Women and Addiction: Treatment Differences and Challenges

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DISCLOSURES

• I HAVE NO COMPETING FINANCIAL INTERESTS TO DISCLOSE

• I AM NOT A PSYCHIATRIST OR CLINICAL PSYCHOLOGIST – I DO NOT TREAT PATIENTS

• I DO BASIC ANIMAL RESEARCH ON SEX DIFFERENCES IN ADDICTION
Things to consider
What is addiction?
How does our definition vary with discipline?
How is treatment affected by definition?
Where does sex/gender fit in?

Whose definition?
• Neurotransmitters
• Genes
• Pet and fMRI images
• Neuron morphology and synapses
• Neuroplasticity
• Molecular changes
• Electrophysiology
• Reward system in the brain
• Individual differences in vulnerability

What are we treating and how do our definitions impact approaches for treatment?

• Neuroscience: Addiction is the consequence of certain substances or activities that become compulsive because of their ability to induce activity in the reward system that subsequently induces long-term changes in the brain. These changes in the brain perpetuate the continued display of the behavior as it becomes more and more compulsive.
What are we treating and how do our definitions impact approaches for treatment?

• **Neuroscience**: Addiction is the consequence of certain substances or activities that become compulsive because of their ability to induce activity in the reward system that subsequently induces long-term changes in the brain. These changes in the brain perpetuate the continued display of the behavior as it becomes more and more compulsive.

• **TREATMENT**: Change the brain (medication, CBT, etc)

What are we treating and how do our definitions impact approaches for treatment?

• **Physician** – Addiction is an uncontrollable, compulsive craving, seeking, and engagement in a behavior or activity that continues even in the face of negative health and social outcomes.

• Addiction is a brain disease.

• Diagnosis – DSM criteria.

• **Treatment - Abstinence**
What are we treating and how do our definitions impact approaches for treatment?

• **Clinical treatment provider / Social Worker**
  - Addiction is seen as a disease with genetic and brain components that has consequences for the community and the criminal justice system.
  - Addiction impacts not just the individual but the family and community in which the addiction occurs, so it is more than an individual’s problem. Must balance harm reduction vs. prevention.

What are we treating and how do our definitions impact approaches for treatment?

• **Sociologist** – Addiction is a moralistic concept understood from the individualized perspective as deviant behavior and results in social exclusion.
What are we treating and how do our definitions impact approaches for treatment?

- **Public Health**
  - Addiction is viewed as a public health issue which causes many negative costs to people and society.
  - Concerned about identifying risk and protective factors.
  - Risk and protective factors can occur at all societal levels, from biological and psychological, within relationships and group memberships, but also within schools, workplaces, communities, societal norms/values, costs and incentives.
  - **Goal is to increase protective and decrease risk factors, with a range of preventive approaches to decrease incidence and prevalence of risks, early signs of trouble and problems.**

What are we treating and how do our definitions impact approaches for treatment?

- **Historian** – Not the historian’s job to define addiction but to document how definitions change over time.
What are we treating and how do our definitions impact approaches for treatment?

- **The non-academic?** If someone is an addict they must be weak, it is their own fault, they will lie and cheat and steal and do anything for their addiction. You can’t trust an addict. They are not worthy of our help.
  - Addicts are weak – lack of will power
  - Addicts are liars and thieves
  - Addicts are not trustworthy
  - Addicts are self-centered
  - Women who are addicts are denied food stamps and baby formula
  - Pregnant women who are addicts can be jailed for harming their unborn baby
  - **Addicts are bad mothers and bad women**

What are we treating and how do our definitions impact approaches for treatment?

- Some disciplines focus on **intervention**.
- Some disciplines report on the **science**.
- Those in treatment / intervention say that the scientists promise the public a **cure for a brain disease** - this contributes to the problem of stigma for those addicted when they continue to relapse or use.
- **Women are impacted more severely** when treatment programs cannot accommodate children. relapse means removal of children from the home, pregnant women are imprisoned and programs call for cessation of methadone/suboxone during pregnancy.
What are we treating and how do our definitions impact approaches for treatment?

