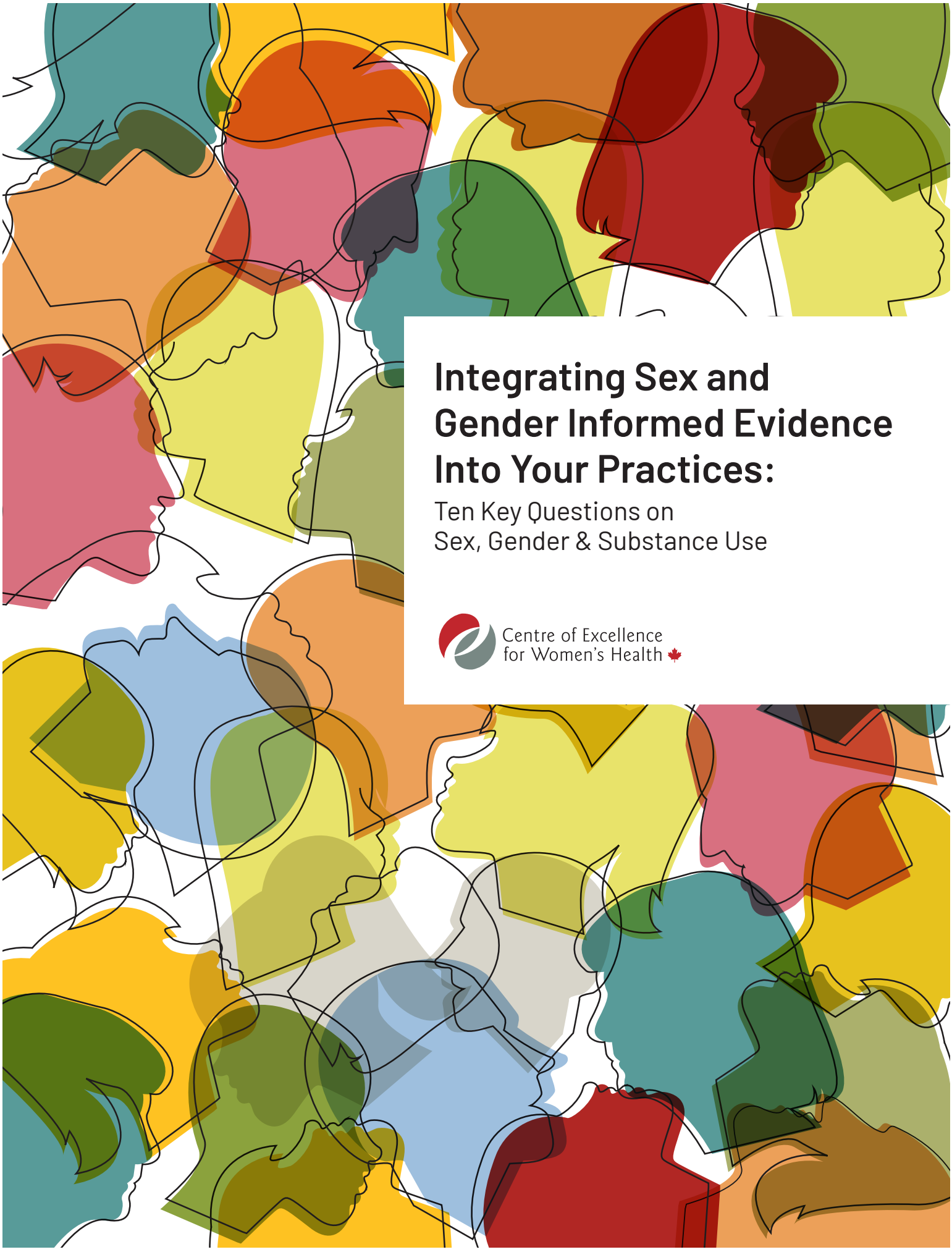

Integrating Sex and Gender Informed Evidence Into Your Practices:

Ten Key Questions on Sex, Gender & Substance Use

Centre of Excellence for Women's Health

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Contents

Introduction

Substance use is a complex issue, with many causes and manifestations. It ranges from non-problematic use to addiction and dependency, chronic disease, and death. It is a widespread and costly problem to individuals, families, communities, and governments across Canada. Sex and gender are biological and social determinants of health, respectively, that affect *everyone's* health. Incorporating sex and gender into our responses to substance use will lead to better practice, and is now expected by funders and the public.

This workbook has been developed by researchers at the Centre of Excellence for Women's Health, based on a review of literature on harm reduction, health promotion, prevention and treatment interventions and programs that are sex and gender informed, aimed at addressing opioid, alcohol, tobacco and cannabis use.

Who is this workbook for?

If you work in the substance use system, in prevention, treatment or program and policy design, this workbook is for you. It will help you in thinking through the implications of sex and gender for your role, your work, your organization, and those you serve.

Why this workbook?

This workbook provides guidance on integrating sex and gender into your practices, program design or policy making in response to substance use. It describes why and how sex and gender matter in understanding and responding to substance use issues, explores 10 Key Questions, and offers evidence, examples and reflective exercises to consider. It will assist you in sharpening your practices on how to introduce sex and gender into your group, team, profession, or organization.

Integrating sex and gender related knowledge, experience, and evidence into your work will benefit everyone. It will tailor your responses to individuals and groups so that you can better serve their needs and will make your programs and policies more specific in their effect.

Making sure that all responses to substance use reflect the sex- and gender-related aspects of human health is crucial to prevention, treatment and harm reduction. This reflects the realities of health risks, and life experiences of diverse groups of girls, boys, women, men, transgender and gender diverse individuals.

How can you use it?

This workbook provides information about sex, gender and some common substances (alcohol, cannabis, tobacco, methamphetamines and opioids), as well as fact sheets, examples and scenarios. You can read and reflect on these components on your own, in your teams, or across your organization, using this material to enhance your understanding, your practices, and ultimately the services you provide to clients.

Why Include Sex and Gender in Our Responses to Substance Use?

Sex matters – biology affects substance use

Sex refers to an array of biologically-based aspects of our bodies that have an impact on our responses to substances, the diseases we develop, or the risks they may pose to us. We are born in bodies that have sex chromosomes and reproductive characteristics that determine our sex-based roles such as reproduction. We also have genetics, hormones, metabolism, anatomy, body size, organ function, and other sex related features that affect our health and our lives.

All of these aspects are sex-related, meaning that they differ for female and male bodies. These aspects are also fluid, in that they can be present in bodies at different levels, there is a range of effects among females and among males, and they can change over the course of a lifetime.

Example: Aging means that we have lower tolerance to alcohol, less water in our bodies to absorb alcohol, lower levels of sex hormone production (estrogen and testosterone), lower muscle mass, and less efficient liver enzymes. These factors mean that the effects of alcohol are greater in older people, and even more so in older women.

See: https://pubs.niaaa.nih.gov/publications/arh26-4/308-315.htm

Gender matters – society affects substance use

Gender refers to socially constructed factors that affect how people experience their life and how they might use substances. These factors are called: gender relations, gender roles, gender identity and the effects of gendered policies, regulations and rules. *Gender relations* are social behaviours that often exist between men and women, such as ways of speaking, making decisions or taking up space. *Gender roles* refer to the opportunities and expectations assigned to women and men, boys and girls, that result in more or less housework or child care, or male and female dominated occupations such as politics or nursing. *Gender identity* refers to how a person perceives their gender, either the same or different from their sex. *Gendered policies* refers to the impact of policies on gender equity; for example policies may contribute to income gaps between men and women.

Example: When men and women are involved in relationships and doing injection drug use (IDU) their power dynamics and gender relations can affect women's health such as being "second on the needle", exchanging sex for money to buy drugs for both of them or having a male partner assist with her injections.

See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2733528/ for a qualitative study on this issue

What about equity?

There are many health and social inequities among women and among men, as well as between women and men. These inequities require thought and consideration when developing responses to substance use. Sometimes, inserting sex and gender-related information is not enough. This is because there are many social, cultural and economic factors that affect health as well, such as poverty, dis/ability, sexual orientation, income, housing inadequacy, violence and trauma, care-giving burdens, family roles, and power sharing, among others. And in turn, many of these factors are also gendered, meaning that women and men experience those factors differently. For example, women and men are subject to different forms and rates of violence and trauma, experience different levels of income and different care giving burdens. Transgender populations experience high rates of physical, sexual violence, discrimination, stigma, poverty, homelessness and unemployment. All of these considerations sit among broad processes such as sexism, racism and ageism, that contribute to health inequities via discrimination, colonization, stigmatization and marginalization.

What levels of gender integration are there?

The ultimate goal is to move your practice from gender unequal or blind, to gender accommodating (recognizing that gender matters) to gender transformative (addressing gender inequities in the course of your work). It is an active choice to integrate sex and gender considerations.

What is a gender transformative approach?

Cutting through this complexity calls for 'gender-transformative' approaches to substance use issues. These approaches not only recognize gender, but also aim to reduce various inequities at the same time. This will strengthen, empower and equip women and men, girls and boys with more skills, information and opportunities to advance their overall social and economic health. Thinking about gender-transformative responses is very challenging, but it helps us understand how important it is to not ignore, exploit or merely accommodate gendered inequities when developing our initiatives. Rather we can actively hope to transform them and improve gender and health equity as we work to reduce substance use.

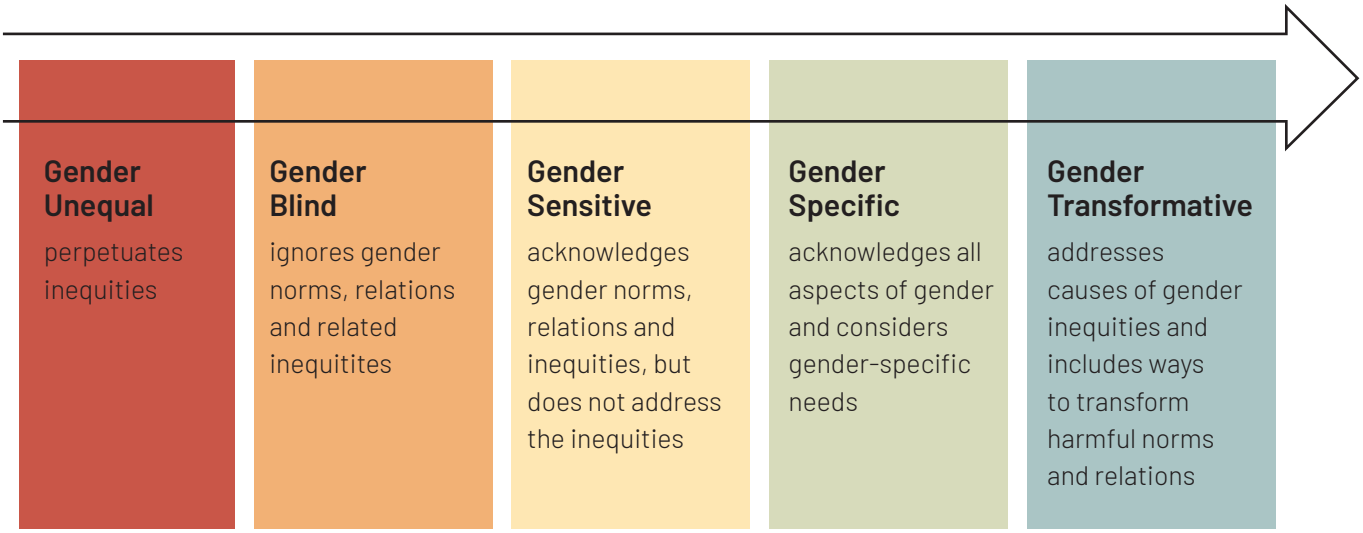

Diagram adapted from Greaves, L., Pederson, A., & Poole, N. (Eds.). (2014). *Making it better: Gender transformative health promotion.* Toronto, ON: Canadian Scholars' Press.[1]

EXERCISES

How do you think these sex related factors affect substance use such as drinking alcohol?

