THE RELATIONSHIP BETWEEN INTIMATE PARTNER VIOLENCE, SUBSTANCE USE BEHAVIORS AND MENTAL HEALTH OUTCOMES IN KENTUCKY WOMEN

CAPSTONE PROJECT PAPER

This paper is submitted as a portion of the requirements to complete a degree of Master of Public Health with a concentration in Health Behavior from the University of Kentucky

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I. Abstract

Objective

The purpose of our study is to determine the effect of intimate partner violence (IPV) on mental health outcomes and substance use.

Methods

Data from the Kentucky Women’s Health Registry of women 18 years and older, (N=8252) were used for analysis. The primary exposure was IPV defined as women who answered “yes” to ever having an intimate partner using force to have sex, being kicked, punched or physically hurt, or were stalked by an intimate partner (N=2917). Mental health outcomes were depression, and anxiety. Substance use outcomes were problem drinking, illicit drug use, prescription pill use, and smoking. Odds Ratios (OR) estimates with Confidence Intervals (CI) were used to determine associations between IPV, and mental health outcomes and substance use, adjusting for following confounders: age, education level, and body mass index. Area Under the Curve (AUC) was used to assess model fit.

Results

Women experiencing IPV were more likely to have symptoms of depression (adjusted odds ratio (aOR) =2.3; 95% Confidence Interval (CI) =2.0,2.5). Similar increases were seen for anxiety. Women experiencing IPV were also more likely to
disclose illicit drug use (aOR 2.3, 95% CI 1.9, 2.7), prescription pill use (aOR 1.6, 95% CI 1.4, 1.7) and current smoking (aOR 2.2, 95% CI 2.2, 3.4).

Conclusion

Women who experience IPV are more likely to report poorer mental health outcomes and substance use. Understanding IPV can be complex; however, identifying potential cues for abused women may give insight for recognizing women who may be in abusive relationships. There are varying documented health effects associated with IPV such as physical injuries and gynecological issues (i.e., pelvic fractures, increases infections). Symptoms of poor mental health and substance abuse may be associated with IPV years later. Efforts to screen for IPV may reduce the impact of IPV on mental health and substance abuse. There is a definite need to improve women's awareness regarding IPV and their help-seeking behavior at a public health level in order to decrease the incidence, morbidity and mortality associated with substance abuse and serious mental health conditions such as anxiety, and depression. Furthermore, healthcare provider’s awareness and knowledge of IVP and its related mental and physical health outcomes should also be improved.
II. Introduction

Intimate partner violence (IPV) is a major public health concern. IPV occurs between two individuals in a relationship; the term “intimate partner” includes former and current spouses and dating partners [1]. IPV exists within a range from a single episode to multiple episodes of ongoing violence. Any of these events can lead to distress, hospitalization, disability, or death. Women are common targets for IPV. In 2005, there were 1510 deaths due to IPV in the United States; of these deaths, 78% were women [1]. The estimated cost of IPV is 8.3 billion dollars due to medical bills, mental health services and lost productivity [1]. This may be an underestimate as many cases are not reported due to fear and a belief help is not available for them [1]. Women who experience trauma tend to self-medicate with various products such alcohol, illicit substances and smoking. In addition, some of these women may experience other poor mental health outcomes [2].

The purpose of this study is to determine the effect of IPV on mental health outcomes and substance abuse. We hypothesize that women who have a history of intimate partner violence are more likely to report adverse mental health outcomes including generalized anxiety, depression, substance use and poorer health.

Understanding the health effects of IPV is vital because affected women may be more vulnerable to poorer health than those who are not affected [3]. These observations may determine which mental outcomes are more likely to be seen with IPV and provide insight on how to reduce their frequency and impact.
III. Literature Review

According to the National Institute of Justice, women are more likely to experience IPV than men and this violence is more likely to result in injuries and death among women [1]. Annually, approximately 1.3 million women are assaulted by their partners, which pose a significant public health concern [6]. The term “partner” includes current or former spouses, a cohabitating partner, a boyfriend or girlfriend [1]. The term IPV describes four specific forms of violence by a current or former partner or spouse which may occur simultaneously: physical violence occurs when a person hurts or tries to hurt a partner by hitting, kicking, or using any other physical force; sexual violence is forcing a partner to take part in a sex act when the partner does not consent; threats of physical or sexual violence include the use of words, gestures, weapons, or other means to communicate the intent to cause harm; and emotional abuse is threatening a partner or his or her possessions or loved ones, or harming a partner’s sense of self-worth and includes behaviors such as stalking, name-calling, and intimidation [1]. IPV can occur among heterosexual or same-sex couples and does not require sexual intimacy; IPV can affect how women function on many levels[5].

