Exhibit B

Evidence for a Causal Association between Abortion and Mental Health Problems

I. Background for understanding causality when studying human behavior

Due to the inherent complexity of human psychological health outcomes, such as depression and suicidal behavior, identification of a single, precise causal agent applicable to all cases is not possible. Every mental health problem is determined by numerous physical and psychological characteristics, background, and current situational factors subject to individual variation. Further, any one cause (e.g. abortion) is likely to have a variety of effects (e.g., anxiety, depression, suicidal behavior) based on the variables involved.

A ***risk factor*** refers to any variable that has been established to increase the likelihood of an individual experiencing an adverse outcome. Risk factor data are used in medicine and psychology for the explicit purposes of understanding etiology, warning patients of risks associated with various medical interventions, and development of effective prevention and intervention protocols to maximize health.

Assessment of degree of risk is often expressed in terms of ***absolute risk***, which relates to the chance of developing a disease over a time-period (e.g., a 10% lifetime risk of suicide) or in terms of ***relative risk***, which is a comparison of the probability of an adverse outcome in two groups. For example, abortion would be considered an increased risk for suicide if the relative risk is significantly higher for women who abort compared to women who give birth or never have children.

Determination of causality technically requires an experimental design in which there is random assignment of large groups to expected cause conditions (e.g., abortion, no abortion/delivery, no abortion/no pregnancy). However, as is true with numerous variables of interest in psychology and medicine, it is not ethical nor is it practically feasible to implement such a study. When scientists are not able to control or manipulate the variable of interest, risk factors for negative outcomes are established over time through the two primary scientific steps described below.

1. <u>Analysis of each individual study</u>. Each individual study published in a peer-reviewed journal is examined to assess the quality of evidence

suggestive of a causal link between abortion and negative outcomes. The following three criteria are applied when the variable of interest such as abortion can not be manipulated.

a. Abortion must be shown to precede the mental health problem (referred to as *time precedence*). This is typically accomplished with longitudinal or prospective data collection in which testing occurs over an extended period of time following the abortion.

b. Differences in abortion history (abortion, no abortion) must be systematically associated with differences in mental health status (*covariation*).

c. Finally, all plausible alternative explanations for associations between abortion and mental health must be ruled out using a method of control. Typically third variables predictive of both the choice to abort and mental health (e.g. income, previous psychological problems, exposure to domestic violence etc.) are statistically removed from the analyses. Identifying, measuring, and statistically controlling for known predictors of abortion would go a long way to help establish causality; however there are many other means for achieving the same goal of infusing control. Additional control techniques include: (1) matching groups on all variables known to be related to abortion and the outcome measures; (2) measuring potential confounding variables and introducing them as additional variables to assess their independent effects; (3) identifying and selecting homogeneous populations to draw the pregnancy outcome groups.

2. **Integrative analysis.** After evaluating individual studies for causal evidence linking abortion to decrements in mental health, scientists assess the consistency and magnitude of associations between abortion and particular mental health problems across all available studies. This integrative process represents the second step for determining whether or not abortion is a substantial contributing factor for severe depression and other mental health problems.

a. ***Consistency*** refers to repeated observation of an association between abortion and mental health across several studies using different people, places, and circumstances tested at distinct points in time. When results become generalized in this manner, the probability that an association would be due to chance is dramatically reduced.

b. ***Magnitude*** (or strength of effect) refers to whether the associations between abortion and various mental health problems are slight, moderate, or strong. Strong associations across various studies are more likely causal than slight or modest associations. This point has been illustrated with the high risk ratios for the association between exposure levels of smoking and incidence of lung cancer.

II. Causal Evidence from Research on the Mental Health Risks of Abortion

The tables below provide an overview of the studies related to abortion and suicide ideation and suicide, abortion and substance use/abuse, abortion and depression, and abortion and anxiety. The arrangement of the data in the tables offers guidance regarding the extent to which the conditions for causality have been met

Table 1: Scientific Studies identifying Abortion as a Risk Factor in Suicidal Behavior.