Anatomical differences?

Metabolic differences?

Genetic differences?

How do you think these gender-related factors affect cannabis use?

Power relations and decision making between boyfriends and girlfriends?

Gendered roles affecting driving after using cannabis?

Pay scales for men and women workers?

10 Key Questions

QUESTION 1
How does gender and substance use prevalence matter?

QUESTION 2
How do bodies respond to substance use?

QUESTION 3
What is telescoping and how does it affect men's and women's trajectories to dependence?

QUESTION 4
What do we mean by the gender response continuum?

QUESTION 5
How can prevention approaches be gender sensitive?

QUESTION 6
How can brief interventions be gender sensitive or gender specific?

QUESTION 7
How do you move toward gender transformative treatment?

QUESTION 8
How do sex and gender affect harm reduction?

QUESTION 9
How do the social determinants of health affect gender and substance use?

QUESTION 10
How can Sex and Gender Based Analysis+ improve substance use program and policy?

QUESTION 1

How does gender and substance use prevalence matter?

Sometimes, we think the biggest problems are the ones with the biggest numbers, the highest rates, or the most adverse effects.

And sometimes that is true. But if that were the only rule we applied to thinking about substance use, we would mainly focus on men's and boys' substance use. With few exceptions, more men than women use substances. This is true for alcohol, tobacco, opioids and cannabis. More men than women die or have serious illnesses due to substance use. But substance use is not just a men's issue. Even if the gender gap never converges, women and men often present different reasons for substance use, start and stop using substances in different ways, and respond differently to both consumption and treatment, causing us to think hard about sex and gender sensitive and gender specific responses to these problems.

Cannabis and the gender gap

Men of all ages have higher prevalence of lifetime cannabis use.[2] Varied factors account for this. Socioeconomic crises may have gender specific effects on men and cannabis use, since cannabis use trends are higher during economic crises, especially among men, leading to a widening of the gender gap.[3] However, the cannabis gender gap has been narrowing over time.[4,5] One factor might be that cannabis vapor product producers are marketing specific devices to females and more generally are using advertising to rebrand the cannabis user from a "loser stoner" to a "cool fashionista".[6]

Tobacco, nicotine and the gender gap

Globally, more men than women smoke tobacco. This is also true in Canada. Using this as our only point, we would see tobacco use as a men's issue and create our programs and policies accordingly. But women and girls took up tobacco much later than men and boys. Their usage of tobacco escalated well after men's use had peaked. Globally, men's use of tobacco is much higher than women's but if similar trends occur, women's use will escalate in the 21st century. Marketers and advertisers have something to do with this, as the tobacco industry targets women with gender specific advertising.

Is the gender gap between women and men related to alcohol intake narrowing?

Overall, there is evidence that gender differences in alcohol indicators are decreasing for both adolescents[7,8] and adults.[9,10] This has resulted in greater declines in frequent binge drinking in adolescent boys compared to adolescent girls[8] and the decrease in age of onset for drinking is larger for women compared to men.[7]

What substance causes the most death each year in Canada?

Another way of assessing harm from substances is to determine what substance causes the highest mortality. The answer to that is easy. Tobacco use is the leading cause of preventable death worldwide, and the leading cause of premature death in Canada each year. Tobacco use contributes to cancers of the respiratory tract, including lung cancer, ischaemic heart disease, cerebrovascular disease and chronic obstructive pulmonary disease.[11,12]

Smoking accounts for approximately 17% of all deaths in Canada in contrast to alcohol, which accounts for 2% of all deaths in Canada.[13] But there are sex and gender differences. More men die each year from smoking related causes than Canadian women (20% compared with 12%),[13] in part because more men than women smoke. However, similar to men, female middle age heavy smokers have a two to three times higher mortality risk compared to never-smokers,[11] and light smoking may be more hazardous to women.[14] The impact of smoking is significant. Globally women outlive men and have longer life expectancies. Some studies have indicated that the gender gap in mortality may be partially attributed to different patterns of tobacco use among men and women.[15-17]

As can be seen, prevalence data do not give us the full picture on substance use. Issues of prevalence do not alone, help us answer key sex and gender related questions. Applying sex and gender-based analysis to substance use demands numerous approaches and questions in order to fully understand the impact, and what we may need to do about it.

Gender analyses often focus on the gender gap in substance use. Asking this question is important to see if we can reduce substance use for (usually) men or hold the line for (usually) women. It also helps us to identify some of the key issues affecting gender groups that may encourage, stigmatize, or otherwise affect substance use patterns.

WEBLINKS

Campaign for Tobacco Free Kids Fact sheets on tobacco: www.tobaccofreekids.org/

Centre of Excellence for Women's Health Fact sheets on cannabis, tobacco, alcohol and opioids: http://bccewh.bc.ca/category/post/alcohol-cannabis-and-opioids/

Canadian Centre on Substance Use – Data Trends: www.ccsa.ca/canadian-drug-trends

National Institute on Drug Abuse – Infographic on Substance Use in Men and Women: https://www.drugabuse.gov/related-topics/trends-statistics/infographics/substance-use-in-women-men

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SCENARIO

You are speaking to a provincial health system planner at a conference about gender influences on opioid overdose deaths. Given the high death rate from opioid poisoning by non-Indigenous men as compared to non-Indigenous women (80% to 20% in British Columbia, for example) you suggest that masculine norms such as risk-taking, using alone, and not seeking health care may be in play, and that the Ministry's prevention efforts should address this aspect of gender equity. The health system planner says unfortunately there is not enough money for services already so they can't create any gender specific programming.

What might your response be?

QUESTIONS

Notice in the table below that men are more likely to be diagnosed with cannabis use disorder (CUD) and women are more likely diagnosed with Post Traumatic Stress Disorder (PTSD).

Do you think that we should focus our efforts on CUD treatment on men? Why or why not?

Do you think we should focus trauma counselling for women only? Why or why not?

	Diagnosis MEN		Diagnosis WOMEN	
Cannabis Use Disorder (CUD) (life)	1,363,236	**9.9%**	550,065	**3.9%**
Post Traumatic Stress Disorder (PTSD) (current)	136,626	**1.0%**	339,503	**2.4%**

Statistics Canada, 2012.

QUESTION 2

How do bodies respond to substance use?

It is important to know what the effects of consuming substances are on our bodies.

Without such knowledge, intoxication, illness, injury, or death can occur. This knowledge is important for advising the public on substance use, as well as for setting out safer use guidelines and effective health promotion.

Sex refers to the biologically based characteristics in the bodies and brains of male and female humans and animals. These sex-based differences affect how we all react to substances, and how they are absorbed and processed. For example, body size and body fat affect how much alcohol can be consumed before intoxication occurs. Organs function differently in male and female bodies. Sex hormones can modify the impacts of substance use.

Physiological processes such as metabolism operate differently. Genetics play a role in determining how our bodies and brains react to alcohol. All of these aspects create different effects in males and females. These differences explain why we have sex specific lower risk drinking guidelines in Canada, with advice to women to consume fewer drinks per week and per day than men. As an Educ'alcool poster states: "It's not sexist, it's science" (https://educalcool.qc.ca/). There are similar sex differences in responses to other substances as well.

We can get indications about how substances might affect humans by doing research on animals. Sex differences in animals are clearer than those found in humans, due to more control over experimental conditions in animal research. However, in the past, research has included mostly male animals, which has led to gaps in our understanding of sex related factors affecting females. This is being rectified by more inclusive guidelines for research from funders. But there is still a lot to learn about how sex specific factors affect substance use, and many questions yet to be researched.

Are there sex differences in the effects of cannabis?

There is much less research on cannabis than we would like. But, there is some evidence on sex differences in cannabis use and its effects from both animal and human studies. In animal studies, mostly on rats, sex differences have been found in pain responses, brain function, body temperature, anxiety, and withdrawal symptoms. Cannabinoid receptors appear to function differently in female and male rats.[18, 19] This body of evidence is growing, but there are numerous gaps yet to be filled, including the relationship of these findings to human cannabis use. We are yet to discover the full scope of the sex specific effects of cannabis in humans.

How does alcohol affect thinking processes for men and women?

Alcohol use causes short term cognitive impairment and long term use can cause brain damage. There are some sex specific effects of acute alcohol intoxication. Women are more susceptible to cognitive impairment of driving skills, hand movement speed and accuracy.[20] Men, on the other hand, show greater impairment in short-term memory issues even after low doses of alcohol.[21] Differences have also been shown in alcohol related inhibition. Men show more behavioural inhibition which is linked to driving while intoxicated and starting fights.[22] Women are more vulnerable to neurotoxic effects of alcohol, particularly with long term alcohol use.

What are some sex specific effects of tobacco on lung disease?

Women's airways are, on average, smaller than men's, which means that they have proportionally greater exposure for the same amount of smoke.[23] Differences in the hormonal mediated metabolism of tobacco smoke also plays a role in susceptibility. Estrogen receptors present in lung tissue may accelerate the

metabolism of smoking related carcinogens, and many enzymes that are involved in metabolizing tobacco carcinogens are regulated by estrogens and are involved in estrogen metabolism.[24,25] Female smokers have higher levels of a biomarker that indicates lung cell damage caused by combustible materials (e.g. polycyclic aromatic hydrocarbon metabolite-DNA adducts).[24, 26] Studies have found significant differences in lung cancer between men and women, including younger age of presentation and type of cancer (e.g. increased adenocarcinoma) among women.[27]

Are there sex differences in the subjective response to cannabis?

Subjective responses to cannabis are measured in research by self-reports of how someone feels including how high, dizzy, stoned, good, etc. someone feels after taking cannabis. The results of studies on the subjective effects of cannabis are mixed, and seem to depend on the dose, route of administration (ingestion vs. inhalation) and population.[28] After inhaling THC, women have rated themselves as "higher" than men.[29] Women also report higher ratings of subjective effects like "good" and the desire to "take [cannabis] again" compared to men.[30] Another study demonstrated women are more likely to describe cannabis as "good" at low doses, and men more likely to at high doses, when orally administered.[31]

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived/living experience

- **What do people with lived/living experience say about the differences and/or similarities in their responses to substances like alcohol, tobacco or cannabis?**

Practice

- **What difference could sex related factors in substance use make to your practice?**

Research

- **What research evidence do we need to have to respond better to sex differences in all types of substance use?**

Policy

- **How could policies on impairment or access to substances be affected by sex differences?**

WEBLINKS

NIDA Women and Drugs: A webpage of resources on women and drugs.
www.drugabuse.gov/related-topics/women-drugs

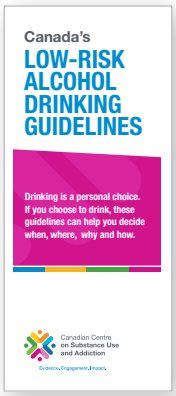
CEWH fact sheets on sex, gender and substances: http://bccewh.bc.ca/category/post/alcohol-cannabis-and-opioids/

Websites that focus on sex, gender and health: girlshealth.gov; headsupguys.org

PRACTICE QUESTION

In some practice situations it is important to discuss sex differences in the effects of substances.

In what situations might you share the following resources?



Canada's Low Risk Alcohol Drinking Guidelines

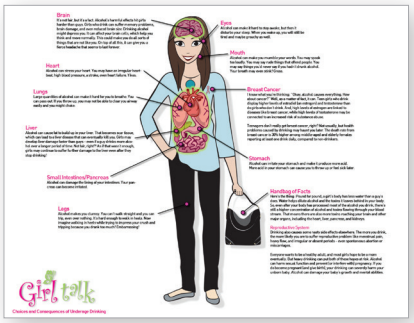
Offering sex specific guidance on what is low risk for men and women.

https://www.ccsa.ca/canadas-low-risk-alcohol-drinking-guidelines-communications-toolkit

Women and cannabis

A fact sheet on the effects of cannabis for women, when pregnant, breastfeeding and while parenting.

http://bccewh.bc.ca/wp-content/uploads/2018/03/InfoSheet-Women-Cannabis0308.pdf



Girl Talk Infographic

An infographic on the health effects of alcohol for girls.

http://grltlk.wordpress.com

QUESTION 3

What is telescoping and how does it affect men's and women's trajectories to dependence?

