

The Gender Factor in Addiction Prevalence, Assessment, and Treatment

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I. The Prevalence Gaps

- Gender as a factor
- Interaction effects: additional factors such as age, socio-economic status, region, etc.
- Six examples
- Implications for policy, practice and services, and research

Example #1: NSDUH, U.S., 2014 Data (Past Year SUD, Past Month [Current] Use)

	Substance Use Disorder		Alcohol Use		Illicit Drug Use		Cigarette Smoking	
	Male	Female	Male	Female	Male	Female	Male	Female
Aged 12 or older	10.7%	5.7%	57.3%	48.4%	12.8%	7.7%	23.2%	18.6%
Aged 12 to 17	5.1%	5.0%	10.8%	12.3%	9.6%	9.1%	5.1%	4.6%
Aged 18 to 25	19.6%	12.9%	61.6%	57.6%	25.4%	18.5%	33.6%	23.1%
Aged 26 or older	9.8%	4.6%	62.5%	51.0%	10.9%	5.8%	23.7%	19.5%

- Men have higher rates of substance use disorder, alcohol use, illicit drug use, and cigarette smoking in all age groups except 12 to 17.
- Girls and boys have similar rates in all categories (not only in the U.S. but also in many European countries).
- Compared to all other age groups, both men and women aged 18 to 25 have the highest rates of use.
- Discussions and Implications

Example #3: Tobacco Smoking Persons Aged 15 Years and Over, Comparing Some Asian and European Countries: The Gender and Regional Factors (WHO, 2010 data)

Countries	Men	Women	Both Sexes
China	51%	2.3%	27.3%
India	23.5%	2.5%	13.3%
Indonesia	67.9%	3.7%	35.7%
Viet Nam	47.9%	1.3%	24%
Czech Republic	37.4%	26.5%	31.8%
France	30.4%	22.6%	26.3%
Netherlands	29.1%	24.3%	26.7%
Norway	27.7%	26.1%	26.9%

- **Asian countries:**

- The gap between male and female rates is extremely wide.
- In addition, smoking rates decrease as males become older, whereas the smoking rates increase as females become older.

- **European countries:**

- The gap between male and female rates is relatively narrower (as it is in the U.S.).
- In addition, for both males and females, smoking rates decrease as they become older.

- **Discussions and Implications**

Example #5: Illicit Drug Use among Pregnant Women: The Age Factor (NSDUH, U.S.)

Current illicit drug use	2009, 2010 data combined
Non-pregnant women (aged 15-44)	10.9%
Pregnant women (15-44)	4.4%
Pregnant women (26-44)	1.9%
Pregnant women (18-25)	7.4%
Pregnant women (15-17)	16.2%

- Younger women, particularly teen girls, are at higher risk for illicit drug use during pregnancy.
- Pregnancy at a younger age (15 -25) is at higher risk for cigarette smoking than pregnancy at an older age (26 or older). (22.7% vs. 11.8%; NSDUH 2009, 2010 data combined)
- The factors of race/ethnicity, family income, and education also matter.
- Discussions and implications for policies and clinical practice.

Conclusion

When we report substance use disorder, substance use, or other addiction prevalence rates, we may need to additionally report the rates for the two genders/sexes separately, because:

- 1) The rates for the two genders/sexes may be very different
- 2) The rates for the two genders/sexes may be *especially different* in different regions or countries
- 3) Some variables such as age and socioeconomic status may complicate the addiction prevalence rates in a systematic way, and may also need to be also address.
- 4) Implications

II. Differences between the Sexes/Genders

- Neurobiological differences
 - Different brain, hormonal system, digestive enzyme system, and other structures.
 - Implications to addiction onset, course and development, maintenance, and recovery.
- Differing impact of the environments on the genders
 - The macro environment impact (e.g., policy, cultural) and its implications to addiction occurrence and recovery.
 - The mezzo environment impact (e.g., interpersonal relationships and interaction) and its implications to addiction occurrence and recovery.

- Major findings from *animal* (e.g., rodents) studies and research found that females display more drug-taking behaviors than males for many drugs, possibly due to hormonal and other biological factors.
- Humans studies, on the contrary, showed that men's drug-using behaviors surpass women's for many drugs such as alcohol, marijuana, cocaine, and methamphetamines. The exception is prescription opioids.

(Source: Becker, et al., 2012; Carroll & Lynch, 2016; Kornetsky, 2005; World Health Organization 2010)

- The difference between the animal and human findings could be explained as societal and cultural influences (e.g., laws, policies, regulations, and social norm) that supersede basic drug-seeking need behavior.

(Source: Becker, et al., 2012; Carroll & Lynch, 2016; Kornetsky, 2005)

II. A. The factor of menstrual cycle

- Definition
 - Follicular vs. Luteal
 - The function of the ratio of estrogen over progesterone
 - Estrogen facilitates drug-seeking, whereas progesterone decreases it.
- Preclinical (animal) and human studies
 - on stimulants (cocaine and methamphetamine)
 - on cigarette smoking
 - on alcohol
 - on heroin
- Implications for addiction treatments for humans.