Study	Time sequence	Co-variation	Controls and Other Strengths	Results/Magnitude of effect
1. Fergusson, D. M. et al. (2006). Abortion in young women and subsequent mental health. *Journal of Child Psychology and Psychiatry*, 47, 16-24.	√	√	Pregnancy delivered and never pregnant used as comparison groups. Controlled for demographic, family of origin, history of abuse, partner, personality, and mental health history variables. National sample, high retention, low concealment, thorough assessments of outcomes.	27% of women who aborted reported suicidal ideation. The risk was 4X greater for women who aborted compared to never pregnant women and more than 3X greater for women who delivered.
2. Fergusson, D.M. et al. (2008). Abortion and mental health disorders: Evidence from a 30-year longitudinal study, *The British Journal of Psychiatry, 193*, 444-451.	√	√	Pregnancy delivered and never pregnant used as comparison groups. Controlled for demographic, family of origin, history of abuse, partner, personality, mental health history, exposure to adverse events variables and pregnancy intendedness. National sample, high retention, low concealment, thorough assessments of outcomes.	61% increased risk of suicide ideation associated with abortion.
3. Gilchrist, A. C. et al. (1995). Termination of pregnancy and psychiatric morbidity. *British Journal of Psychiatry* 167, 243.	√	√	Compared women who were refused abortion and women who chose abortion but changed their minds. Pregnancy intendedness controlled.	Among women with no history of psychiatric illness, the rate of deliberate self-harm was significantly higher (70%) after abortion than childbirth.
4. Gissler, M. et al. (1996). Suicides after pregnancy in Finland, 1987-94: Register linkage study. *British Medical Journal*, 313, 1431 4.	√	√	Compared women who aborted to those who delivered, miscarried, and the general population. Large study population Use of medical claims data: ICD-8 codes.	Suicide rate was nearly 6X greater among women who aborted compared to women who delivered.
5. Gissler, M. et al. (2005). Injury deaths, suicides and homicides associated with pregnancy, Finland 1987-2000. *European Journal of Public Health*, 15, 459-463.	√	√	Compared women who aborted, delivered, miscarried, and were not pregnant. Large study population Use of medical claims data: ICD-8 codes. Distinguished level of risk associated with suicide and other forms of death.	Abortion was associated with a 6X higher risk for suicide compared to birth.
6. Reardon, D.C. et al. (2002). Deaths associated with delivery and abortion among California Medicaid patients: A record linkage study. *Southern Medical Journal*, 95,834-41.	√	√	Use of homogenous population. Controlled for prior psychiatric history, age, and eligibility for state medical coverage. Large sample.	Suicide risk was 154% higher among women who aborted compared to those who delivered.

7. Rue, V.M. et al. (2004). Induced abortion and traumatic stress: A preliminary comparison of American and Russian women. *Medical Science Monitor* 10, SR 5-16.	√	√	Controlled for stressors pre-and post-abortion, demographic and psycho-social variables (including abuse and parental divorce, etc.). Women specifically asked if they believed the abortion was the cause.	36.4% of the American women and 2.8% of the Russian women respectively reported suicidal ideation.
8. Mota, N.P. et al (2010). Associations between abortion, mental disorders, and suicidal behaviors in a nationally representative sample. *The Canadian Journal of Psychiatry, 55* (4), 239-246.		√	Nationally representative sample. Controlled for the experience of interpersonal violence and demographic variables.	When compared to women without a history of abortion, those who had an abortion had a 59% increased risk for suicide ideation.

Table 2: Scientific Studies Identifying Abortion as a Risk Factor in Depression.

