THC

Is marijuana use safe in pregnancy

- Whether smoked, eaten in the form of cookies or candies, or vaped, the chemicals (THC) will cross the placenta and reach the brain of the developing fetus and disrupt normal brain development of fetus.
- When marijuana is smoked, serum carbon monoxide concentrations are 5 times higher than when tobacco is smoked, resulting in less oxygen available for the fetus causing adverse effect on the fetus.
- As per **American College of Obstetricians & Gynecologists** and **American Academy of Pediatrics** no amount of marijuana is safe to use during pregnancy or breastfeeding

Action of THC

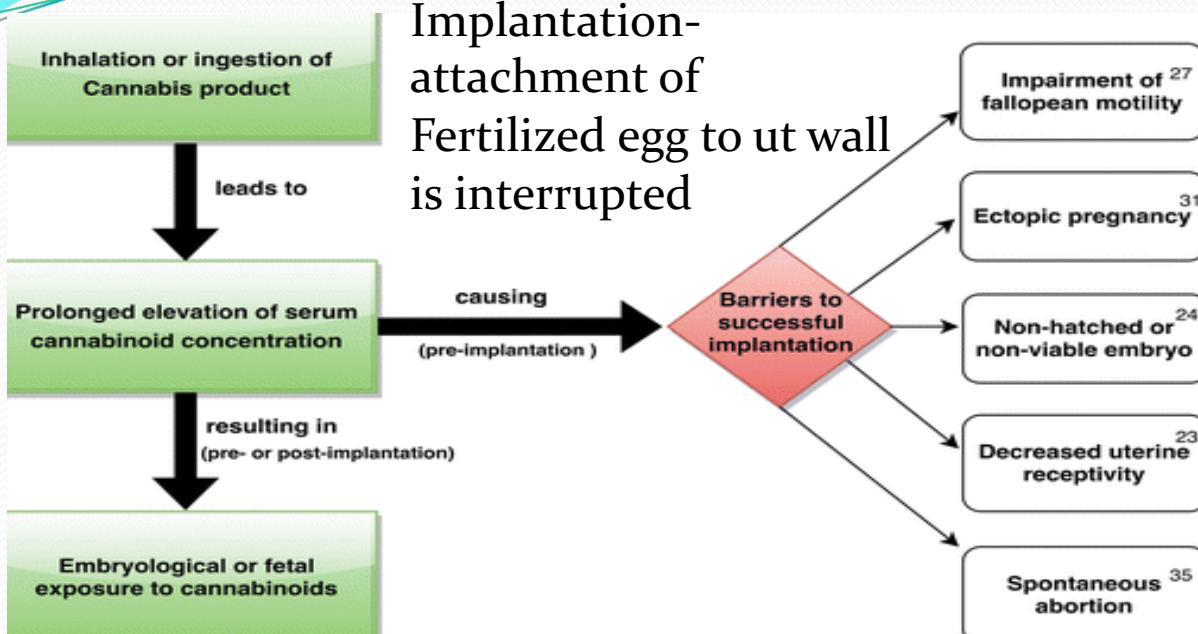
- THC rapidly crosses the placenta after dosing and distributed to fetal brain
- Fetal clearance of THC is slow leading to Prolonged fetal exposure
- This THC exposure affect the fetal development