Telescoping is a term used to describe a shortened progression from the first initiation of substance use to the onset of dependence.[32, 33]

In several studies of patterns and prevalence of substance use it has been observed that women have an accelerated progression to dependence on alcohol, cannabis, and opioids.[32-35]

What do we know about telescoping and cannabis use disorder (CUD)?

The time from age of first cannabis use to the age at onset of CUD is shorter among women.[33] This is true even when men and women start heavy cannabis use at the same age and experience the same number of episodes of cannabis misuse. Data from controlled studies show that women and men report similar levels of intoxication after cannabis administration, but women report higher ratings for dependence liability, such as liking the drug and willingness to use it again, which may contribute to developing CUD.[30] Comorbidities among women are very common, with women exhibiting higher rates of anxiety.[33,36] This also might contribute to experiencing more withdrawal intensity and negative impacts of withdrawal compared to men during quit attempts.[36,37]

What does the evidence say about the telescoping effect and alcohol use disorder?

Women and men have different patterns of alcohol use, and once they become dependent, the course of the dependence is different as well.[34] Clinical studies show that women start to consume alcohol, experience intoxication, and become dependent on alcohol at a later age than men, but the time between onset of continuous alcohol consumption, onset of dependence, and first inpatient treatment is significantly shorter compared to that observed in men.[34] Women with a history of childhood maltreatment are particularly vulnerable to an accelerated time from initiation of alcohol use until dependence.[38]

WEBLINKS

Gender and telescoping in problem gambling: A research article discussing gender differences in problem gambling.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3499774/

Women and Alcohol: A Special Report by Ann Dowsett Johnston:
http://www.cwhn.ca/sites/default/files/Dowsett%20Series%20Atkison_Series%202011_low%20res%20(2)%5B1%5D_0.pdf

Drinking Buddies: Why some men band together to damage their health.
https://www.vichealth.vic.gov.au/letter/articles/issue-49-mens-risky-drinking

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived Experience

- What do program participants say about getting 'hooked' on drugs or alcohol? Do program participants notice any differences/similarities between men and women?

Practice

- What have you observed about the similarities/ differences among men and women in the speed of becoming dependent on substances?

Research

- What research evidence is needed to support understanding of telescoping, and other sex/ gendered factors in order to improve our health promotion message?

Policy

- How can policy statements recognize sex, gender and telescoping issues?

SCENARIO

You are designing promotional material for men and women about accessing help from live-in treatment centres for substance use problems in your particular province. In the materials you want to mention who should consider entering treatment, and what to expect from treatment.

- How might you integrate the facts about telescoping toward dependence on substance use for men or women?

QUESTION 4

What do we mean by the gender response continuum?

The diagram below shows a range of responses that all of us, in our services, programs, or policy making, can have with respect to gender.

These are choices, but they are not without impact and effect. For example, if we are gender blind, that means that we are ignoring the evidence on sex, gender and substance use and not considering it in our programming or policy making.

Moving from left to right on the diagram, we see more refined choices of how to include sex and gender knowledge into our responses. Being gender sensitive or gender specific is a good first step, and many substance use services and programs now take some element of sex or gender into account as they design their approaches.

The ultimate response, and one that is still aspirational for most of us in the substance use field, is choosing to be gender transformative. That means we would actively consider how our initiatives could not only reduce substance use, but at the same time, improve gender equity.

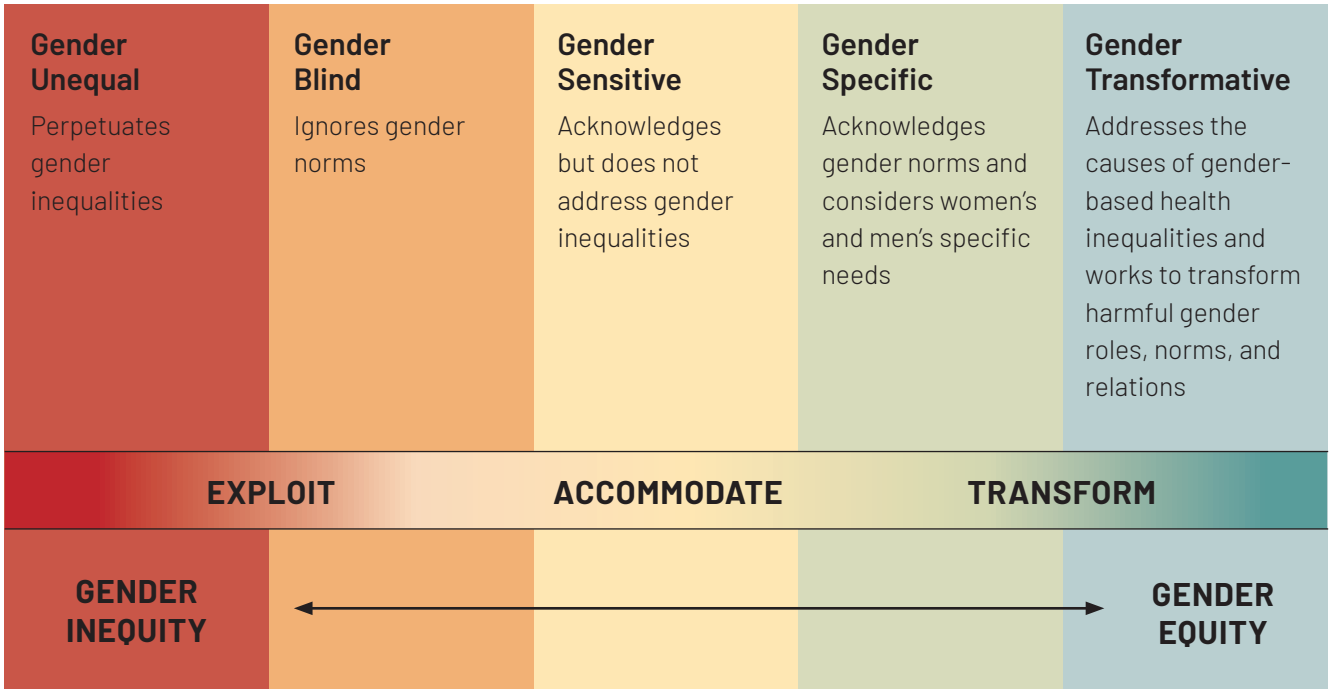


Diagram adapted from Greaves, L., Pederson, A., & Poole, N. (Eds.). (2014). *Making it better: Gender transformative health promotion.* Toronto, ON: Canadian Scholars' Press.[1]

Gender Unequal - Perpetuate the Status Quo

Gender unequal initiatives perpetuate gender inequalities by reinforcing unbalanced gender norms, roles and relations.

Example: A program may encourage women to quit smoking or reduce alcohol use based on concerns about harming their 'attractiveness'.

Gender Blind - One Size Fits All

Gender blind programs ignore gender norms, roles and relations, and may therefore reinforce gender based discrimination, biases and stereotypes.

Example: A live-in addiction treatment program located in an urban area requires all participants to seclude themselves from their families and friends for 2 weeks.

Gender Sensitive - Make an Effort

Gender sensitive programs acknowledge but do not address gender inequalities.

Example: An opioid poisoning prevention program encourages participants to insist on clean needles and to not share equipment, even though evidence suggests that injection practices of women, youth, and people with disabilities are often controlled by partners, 'street doctors', or pimps.

Gender Specific - Consider Accommodation

Gender-specific programs acknowledge gender norms and consider women's and men's specific needs.

Example: Safe injection sites that offer women-only spaces may improve women's safety, but not challenge why mixed spaces are unsafe or deemed unsuitable for women.

Gender Transformative - Double Duty

Gender transformative approaches focus on the dual goals of improving health, social or economic status as well as gender equity.

Example: An initiative to encourage men to seek help for tobacco use encourages reduction and cessation, as well as challenging and redefining the masculinities that contribute to smoking.

WEBLINKS

Gender transformative health promotion: An online course.
http://bccewh.bc.ca/webinars-and-courses/courses/gender-transformative-health-promotion-course/

Toward Gender Transformative Change: A guide for health practitioners.
https://whv.org.au/resources/whv-publications/towards-gender-transformative-change-guide-practitioners

Gender Unchained: Notes from the equity frontier. Lorraine Greaves and Nancy Poole, 2017. A book examining gender equity and gender transformative approaches.
http://galvanizingequity.com/

Healthier Masculinities Framework for Gender Equality: A framework to guide health promotion action when working with men and boys. https://www.vichealth.vic.gov.au/-/media/ResourceCentre/PublicationsandResources/Health-Inequalities/9044-VCH-Healthier-Masculinities-Framework

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived Experience

- What have program participants said about wanting gender specific programming? What might they say about integrating content about gender equity?

Practice

- Where does your agency/program sit on this diagram? How could you advance it?

Research

- What measures could we use to assess the effects of substance use awareness campaigns or programming on gender equity?

Policy

- How can your organizational or provincial/territorial policy be changed to address gender equity?

GENDER RESPONSE CONTINUUM ACTIVITY

Where do the following initiatives fall on the gender response continuum?

- Boys are not included in a clinical trial about the effects of moderate cannabis use on memory.
- A program to prevent Fetal Alcohol Spectrum Disorder encourages a woman and her partner to practice safe sex and stop alcohol use in the preconception period.
- Day treatment programs offer women only and men only sessions but do not address how safety from violence can be important to women in recovery.

QUESTION 5

How can prevention approaches be gender sensitive?

One of the choices in the gender response continuum is gender sensitive. This is a response that many substance use programs and their policies are already trying to implement. If your treatment program does not currently do so, this is a great first step to making your responses sex and gender sensitive. But it is also incredibly important to do prevention and health promotion using this approach. Girls and boys use substances for different reasons and are affected by substances in different ways, so why not tailor prevention based on sex and gender? Some questions that might matter regarding your prevention efforts include: Are there gender differences associated with social acceptability of substance use? And, how can you tailor prevention given that girls and boys use substances for different reasons?

Alcohol

There are many social attitudes about drinking. Women and girls who drink excessively are more likely to be marginalized or isolated compared to boys and men, and social criticism starts earlier for women and girls. Interestingly, the European Drug Abuse Prevention study data from 2005 shows that frequent drunkenness was highest for 13-18-year-old boys, while for girls it was highest for 11-12-year-olds. Low self-esteem was correlated with frequent drunkenness for both boys and girls, but especially for girls.[39]

Many countries have sex-specific lower risk drinking guidelines, but not everyone is familiar with them. In the UK, Gill[40] found that only 2% of females entering university knew the Sensible Drinking Guidelines. 83% of undergraduate females classified themselves as 'binge drinking' bi-weekly, also often underestimating binge-drinking by quantifying in bottles rather than glasses. Some studies have found being female as the only significant predictor of frequency of alcohol use increase in comparison to other social indicators.[41]

Tobacco

To 'lose weight' or 'calm down' are common reasons for why girls smoke, but not for boys.[42] Why might girls have these reasons and not boys? Girls who smoke are more likely to be surrounded by more smokers in their social environment than boys who smoke, and their romantic partners are also more likely to be smokers.[43] Why might this be?

In addition to sex and gender, many other factors and characteristics also make a difference in tobacco use. In Canada, Indigenous youth have a higher prevalence of smoking, and start smoking earlier than the general population. High rates of cigarette smoking in Indigenous communities are also associated with increased levels of exposure to second hand smoke among Indigenous girls.[44] What reasons might there be for this? Lesbian and bisexual women also report higher prevalence of smoking than heterosexual women (increases of 20 and 10% respectively).[45] This is a consistent pattern across North America for all substance use.