Mental Health Outcomes

Women who experience partner violence are more likely to experience generalized anxiety, and depression in their lifetime than those who do not. Women who experience IPV are more likely to report poor health outcomes in comparison with women who do not experience IPV [8]. Women may experience one or all of the four
types of abuse. These experiences can be traumatic and their emotional toll makes substantial contribution to physical health and mental problems, which may ultimately result in a poorer health status [9]. Women experiencing IPV often perceive their health as poor in comparison to the women not experiencing IPV. Women are twice as likely as men to experience IPV due to an angry partner who may have control issues or even substance abuse [10]. This higher prevalence among women may be due to poverty, differing social roles, sex discrimination, negative life events and other violence and abuse that may have previously occurred in their lifetime [11]. These symptoms often set the tone for dysfunction in one’s daily routine and relating or interacting socially with other people [12].

IPV often leaves women fearful. As a result, women may suffer severe mental health outcomes and behaviors [3, 13, 14]. One in ten women suffers from some form of severe depression or mental disorder after experiencing IPV [11]. Women are three to five times more likely to experience a combination of depression with other mental health disorders [9], which could influence substance abuse and failure to engage in preventive care and treatment. Golding [2] reviewed the prevalence of mental health outcomes among women with a history of IPV and discovered a strong association between IPV, and depression. IPV contributes to poorer mental health outcomes because violence in their relationship causes continuous stress and takes an emotional toll on women [11]. Additionally, the duration of violence may depend on the severity of depression experienced by women [2].

Substance Use: Prescription and Illicit Drug Abuse, Problem Alcohol Use and Smoking
Literature illustrates women experiencing IPV often feel as if they cannot remove themselves from their abusive situation because of children, finances or other circumstances [15]. These women must find ways to cope with their situation the best way that allows them control over their lives [15]. According to Suh [16], the self medication theory gives insight to why abused women have such high rates of drug or substance abuse. This theory states that substance addiction serves as a means to alter negative effects and self soothe from stressful psychological states. Substance abuse achieves stability because it covers up the violence that women are experiencing [13,17]. The literature provides evidence that women may use substances to cope with or calm intrusion, avoidance, and hyper-arousal. Substances create a euphoria, which eliminates their reality. This reality is composed of fear, pain, and imprisonment by their partner, but it diminishes with more frequent drug use [18]. This self medication may appear to women as a positive reinforcement; however, substance abuse is a poor form of mental health coping and considered a self destructive behavior [19] that can lead to additional health and social problems.

As mentioned earlier, some women may find it difficult to leave their abusive situation, regardless of education; abusers may have a coercive control that leads to serious psychological consequences. Campbell [13] discusses a trauma response in which women experience ongoing abuse, control and terror. Evidence suggests that women who experience IPV may perceive their partner as omnipotent; there may also be a sense of self blame or a disappearance of self [13,15]. The power or control that dominant partners may possess can often lead to serious negative life events and
harmful self inflicted behaviors. A trauma response is often similar to the battered woman’s syndrome in which women respond negatively [15].

Substance use is often associated with IPV [15, 20]; this can be a manifestation of poor mental health or considered a mental health outcome itself [8,9,12]. Women who experience IPV are more likely to have some type of addiction to an illicit drug, abuse alcohol or take prescription pills in comparison to women never experiencing IPV [20,22]. Trauma associated with abuse can lead to damage in brain anatomy and neurochemistry; abused women have significantly higher levels of the stress hormone cortisol [23]. These alterations in brain anatomy can contribute to an increased vulnerability to mental health problems and substance use and abuse. In a meta-analysis conducted by Shannon [21] on victimization and psychological functioning, evidence showed that negative emotions of hopelessness, depression and emotional distress were associated greatly with substance abuse and use because it allowed women to cope day to day. Sansone [19] discovered that victims of IPV not only partake in substance abuse, but inflicted self harm in order to maintain control and balance. In several instances, abused women may feel disempowered and they are less likely to engage in healthy behaviors.