Baily et al, *Toxicol Appl Pharmcaol*, 1987

Khare et al, *Mol Hum Reprod*, 2006

Wu et al, *Future Neurol*, 2011

THC action

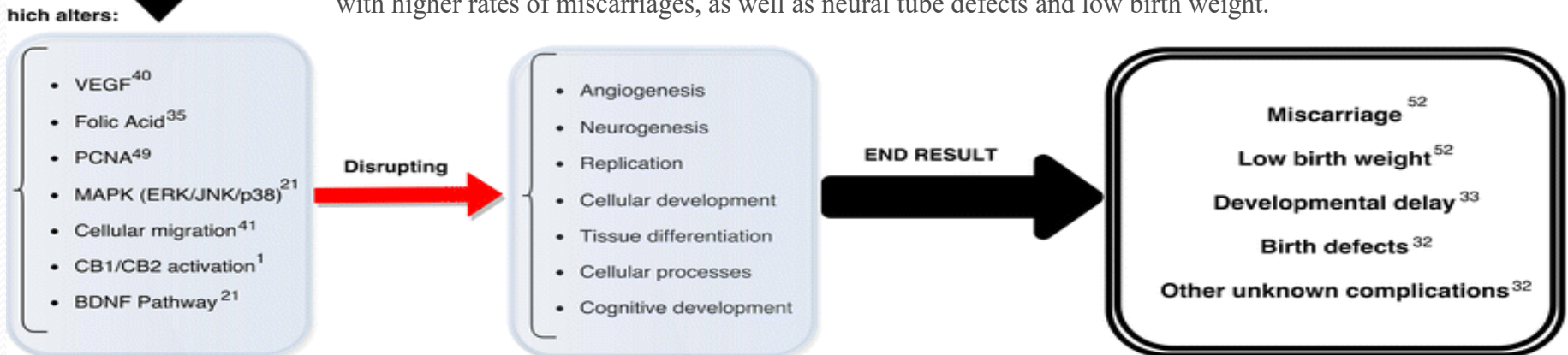


Implantation-attachment of Fertilized egg to ut wall is interrupted

Corresponding Reference:

- [1] Wang et al., 2006
- [21] Pariah et al., 1995
- [23] Pariah et al., 2001
- [24] Schmid et al., 1997
- [27] Sun and Day, 2008
- [31] Wang et al., 2004
- [32] Gebeh et al., 2013
- [33] Wang et al., 2003
- [35] Araujo et al., 2009
- [40] Safaraz et al., 2005
- [41] Solinas et al., 2012
- [49] Derkinderen et al., 2003
- [52] Corson et al., 2003

1. Folic acid (Vitamin B9) is essential for embryo development . THC significantly decreases fetal folic acid uptake. Low levels of folic acid during pregnancy are associated with higher rates of miscarriages, as well as neural tube defects and low birth weight.



Effects on mother

- Permanent injury to lung from smoking
- Lower levels of oxygen in the body leading to breathing problems
- Dizziness makes mother at risk for falls
- Impaired judgement leading to risk of injury

Risks during pregnancy

- **Fetal Growth Restriction** (when a baby doesn't gain the appropriate weight before birth). -A recent cohort study found that increased risk of birth weight less than the 10th percentile noted among marijuana users
- **Stillbirth** --Research has shown that pregnant women who use marijuana have a 2.3 times greater risk of stillbirth
- A meta-analysis found that THC use was linked with stillbirth at or beyond 20 weeks of gestation .
- **Preterm birth** (born before 37 weeks) Some studies suggest that using both marijuana and cigarettes during pregnancy can increase the risk of *preterm* birth
- **Low birth weight**-low birth weight is more pronounced in women who consume marijuana frequently in 1st and 2nd trimesters.(ACOG)
- women using marijuana weekly were more likely to give birth to a newborn with low birth wt < 5lbs and a higher likelihood of admission to an NICU.

How does marijuana affect breastfeeding babies?

- THC can pass through breast milk to infants and accumulate in breast milk in high concentrations.
- Currently there is no sufficient data to evaluate the effects of marijuana on breastfeeding infants and in the absence of such data, marijuana use is discouraged
- ACOG and AAP advised women who are pregnant or breastfeeding to avoid marijuana use as it is not safe for them and their children.

Effects on Children

- **Neonates** may have --Increased tremors, exaggerated startle reflexes, abnormal high-pitched cries, and abnormal sleep patterns

Later effects in childhood:

- Children had learning and behavioral problems later in life.
- They had deficits in problem-solving skills, memory, visual perception, decreased attention and impulse control as they became teenagers and young adults.

Longitudinal studies on outcomes of maternal cannabis use during pregnancy.

- Ottawa Prenatal Prospective Study (**OPPS**)-1978 (sample size-583)
- Maternal Health Practices and Child Development Study (**MHPCD**)-1982 (763)
- Generation **R** study -2001 (7452)
- The studies were conducted when the potency of marijuana was much lower than what is available today, raising the concern that the adverse consequences may be much greater than what has been reported .