As we have seen, the gender gap is decreasing in many areas of substance use. Girls' alcohol and cigarette use rates have been on the rise and are now at similar rates to boys'. Smoking is often reported at higher rates among girls, and at an earlier age of initial use. Boys, however, show higher cannabis and stimulant rates across middle school and high school. These trends need to be identified so that prevention campaigns can be targeted and tailored, and in some cases, address multi-substance use.

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Although girls generally lag one-to-two years behind boys in substance use initiation, once substance use has begun, females progress faster from initial use to addiction when using the same dosage of substances.
What impact could this have on prevention?

Some girls have reported feeling they could not drink in public but could smoke tobacco in public. This is gender-based informal control initiated by both parents and general society that we don't see with boys.
What impact could this have on prevention?

Tobacco policy is more strongly correlated with quitting among men. For women, social unacceptability and knowledge of health impacts is more closely associated with quitting among women and girls.
What impact could this have on prevention?

A study researching different ethnic groups found that boys had higher substance use and pro-drugs norms than girls within all groups.
What impact could this have on prevention?

WEBLINKS

Blindsided by the Alcohol Industry: This Infographic from the University of Saskatchewan informs and challenges the gendered influences on college age women's alcohol use
https://skprevention.ca/wp-content/uploads/2017/06/3-007-Blindsided-by-the-Alcohol-Industry.pdf

Headstrong: Taking things 'head on' is a Canadian health promotion and secondary prevention program aimed at men's mental health and addictions issues https://headstrong.life. It links men with pharmacists to get tailored information and advice.

LGBT substance use prevention: This US treatment program identifies some key elements of tailored prevention for LGBT individuals, including addressing homophobic bullying, stigma and heterosexist attitudes.
https://www.harrishousestl.org/four-top-substance-abuse-prevention-strategies-for-the-lgbt-community/

Pre-Testie Bestie: This New Zealand campaign aims to reduce alcohol consumption during early pregnancy by encouraging women to stop drinking if there is any chance they could be pregnant. It does not use the stereotypical images of pregnant women www.alcohol.org.nz/alcohol-its-effects/alcohol-pregnancy/dont-know-dont-drink

REFLECTION QUESTIONS

List and discuss all the gendered and cultural stereotypes you can think of, affecting girls, boys, gay youth, lesbian youth and transgender individuals that may be embedded in the following scenarios:

- Binge drinking in a pub
- Sniffing solvents
- Smoking on the street
- Injecting drugs in an alley
- Using methamphetamines in the basement
- Using party drugs in a bar
- Smoking cannabis on a beach
- Quitting drinking

How might prevention efforts address these stereotypes?

How could prevention policies such as 'sales to minors' legislation include a gender sensitive approach?

QUESTION 6

How can brief interventions be gender sensitive or gender specific?

Once an individual has begun to use substances, there are many opportunities for brief interventions that can make a difference.

Brief intervention can be an effective strategy for reducing harmful and risky substance use.[46] Tailoring the approach to brief intervention to be sex/gender informed can improve access to support and treatment for all individuals. Effective brief intervention includes information and advice about an individual's substance use, assistance in developing strategies, and goal setting for reducing their substance use. Brief interventions can address multiple substances and multiple health outcomes with varying inclusion of gender and/or sex considerations. [46-49]

Two brief interventions that address gender roles and norms:

QuitStrong is a smoking cessation program for men that uses brief smoking cessation interventions and yoga to decrease chronic obstructive pulmonary disease (COPD) and lung cancer risks. Men who engaged in brief intervention and support on a range of health issues, including healthy eating, cancer, and cardiovascular health had significant abstinence rates compared to those who did not engage in brief smoking cessation interventions.[49]

The Depression and Alcohol Integrated Single Focused Intervention (DAISI) addresses the co-occurrence of alcohol use disorders and depression through brief intervention. The DAISI evidence demonstrates that brief interventions addressing both alcohol and depression are the most effective in reducing depression and the number of drinking days. However, there are distinct gender differences in the efficacy of brief interventions that focused singularly on alcohol reduction compared to depression. For men, single-focused alcohol interventions were more effective in reducing alcohol use, whereas for women, single-focused depression interventions were more effective for alcohol reduction.[50]

These two examples illustrate that brief interventions can integrate sex and gender without pandering to gender stereotypes, as with some tobacco brief interventions – including those that target facial wrinkling or heterosexual attractiveness as motivation for change for girls and women.[51-55] While there are other brief interventions tailored to women, these two examples are tailored to men. This reflects evidence that brief interventions are more effective in men's health settings [46] as well as the importance of having gender-informed brief interventions for men and women.

WEBLINKS

Doorways to Conversation: A guide to discussing substance use with women in the perinatal period.
http://bccewh.bc.ca/wp-content/uploads/2018/06/Doorways_ENGLISH_July-18-2018_online-version.pdf

Project WINGS: An evidence-based, single-session Screening Brief Intervention and Referral to Treatment and Service (SBIRT) Tool that is designed to address intimate partner violence (IPV) among women who use alcohol and drugs.
http://blogs.cuit.columbia.edu/wings/files/2017/03/WINGS-Manual-FINAL-03012017-print-quality-1-1.pdf

Talking about substance use in pregnancy: Collaborative approaches for health care providers.
http://bccewh.bc.ca/wp-content/uploads/2018/10/Collaborative-Conversation-Ideas_Sept-19-2018.pdf

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived Experience

- What have program participants – such as pregnant women, men who experience depression, transgender women with violence concerns, Indigenous boys, or bisexual girls – said about the helpfulness of brief support?

Practice

- How could brief interventions better address gendered factors? How might they address sex-related factors?

Research

- Brief interventions are continuously being measured for effectiveness. What aspects of brief intervention might we need further evidence about?

Policy

- What policy issues could be woven into a brief intervention? Illegality or legality of substance use? Overdose or poisoning crises? New vaping illnesses? How could these messages be gendered?

SCENARIOS

A man who is 30 years of age, Indigenous, and living in Nova Scotia wants to stop smoking cigarettes as his partner is pregnant. He wants his partner to quit too.

During a brief intervention with him:

- What topics about men, Indigenous culture and tobacco smoking might be covered?

- What topics about fathers and smoking might be covered?

- How might we introduce the topic of tobacco reduction interaction patterns in couples when pregnant, that might be helpful for him and his partner?

A girl who is fifteen, White, living in Toronto, comes to a sexual health clinic for birth control advice. When asked about substance use, she says she does not use alcohol because she doesn't like how alcohol makes her feel. She says she vapes cannabis on weekends with her friends and mentions that she sees vaping cannabis as healthier than smoking cigarettes.

If she wants us to share information with her,

- What might we say about girls and cannabis use?

- What might we say about vaping nicotine or cannabis?

- What might we say to be encouraging about her decisions about vaping cannabis and avoiding alcohol?

QUESTION 7

How do you move toward gender transformative treatment?

The gender responsive diagram (pg. 15) illustrates what is needed for gender transformative approaches. In short, you must combine your intervention on substance use with efforts to reduce gender inequity as well.

This is not always easy and needs to be addressed thoughtfully. In this workbook, we have seen some of the gender stereotypes that affect substance use and the differing trends and patterns of use. These raise some basic questions when considering how to devise treatment approaches.

Is treatment accessible?

There are gendered factors that affect access to substance use treatment. Factors such as availability, location, and suitability affect whether or not access is easy or difficult. Substance use treatment utilization is higher among men and boys, men are more likely to be referred to live-in treatment[56,57] and to enter treatment via the criminal justice system.[58] In contrast, women are more likely to access substance use services via primary health care or mental health services, and to be referred to outpatient treatment.[57,59] Despite higher prevalence rates of substance use among transgender populations, research has shown that there are clear disparities in their access to treatment.[60]

Is it easy to stay in treatment once there?

The complexity of women's needs often affects access to and retention in services.[61, 62] Women enter treatment with more severe issues and more problems related to mental health, family, relationships, and physical health;[58, 63-65] whereas men typically enter treatment with more legal, criminal and financial problems.[66] While co-occurring trauma and mental health issues negatively impact access to treatment for both women and men, men with co-occurring issues tend to be more likely to receive inpatient care.[67] Harassment, discrimination and violence can result in transgender people leaving treatment.[68]

Is treatment safe?

Treatment programs may not be perceived or experienced as safe for all genders. Historically, inpatient addiction treatment programs were developed for men, often using a heteronormative approach. As such, women and girls experience more barriers to accessing substance use treatment,[69,70] including a lack of awareness of available options, stigma, confrontational treatment models, and lack of childcare.[59] Evidence suggests that transgender and gender diverse individuals also report multiple barriers to engaging in treatment programs,[71] including fear of discrimination, victimization, stigma, institutional biases, and cultural incompetence of service providers.

Can gender neutral treatment work?

This is a difficult question. There are different answers for different substances. In general, among men and women who complete substance use treatment, gender does not predict treatment outcome.[57,58,72-74] For example, women and men receiving treatment for alcohol use disorder (AUD) report similar rates in reductions or abstinence from alcohol, from certain interventions: medical management and behavioural counselling for AUD;[75] treatment with the medication acamprosate (based on findings from a meta-analyses);[76] and live-in treatment.[77] For tobacco, individualized treatment approaches, including individual treatment within a tobacco dependence treatment clinic[78] and tailoring the intervention intensity and approach to the client's stage of change,[79] have demonstrated similar improvements in tobacco cessation outcomes in women and men.

But some substance use treatments have demonstrated mixed findings or gender differences in effectiveness. For example, studies on the effectiveness of naltrexone treatment for AUD treatment are mixed, with some studies reporting similar outcomes for women and men,[80,81] and others reporting a greater reduction in craving scores for

women,[82] or greater reductions in alcohol use (and other substance use) in men.[83]

Systematic reviews on tobacco treatment reveal poorer smoking cessation outcomes for women with certain pharmacological supports, including nicotine replacement therapy (NRT) regardless of whether or not it is combined with counselling[84] or bupropion.[85] In contrast, treatment with varenicline has shown similar, or better, outcomes for women compared to men.[86-88] The evidence on treatments for opioid use disorder (OUD) and cannabis use disorder (CUD) is scant and mixed.[89-92] Further research is required to determine if gender neutral treatments for treating OUD and CUD are equally effective for all genders.

What is gender INFORMED substance use treatment?

Gender informed substance use treatment considers how social factors such as gender relations, roles, norms, gender identity and gendered policies affect individual experiences of substance use, the effectiveness of treatment and a person's ability to access treatment.[93]

The majority of gender-informed treatment interventions have been developed for women. Gender-informed treatment components that are associated with improved substance use outcomes for women often involve wrap-around services that include parenting supports, childcare, and family planning.[57] Also effective for women are models of substance use treatment that address co-occurring trauma, violence and mental health issues, including trauma-informed and trauma-specific treatment such as *Seeking Safety*.[58, 94-97] Finally, providing women-only rather than mixed gender programming,[98, 99] and empowering approaches that engage women as decision makers[100-106] have been shown to be effective.

Relatively few interventions have been developed for men that specifically address gendered experiences of substance use and treatment needs. But the US-based Substance Abuse and Mental Health Services (SAMHSA) recommends that gender-informed treatment approaches for men include parenting, relationship and communication skill-building, partner & social support, and trauma informed and trauma specific responses. Some smoking cessation websites have been developed to address men's needs[107-109] by providing opportunities for peer support and linking positive identities such as being strong and healthy with being smoke free.[109] For example, *Dads in Gear* is an online smoking cessation resource for men that incorporates gender transformative principles.[108] It offers gender specific parenting resources for men who are fathers and seeks to shift gender roles and norms by linking masculine identities with fathering, and by being healthy role models for their children by quitting smoking.

A systematic review revealed very few tailored interventions for transgender and gender diverse people, although group education, motivational enhancement interventions,[71] and *Seeking Safety*[110] for transgender or gender diverse clients have demonstrated reductions in alcohol and substance use. Recommendations for tailored substance use programs for these populations include use of a participatory community-based intervention design that engages transgender and gender diverse people in design and service delivery, and the inclusion of multiple components to address co-occurring issues including mental health, violence, and homelessness.[71]

What is gender TRANSFORMATIVE substance use treatment?