Common Elements
- Brain involved (neuroscientist, physician, treatment provider)
- Individual differences in susceptibility

Disagreement
- Whose fault is it?
- Nature vs. nurture
- Role of community
  - Scientists presume we can get ever closer to the truth
  - Other disciplines say maybe but always deeply influenced by culture
- Sex/Gender differences

How does sex / gender impact how we think about addiction?

Neuroscience
- Sex differences are included occasionally as a bimodal (male and female) variable.
- Sex differences are “controlled for” by normalizing data by sex of subject.
- Analysis of the influence of gonadal hormones finds female addiction-related brain systems and behaviors are differentially influenced by ovarian hormones.
How does sex / gender impact how we think about addiction?

**Clinical treatment provider / Social Worker**
- Have developed principles and approaches for gender-specific and gender-informed approaches.
- Many basic assumptions about addictions and treatment were developed by men to address consequences more common in men. Some basic approaches are harmful for women, and can increase trauma & depression, they can lower self-worth.
- Many women with serious addiction issues were abused as children and trafficked as adults. Trauma-informed approaches improve outcomes.

How does sex / gender impact how we think about addiction?

**Feminist**
- A feminist perspective recognizes that conventional research operates from male-centric paradigms that result in bias, obscuring real world hierarchies and perpetuating inequalities.
- A feminist perspective seeks to challenge this bias and reframe the paradigms in ways that do not assume that the male perspective is the only view and does not problematize the “feminine” perspective.
How does sex / gender impact how we think about addiction?

• Feminist

• The feminist perspective draws attention to the dual aspect of dependency and subordination of women who are addicts.
  • Male exploitation of women is both a cause and consequence of addiction in women.
  • Feminist perspectives note that a woman who is addicted is generally perceived as less good/moral than a man who is addicted because of double standards.

How does sex / gender impact how we think about addiction?

• Feminist

• Major tension within feminism – wet vs. dry

  • ‘Wet’ feminist position – women should be able to participate in addictive activity like a man – it is liberating and a sign of increasing power and options.
  • “Dry’ feminist position – men use addictive activities to have power over women so women should refrain.
How does sex / gender impact how we think about addiction?

- **Social Psychologist**
  - Gender is only a part of the issue with regard to how addiction is conceptualized in the contemporary world.
  - Race and historical trauma must also be considered within the post-colonial framework of non-European Americans.
  - Gender essentialism is very deep, can vary by culture and is reinforced by language.

How does sex / gender impact how we think about addiction?

- **Historically**
  - Addiction has been (repeatedly) reconceptualized as a disease rather than sin or lack of will power (medicalization). Many people believed that this shift would remove or at least reduce stigma for women.
  - Treatment models, even when designed for women, tend to channel the woman back into standard roles of caregiver, mother, and wife and **reinforce the additional stigma faced by addicted women of not conforming to standard roles for women.**
How does sex / gender impact how we think about addiction?

Common Elements

- Sex and gender differences are important to consider in research and treatment.

Disagreement

- Many feminists in social sciences and humanities do not want to talk about biological sex differences b/c that concept has been used against women in the past to disenfranchise women.

Issues and Obstacles to Talking About Addiction and Treatment as We Seek to Bridge Disciplines

What Does Addiction is a Brain Disease Mean?

- Neuroscience perspective – Exposure to substances or engaging in activities that become compulsive, because of their ability to induce activity in the reward system, subsequently induces long-term changes in the brain. These changes in the brain underlie the phenomena of addiction, making addiction a brain disease. Some individuals may be more vulnerable due to genetic contributions, a history of abuse or stress, as well as whether they are male or female.
Issues and Obstacles to Talking About Addiction and Treatment as We Seek to Bridge Disciplines

What Does Addiction is a Brain Disease Mean?