Neurocognitive and Behavioral Effects *during* Childhood, Adolescence, and Early Adulthood (OPPS, MHPCD , Generation R studies)

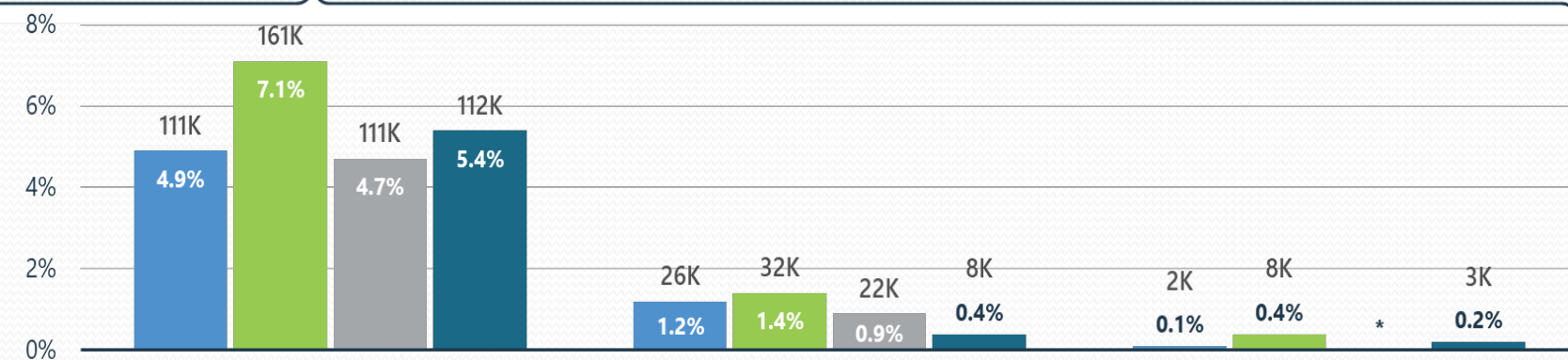
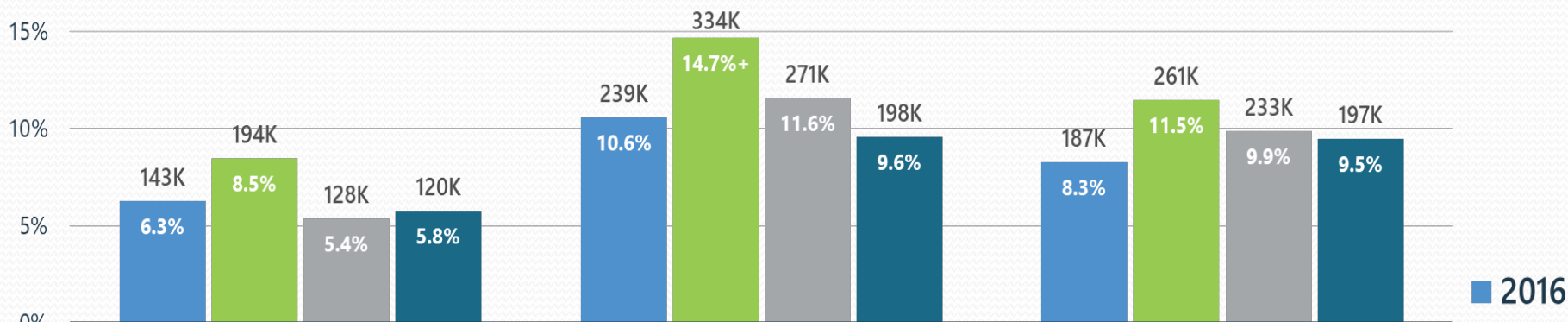
18 months	3-6yrs	9-10yrs	14-16 yrs	17—22yrs
Increased aggressive behavior	Deficits-Verbal /percept skills Verbal &visual reasoning	Deficits-visual reasoning Reading spelling	Deficit-Visual-cognitive functioning Visual motor coordination	Deficit-Executive functioning
Attention deficits	Short-term memory	Hyperactivity	Academic achievement	Visuospatial memory
	Hyperactivity	Attn. deficits Impulsivity	Information process speed	Early initiation of substance use
	Attn. deficits Impulsivity	Depression &anxiety		

How Common is Marijuana Use During Pregnancy?