Substance abuse is seen in many instances of IPV and a common factor seen with mental health disorders. Psychoactive substances, alcohol and prescription pills may be used to relieve painful memories and symptoms depression and anxiety, especially hyper-arousal; in the case of IPV, women may be escaping the effects of a mental disorder they are experiencing through substance use [24, 22].
Women who have prior experiences with abuse and substance use are more vulnerable to re-victimization of abuse in the future [25]. The volatile environment in which drug use occurs may increase individual’s proximity to those who are more likely to be abuse women; therefore early victimization increases the risk of re-victimization [21,26]. Although substance abuse has negative connotations, for some women who are being victimized, using drugs may give them a sense of escape or relief, especially if leaving is not an option.

Although, smoking is not considered illegal, after long term use it can often be linked to health complications such as cardiovascular disease and cancer. Smoking is another mechanism that women who report IPV use in order to reduce symptoms of stress [27]. Women who experience physical or psychological IPV are at increased risk for engaging in negative health behaviors such as long term tobacco use with additional behaviors such as increased risks for hypertension, lung cancer and emphysema [28,29].
IV. Methodology

This capstone is a cross-sectional analysis of the Kentucky Women’s Health Registry (KWHR) data from 2006-2008. With the permission of Dr. Leslie Crofford, The Center for Advancement of Women’s Health supplied three years of de-identified registry data. This analysis was approved by the University of Kentucky Institutional Review Board.

KWHR includes a statewide survey that asks women ages 18-89 various demographic and health background questions to explore factors influencing their overall health. The KWHR circulates surveys to Kentucky women through the mail and the internet. The study is a non-randomized sample of women who volunteer for the survey through community health fairs, women’s conferences, and women’s clubs (primarily homemakers), county’s extension offices, and other community events. The purpose of this analysis is to explore the association between IPV and mental health outcomes and substance use.

Study Population and Definitions

The sample in this analysis includes Kentucky women between 18 and 89 years of age. Women were categorized with regard to IPV, which was defined as women who answered “yes” to ever having an intimate partner using force to have sex, being kicked, punched or physically hurt or were stalked by an intimate partner. Based on a positive response to any of the following survey questions:

- Has an intimate partner hit, kicked, punched, or otherwise hurt you?
– Has an intimate partner ever repeatedly followed you, spied on you, made unsolicited phone calls to your place of work or at home, damaged your property, or stalked you in any way?

– Has an intimate partner used force (like hitting, holding down, or using a weapon) to make you have sex?

**Outcome definitions:** Depression was defined as women responding “yes” in the past 12 months and “yes” in a lifetime to the following questions:

– **Has** there been a period of at least two straight weeks when you have felt down, depressed or hopeless?

Anxiety was defined if they answered “yes” in the past 12 months and “yes” in a lifetime to

– Have you had excessive anxiety or worry?

Women were considered lifetime smokers if they responded “yes” to

– Have you smoked more than 100 cigarettes in your lifetime?

Additionally, smoking was broken down into four categories. Women were asked “Do you still smoke?” Depending on their response – “every day, some days, used to smoke but quit and never” – women were classified as “current, daily smoker, former smoker and never a smoker”. Problem drinker was determined if women answered “yes” to

– Do you drink alcoholic beverages? AND

– Have you ever felt, or has anyone ever suggested that you were a problem drinker?
Illicit drug use was classified if women answered “yes” in the past 12 months or “yes” in my lifetime for having used any of the following drugs: cocaine, heroin, methamphetamine or ecstasy. Prescription pill use was defined if women answered “yes” in my lifetime or “yes” in the past 12 months to “Have you regularly, that is, used more than 5 times, any of the following prescription drugs that were not specifically prescribed for you?” for the following pills: pain, sleeping, nerve, and diet. Poor health was defined if women answered “fair” or “poor” for the following question “in general, would you say you health is?”