Study	Time sequence	Co-variation	Controls and Other Strengths	Results/Magnitude of effect
1. Coleman, P. K. et al. (2002). State-funded abortions vs. deliveries: A comparison of outpatient mental health claims over four years. *American Journal of Orthopsychiatry, 72,* 141-152.	√	√	Homogeneous population. Controls for pre-pregnancy psycho-logical difficulties, age, and months of eligibility. Large sample. Used actual claims data, eliminating the concealment problem. Avoids recruitment, retention problems, and simplistic forms of assessment.	Across the 4-yrs, the abortion group had 40% more claims for neurotic depression than the delivery group.
2. Coleman, P. K. (2006). Resolution of unwanted pregnancy during adolescence through abortion versus childbirth: Individual and family predictors and psychological consequences. *The Journal of Youth and Adolescence, 35,* 903-911.	√	√	Nationally representative, diverse sample. Exclusive focus on unwanted pregnancies aborted and delivered. Implemented controls for several demographic, psychological, and familial variables.	After implementing controls, adolescents with an abortion history, when compared to those with a birth history, were: 5X more likely to seek counseling for psychological or emotional problems and 4X more likely to report frequent sleep problems, a common symptom of depression.
3. Coleman, P. K. et al. (2009), Induced Abortion and Anxiety, Mood, and Substance Abuse Disorders: Isolating the Effects of Abortion in the National Comorbidity Survey. *Journal of Psychiatric Research, 43, 770-776.*		√	Controlled 22 different demographic, history, and personal/situational variables mostly related to adverse life events. Nationally representative sample. Thorough assessments of psych outcomes by trained professionals. PAR statistic calculated.	After implementing controls, an abortion increased the risk of developing Major Depression with Hierarchy by 42.5%. Abortion was linked to 4.3% of the incidence of Major Depression with Hierarchy.
4. Cougle, J., et al. (2003). Depression associated with abortion and childbirth: A long-term analysis of the NLSY cohort. *Medical Science Monitor, 9,* CR105-112	√	√	Controlled for prior psychological state, age, race, marital status, divorce history, education, and income (stratification by ethnicity, current marital status, and history of divorce). Nationally representative, racially - diverse sample. Extended time frame.	Women whose 1st pregnancies ended in abortion were 65% more likely to score in the "high-risk" range for clinical depression. (White: 79% higher risk; married: 116% higher risk; 1st marriage didn't end in divorce: 119% higher risk).
5. Dingle, K., et al. (2008). Pregnancy loss and psychiatric disorders in young women: An Australian birth cohort study. *The British Journal of Psychiatry, 193,* 455-460.	√	√	Controlled for maternal and familial factors, pre-existing behavior problems and substance misuse, and demographic factors.	Young women reporting an abortion history had almost twice the risk for 12 month depression compared to women who did not report an abortion.
6. Fergusson, D. M. et al. (2006). Abortion in young women and subsequent mental health. *Journal of Child Psychology and Psychiatry, 47,* 16-24.	√	√	Pregnancy delivered and never pregnant used as comparison groups. Controlled for demographic, family of origin, history of abuse, partner, personality, and mental health history variables. National sample, high retention, low concealment, thorough assessments of outcomes.	42% of the women who had aborted reported major depression by age 25.

7. Fergusson, et al. (2008). Abortion and mental health disorders: Evidence from a 30-year longitudinal study, *The British Journal of Psychiatry, 193,* 444-451.	√	√	Pregnancy delivered and never pregnant used as comparison groups. Controlled for demographic, family of origin, history of abuse, partner, personality, pregnancy intendedness, and mental health history variables. National sample, high retention, low concealment, thorough assessments of outcomes.	Major depression: 31% increased risk associated with abortion.
8. Harlow, B. L. et al. (2004). Early life menstrual characteristics and pregnancy experiences among women with and without major depression: the Harvard Study of Mood and Cycles. *Journal of Affective Disorders, 79,* 167-176.	√	√	Employed demographic controls (age, age at menarche, educational attainment, and history of marital disruption). Population-based sample. 73.5% response rate.	Compared to women with no history of induced abortion, those with two or more were 2-3X more likely to have a lifetime history of major depression.
9. Major, B. et al. (2000). Psychological responses of women after first trimester abortion. *Archives of General Psychiatry, 57,* 777-84.	√	√	Controlled for demographic characteristics, medical complications, and prior mental health.	Two years post-abortion, 20% were depressed. Younger age and having more children pre-abortion predicted more negative post-abortion outcomes.
10. Pedersen W. (2008). Abortion and depression: A population-based longitudinal study of young women. *Scandinavian Journal of Public Health, 36* (4):424-8.	√	√	Controlled for parental education level, parental smoking habits, parental support, and prior history of depression. Large national sample	Women with an abortion history were nearly 3X as likely as their peers without an abortion experience to report significant depression.
11. Pope, L. M. et al. (2001). Post-abortion psychological adjustment: Are minors at increased risk? *Journal of Adolescent Health, 29,* 2-11.	√	√	Compared current sample results with those reported in other studies using similar samples.	19% experienced moderate to severe levels of depression 4 weeks post-abortion.
12. Reardon, D. C., & Cougle, J. (2002). Depression and Unintended Pregnancy in the National Longitudinal Survey of Youth: A cohort Study. *British Medical Journal, 324,* 151-152.	√	√	Confined analyses to unintended pregnancy aborted or delivered. Nationally representative sample. Controlled for the following: prior psychiatric state, family income. Education, race, age at first pregnancy. Stratified by marital status.	The percentage of women who carried to term considered to be in the high-risk range for depression was 22.7% compared to 27.3% of women who aborted (OR=1.54). Among married women, the percentage of women who carried to term considered to be in the high-risk range for depression was 17.3% compared to 26.2% of women who aborted (OR=2.38).
13. Reardon, D. C. et al. (2003). Psychiatric admissions of low-income women following abortion and childbirth. *Canadian Medical Association Journal,* 168, 1253-1256.	√	√	Homogeneous population. Controls for pre-pregnancy psycho-logical difficulties, age, and mos. of eligibility. Large sample. Used actual claims data, eliminating the concealment problem. Avoids recruitment and retention problems, and simplistic forms of assessment.	Across the 4-yrs, the abortion group more claims for depressive disorders compared to the birth group, with the percentages equaling 90%, 110%, and 200% for depressive psychosis, single and recurrent episode, and bipolar disorder respectively.
14. Rees, D. I. & Sabia, J. J. (2007) The relationship between abortion and depression: New evidence from the Fragile Families and Child Wellbeing Study. *Medical Science Monitor, 13*(10), 430-36.	√	√	A number of controls were incorporated: race, ethnicity, age, education, household income, number of children, prior depression.	Women who had an abortion were at a significantly higher risk for reporting symptoms of Major Depression compared to women who had not become pregnant. After adjusting for controls, abortion was associated with more than a two-fold increase in the likelihood of having depressive symptoms at second follow-up.
15. Schmiege, S., & Russo, N. F. (2005). Depression and unwanted first pregnancy: Longitudinal cohort study. *British Medical Journal.*	√	√	Employed controls to only some analyses *with no explanation.* The analyses in Table 3 of the article do not incorporate controls for variables identified as significant predictors of abortion (higher education and income and smaller family size). This is highly	Percent of women exceeding the depression cut-off after an abortion: Married white women:16% Married black women: 24% Unmarried black women: 38% Among the unmarried, white women, 30% of those in the abortion group had

