

<i>Document Overview</i>
Gender Differences Found in Addiction and in Treatment Effectiveness
<i>Standards</i>
<p><u>Minnesota State Academic Science Standards</u></p> <ul style="list-style-type: none"> <li>o Understand that science is a way of knowing about the natural world and is characterized by empirical criteria, logical argument and skeptical review.</li> <li>o Generate a scientific conclusion from an investigation, clearly distinguishing between results (evidence) and conclusions (explanation). (7.1.1.2.3)</li> <li>o Evaluate explanations proposed by others by examining and comparing evidence, identifying faulty reasoning, and suggesting alternative explanations. (7.1.1.2.4)</li> <li>o Personal and community health can be affected by the environment, body functions and human behavior. (9.4.4.2.1, 9.4.4.2.4)</li> </ul>
<p><u>Next Generation Science Standards</u></p> <ul style="list-style-type: none"> <li>o Apply concepts of statistics and probability to explain the variation and distribution expressed traits in a population. (HS-LS3-3)</li> </ul>
<p><u>Other Standards: Advanced Placement Psychology Learning Objectives</u></p> <ul style="list-style-type: none"> <li>o Discuss drug dependence, addiction, tolerance, and withdrawal.</li> <li>o Identify the major psychoactive drug categories (e.g., depressants, stimulants) and classify specific drugs, including their psychological and physiological effects.</li> <li>o Discuss the influence of drugs on neurotransmitters.</li> <li>o Discuss psychology's abiding interest in how heredity, environment, and evolution work together to shape behavior.</li> <li>o Compare and contrast different treatment formats (e.g., individual, group, etc.).</li> <li>o Summarize effectiveness of specific treatments used to address specific problems</li> <li>o Discuss how cultural and ethnic context influence choice and success of treatment (e.g., factors that lead to premature termination of treatment)</li> </ul>
<i>Objective</i>
<ol style="list-style-type: none"> <li>1) Students will understand, discuss, and synthesize the gender differences and similarities that are found with addiction and the effectiveness in the treatment of addictions found within males and females.</li> <li>2) Students will research scientific reasons for similarities and differences and present their findings.</li> <li>3) Students will suggest possible areas for more research to be done and solutions.</li> </ol>
<i>Type of Activity</i>

Students computer research, compare and contrast activity, and discussion.

*Suggested Duration*

45-50 minute class period.

*Connection to Nobel Speakers*

Sheigla Murphy

*Concepts/Keywords/Appropriate Classes*

Concepts:

- 1) Gender differences found within the abuse and addiction of drugs.
- 2) Gender differences found within the effectiveness of treatment of drug addictions.
- 3) Environmental and biological factors that contribute to similarities and differences between the genders.
- 4) Societal views and government views that impact the understanding of addictions and treatment programs.

Keywords

- 1) Gender
- 2) Addiction
- 3) Dependence
- 4) Abuse
- 5) Treatment, Psychotherapy, Self-help Groups, Pharmacotherapies, Behavioral Intervention, Medical Management
- 6) Alcohol, Nicotine, Stimulants, Opiates, Marijuana

Appropriate Classes:

Psychology

Biology

Sociology

Health

*Description of Activity*

- 1) Students will begin the class by answering some questions that will help get them primed for the lesson.
- 2) Students will then be divided into groups and be given a specific type of drug and will be asked to use the computer to research how addiction differs and/or is similar between women and men with their assigned drug, and what treatments are effective with men and women and if they differ. They will fill in a Venn diagram and cite their sources.
- 3) Then, they will be asked to suggest a possible research proposal that could potentially further the research into this area.
- 4) Finally, students will present their findings and their proposal to the class. A concluding discussion of the implications their research suggests will occur.

#### *Materials*

- 1) Computer Access
- 2) Student Handout, attached to this document.
- 3) Access to [http://www.health.harvard.edu/newsletter\\_article/addiction-in-women](http://www.health.harvard.edu/newsletter_article/addiction-in-women) for a starting point into their investigation.