**Potential Cofounders:** The age categories grouped women into six age groups: 18 to 29, 30 to 39, 40 to 49, 50 to 59, and 60 to 69 and over the age of 70 years of age. The education variable was produced by grouping those with education up to or equal to a GED or high school diploma, some college or college/technical college degree, and post-graduate schooling/degree or other professional degrees. For body mass index (BMI), there was 3 categories: less than 25, between 25 and 29 and greater than or equal to 30 kg/m².

Although not used to define IPV, we looked at other forms of violence such as rape, child sexual abuse and being hurt by a guardian. If women answered “yes” to “Has anyone other than an intimate partner or anyone else used force to make you have sex?” they were considered to have experienced rape. Parental or guardian abuse was defined if they answered “yes” to “When you were a child, did any parent, stepparent or guardian ever hit, kick, punch or otherwise hurt you?” Molestation was defined if women answered “yes” to “When you were a child, did a parent, stepparent or any other person make you have sex by using force or by threatening to harm you or someone
close to you?”. Women who experienced abuse previously may be more likely to experience forms of abuse in their adult relationships.

**Statistical Analysis**

All demographic statistics calculated for this study (age categories, race, education, weight characteristics and smoking status) resulted from counts and percentages.

Logistic regression analysis determined the association between IPV and the self-reporting of mental health outcomes (depression, and anxiety), problem drinking, prescription pill use, illicit drug use and current smoking; controlling for age, education, and smoking status.

We computed an adjusted and unadjusted Odds Ratios (OR) estimates and Confidence Intervals (CI); we also conducted an Area Under the Curve (AUC) in order to determine the strength of the variables mentioned above. The statistical software used in each analyses of the study was SAS 9.1.

**Research Questions**

The questions asked in this analysis are, 1) Are women who are reporting IPV more likely to report drug usage, problems with drinking or tobacco and prescription pill use? and 2) Are women who report IPV more likely to report anxiety, depression or other mental health outcomes?
V. Results

The total sample size for women between the ages of 18 and 89 was N=8998. Women were excluded if they had incomplete data from missing values included in our analysis due to not answering questions about IPV, mental health or substance use or if they selected “choose not to answer” as their response. The remaining women included in our study had complete data (N=8252).

Table 1 represents the descriptive statistics of women experiencing IPV versus those who had not. Thirty-five percent of the total sample reported experience with IPV (N=2917). Within the age category, over 75% of women exposed to intimate partner violence were ages 30-50 in comparison to 62.5% of women who were not exposed to IPV. Women exposed to IPV were more likely to be white and have a college education. For BMI, women were more likely to report being exposed to IPV if they were overweight/obese.

Table 1 illustrates the Odds Ratios and estimates with 95% Confidence Intervals for those reporting IPV. Women in their 30’s, 40’s, 50’s and 60’s were almost twice as likely to report IPV as women in their 70s, after adjusting for other factors. Additionally, women who obtained a professional degree were at decreased risk for reporting IPV compared to women with lesser degrees of education.

Table 2 displays the various forms of intimate partner violence that the registry captures. Thirty-five percent of women responded “yes” to IPV in a lifetime. Of these women, 63% were stalked by an intimate partner, and about 67.0% reported being physically assaulted.
Table 3 presents the adjusted and unadjusted Odds Ratios (OR), 95% Confidence Intervals (CI) for women being exposed to IPV. Controlling for age, education and BMI, women who had ever experienced IPV were two to three times more likely to report current symptoms of anxiety (aOR 2.1, CI 1.9, 2.3) and current depression (aOR 2.2, CI 2.0, 2.5). Additionally, women who had experienced IPV were at increased odds for illicit drug use (aOR 2.2, CI 1.9, 2.6) and prescription drug use (aOR 1.6, CI 1.4, 1.8), current smoking (aOR 2.3, CI 2.0, 2.7), and problem drinking (aOR 2.5, CI 2.0, 3.0).