			problematic since lower education and income and larger family size predicted depression. Without the controls, the delivery group will have more depression variance erroneously attributed to pregnancy resolution.	scores exceeding the clinical cut-off for depression, compared to 16% of the delivery group. Statistical significance is likely to have been achieved with the controls instituted.
16. Söderberg et al. (1998). Emotional distress following induced abortion. A study of its incidence and determinants among abortees in Malmö, Sweden. European *Journal of Obstetrics and Gynecology and Reproductive Biology 79*, 173-8.	√	√	Utilized a case control data analysis strategy. Extensive semi-structured interview methodology.	50-60% of the women experienced emotional distress of some form (e.g., mild depression, remorse or guilt feelings, a tendency to cry without cause, discomfort upon meeting children), classified as severe in 30% of cases.
17. Mota, N.P. et al (2010). Associations between abortion, mental disorders, and suicidal behaviors in a nationally representative sample. *The Canadian Journal of Psychiatry, 55* (4), 239-246.		√	Nationally representative sample. Controlled for the experience of interpersonal violence and demographic variables.	When compared to women without a history of abortion, those who had an abortion had a 61% increased risk for Mood Disorders

Table 3: Scientific Studies Identifying Abortion as a Risk Factor in Anxiety.

Study	Time sequence	Co-variation	Controls and Other Strengths	Results/Magnitude of effect
1. Broen, A.N., Moum, T., Bodtker, A. S., & Ekeberg, O. (2004). Psychological impact on women of miscarriage versus induced abortion: A 2 year follow-up study. *Psychosomatic Medicine, 66*, 265-271.	√	√	Number of children Marital status Vocational status	10 days after the pregnancy ended, 30% of those who had an abortion scored high on measures of avoidance or intrusion, which includes symptoms such as flashbacks and bad dreams. 2 years after the pregnancy ended, nearly 17% of 80 women who had an abortion scored highly on a scale measuring avoidance symptoms, compared with about 3% of those who miscarried.
2. Broen, A.N., Moum, T., Bodtker, A. S., & Ekeberg, O. (2005). Reasons for induced abortion and their relation to women's emotional distress: a prospective, two-year follow-up study. *General Hospital Psychiatry, 27*, 36-43.	√	√	Marital status Psychiatric history	Male pressure on women to abort was significantly associated with negative abortion-related emotions in the two years following an abortion. Pre-abortion psychiatric history was not significantly related to immediate negative abortion related emotion or with negative emotional responses measured at 2 years out. 23.8% of the sample scored high on The Impact of Events Scale (a measure of stress reactions after a traumatic event) 10 days after the abortion, 13.3% at 6 months, and 1.4% after 2 years.
3. Coleman, P.K., Coyle, C.T., Shuping, M., & Rue, V. (2009), Induced Abortion and Anxiety, Mood, and Substance Abuse Disorders: Isolating the Effects of Abortion in the National Comorbidity Survey. *Journal of Psychiatric Research. 43, 770– 776.*		√	Twenty two different demographic, history, and personal/situational variables mostly related to adverse life events.	For PTSD, Agoraphobia with or without Panic Disorder, Agoraphobia without Panic Disorder, a history of abortion when compared to no history was associated with an 81.6%, 1.24.6%, and a 1.32% increased risk respectively after implementing statistical controls. Calculation of population attributable risks indicated that abortion was implicated in 8 3% of the incidence of PTSD, 12.3% of the incidence of Agoraphobia with/or without Panic, and 13.0% of Agoraphobia without Panic.