What the non-scientist hears!

• Biological Determinism – If addiction is a brain disease then individuals who are addicted can’t help getting the disease. In other words, many people assume that the brain differences are causative to addiction (e.g., genetic factors, heredity, fixed factors) and cannot be changed. Their brains are genetically or epigenetically damaged and it was inevitable that they would become addicted.

Utah PSYCHIATRY ADDICTIONS Update Conf 2018

Issues and Obstacles to Talking About Addiction and Treatment as We Seek to Bridge Disciplines

What Does Addiction is a Brain Disease Mean?

• Neuroscience perspective – the brain has changed
• Biological Determinism – it’s not my fault

It’s Official: Being Fat is not Your Fault
National Post 25 June, 2013

A study found that overweight men and women who are told obesity is a disease are less interested in going on a diet to improve their health. 28 January 2014:
http://www.dailymail.co.uk/health/article-2547768/Labelling-obesity-disease-excuse-not-diet.html#ixzz2z52yMC77

Utah PSYCHIATRY ADDICTIONS Update Conf 2018
Issues and Obstacles to Talking About Addiction and Treatment as We Seek to Bridge Disciplines

Power Dynamics in Relationships and Addiction

• Substance use and eating disorders, such as anorexia nervosa, may be viewed as a demonstration of power or rebellion for individuals or groups.
• Addiction also means a loss of power.
• Who benefits from power in a relationship when one or both are addicted?
• There is loss of power as an addict (enabling partners gain power), as well power over addiction in recovery.
• Framing recovery as a restoration of power to the individual can change how one perceives the causes and consequences of addiction and recovery.

Issues and Obstacles to Talking About Addiction and Treatment as We Seek to Bridge Disciplines

When studying addiction treatment in women, we encounter so many different factors:

gender/sex variations
women who are resilient to adversity
social bonds and support
harassment, stress, minority stress
pregnancy and other biological effects
do women and men come to addiction the same way?
ethnicity, SES, sexuality, etc.
caregiving roles and expectations
Issues and Obstacles to Talking About Addiction and Treatment as We Seek to Bridge Disciplines

• Do women experience their addictions in the same way as men or is it different?

• We can use animal models for various aspects of addiction, different social relationships, different reproductive experiences, socially bonded vs. not, etc. but the models are necessarily restricted to specific aspects.

• Are all animals are good models to study human addiction?

• Are all addictions the “same”?

• If we eliminate the poles of male/men and female/women then we lose a lot of the attention to characteristics that many women/girls (and transgendered folks) have in common.

• Differences are nuanced but we want them to be bimodal.
Issues and Obstacles to Talking About Addiction and Treatment as We Seek to Bridge Disciplines

- When does paying *enough* attention to gender / sex, end up putting way too much weight on sex differences as if it is a bimodal construct when in fact that is not necessarily the case?

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### Sex Differences in Addiction to Different Classes of Drugs in Humans

<table>
<thead>
<tr>
<th>Drug</th>
<th>Stage of Addiction Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Binge/Intoxication</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Escalation of use F&gt;M*</td>
</tr>
<tr>
<td>Cocaine</td>
<td>Escalation of use F&gt;M*</td>
</tr>
<tr>
<td>Opiates</td>
<td>Incidence M&gt;F***</td>
</tr>
<tr>
<td>Nicotine</td>
<td>Stress promotes initiation in women*</td>
</tr>
<tr>
<td>Cannabinoids</td>
<td>Women report enhanced subjective ratings in response to smoked cannabis and progress from use to disordered use more rapidly than men*</td>
</tr>
</tbody>
</table>

* = qualitative ** = quantitative *** = population

Sex Differences may reflect different distributions of males and females for aspects of addiction: Females met more addiction-like criteria than males and prenatally stressed female rats met more addiction-like criteria than non-stressed females.