#### *Teacher Tips*

- 1) Given the subject matter, students might have strong opinions regarding gender issues and drug use so teachers might want to generate a pre-made list of appropriate websites to use and pre-make the groups students will work in.
- 2) If the class is analytical and mature, there could be great benefits in allowing them to explore information freely.
- 3) Teachers might also want to consider grouping different genders together so that perspectives are broad.

#### *Activity*

- 1) **Opener:** Students will begin the class period with opening questions: “What is addiction?”, “What is dependence?”, “What is drug abuse?” “What are some common types of addictions?”, “What causes addiction?”, “How should addictions be treated?”, and “Are there differences between genders found in addiction, dependence, abuse, causes of addiction, and treatment effectiveness?” Students could write down their responses and the teacher could call on students for responses or students could be asked to participate in a class discussion.
- 2) The teacher will then define addiction, dependence, and abuse according to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-V)*.
  - A. **Addiction.** The term does not appear in the *Diagnostic and Statistical Manual of Mental Disorders*, but incorporates elements of both substance abuse and dependence. Addiction involves craving for a particular substance, inability to control its use, and continued use despite negative consequences.
  - B. **Dependence.** According to the *DSM-V*, people who are dependent on a substance exhibit at least three of the following symptoms or behaviors over a period of time, typically for a year or longer: greater tolerance for the substance, withdrawal symptoms, ongoing desire to quit using, loss of control over use, preoccupation with the substance, less focus on other meaningful activities or commitments, and continuing use in spite of negative consequences.
  - C. **Abuse.** The *DSM-V* uses this term to describe people who use a substance excessively on a regular basis, in spite of incurring legal problems, endangering themselves, jeopardizing relationships, or falling through on major responsibilities. But they do not yet show signs of dependence — such as a psychological compulsion or physical need to use the substance.
- 3) Students will then be divided into groups and assigned a specific substance to research on the computer and discover the similarities and differences in addiction found between men and women and the different types of treatments that either work well or do not work well with men and women and how those treatments are similar or different with regard to their effectiveness with women and men. Suggested substances for research would be Alcohol, Nicotine, Stimulants, Opiates, Marijuana, Prescription Drugs, and Methamphetamines since these are the substances most abused and treated in the United States. Students will be given a Venn diagram with their assigned substance at the top, a link to a website that will provide a good starting point, and a section that asks them to write a basic and preliminary research proposal that would help us understand these similarities and differences to a greater degree. \*\*\*Research into this area has only been conducted for the most part since the 1990s to today and there is still many areas of untapped study (Sheigla Murphy is one of these researchers).

- 4) Once students have finished, they will present their diagrams and their research proposals to the class. Once each presentation has finished, the teacher will generate a discussion into what environmental and biological reasons these similarities and differences exist. Students will most likely be able to effectively come up with responses if they filled in their diagram properly but if discussion fizzles out, the teacher should be prepared to offer possible explanations, such as, women are often faced with more societal pressures that come from relationships and friends which might explain why they become more rapidly addicted, men and women have some differing elements of body chemistry, men have lots of societal pressures to succeed, etc.

*Extension and Follow-up Activity*

Students could read and research the studies of Sheigla Murphy, 30+ studies/articles are available online and fill out an experimental study synopsis sheet that asks them to list her hypothesis, her variables, her operational definitions, and her findings.

*Sources/Bibliography*

[http://www.health.harvard.edu/newsletter\\_article/addiction-in-women](http://www.health.harvard.edu/newsletter_article/addiction-in-women)

Articles and Information about Addiction and Treatment Effectiveness of Alcohol:

<http://pubs.niaaa.nih.gov/publications/arh291/55-62.htm>

<http://alcalc.oxfordjournals.org/content/34/6/894>

<https://www.hazelden.org/web/public/womenaddiction.page>

<https://www.hazelden.org/web/public/menaddiction.page>

<http://www.bu.edu/today/2013/addiction-research-marlene-oscar-berman/>

[http://archives.drugabuse.gov/NIDA\\_Notes/NNVol15N4/Tearoff.html](http://archives.drugabuse.gov/NIDA_Notes/NNVol15N4/Tearoff.html)