> *Gender transformative substance use treatments concurrently address substance use outcomes and improvements in gender equity by actively examining, questioning, and changing negative gender stereotypes and norms.*[93]

A women's live-in treatment centre in Vancouver invited women to review and critique tobacco ads and health promotion responses as a part of a treatment intervention for tobacco cessation. The evaluation findings showed that women's motivation for continuing to be smoke free (while using nicotine replacement therapy [NRT] in treatment), increased when they were asked to resist gender stereotyping and exploitation in tobacco ads. They began to see being smoke free as "liberation" in contrast to industry claims of the opposite ("You've come a long way baby").[111]

Emergent Indigenous substance use treatment programming focuses on healing and precolonial views of equal and respected roles of men, women and two spirited people and the value of collective relations, challenging patriarchal roles imposed by settlers. At the Kettle and Stony Point First Nation, men envisioned and

helped bring to fruition a healing space comprised of a sweat lodge, a tipi, and a food and medicine garden, with the support of researchers at the Centre of Addiction and Mental Health (https://www.camh.ca/en/camh-news-and-stories/action-toward-healing).

Is aftercare accessible and effective?

There may be gendered factors affecting access to aftercare programs. Women are more likely than men to attend aftercare and self-help group services.[95, 112, 113] However, in one study, having a substance use service provider meet with their spouse or parent to review aftercare plans increased aftercare attendance for men.[114] The majority of aftercare evaluation studies have focused on Alcoholics Anonymous (AA) or *Twelve Steps to Freedom* and measured alcohol use outcomes. Despite critiques of the male-centric history and nature of AA,[115,116] these programs appear to be equally,[117,118] or more,[113,119] effective for women. Consistency in attendance is important. Weekly or greater attendance has been associated with better alcohol outcomes, compared to lower attendance, for both women and men.[120] Twelve step programs have also demonstrated positive results for men and women with co-occurring substance use disorder and trauma, including building a network of support,[121] improvements in measures of mental health and self-esteem,[122] and greater reductions in alcohol use over time.[123]

DISCUSSION QUESTIONS

- **Women may be less likely to receive a referral for live-in treatment, and more likely to seek help for substance use issues through general health care or a mental health service.**
  What impact could this have on treatment?

- **Rates of cannabis use are higher among boys than girls; dependence on cannabis is also greater among boys compared to girls.**
  What impact could this have on treatment?

- **Involving transgender peers in treatment and promoting a positive identification with the transgender community has been demonstrated to improve retention.**
  What impact could this have on treatment?

- **Women receiving outpatient treatment for substance use have higher rates of trauma than men.**
  What impact could this have on treatment?

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived Experience

- What do people in recovery say about their issues in accessing treatment? How could gendered barriers be lowered?

Practice

- How can services or programs become more gender informed? What could change to increase access and safety for all gender groups?

Research

- What measures, questions, and studies are needed to assess accessibility, safety and success in treatment by different gender groups?

Policy

- What social issues affecting gender equity might make a difference to the recovery of the people that you serve? What policy changes can you advocate for to achieve more gender equity?

WEBLINKS

Promundo: Works to improve health outcomes for women, children, and men by promoting healthy, nonviolent and equitable masculinities. https://promundoglobal.org/

TrueChild: Works to change harmful codes of masculinity and femininity as key to improving life outcomes, especially among at-risk adolescents and teens. https://www.truechild.org/

SNAPSHOT Trans-Inclusion in Mental Health & Addictions Services: An infographic here: https://amho.ca/wp-content/uploads/Trans-Inclusion-Snapshot_FINAL.pdf

QUESTION 8

How do sex and gender affect harm reduction?

Harm reduction approaches include numerous ways to provide support for individuals to change or reduce the impact of their substance use, especially when abstinence is not possible or desirable.

This can involve safer ways of obtaining or using drugs or alcohol, or improving other health related factors such as nutrition, personal safety, or housing security. When harm reduction programs are built that incorporate sex *and* gender, we can recognize a range of social and environmental factors that can be improved to fully respond to substance use.[124] For example, integrating assistance for women in getting out of violent relationships or increasing housing stability or food security for all groups are important harm reduction measures.

Sex, Gender and Managed Alcohol Programs

Managed alcohol programs (MAPs) are aimed at reducing harms associated with alcohol use for severely alcohol dependent people who have histories of failed alcohol treatment, experience chronic homelessness and have related health conditions such as liver disease. Using an individually tailored approach, these programs administer alcohol on an hourly basis and offer health care, housing, social and cultural support. A scoping review on MAPs in community settings found that almost half of studies included only male participants; and the majority of studies (69%) did not indicate or describe the sex or gender of participants.[125] A review of thirteen Canadian MAPs identified the need for gendered and culturally-specific approaches; specifically, they note a need to engage women in program development, and attend to gender issues such as sexualized violence that may be absent from programs typically developed for men.[126] Anecdotally, several sex related factors have also been observed. Women have requested lesser amounts of alcohol than the generic protocol of alcohol provided per day and exhibit interest in tapering.

Sex and Lower Risk Guidelines

The Canadian Low-Risk Alcohol Drinking Guidelines[127] were among the first sex-specific low-risk drinking guidelines in the world. They recognize that harm reduction is sex specific, so recommend different levels of drinking among men and women to reduce the risk of injury and harm and to reduce long-term health risks. The guidelines recommend that men consume no more than *four* drinks on any single occasion, while they recommend that women consume no more than *three* drinks on any single occasion. This is because women reach higher blood alcohol concentrations, and therefore, intoxication and organ damage, after consuming the same amount of alcohol as men, which leads to longer persistence of high blood concentration and bioavailability.[128]

Gender and Access to Opioid Substitution Therapy

There are sex and gender aspects to access, retention, and treatment outcomes from opioid substitution therapy (OST).[129] One Canadian study found that men and women had comparable access to OST[129] but studies in Australia[130, 131] and Italy[132] have found that men seek and access OST at significantly higher rates than women. There are also differences across genders among those accessing OST. Women are typically younger,[124,129,131,132] live with their partner or children, and have higher education and lower employment rates compared to men.[132] Women more commonly initiate OST through methadone and are more likely to continue receiving methadone rather than buprenorphine.[131] Despite a growing number of women seeking OST and an increased understanding of both patterns of use and how treatment access, retention, and outcomes are influenced by sex and gender related factors, there are few programs that are tailored to women.[129] Women are more likely to engage in psychotherapy in addition to OST[132] and are more likely to continue with OST for a longer period of time.[131, 132]

Routes of administration (ROA) of cannabis and harm reduction

Changing cannabis routes of administration is another way to reduce harm and improve health. Cannabis ROAs include smoking, eating, drinking, ingesting, vaping and topical use.[133,134] However, many people use multiple methods.[133] The limited research on cannabis ROAs demonstrates important sex and gender considerations. Smoking is most common due to its convenience, affordability, and ability for individuals to control dosing.[133-135] More men than women smoke cannabis, while more women appear to use edibles and oils.[136, 137] Men most frequently report using water pipes with friends, strangers, or alone, whereas when women do smoke, they more frequently report smoking joints.[138] However, similar to other substances, the gender gap is narrowing. While men are more likely to use cannabis in particular ways, evidence is building that gender disparities are decreasing.[136]

SCENARIO

An outreach worker from a needle exchange program wants to consult about a client she is working with. Her client is six months pregnant and has been living on the streets for the past year. The client has been afraid to access prenatal care because she doesn't want the baby to be removed from her care after birth, but she is interested in going on methadone.

In talking with this worker:

- What points about women and methadone might you discuss?
- What promising practices related to pregnancy, opioids, harm reduction and collaboration with child welfare might you discuss?
- How would you work though an assessment of 'risk' with this woman?
- How would you address her fear of child apprehension?

WEBLINKS

SisterSpace: This women-only harm reduction program in Vancouver also addresses women's experience of violence
https://atira.bc.ca/what-we-do/program/sisterspace/

Women-Centred Harm Reduction:
A discussion guide that highlights the breadth of harm reduction approaches for women.
http://bccewh.bc.ca/wp-content/uploads/2012/05/2010_GenderingNatFrameworkWomencentredHarmReduction.pdf

Harm Reduction Training Manual: Outlines knowledge, skills, and attitudes necessary for harm reduction work.
http://www.bccdc.ca/resource-gallery/_layouts/15/DocIdRedir.aspx?ID=BCCDC-288-1785

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived Experience

- How do men, women and gender diverse people with lived experience describe how they practice harm reduction? What new ideas do they offer?

Practice

- How are practitioners addressing gender issues in harm reduction efforts? How might these responses be expanded or improved upon?

Research

- What measures, questions, and studies are needed to support gender informed harm reduction efforts?

Policy

- Which organizational level policies might contribute to gender informed harm reduction efforts in your organization or province/ territory?

QUESTION 9

How do the social determinants of health affect gender and substance use?

The social determinants of health include a broad range of factors that affect our health — including education, culture, food security, housing, transport, clean water and income.

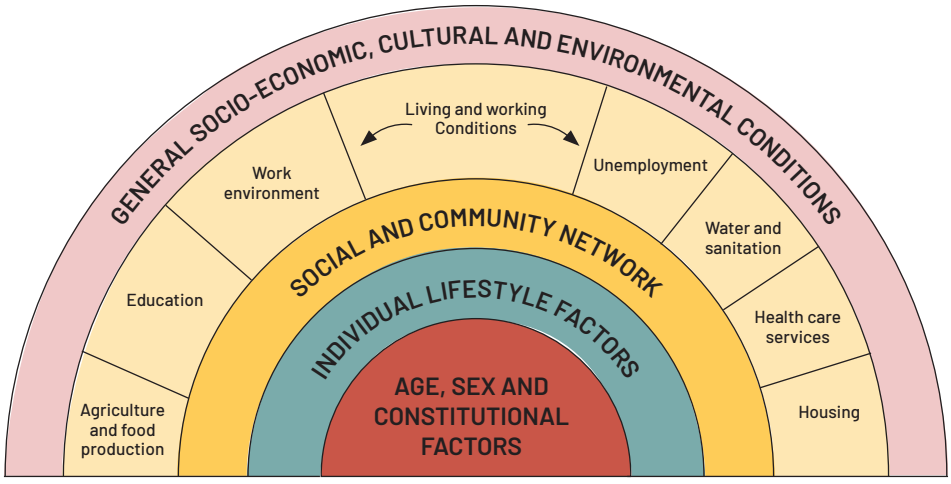
These are key influencers that affect how we can protect and maintain our health, access health services and live in healthy or unhealthy conditions. For example, people with higher incomes generally have better health and longer lives than those who have lower incomes. This means that they will live with fewer chronic diseases. This might be because of better food, drugs and living conditions, lower exposure to pollution and disease, and more preventive health care and treatment options.

These factors also affect people and their substance use patterns, and their access to treatment and care. These factors are also gendered and may reflect sex related factors. For example, women have lower incomes than men, on average. Men are less likely to use the health care system compared to women, who visit more often for reproductive related issues, and on behalf of both themselves and their children. Transgender and gender diverse people are more likely to experience stigma in health care. Those in precarious housing have trouble getting basic health care needs met. Those responsible for children have trouble going to live-in treatment programs.

Housing and income affect exposure to substance use and ability to access harm reduction, prevention and treatment. Income levels determine if and where one might access treatment programs and recovery. Access to transportation also affects how people can get to health care and treatment services. Education levels affect how much we know about substance use and its effects, and how much we might know about sex specific effects.

The social determinants of health interact with each other to create health or health inequity. The diagram below from the Australian organization, the National Aboriginal Community Controlled Health Organisation (NACCHO) illustrates how individual characteristics including sex and gender, interact with other components of our health and social status.

As we address substance use issues in our practice, we can also try to improve some of these factors, even when they are big and sometimes 'wicked' problems, such as poverty, violence and homelessness. It is easy to think we cannot solve such problems, or such work is outside of our roles, but thinking about and enacting harm reduction and gender transformative approaches can help us make a big difference.