II. B. Telescoping Effects

- Definition
- Old vs. new findings
- Clinical population (treatment-seeking population) vs. non-clinical (general population)
- Alcohol vs. cigarette smoking vs. cocaine vs. heroin vs. gambling vs. Internet gaming disorder
- Implications for research and clinical practice

II. C. The Environmental Factor: Macro Level

- 1) The impact of laws, drug policies, and regulations: a historical perspective.
- 2) Gender role and socialization
- 3) Shame and guilt
- 4) Interpersonal relationships and interactions
- 5) The degree of social change and the trend

II. D. The Environmental Factor: The Mezzo Level

- 1) Women are more likely than men to be affected by their families of origin and their mates/spouse/children.
- 2) Substance-abusing women are more likely to have grown up in a substance-abusing family than substance-abusing men; they are also more likely to have substance-abusing spouses than substance-abusing men.
- 3) Other factors: Relationships with men, gender power struggles, domestic violence, adverse childhood experiences, family responsibility, and maternal obligations (pregnancy, motherhood)
- 4) Implications for clinical practice

Individual Factors vs. Environmental Factors

1) Examples:

- a). Women perceive great risk of drug use than men do
- b). “Planning ability” (individual factor) is associated with risky injection behaviors among men, but not in women
- c). Men’s impulsivity (individual factor) is related to sexual risk-taking behaviors, but women’s impulsivity is unrelated to these outcomes.

2) Implications for Treatment

Example:

Gender-Specific Smoking Treatment

- A. Mono vs. combined pharmacotherapy:
Nicotine replacement therapy and bupropion
- B. Behavioral therapy/psychosocial treatment:
- C. The effect of menstrual cycle on craving for cigarette:
 - 1. Estrogen facilitates drug-seeking, whereas progesterone decreases it.
 - 2. follicular phase vs. luteal phase
 - 3. the ratio of estradiol/progesterone
 - 4. Are women less likely to quit smoking successfully if it's during the follicular phase than the luteal phase?

III. Different Characteristics at Baseline/Treatment Admission between Men and Women

III. A. Women Were Either Worse than or Equal to Men in:

- Psychiatric/psychological area
- Health
- Family/Social area
- Employment
- Finances
- Dx: Major depression disorder, bipolar, anxiety disorder, PTSD
- Quality of life
- Implications for clinical practice

III. B. Men Were Either Worse than or Equal to Women in:

- Legal area
- Dx: Anti-social Personality Disorder
ADHD
Schizophrenia
- Implications for Clinical Practice

IV. Treatment Outcomes

Comparing Men and Women

- Psychosocial and behavioral therapy
- Pharmacological treatment
 - Methadone
 - Naltrexone
 - Disulfiram
 - Nicotine replacement therapy
 - Bupropion
- Combined behavioral and pharmacological treatment
- Implications for Clinical Practice

V. Relapse Triggers

- Men are more vulnerable than women to the triggers of drug-related cues, positive emotion, and peer pressure.
- Women are more vulnerable than men to the triggers of negative emotion/stress/interpersonal conflicts.
- The neglected group: Men with co-occurring disorders (e.g., major depression disorder, anxiety/PTSD, schizophrenia, ADHD, anti-social personality disorder).
- Treatment Implications

VI. Treatment Strategies

- 1) Avoid stereotypes and stigma: gender-specific research findings and practice are frames of reference, not doctrines. There are overlaps between genders; men with a need that is usually more prevalent among women should not be stigmatized, and vice versa. Individualization is critical.
- 2) Women, especially younger women, may benefit more from treatment that focuses on self-assertiveness and independence, especially with issues related to gender power struggles and substance-using behaviors.

VI. Treatment Strategies

- 3) Women may benefit more from treatment that focuses on trauma healing (childhood and/or adulthood) and psychiatric disorders such as major depression, anxiety, and bipolar, etc.
- 4) Women may benefit more from treatment that focuses on breaking the generational vicious cycle of addiction, improving parenting skills, legal assistance regarding child custody rights, communication, and relationship skills with spouses.

VI. Treatment Strategies

- 5) Women may benefit more from treatment that focuses on employment and job placement, as well as finance management.
- 6) Although women are more vulnerable to the relapse triggers of negative emotion, men with co-occurring disorders (e.g., major depression, anxiety disorder) are similarly vulnerable to the relapse triggers of negative emotion, and should not be neglected with respect to psychiatric medication therapy and psychosocial counseling/behavioral therapy.

VI. Treatment Strategies

- 7) Treatment programs should continue providing gender-sensitive and gender-specific services. Although previous research has shown that women are less likely than men to enter treatment (Greenfield et al., 2007), more recent data appear to show the gap is narrowing. This could be due to the improvement in provision of gender-specific services in the past decades.

- 8) When reporting the addiction prevalence rates for the general population, factors such as gender, age, socioeconomic status, and regions should also be addressed. Possibly vast differing rates among subgroups have important implications for resource allocation and treatment program designs.

Thank You!