- As per recent data from NSDUH (National Survey on Drug use and Health)usa 2019, 5.4⁰% of pregnant women and 14.7⁰% of non pregnant women reported use of marijuana in the past month between ages 15--44years.
- This was increased from prior year 2018 where 4.7⁰% of pregnant and 13.7⁰% of nonpregnant women used marijuana.
- As per Dept of National Drug Control, BDA survey on pregnant women in 2015, 10.1⁰% reported use in past year and 2.5⁰% reported use past month.

2019 National Survey on Drug Use and Health (NSDUH) Past Month Substance Use among Pregnant Women

PAST MONTH, 2015-2019 NSDUH, 15-44



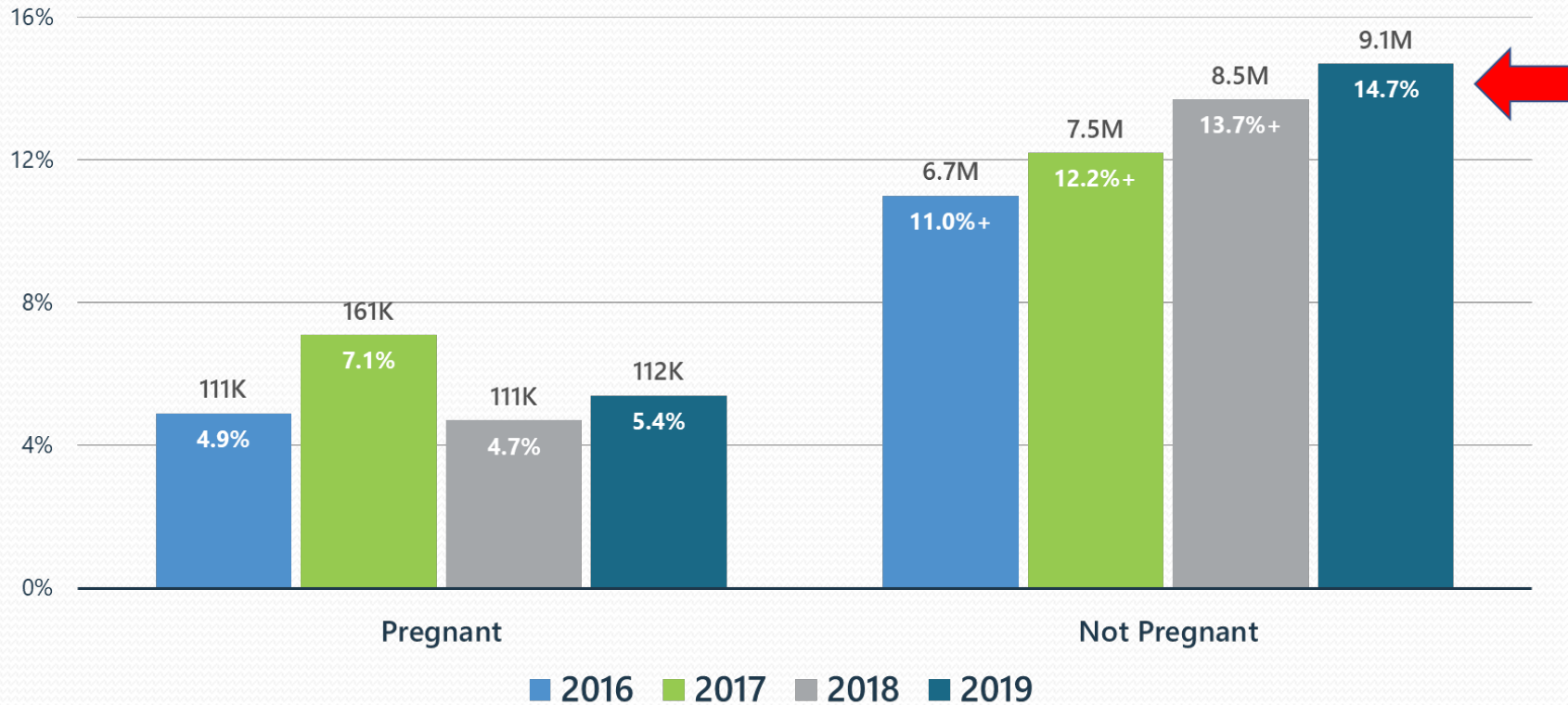
* Estimate not shown due to low precision.