Thomas & Becker (2018)
OTHER FACTORS
Environmental context can dramatically alter the rewarding effects of addictive drugs and unveil fundamental differences among different classes of drugs.

The rewarding effects of addictive drugs do not depend (entirely) on shared neural substrates.

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Setting of drug taking in humans

Participants: Individuals with substance use disorder (DSM-IV-TR or DSM-5) and with a long history (about 15 yrs) of both heroin and cocaine use

Methods:
- Retrospective reports
- Ecological momentary assessment
- Neuropsychological and behavioural tests
- Emotional visual imagery
- fMRI

ALDO BADIANI
Setting preferences for cocaine vs. heroin use in co-abusers (N = 160)

ALDO BADIANI

<table>
<thead>
<tr>
<th></th>
<th>Cocaine</th>
<th>Heroin</th>
</tr>
</thead>
<tbody>
<tr>
<td>at home</td>
<td>69.4%</td>
<td>70.0%</td>
</tr>
<tr>
<td>50/50</td>
<td>22.5%</td>
<td>23.1%</td>
</tr>
<tr>
<td>outside the home</td>
<td>0.32</td>
<td>3.03</td>
</tr>
</tbody>
</table>

p<0.0001

Cocaine use was more frequent than heroin use for both at home and outside the home settings. The preference for cocaine over heroin was statistically significant.

A novel test for the assessment of subjective appraisal of affective states

ALDO BADIANI

Circumplex Model of Affect (Russel 1980)

Bidimensional test of affective state

De Pirro et al., J Neurosci 2018
Shift in Valence
McNemar’s test
p<0.0001

Heroin at home

Heroin outside the home
(mismatch)

De Pirro et al., J Neurosci 2018

Shift in Valence
McNemar’s test
p=0.0014

Cocaine at home

Cocaine outside the home
(mismatch)

De Pirro et al., J Neurosci 2018
Drug imagery during fMRI scanning

De Pirro et al., J Neurosci 2018
Opposite patterns of activation of the fronto-striatal-cerebellar network as a function of drug and setting

De Pirro et al., J Neurosci 2018
Therapeutic approaches to addiction (e.g., Ecological Momentary Interventions) should take into account the distinctive effects of different classes of drugs and real-world settings of drug use.

CONTEXT IS IMPORTANT!

Gendered Worlds

• Boys and girls are perceived and treated differently through the life course and in different cultures—biological explanations are commonly invoked as the reasons.

• The social contexts experienced by men, women, and the subgroups within the genders (for instance economic class or ethnicity) are different.

• Though our biological elements are ‘plastic’ or adaptable (biology is not destiny), the cultural categories related to gender that individuals experience rigidly categorize individuals and differentially color their experiences.
Gendered Worlds

How gender is experienced within larger cultures shape risk and consequences related to addictions.
For instance, abuse and trauma during development have long term effects on vulnerability for addictions and males and females are differentially affected.

A. Developmental Origins

Organizational: genetic and/or hormone initiated trait

Contingent: internal or external factors (including epigenetic factors) acting on a sexually dimorphic individual

B. Statistical Characteristics

i. Bimodal Distribution

ii. Average / Mean Difference

iii. Frequency Distribution

C. Functional Expression of Trait

Sex Difference in Behavioral Expression of Trait

i. Underlying Mechanisms Differ

No Sex Difference in Behavioral Expression of Trait

i. Underlying Mechanisms Differ

ii. Underlying Mechanisms the Same
Conclusions

• Biological sex differences are important for whether and how someone becomes addicted.
• Biological factors alone do not predict addictions or other phenomena.
• The environment during prenatal development, infancy and adolescence affect the epigenome and subsequent addiction vulnerability.
• Internal events such as diet and external events such as stress, neglect, or abuse have dramatic effects on addiction liability, and males and females are differentially affected.
• Context affects the response to drugs of abuse and different classes of drugs are affected by context in different ways.
Thank You!!