Adapted from NACCHO (2016) https://nacchocommunique.com/tag/social-determinants-of-health

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived Experience

- What do program participants of different genders say the biggest problems in their lives are?

Practice

- How can we integrate action on the broader problems such as gendered rates of poverty or food and housing insecurity?

Research

- What evidence about the gendered effects of these determinants are you aware of that might assist in tailoring program or policy responses?

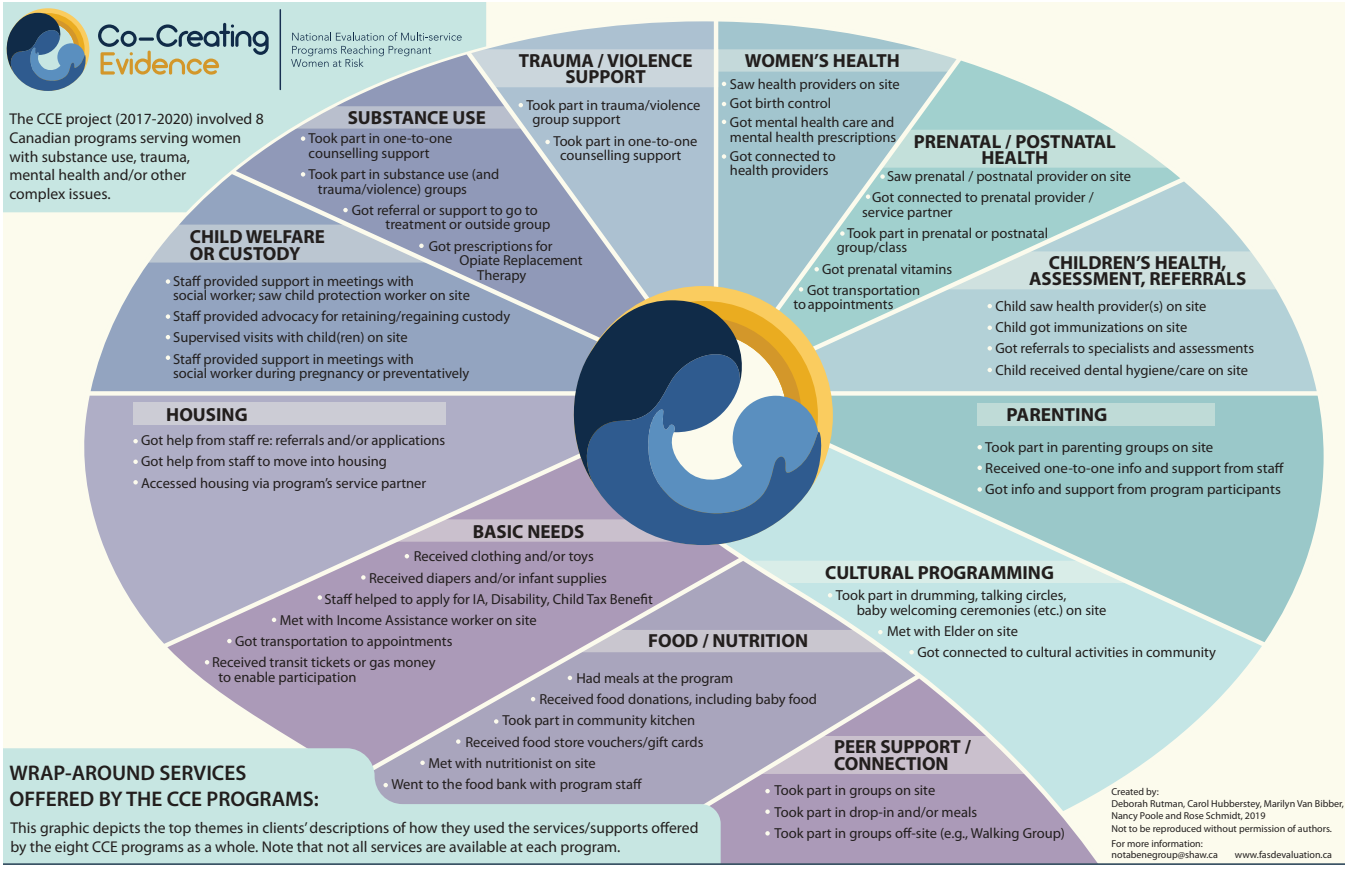
Policy

- List some policy approaches that might be helpful in changing some of these determinants?

WEBLINKS

Harm Reduction and Pregnancy: Community-based Approaches to Prenatal Substance Use in Western Canada http://bccewh.bc.ca/wp-content/uploads/2015/02/HReduction-and-Preg-Booklet.2015_web.pdf

Mothering and Opioids: Addressing Stigma and Acting Collaboratively: Centre of Excellence for Women's Health, Vancouver, BC: http://bccewh.bc.ca/wp-content/uploads/2019/11/CEWH-01-MO-Toolkit-WEB2.pdf



For more information about the 8 Canadian perinatal substance use programs included in the Co-Creating Evidence (CCE) study see: http://www.fasd-evaluation.ca/communitysystem-outcomes/

SOCIAL DETERMINANTS OF HEALTH IN SERVICE DESIGN

Above is an example of services designed for women clients with substance use issues who have a range of other influencers on their health and recovery.[139, 140] Which of these do you already consider in your work? Identify which ones you could add into your response. Notice how, for many, substance use is just one among many other concerns.

How would you design a wraparound service for men? What might be included?

How would you design a wraparound service for transgender or gender diverse people? What might be included?

How would you focus a wraparound service for non-heterosexual clients (men, women, boys, or girls?)?

QUESTION 10

How can Sex and Gender Based Analysis+ improve substance use program and policy?

Sex and Gender Based Analysis + (SGBA+) refers to a process of reviewing all policies and programs with sex, gender and equity factors in mind to determine the impact of the initiative on different groups. SGBA+ involves several steps.

It is a useful skill for us to develop so that we can critically assess evidence that we read, evaluations of programs, and the effects of programs and policy on clients. Once learned, SGBA+ can be integrated into all materials, processes, training, and products in your organization, and will be an ongoing critical thinking process to learn, improve, and share. It is worth considering how to integrate an ongoing commitment to SGBA+ into our work, and to share these skills with new employees, colleagues and managers as part of orientation and quality improvement.

The process of SGBA+ is iterative, meaning that each stage builds on the last in an ongoing fashion. For example, in *Rising to the Challenge*,[142] the authors described a basic 5 step approach involving:

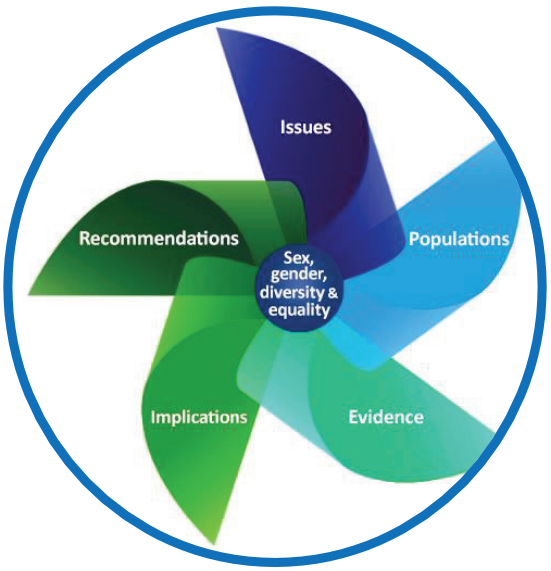
- defining the issue
- describing the populations
- assembling the evidence
- analysing the implications
- structuring recommendations

The Analysis in SGBA+

The actual analysis can be the difficult part of SGBA+. You might find data that say boys and men use cannabis more often than girls and women, but it is important to analyze and describe the implications of such differences:

- Is it just the level or frequency of use of a substance that matters, or also the impact and health effects of the use?
- Does it matter which sub-groups of boys and girls are implicated in the analysis, what mental health impacts result, or how quickly they advance to dependency?
- Does the social or legal impact or the settings that affect how people get involved in drug use in the first place matter?

These questions and many others illustrate why it is important to look at what is already known about sex and gender factors, influences and consequences, and build on them to frame your findings.



Your efforts in defining the issues, identifying and engaging populations, and assembling evidence could serve you well here. Analyzing all of these inputs can take you in unexpected directions. It demands thoughtfulness, critical thinking and encourages speculation about impacts and responses. For example, you might find that while girls use less cannabis, girls may need less to become dependent, may have different experiences of being high, or may see cannabis as a way of resisting gendered roles. If any of these conditions are valid, they would require you to develop different recommendations for actions, whether prevention, harm reduction or treatment.

Making Gender Transformative Recommendations

Making recommendations for changes in your future research, treatment program, policy, prevention campaign, or health promotion initiative based on the results of SGBA+ is important. The ultimate goal is to move your project from not considering gender (gender blind), to gender accommodating (recognizing that gender matters) to **gender transformative** (addressing gender inequities in the course of your work). These are all positive moves and take the field in the right direction. Framing your recommendations on this continuum requires conscious choice. See the figure (on pg. 15) to assess where you are now and where you might want to go in your work.

To achieve health *and* gender equity, we need to go to the furthest point and commit to doing gender transformative work. This means that we would not, for example, hinge a smoking cessation campaign aimed at young women on the premise that smoking might make them unattractive to boys. Doing so would not only reinforce negative gender stereotypes and heterosexist assumptions but would also ignore the much more valuable goal of improving girls' health for its own sake.

WEBLINKS

Status of Women Canada, online course on GBA+: https://cfc-swc.gc.ca/gba-acs/course-cours-en.html

Centre of Excellence for Women's Health, online course on gender transformative health promotion: http://bccewh.bc.ca/webinars-and-courses/courses/gender-transformative-health-promotion-course/

Rising to the Challenge: Sex and gender-based analysis for health planning, policy and research in Canada. http://pwhce.ca/pdf/RisingToTheChallenge.pdf

Sex, Gender and Equity Analyses: Illustrates how to do SGBA+ in the substance use field, with examples. https://www.ccsa.ca/sex-gender-and-equity-analyses-report

DISCUSSION QUESTIONS

It is important to gather and integrate perspectives, evidence and ideas for action from people with lived/living experience, practitioners, researchers and policy analysts and health system planners as we act on sex, gender and equity in the substance use field. These questions are designed to help us draw upon each of these sources:

Lived Experience

- How might program participants or colleagues describe gender sensitive programming? What do the men say that might differ from the women, for example?

Practice

- Have you already created a gender informed approach to different groups of program participants in your program? What caused you to do that?

Research

- If you could name some important evidence about sex and/or gender that you would like to have, what would it be?

Policy

- Policies are often generic. Which ones affecting your work clearly have differential effects by gender group?

Conclusion

Along with continuing to educate ourselves about the evidence on sex and gender, integrating some of these ideas into our policy and practice, and completing the exercises in this workbook, there are other processes to consider.

Your agency, team, or department can focus attention on the impact of sex and gender on substance use in a range of other ways, including those mentioned below. All of these approaches will make you more informed and better advocates in your work and for the clients you serve. All of them can be seen as quality improvement initiatives.

1. **Data Collection:** Changes in administrative data collection are always useful for making our work more precise. It is important to start collecting and reporting your sex and gender-disaggregated data instead of pooling the information, and thus concealing any differences. How can your own data collection or record keeping be improved in this way? Is your intake form picking up some of the factors and issues mentioned in this workbook? Could it? Is your annual report disaggregating the data from your agency? Are your policies gender sensitive in the right ways?

2. **Evaluation:** Changes in evaluation are also a useful addition to furthering this work. Make sure that your evaluation tools are accessible to all of your clients and partners, that they are sex and gender sensitive, and that they analyse the resulting data with a gender lens. Reporting your evaluation this way will enhance your standing with funders, and allow you to apply for, or maintain your funding with more precise aims in mind.