Tobacco products are defined as cigarettes, smokeless tobacco, cigars, and pipe tobacco.

+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

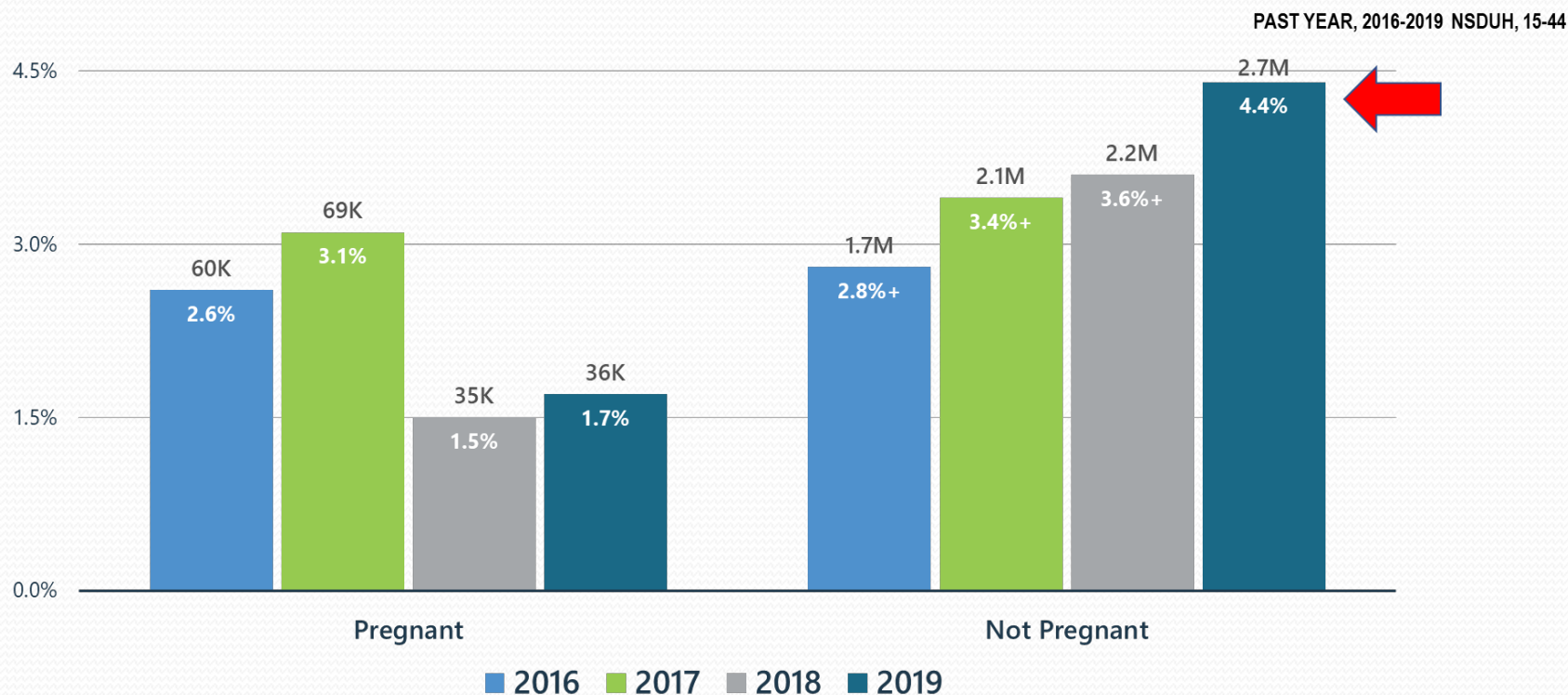
2019 National Survey on Drug Use and Health (NSDUH) Marijuana Use among Women by Pregnancy Status