Figures 1 and 2 illustrate the proportion of women who reported “yes” to experiencing intimate partner violence by mental health outcomes (anxiety, and depression), poor general health, and substance abuse (illicit drug usage, pill use, tobacco use and problem drinking). These figures demonstrate that poor mental health and general health perceptions (Figure 1) and substance abuse (Figure 2) were more common among women reporting IPV.
VI. Discussion

The results of this study are consistent with other research findings in the field, which indicate an association between IPV, poor mental health and negative health behaviors. However, because the Kentucky Women’s Health Registry is a cross-sectional survey, these findings cannot prove causality.

In our analysis, 35% of women had experienced IPV in their lifetime. Of these women, about 63% were stalked, 67% were physically abused and 27% were sexually assaulted by their partner. These Kentucky statistics are similar to those reported by women participating in the National Violence Against Women Survey: 25.5% of these women reported physical or sexual IPV at some point during their life. Of the women, 22.1% were physically abused, 7.7% were sexually abused and 4.8% were stalked. Both samples demonstrate that women continue to be at risk for IPV.

Our results reveal women between the ages of 30 to 60 were twice as likely to be exposed to IPV in comparison with those who were older or never exposed to IPV in their lifetime. Literature suggests that high education is a protective factor against intimate partner violence [30]; our results suggest women who obtained a professional degree were at decreased risk for reporting IPV compared to women with lesser degrees of education.

Although, factors such as alcohol and other substance abuse plays a factor in violence, other reasons for violence may be attributed to male partners using violence to resolve a crisis of a masculine identity caused by poverty, inability to control women, and accepted social norms for violence against women [30]. Partners may be faced with
an inability to meet social expectations related to income, lower social status
educational levels and fewer resources in comparison with women [30].

In this analysis, women ever experiencing IPV had symptoms of depression and
anxiety that were two to three times higher than women never experiencing IPV.
Literature illustrates these poor mental health outcomes are more common amongst
women who experience IPV in comparison with those who have never experienced it
[8]. Poor mental health outcomes can be problematic because they may affect how
women manage and control their emotions and social interactions on a daily basis [13].
Women who experience IPV may be subject to high amounts of stress. Episodes of
violence can trigger anxiety, depression, and other poor mental health outcomes [11,
13]. Severity of abuse, previous trauma, and partner dominance have been linked as
important precursors of poor mental health developing from intimate partner violence.

For women who experience IPV, there is often a sense of hopelessness that help is
not available or beneficial [8]. Literature suggests that when experiencing traumatic
events self medication may be used in order to escape adverse situations [16]. Although
no definite causal link can be made for the KWHR, this theory could give insight to a
possible association between higher rates of substance abuse for women reporting IPV
in comparison with those who have never experienced IPV.

IPV may occur due to an unequal distribution of power, and social class amongst
other reasons [26]. El-Bassel [26] discusses possibilities why IPV and substance abuse
are so closely related. Drug using women could be in relationships where their partners
are also users of drugs [26]. El-Bassel indicates that drugs induce cognitive disruption
and impairs the ability to process social interaction [26]. Therefore, after effects of
drugs may cause disruptions such as paranoia, impaired judgment, distorted cues and increase likelihood of violent transactions [20, 26]. Additionally, Lemon points out heavy smoking and drinking often follow stressful situations [14]. The high rates of smoking and drinking are likely responses to highly stressful situations [14]. Tobacco, alcohol and drug use may be used in response to physical and emotional pain experienced, and as mentioned before, the relationship between substances and IPV could be reciprocal [26]. Area Under the Curve was used to assess model fit. Through our analysis, AUC determined that problem alcohol drinker (.73), current smoker (.74) illicit drug use (.84), and poor general health (.75) were effective indicators in predicting whether or not substance abuse behaviors and poor general health were accurately indicated in our study. Our findings support the hypothesis that IPV is associated with negative mental health outcomes and substance abuse.

**Limitations**

The Kentucky’s Women Health Registry is a self report survey; therefore, some of the limitations rest upon women accurately reporting any drug use, IPV and medical conditions and disease. Social desirability bias may occur resulting in underreporting of drug use/abuse, mental health outcomes, smoking and alcohol use/abuse. IPV may also be underreported and healthcare utilization maybe over-reported. Recall bias may also occur when reporting any outcomes.