3. **Training:** Change your training and onboarding of staff to include sex and gender-based analysis, and/or gender transformative health promotion training. Make the training ongoing, and, if possible, mandatory. This will signal to all staff the importance of sex and gender in substance use and invite staff to offer ideas and ask questions about how this approach could improve the work of your team, agency or department. Use these resources with new hires, and in annual performance reviews.

4. **Research:** Change your approach to research. Be critical when reading it or hearing about it, by asking about how it relates to a range of groups, clients or individuals. Participate when invited in research projects and apply for funding for your own. Include disaggregated data, and sex and gender analysis and reporting in all of your efforts. These actions will make sure that we collectively build more sex and gender evidence in substance use to improve our overall game.

5. **Learning:** Learn together! There are many ways to stay up to date in this area. Start with some of the websites and resources listed in this workbook. Use this book at a team meeting, or in orientation sessions. Use the questions in this book to underpin program design or policy development. Some key resources are:

WEBLINKS

New Terrain: Tools to Integrate Trauma and Gender Informed Responses into Substance Use Practice and Policy:
http://bccewh.bc.ca/wp-content/uploads/2018/06/NewTerrain_FinalOnlinePDF.pdf

Doorways to Conversation: Brief Intervention on Substance Use with Girls and Women:
http://bccewh.bc.ca/wp-content/uploads/2018/06/Doorways_ENGLISH_July-18-2018_online-version.pdf

Status of Women Canada: Gender-Based Analysis Plus Course: https://cfc-swc.gc.ca/gba-acs/course-cours-en.html

Centre of Excellence for Women's Health: Gender Transformative Health Promotion Course:
http://bccewh.bc.ca/webinars-and-courses/courses/gender-transformative-health-promotion-course/

Institute of Gender and Health Online Training Modules: Integrating Sex & Gender in Health Research:
https://cihr-irsc.gc.ca/e/49347.html

Sex, Gender and Substance Use: Special Issue, International Journal of Environmental Research and Public Health.
https://www.mdpi.com/journal/ijerph/special_issues/sex_gender_substance_use#published

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Appendices

APPENDIX 1
Sex, Gender and Alcohol

APPENDIX 2
Sex, Gender and Opioids

APPENDIX 3
Sex, Gender and Cannabis

APPENDIX 4
Sex, Gender and Methamphetamines

APPENDIX 5
Sex, Gender, Nicotine and Tobacco

Sex, Gender and Alcohol

Preventing alcohol use problems and related harms is important to addressing public health concerns. Tailored responses are needed that attend to how sex- and gender-related factors affect initiation, patterns of use, and health and treatment outcomes. Therefore, it is important that we identify how sex-related factors affect the biological responses to alcohol use and treatments, and how gendered factors such as social, cultural and economic norms, relationships, and opportunities affect uptake, patterns of use, and responses to policies and programs.

DEFINITIONS

Sex-related factors affect how your body reacts to substances, including how substances are metabolized, what effects they may have on your brain, and the development of tolerance and dependence. Female and male bodies have different genetic and physiological characteristics that affect these processes.

Gender-related factors affect your risks for use, exposure to marketing or exploitation, access to care and services, and the societal response to problematic use. Men, women, and gender diverse individuals experience these elements differently. In part, this is based on social roles and expectations that are dependent upon cultural context.

The prevalence of alcohol use, and alcohol use related disorders, tends to be higher among boys and men. However, the gender gap appears to be narrowing. Recent evidence demonstrate that there is a greater increase in rates of alcohol use disorder and binge drinking among girls and women compared with boys and men[1,2] and equally high rates of binge drinking among girls and boys.[3]

Key Sex-Related Factors

- Females transition from initiation to regular use of alcohol faster than males.[3]
- Women develop and have more progressive liver injuries, even when consuming lower quantities of alcohol.[10]
- Males tend to have more gastric alcohol dehydrogenase, an enzyme which breaks down alcohol in the stomach.[5] Therefore, females require smaller amounts of alcohol to become intoxicated/reach higher blood alcohol concentration.[8]
- Women with chronic alcohol use are more sensitive to the neurotoxic effects of alcohol consumption compared to men.[4,5] This can result in more pronounced reductions in functional brain activation and neurological anomalies in multiple areas of the brain.[6]
- Girls who binge drink demonstrate poorer sustained attention and working memory than boys who binge drink.[7]
- The use of the medication naltrexone for treating alcohol use is associated with significantly greater reductions in alcohol craving among women compared to men.[9]

Key Gender-Related Factors

- Masculine norms are associated with alcohol use among boys and men,[11, 12] including transgender men.[13] Traditional perceptions of masculinity (i.e. alcohol use is "part of manhood") have been associated with motivation to consume alcohol, and alcohol related problems.[14]
- Co-occurring depression and substance use is more common among women and girls, who may be more likely to use alcohol and other substances as a coping mechanism or to respond to peer pressure.[15-17] Interventions that address depression, coping skills, communication, and the relational elements of alcohol use have been identified as promising and gender transformative approaches to preventing and reducing

Sex, Gender and Alcohol

While alcohol use and alcohol use disorders are prevalent among individuals of all genders, tailored policies and interventions are required at all levels (harm reduction, prevention and treatment) to address the linkages between sex, gender, and alcohol use.

alcohol use among women.[15, 18, 19] These, as well as interventions that focus on media messaging, peer and family norms, and self-esteem/body image can further support girls in preventing and reducing alcohol use.[16, 17]

- Men have fewer protective factors for alcohol use compared to women. For example, men are unlikely to have perceived social sanctions regarding alcohol use.[18]
- Simultaneous use of alcohol and cannabis tends to be higher in young men compared to young women[20-22] and is associated with substantial risks, including: greater impairment; heavier alcohol use; negative social consequences including driving while impaired; and greater likelihood of comorbid substance use and mental health issues.
- For men, alcohol and substance use is associated with increased violence against intimate partners as well as strangers.[23]
- Transgender individuals may use substances to socially validate or affirm their gender identity, and transgender men's use of alcohol may be influenced by the societal belief that excessive drinking is associated with masculinity.[13]
- Among Indigenous women and men, intergenerational trauma is closely linked with substance use, including alcohol misuse.[24]

For information about alcohol and its effects while pregnant, breastfeeding, and parenting, visit: bccewh.bc.ca

Sex, Gender and Alcohol

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Sex, Gender and Opioids

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Given the current health crisis, and evidence on the impact of sex, gender and trauma on risk factors and patterns of use, there is an urgent need for the development and testing of sex and gender-tailored, trauma-informed approaches to screening, monitoring, prevention, harm reduction, treatment and policy.

DEFINITIONS

Sex-related factors affect how your body reacts to substances, including how substances are metabolized, what effects they may have on your brain, and the development of tolerance and dependence. Female and male bodies have different genetic and physiological characteristics that affect these processes.

Gender-related factors affect your risks for use, exposure to marketing or exploitation, access to care and services, and the societal response to problematic use. Men, women, and gender diverse individuals experience these elements differently. In part, this is based on social roles and expectations that are dependent upon cultural context.

Canada is in the midst of an opioid crisis. Opioid overdoses are particularly high in British Columbia, yet opioid misuse and related fatalities are evident across the country. There is growing evidence on the need for sex- and gender-informed approaches to prevention, treatment and harm reduction to address opioid misuse.

Key Sex-Related Factors

- The impact of female hormones on pain processing may increase women's vulnerability to opioid use and misuse; fluctuations in estrogen during the menstrual cycle and menopausal transition can increase pain sensitivity, and susceptibility to the side effects of opioids.[1,2]
- Various opioids are metabolized by males and females differently.[1] Evidence suggests the effects of fentanyl may be lower in females, and the effects of codeine may be lower in males.[1]
- Since opioids dissolve in fats, body weight and body fat have an effect on the blood concertation level of opioids.[1] As females tend to have a higher body fat percentage compared to males, fixed doses, as opposed to doses adjusted according to body weight, can result in higher blood concentration levels for women.[1]
- Compared to men, women more frequently report higher dose and longer term prescription opioid use as a result of having more chronic pain.[3,4]
- Women with opioid use disorder have higher rates of simultaneous mental health issues such as depression or anxiety.[6-8]
- Recent research may suggest that high levels of estradiol and progesterone levels during the reproductive cycle may help to hinder the development or maintenance of problematic opioid use.[3]

Sex, Gender and Opioids

Key Gender-Related Factors

- Deaths from opioid pain medication increased 400% between 1999 and 2010 for women, and 265% times for men.[3,9,10] The increase in heroin use by women has resulted in 3x the number of women dying from heroin overdose within a three-year period (2010-2013).[3]
- In British Columbia in 2019, preliminary data suggest that men account for 79% of fentanyl-detected deaths (21% for women).[11]
- From 2016–2017, the rate of hospitalization due to opioid overdoses in Canada was higher among males than females.[12] Women with prescription opioid use disorder (POUD) are more likely than males with POUD to be administered through the emergency department.[7]
- The greater risk of opioid overdose and deaths may be, in part, due to riskier forms of substance use by men. Men are more likely to: escalate their opioid medication doses;[13] ingest opioid medications non-orally;[5,14] and obtain prescription opioids via an illegitimate source (71% of men vs. 46% of women).[5, 15-17]
- For women the greatest risk for opioid addiction is receiving a prescription for an opioid medication.[4,7,18,19] Women are also more likely than men to "doctor shop", hoard unused prescriptions, use additional medications to enhance the effectiveness of pain medication, and report dependence on and craving of opioids.[3, 14]
- Women often begin opioid use at an older age compared to men, but progress more rapidly to hazardous use, even with smaller amounts.[3,6,7,20]
- Older adults are increasingly being hospitalized for opioid overdose.[21] Elderly women may be particularly vulnerable due to prescribing practices, social isolation, and relatively longer life expectancies.[22]
- Compared to other types of substance use, both women and men who are addicted to prescription opioids are more likely to report a traumatic event, and also report higher rates of childhood trauma.[23]
- Emerging evidence suggests women are more likely to use prescription opioids to manage negative emotions.[5]
- Men are more likely to use other substances in conjunction with opioids.[4]
- Women report higher rates of sharing needles compared to men.[25]
- Transgender populations experience very high rates of gender-based discrimination, harassment and violence.[26] While research on opioid misuse among transgender individuals is lacking, the prevalence of non-medical prescription opioid use among transgender adults is high.[27] Higher rates of non-medical prescription pain medication use have also been reported among transgender youth, compared to cisgender youth.[28]
- Non-heterosexual young adults are more likely to report misuse of prescription opioids.[29] Bisexual-identified women in particular are more likely to use opiates than heterosexual and lesbian-identified women.[30]
- Among Indigenous women and men, colonization and intergenerational trauma are closely linked with substance use, including opioid misuse, and is a key barrier to accessing support services.[24]

For information about opioids and its effects while pregnant, breastfeeding, and parenting, visit: bccewh.bc.ca

Sex, Gender and Opioids

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Sex, Gender and Cannabis

There is a need for continued research on sex and gender and the patterns, mechanisms, and effects of cannabis use, and how all people are differentially impacted by cannabis policies.

DEFINITIONS

Sex-related factors affect how your body reacts to substances, including how substances are metabolized, what effects they may have on your brain, and the development of tolerance and dependence. Female and male bodies have different genetic and physiological characteristics that affect these processes.

Gender-related factors affect your risks for use, exposure to marketing or exploitation, access to care and services, and the societal response to problematic use. Men, women, and gender diverse individuals experience these elements differently. In part, this is based on social roles and expectations that are dependent upon cultural context.