[http://www.yale.edu/snhlab/Health%20Consequences\\_files/Nolen-Heoksema%20%26%20Hilt,%202006.pdf](http://www.yale.edu/snhlab/Health%20Consequences_files/Nolen-Heoksema%20%26%20Hilt,%202006.pdf)

Articles and Information about Addiction and Treatment Effectiveness of Methamphetamines:

<http://www.ups.upenn.edu/addiction/berman/female/gender.html>

<http://www.ncbi.nlm.nih.gov/pubmed/18420163>

<https://www.westminstercollege.edu/myriad/?parent=2514&detail=4475&content=4788>

General Information about All Drug Addiction and Treatment Effectiveness:

<http://www.samhsa.gov/data/sites/default/files/sr077-gender-differences-2014.pdf>

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2235192/>

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3164783/>

Articles and Information about Addiction and Treatment Effectiveness of Opiates:

<http://www.bsd-journal.com/content/3/1/14>

<http://www.nature.com/nrn/journal/v12/n11/full/nrn3104.html>

<http://www.opiate.com/addiction-treatment/opiate-addiction-treatment-options-women/>

Articles and Information about Addiction and Treatment Effectiveness of Stimulants:

[http://www.winona.edu/counseloreducation/media/gender\\_differences\\_and\\_addiction\\_-\\_spring\\_2014\\_capstone.pdf](http://www.winona.edu/counseloreducation/media/gender_differences_and_addiction_-_spring_2014_capstone.pdf)

<http://deepblue.lib.umich.edu/bitstream/handle/2027.42/72269/j.1749?sequence=1>

<http://core.ecu.edu/soci/vanwilligenm/wastila.pdf>

<http://www.jneurosci.org/content/23/2/693.full.pdf>

Articles and Information about Addiction and Treatment Effectiveness of Nicotine:

[http://www.who.int/tobacco/publications/gender/en\\_tfi\\_gender\\_women\\_addiction\\_nicotine.pdf](http://www.who.int/tobacco/publications/gender/en_tfi_gender_women_addiction_nicotine.pdf)

<http://www.drugabuse.gov/news-events/nida-notes/2013/05/receptor-may-underlie-gender-differences-in-response-to-smoking-cessation-therapy>

<http://www.drugabuse.gov/publications/research-reports/tobacco/are-there-gender-differences-in-tobacco-smoking>

<http://www.ncbi.nlm.nih.gov/pubmed/19184653>

<http://www.elementsbehavioralhealth.com/addiction/gender-addiction/>

[http://www.researchgate.net/publication/247670480\\_Gender\\_differences\\_in\\_the\\_pharmacology\\_of\\_nicotine\\_addiction](http://www.researchgate.net/publication/247670480_Gender_differences_in_the_pharmacology_of_nicotine_addiction)

[http://libres.uncg.edu/ir/asu/f/Michael\\_2004\\_An\\_investigation\\_into\\_the\\_assoc.pdf](http://libres.uncg.edu/ir/asu/f/Michael_2004_An_investigation_into_the_assoc.pdf)

[http://www.ehd.org/health\\_tobacco\\_11.php](http://www.ehd.org/health_tobacco_11.php)

Articles and Information about Addiction and Treatment Effectiveness of Marijuana:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3359836/>

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2377408/>

<https://news.wsu.edu/2014/09/03/females-more-sensitive-to-cannabis-males-get-munchies/#.VZL1ckatuao>

<http://www.udel.edu/soc/tammya/pdfs/Drug%20Use%20and%20Gender.pdf>

## Gender Differences and Similarities in Addiction and Treatment Effectiveness When Looking at \_\_\_\_\_ (substance)

**Directions:** First, go to [http://www.health.harvard.edu/newsletter\\_article/addiction-in-women](http://www.health.harvard.edu/newsletter_article/addiction-in-women). Read the general description of addiction of your substance. Use this as a starting point to research information that will help you fill out the Venn diagram below. There are useful links organized by substance available to you at the back of this handout. Be sure to write down biological and environmental similarities and differences between men and women with regards to addiction and similarities and differences between treatment types and effectiveness. All of your information should be backed by reputable sources and studies. Write down the general websites you used to find your information in the space provided below.