The survey has predominately Caucasian women respondents; therefore, the study cannot make general assumptions for other races. This was a convenience sample of motivated women who were more likely to be health conscientious compared to
women who did not participate in the study. These women may differ in their responses compared to women who are less educated, uninsured, poor and seriously ill. This study is only able to look at what relationships occur with IPV and not able to ascertain why certain associations or relationships exist.

VII. Conclusion

Even though causality cannot be determined in our study, women who experience IPV are more likely to report prevalent poor mental health and substance abuse, including depression, anxiety, problem drinking and prescription pill use. Understanding IPV can be complicated; however, identifying cues for abused women may give insight for accurately identifying women who may be in these violent situations. There are documented health effects associated with IPV such as physical injuries, gynecological issues (i.e., pelvic fractures, increases infections), mental health outcomes, and substance abuse which may negatively impact women.

Furthermore, several problems may arise while attempting to identify women who are being abused such as offending women who are not experiencing IPV, overlooking abused women and not providing appropriate treatment. Developing practical methods for IPV screening for advocates, clinicians, shelter workers and mental health practitioners is significant because it can help improve quality of life, increase self worth/ self esteem and be a powerful tool to help remove women from these violent relationships. Moreover, these methods should be practical for abused women. These women may fear increased abuse if their partners become aware of help seeking intentions. Collaborations and partnerships could be established with faith-
based or community groups such as churches and hair salons that can establish a safe
place, and identify resources that may provide housing and protection. There is a
definite need to improve women's awareness regarding abuse and their help-seeking
behavior at a public health level.
VIII. Acknowledgements

I would like to thank Dr. David Mannino for providing advice and direction for this study. I would like to thank Dr. Heather Bush for her assistance with the statistical analysis and data management of this study. I would also like to thank Dr. Ann Coker, Dr. Robin Vanderpool, Dr. Evelyn Knight and Mary Johnson for providing direction and for their thoughtful comments and review of the manuscript. A special appreciation to Dr. Leslie Crofford, from the Center for the Advancement of Women’s Health, for providing the data set. I would like to thank the faculty and staff of the University of Kentucky, Kentucky Women’s Health Registry, and College of Public Health for preparing me to execute this project. Finally, I would like to thank my family and friends for their continued support.
## IX. Tables and Figures

### Table 1 Demographic Analysis

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Exposed to IPV (N=2917)</th>
<th>Not Exposed to IPV (N=5335)</th>
<th>OR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>12.0%</td>
<td>15.5%</td>
<td>1.5 [1.7, 2.0]</td>
</tr>
<tr>
<td>30-39</td>
<td>22.1%</td>
<td>17.0%</td>
<td>2.6 [2.0, 3.4]</td>
</tr>
<tr>
<td>40-49</td>
<td>24.8%</td>
<td>17.8%</td>
<td>2.7 [2.1, 3.5]</td>
</tr>
<tr>
<td>50-59</td>
<td>28.0%</td>
<td>27.7%</td>
<td>2.0 [1.5, 2.6]</td>
</tr>
<tr>
<td>60-69</td>
<td>10.5%</td>
<td>16.8%</td>
<td>1.2 [0.9, 1.7]</td>
</tr>
<tr>
<td>&gt;70</td>
<td>2.7%</td>
<td>5.4%</td>
<td>Reference</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race Distribution</th>
<th>Exposed to IPV (N=2917)</th>
<th>Not Exposed to IPV (N=5335)</th>
<th>OR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/Caucasian</td>
<td>91.5%</td>
<td>95.0%</td>
<td>n/a</td>
</tr>
<tr>
<td>Non-White</td>
<td>8.5%</td>
<td>5.0%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Exposed to IPV (N=2917)</th>
<th>Not Exposed to IPV (N=5335)</th>
<th>OR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GED/HS Diploma</td>
<td>11.1%</td>
<td>9.7%</td>
<td>1.4 [1.3, 1.5]</td>
</tr>
<tr>
<td>Technical Degree/College Degree</td>
<td>58.4%</td>
<td>51.7%</td>
<td>1.5 [1.3, 1.8]</td>
</tr>
<tr>
<td>Graduate/Professional Degree</td>
<td>30.6%</td>
<td>38.6%</td>
<td>Reference</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Body Mass Index</th>
<th>Exposed to IPV (N=2917)</th>
<th>Not Exposed to IPV (N=5335)</th>
<th>OR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25</td>
<td>38.4%</td>
<td>42.9%</td>
<td>0.9 [0.8, 1.02]</td>
</tr>
<tr>
<td>25-29</td>
<td>27.9%</td>
<td>27.9%</td>
<td>Reference</td>
</tr>
<tr>
<td>&gt;=30</td>
<td>33.7%</td>
<td>29.2%</td>
<td>1.1 [1.00, 1.2]</td>
</tr>
</tbody>
</table>
### Table 2 Specific Forms of Intimate Partner Violence