PAST MONTH, 2016-2019 NSDUH, 15-44



+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

2019 National Survey on Drug Use and Health (NSDUH) Daily or Almost Daily Marijuana Use among Women by Pregnancy Status



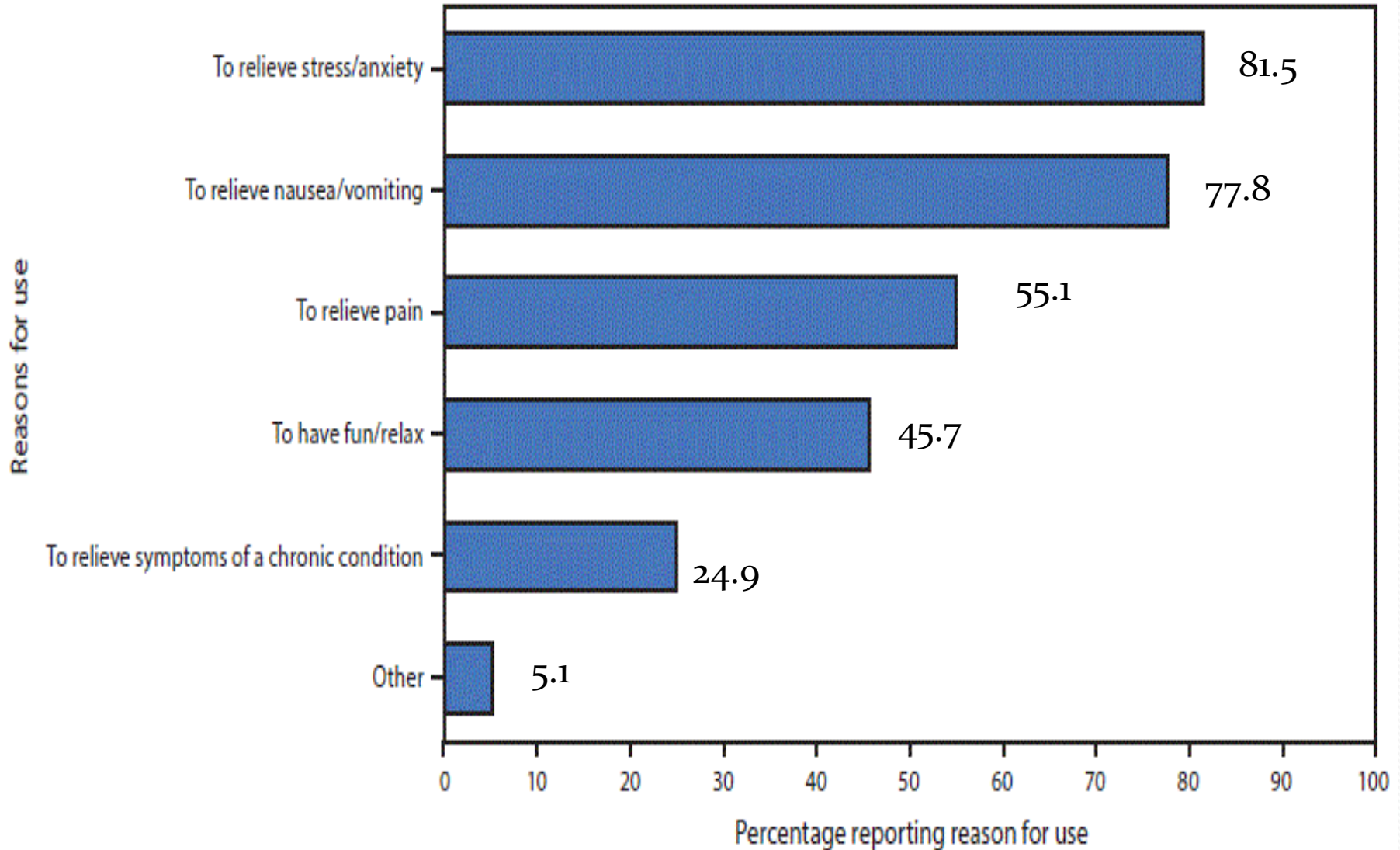
+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