The cannabis policy landscape is rapidly changing. In Canada, cannabis was legalized on October 17, 2018, and medical cannabis has been available since 2001. In the USA, thirty-three states have legalized medical cannabis use, and eleven states have legalized recreational cannabis use. In 2019, reports of vaping related lung injuries and deaths emerged, mostly among young people, with many of these cases linked to vaping cannabis products.[1]

Sex and gender based analyses of cannabis use patterns indicate the importance of sex and gender related factors to routes of administration, treatment for Cannabis Use Disorder (CUD) and assessing impairment.[2-4]

Key Sex-Related Factors

- In animal research, female rats metabolized THC more rapidly[5] although this may be reversed when CBD is also present.[6]
- In a study measuring cognitive effects of cannabis use among young adults, males had a more pronounced negative effect with regard to psychomotor speed/sequencing ability.[7]
- Females transition from initiation to regular use faster than males (similar to other substances), also referred to as "telescoping".[8,9]
- There is some evidence of higher sensitivity to the subjective effects of cannabis in females compared to males, particularly at low doses.[10-12]

Key Gender-Related Factors

- Men and boys are more likely to report current[13-15] and past cannabis use,[16, 17] use cannabis more frequently[17, 18] and in greater quantities[17, 19] compared to women and girls. However, patterns may be changing; there is evidence from the USA that the gender gap in cannabis use is narrowing among adolescents.[19]
- Boys and men report experimenting with more routes of administration (ROAs) and higher rates of use of inhalation ROAs including smoking and vaping.[20-22]
- There is evidence from qualitative studies that girls and young women may use cannabis as a way of resisting dominant feminine ideals. For example, women may engage in patterns of use such as: using cannabis habitually, rolling joints, buying cannabis, and being able to 'handle the high'.[23, 24]

Sex, Gender and Cannabis

While research on sex, gender and cannabis is expanding, large gaps in the evidence remain. Most current evidence describes prevalence and patterns of use, with relatively few studies examining the influence of sex and gender on the health effects of cannabis use.

Further research on sex, gender and the patterns and effects of cannabis use is needed to better understand the benefits and risks for all genders, and inform more precise policy and practice responses.

- Simultaneous use of alcohol and cannabis appears to be higher in young men compared to young women[25, 26] and is associated with substantial risks such as: greater impairment; heavier alcohol use; driving while impaired; and greater likelihood of comorbid substance use and mental health issues.
- Driving after cannabis use is more frequent among men.[27-29] Evidence on being a passenger with someone who has used cannabis is mixed, with one study reporting greater rates of riding with someone who has used cannabis among men,[27] and another reporting no gender differences.[29]
- In a study conducted with lesbian, gay, bisexual and transgender (LGBT) individuals, the highest rates of cannabis use were reported by transgender men (12.5%) and sexual minority females (12.1%).[30] Gender minority stress has been associated with cannabis use.[31]

For information about cannabis and its effects while pregnant, breastfeeding, and parenting, visit: bccewh.bc.ca

Sex, Gender and Cannabis

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Sex, Gender and Methamphetamines

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Sex and gender impact the initiation of methamphetamine use, patterns of use, responses to use, access to care, and treatment outcomes. Women tend to begin methamphetamine use at an earlier age and are more dependent, but demonstrate a decreased level of toxicity, are more likely to request treatment,[1] and report better treatment outcomes compared to men.[2]

DEFINITIONS

Sex-related factors affect how your body reacts to substances, including how substances are metabolized, what effects they may have on your brain, and the development of tolerance and dependence. Female and male bodies have different genetic and physiological characteristics that affect these processes.

Gender-related factors affect your risks for use, exposure to marketing or exploitation, access to care and services, and the societal response to problematic use. Men, women, and gender diverse individuals experience these elements differently. In part, this is based on social roles and expectations that are dependent upon cultural context.

Data from the Canadian Tobacco, Alcohol and Drugs Survey (CTADS) show that approximately 0.2% of Canadians reported methamphetamine use during the last year,[6] with similar reported rates of methamphetamine use among women and men in countries like the USA and a higher three-year prevalence among men in the past three years.[7]

Key Sex-Related Factors

- Men´s and women´s brain structures are affected differently by methamphetamine use. The sex-specific brain alterations in female methamphetamine users are also associated with greater behavioral impulsivity.[8]
- In a sample of non-dependent women and men, methamphetamine administration affected women´s behavior, producing faster reaction times in women but no effect in men. Both men and women reported subjective effects when methamphetamine was administered and greater ratings of vigor and reduced sedation in women as compared with men.[9]
- While men are more likely to report work problems and high blood pressure due to methamphetamine use, women are more likely to report skin problems.[10]
- In a sample of methamphetamine dependent participants screening for a pharmacotherapy clinical trial, women reported significantly more days with methamphetamine use in the 30 days before treatment than men. Pretreatment days of methamphetamine use is an important predictor of behavioural therapy and pharmacotherapy treatment outcomes.[11]

Key Gender-Related Factors

- Compared to men, women dependent on methamphetamines reported greater: psychological burden, use of emotional-coping strategies, and childhood emotional and sexual trauma.[12]
- Although methamphetamine use is often associated with unprotected sex and sexually transmitted and blood borne infections among female users,[13,14] qualitative findings suggest that women focus on desire, pleasure, disinhibition and the feelings of power and agency related to sexual behaviors while under the effects of methamphetamine.[13]

Sex, Gender and Methamphetamines

Studies that examine the role of sex- and gender-related factors in relation to methamphetamine use illustrate their impact on patterns of use, risk factors, biological mechanisms and health effects. Exploring these and other features of methamphetamine use is urgently needed, in order to create effective prevention messages, brief interventions, treatments and harm reduction strategies that are informed by and tailored to, sex- and gender-related factors. Despite emerging interest in examining intervention options for methamphetamine dependence,[3-5] the findings are not sex- or gender-informed.

- Women often become regular methamphetamine users within one week of initiation[15] and more often work and live in marginalized public spaces.[16]
- Women are more likely than men to experience their first injection in the presence of a sexual partner[15] and having an intimate partner who procures drugs for them increases the odds of crystal methamphetamine use.[16]
- Childhood abuse was associated with initiating crystal methamphetamine injection among female sex workers.[17]
- Among men who have sex with men (MSM), the co-occurrence of trauma and stimulant use has negative implications for HIV/AIDS prevention.[18]
- Although both men and women report that they use methamphetamine for sexual enhancement[19] more women than men use methamphetamine pills for energy and to lose weight.[10] Weight control might be an important risk factor of initiating methamphetamine use among college women who start using drugs.[20]
- Transgender individuals are more likely to use both cocaine and methamphetamine in their lifetime compared to their non-transgender peers.[21]

Sex, Gender and Methamphetamines

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Sex, Gender, Nicotine and Tobacco

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It is important to examine how sex-related factors affect responses to tobacco use and treatments, and how gendered factors such as social, cultural and economic norms, relationships and opportunities affect smoking initiation, patterns of use, cessation and responses to tobacco policies, for men, women, boys and girls.

DEFINITIONS

Sex-related factors affect how your body reacts to substances, including how substances are metabolized, what effects they may have on your brain, and the development of tolerance and dependence. Female and male bodies have different genetic and physiological characteristics that affect these processes.

Gender-related factors affect your risks for use, exposure to marketing or exploitation, access to care and services, and the societal response to problematic use. Men, women, and gender diverse individuals experience these elements differently. In part, this is based on social roles and expectations that are dependent upon cultural context.

Globally, tobacco use is the leading preventable cause of death.[2] While more men than women smoke, smoking is increasing among girls and young women in some countries. In France, Italy, Sweden, Argentina and Chile, smoking among adolescent girls now exceeds that of adolescent boys.[2]

In Canada, the gender gap in smoking has narrowed over time, although smoking among men remains more prevalent.[3] Recently, an increase in both cigarette smoking and nicotine vaping among Canadian adolescents has raised concerns over the relationship between nicotine vaping and tobacco use patterns and dependence among youth.[4]

Key Sex-Related Factors

- Females who smoke cigarettes are more vulnerable to respiratory illnesses, including chronic obstructive pulmonary disease (COPD), with lower levels of cigarette exposure; this is due in part to smaller lungs, airways, and the influence of sex hormones.[5]
- Nicotine metabolism is faster in females compared to males, due in part to the impact of ovarian hormones on CYP2A6- the enzyme activity involved in nicotine metabolism.[6]
- Males metabolize nicotine more slowly than females and are more likely to smoke for the reinforcing effects of nicotine.[7]
- Nicotine withdrawal is affected by menstrual cycle patterns; withdrawal symptoms tend to be greater during the luteal phase.[8]
- Some treatments may be less effective for females, including: nicotine replacement therapy (NRT), regardless of whether or not combined with counselling [9]; and bupropion.[10] In contrast, treatment with varenicline reveals similar or better outcomes among females compared to males.[10-12]

Key Gender-Related Factors

- Men tend to be more often exposed to secondhand smoke (SHS) at work and women more often in the home.[13]
- Girls and women often smoke as a means to control negative mood and emotions.[14]
- Women who smoke are more likely to report depression and difficulty in smoking cessation compared to men; this may be due to both social and biological influences, but further research is required.[15,16]
- The tobacco industry has linked smoking with empowerment and sexual attractiveness for women and with strength and masculinity for men.[17]

Sex, Gender, Nicotine and Tobacco

As evidence emerges on the health effects, and potential harms and benefits of ENDS, it is critical that a sex and gender lens is applied. Examining sex and gender-related impacts on ENDS patterns of use, dependence, health effects, and interventions will improve research, knowledge, and practice and policy responses.

- Women are more often concerned that quitting will result in weight gain.[18]
- In a study with sexual and gender minority young adults, transgender individuals smoked more per day than cisgender and non-binary individuals.[19]

Sex, Gender And Electronic Nicotine Delivery Systems (ENDS)

The risks and benefits of electronic nicotine delivery systems (ENDS) are hotly debated. For people who smoke cigarettes, ENDS may be a method for reducing or quitting smoking, or offer a form of harm reduction with fewer health risks than traditional tobacco use.[20] However, increasing prevalence rates among youth in some countries including Canada and the USA,[4,21] and the emergence of vaping related illnesses and deaths[22] are serious concerns. While there is a lack of research on sex-specific health effects and gendered patterns of involuntary exposure to ENDS, policy responses are best aligned with restrictions on tobacco second hand smoke (SHS) exposure.[23]

Evidence on the sex-related health effects of ENDS, including vaping related respiratory illnesses, is limited, but does indicate:

- In a study testing the aerosol delivery of nicotine to mice via a modified ENDS device, female mice demonstrated greater nicotine induced hypothermia.[24]
- In an experimental study comparing smoking and e-cigarette use, participants who smoked demonstrated less oxidative and vascular responses after vaping an e-cigarette, compared to non-smokers who had responses similar to smoking a regular cigarette; and females who were taking oral contraceptives demonstrated more negative changes in vitamin E levels and flow-mediated dilation compared to males.[25]

There is evidence that gender-related factors impact patterns and prevalence of ENDS use:

- Prevalence of ENDS and poly-tobacco product use tends to be greater among boys and men.[26-38]
- ENDS use may increase the odds of smoking initiation among youth. In a Canadian study, past 30 day use of e-cigarettes was associated with initiation of smoking a whole tobacco cigarette, with slightly higher rates in boys (9.5%) than girls (7.4%) at follow up.[39]

Sex, Gender, Nicotine and Tobacco

- In a study examining women and men's reasons for using e-cigarettes:[40]
  - men were more likely to report initiating e-cigarette use to quit smoking due to health concerns, and were more likely to use for enjoyment; and,
  - women were more likely to report initiation based on recommendations from family and friends, and were more likely to use to manage stress and negative mood.
- Girls and women prefer certain flavours of e-cigarettes, including: non tobacco and non-menthol flavours, or chocolate and sweet flavours of e-cigarettes.[41]
- It is unclear if ENDS are equally effective for supporting smoking cessation in women and men. Longitudinal data from the Population Assessment of Tobacco and Health (PATH) study reveal women who smoked were more likely to transition to exclusive use of e-cigarettes, compared to men,[42] while other evidence suggests women and men are equally likely to be an ex-smoker but current vaper.[43]

For information about tobacco and its effects while pregnant, breastfeeding, and parenting, visit: bccewh.bc.ca

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Sex, Gender and Tobacco

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