<table>
<thead>
<tr>
<th>Intimate Partner Violence Categories</th>
<th>Overall (N=8252)</th>
<th>Reporting Yes to IPV (In a Lifetime) (N=2917)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stalking</td>
<td>22.2%</td>
<td>62.7%</td>
</tr>
<tr>
<td>Forced Intercourse By partner</td>
<td>9.4%</td>
<td>26.6%</td>
</tr>
<tr>
<td>Partner Abuse -- Physical</td>
<td>23.7%</td>
<td>67.0%</td>
</tr>
</tbody>
</table>
Table 3 Mental Health Outcomes and Substance Abuse Odds Ratios (Adjusted and Unadjusted) and Confidence Intervals

<table>
<thead>
<tr>
<th>Women Exposed to IPV (2017)</th>
<th>Unadjusted OR (95% CI)</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Anxiety</strong></td>
<td>2.5 [2.2,2.7]</td>
<td>2.1 [1.9,2.3]</td>
</tr>
<tr>
<td><strong>Current Depression</strong></td>
<td>2.6 [2.4,2.9]</td>
<td>2.2 [2.0,2.5]</td>
</tr>
<tr>
<td><strong>Prescription Pill Use</strong></td>
<td>2.0 [1.9,2.3]</td>
<td>1.6 [1.4,1.8]</td>
</tr>
<tr>
<td><strong>Illicit Drug use</strong></td>
<td>3.7 [3.2, 4.3]</td>
<td>2.2 [1.8,2.7]</td>
</tr>
<tr>
<td><strong>Problem Drinker</strong></td>
<td>3.2 [2.7, 3.9]</td>
<td>2.5 [2.0,3.0]</td>
</tr>
<tr>
<td><strong>Current Smoker</strong></td>
<td>1.3 [1.0,1.7]</td>
<td>2.3 [2.0,2.7]</td>
</tr>
<tr>
<td><strong>Poor General Health</strong></td>
<td>1.9 [1.5, 2.2]</td>
<td>1.6 [1.4, 1.9]</td>
</tr>
</tbody>
</table>

*Use of cocaine, heroin, methamphetamine, and ecstasy
+Use of pain pills, sleeping pills, nerve pills and diet pills
**Controlled for age, education and BMI
+++ denotes significant AUC numbers

AUC=0.84, AUC=0.73, AUC=0.74, AUC=0.75

Comment [k3]: Missing a number after the decimal point
Comment [k4]: Are there no AUCs for 1-4?
Figure 1 Mental Health Outcomes of Kentucky Women who Reported IPV

- Current Anxiety: 63.2% Yes, 41.1% No
- Current Depression: 65.0% Yes, 41.2% No
- Poor General Health: 16.7% Yes, 9.6% No

Yes N=2917  No N=5335
Figure 2 Substance abuse for Kentucky Women who Reported IPV

- Precription Pill Use: 39.1% Yes, 23.7% No
- Illicit Drug Use: 18.3% Yes, 5.7% No
- Problem Drinker: 9.9% Yes, 3.3% No
- Current Smoker: 20.2% Yes, 8.1% No

Yes N=2917, No N=5335
X. References


XI. Biographical Sketch

Ashley Eason is originally from Detroit, Michigan. She received her Bachelor of Arts in Bio-Psychology from the University of Michigan-Ann Arbor in May of 2008. Currently, she is a Master of Public Health candidate in Health Behavior at the University of Kentucky.

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