Differences

**MEN**

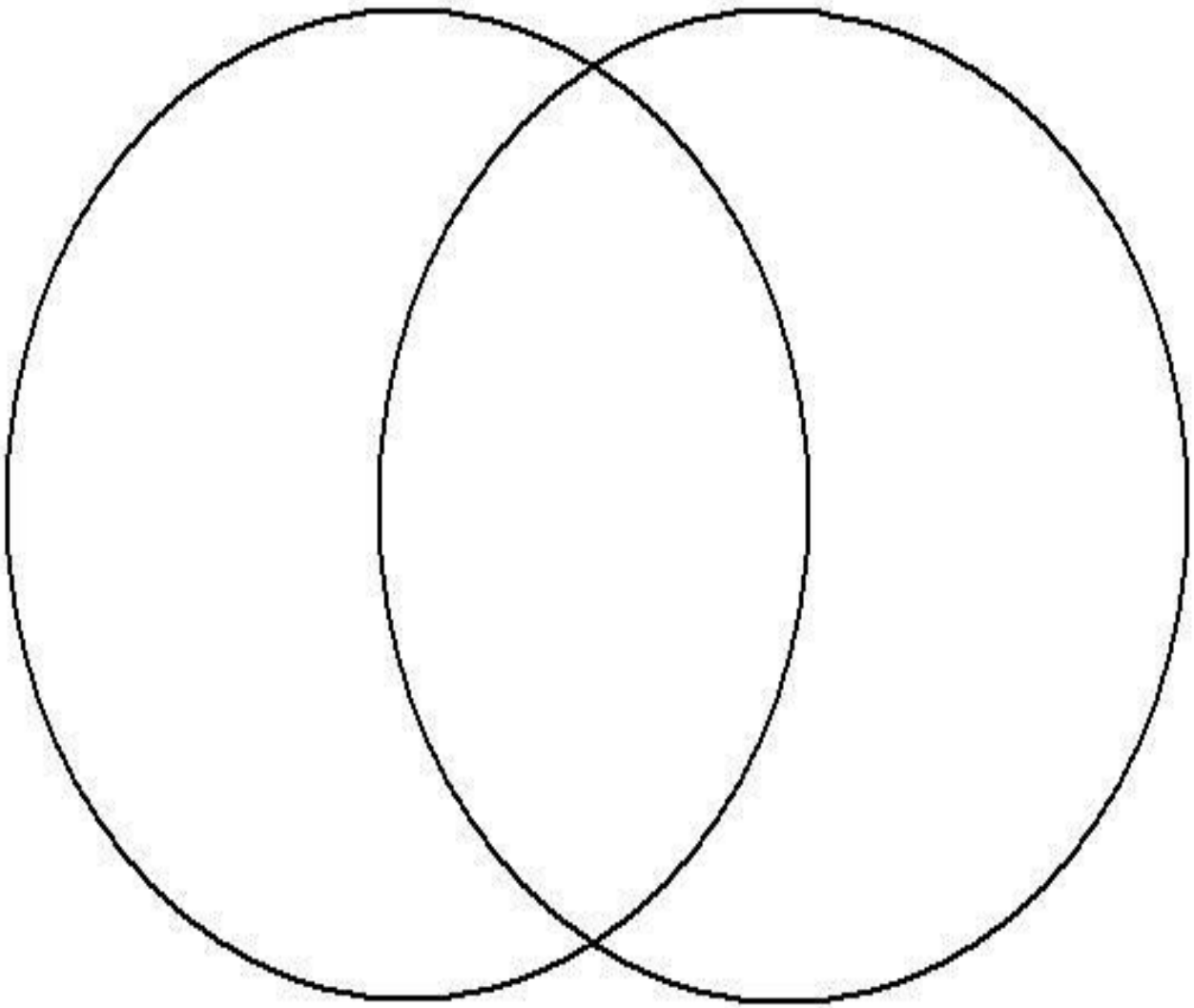
Similarities

**WOMEN**

Differences







List of websites used to fill in the above Venn diagram:

**Research Proposal:** Now, after researching the topic, with your partner(s) create a brief and general research proposal that you think would improve our knowledge of the meaning of these differences and the implications for addiction understanding and treatment. This should be a brief statement, such as, "We propose creating a study of \_\_\_\_\_ where half would be assigned into the control group that would receive \_\_\_\_\_ treatment and the other half

would be part of the experimental group that would receive \_\_\_\_\_ treatment.  
We will then \_\_\_\_\_ in order to further the research  
available in effective treatment of \_\_\_\_\_ addiction in men and women. We think  
this would help our understanding of \_\_\_\_\_ because  
\_\_\_\_\_.” \*\*\*This is just an example template of what your  
statement could look like, however, the expectation is that your statement would represent a testable  
study with connections to your research above.

### **Helpful Links for Your Research:**

Articles and Information about Addiction and Treatment Effectiveness of Alcohol:

<http://pubs.niaaa.nih.gov/publications/arh291/55-62.htm>

<http://alcalc.oxfordjournals.org/content/34/6/894>

<https://www.hazelden.org/web/public/womenaddiction.page>

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<http://www.bu.edu/today/2013/addiction-research-marlene-oscar-berman/>

[http://archives.drugabuse.gov/NIDA\\_Notes/NNVol15N4/Tearoff.html](http://archives.drugabuse.gov/NIDA_Notes/NNVol15N4/Tearoff.html)

[http://www.yale.edu/snhlab/Health%20Consequences\\_files/Nolen-Heoksema%20%26%20Hilt,%202006.pdf](http://www.yale.edu/snhlab/Health%20Consequences_files/Nolen-Heoksema%20%26%20Hilt,%202006.pdf)

Articles and Information about Addiction and Treatment Effectiveness of Methamphetamines:

<http://www.uphs.upenn.edu/addiction/berman/female/gender.html>

<http://www.ncbi.nlm.nih.gov/pubmed/18420163>

<https://www.westminstercollege.edu/myriad/?parent=2514&detail=4475&content=4788>

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<http://www.jneurosci.org/content/23/2/693.full.pdf>

Articles and Information about Addiction and Treatment Effectiveness of Nicotine:

[http://www.who.int/tobacco/publications/gender/en\\_tfi\\_gender\\_women\\_addiction\\_nicotine.pdf](http://www.who.int/tobacco/publications/gender/en_tfi_gender_women_addiction_nicotine.pdf)

<http://www.drugabuse.gov/news-events/nida-notes/2013/05/receptor-may-underlie-gender-differences-in-response-to-smoking-cessation-therapy>

<http://www.drugabuse.gov/publications/research-reports/tobacco/are-there-gender-differences-in-tobacco-smoking>

<http://www.ncbi.nlm.nih.gov/pubmed/19184653>

<http://www.elementsbehavioralhealth.com/addiction/gender-addiction/>

[http://www.researchgate.net/publication/247670480\\_Gender\\_differences\\_in\\_the\\_pharmacology\\_of\\_nicotine\\_addiction](http://www.researchgate.net/publication/247670480_Gender_differences_in_the_pharmacology_of_nicotine_addiction)

[http://libres.uncg.edu/ir/asu/f/Michael\\_2004\\_An\\_investigation\\_into\\_the\\_assoc.pdf](http://libres.uncg.edu/ir/asu/f/Michael_2004_An_investigation_into_the_assoc.pdf)

[http://www.ehd.org/health\\_tobacco\\_11.php](http://www.ehd.org/health_tobacco_11.php)

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<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2377408/>

<https://news.wsu.edu/2014/09/03/females-more-sensitive-to-cannabis-males-get-munchies/#.VZL1ckatua0>

<http://www.udel.edu/soc/tammya/pdfs/Drug%20Use%20and%20Gender.pdf>