Drug screening on pregnant women at Maternal Health clinic 2017-2019

	2017	2018	2019
Total tests	21	3	19
Total number of positive tests	21	1	12
By gestation			
1 st trimester	5		5
2 nd trimester	5	1	6
3 rd trimester	11		1

- Criteria for drug screen :
- Pregnant women with late prenatal booking without reasonable explanation
- Minimal prenatal care, <4 visits, missed 3 consecutive visits
- Self reported use of illegal drugs within past year
- Suspected behaviour
- Unexplained intrauterine growth retardation
- h/o physical abuse/neglect, partner violence

Reasons for marijuana use during pregnancy (N = 413) eight states, Pregnancy Risk Assessment 2017(CDC)



Is marijuana effective for morning sickness

- Pregnant women with severe nausea and vomiting in their first trimester were more likely to use marijuana
- As per ACOG there is no evidence that marijuana use is helpful in managing morning sickness,
- Instead it can be managed with other safer medications during pregnancy.
- Morning sickness, happens typically in the first trimester, when the brain and other organs of fetus are developing, and that's the time when marijuana use should be avoided.

Is vaping during pregnancy OK?

- Many pregnant women mistakenly think vaping doesn't harm their baby. But they still have the active ingredient THC and can harm a baby.
- Vaping aerosols contain: nicotine, THC, CBD oils, and other flavorings, and additives (vitamin E acetate)
- In recent months CDC reported more cases of lung injury tied to vaping
- **As of February 18, 2020**, a total of 2,807 hospitalizations have been reported to CDC from all 50 states, and 68 deaths have been confirmed in 29 states and the district of columbia.
- In many cases, patients reported breathing difficulty, shortness of breath, chest pain before hospitalization.
- **FDA Warns Public to Stop Using THC-Containing Vaping Products** as there are reports of Deaths related to Vaping

Medical Marijuana use in pregnancy.

- Medical marijuana is the use of marijuana that is prescribed by a doctor. It has all of the harmful effects of nonmedical marijuana.
- If a pregnant woman is already using marijuana for medical reasons, American College of Obstetricians and Gynecologists (ACOG) recommends against the use of medical marijuana as it causes adverse effects on the fetus.
- Pregnant women should let their OB&GYN know if they are using medical marijuana and to discuss other treatment options that are safe to use in pregnancy.

ACOG guidelines

- Before and in early pregnancy, all women should be asked about their use of tobacco, alcohol, and other drugs, including marijuana use.
- Women reporting marijuana use should be counseled about concerns regarding potential adverse health effects of continued use during pregnancy.
- Women who are pregnant or contemplating pregnancy should be encouraged to discontinue marijuana use.
- Pregnant women should be encouraged to discontinue use of marijuana for medicinal purposes in favor of an alternative therapy for which there are better pregnancy-specific safety data.
- There are insufficient data to evaluate the effects of marijuana use in breastfeeding infants and in the absence of such data, marijuana use is discouraged.

Recommendations

- **Society of Obstetricians and Gynaecologists of Canada (SOGC)** Women who are pregnant or contemplating pregnancy should abstain from cannabis use during pregnancy.
- **American College of Obstetricians and Gynaecologists (ACOG)**- women should not use marijuana during pregnancy.
- **American Academy of Pediatrics (AAP)** women who are pregnant or breastfeeding should avoid marijuana because it is not safe for them and their children

summary

- Marijuana is not safe to use in pregnancy
- Marijuana exposure in pregnancy is associated with risk of still birth, preterm birth and low birth weights
- Marijuana exposure during pregnancy is associated with neurobehavioral effects in children
- Marijuana is not effective for morning sickness ,instead there are safer medications to use during pregnancy.
- Vaping is not safe during pregnancy.
- ACOG and AAP advise not to use marijuana in pregnancy and breastfeeding



Thank you