4. Coleman, P.K., & Nelson, E.S. (1998). The quality of abortion decisions and college students' reports of post-abortion emotional sequelae and abortion attitudes. *Journal of Social and Clinical Psychology, 17,* 425-442.	√	√	Gender: Compared men and women with abortion experience. Time elapsed since abortion	Anxiety increased after the abortion: female: 13.3%; male: 9.7%
5. Cougle, J., Reardon, D. C., Coleman, P. K., & Rue, V. M. (2005).Generalized anxiety associated with unintended pregnancy: A cohort study of the 1995 National Survey of Family Growth. *Journal of Anxiety Disorders, 19, 137-142*	√	√	All women were experiencing an unintended pregnancy Stratification by ethnicity, current marital status, and age.	The odds of experiencing subsequent Generalized Anxiety were 34% higher among women who aborted compared vs. delivered. Greatest differences among the following demographic groups: Hispanic: 86% higher risk, Unmarried at time of pregnancy: 42% higher risk; under age 20: 46% higher risk.
6. Fayote, F.O., Adeyemi, A.B., Oladimeji, B.Y. (2004). Emotional distress and its correlates. *Journal of Obstetrics and Gynecology, 5,* 504-509.	√	√	Used a matched control group	Previous abortion was significantly associated with anxiety among the pregnant women
7. Fergusson, D. M., Horwood, J., & Ridder, E. M. (2006). Abortion in young women and subsequent mental health. Journal of Child Psychology and Psychiatry, 47, 16-24.	√	√	Those who delivered and were never pregnant used as comparison groups. Controlled for maternal education, childhood sexual abuse, physical abuse, child neuroticism, self-esteem, grade point average, smoking, prior history of depression, anxiety, prior history of suicide ideation, living with parents, living with partner	39% of post-abortive women suffered from anxiety disorders by age 25.
8 Fergusson, D.M., Horwood, J. H., & Boden, J. M. (2008). Abortion and mental health disorders: Evidence from a 30-year longitudinal study, The British Journal of Psychiatry, 193, 444-451.	√	√	Controls: childhood socio-economic circumstances, childhood family functioning, parental adjustment, abuse in childhood, individual characteristics, educational achievement, adolescent adjustment, lifestyle and related factors such as exposure to adverse events, and pre-abortion mental health.	Anxiety Disorder: 113% increased risk associated with abortion.
9. Lauzon, P., Roger-Achim, D., Achim, A., & Boyer, R. (2000). Emotional distress among couples. involved in first trimester abortions. Canadian Family Physician, 46, 2033-2040.	√	√	Random sample of the general population of reproductive age used a s the control group	Before the abortion, 56.9% of women and 39.6% of men were much more distressed than their respective controls. Three weeks after the abortion, 41.7% of women and 30.9% of men were still highly distressed.
10. Ma)or,B.,& Gramzow, R. H. (1999).Abortion As stigma: Cognitive and emotional implications of concealment. Journal of Personality and Social Psychology,77, 735-745.	√	√	.	Two years after abortion: Intrusive thoughts - quite a bit: 3% - some intrusive thoughts: 62%
11. Mota, N.P. et al (2010). Associations between abortion, mental disorders, and suicidal behaviors in a nationally representative sample. *The Canadian Journal of Psychiatry, 55* (4), 239-246.		√	Nationally representative sample. Controlled for the experience of interpersonal violence and demographic variables.	When compared to women without a history of abortion, those who had an abortion had a 61% increased risk for social phobia.
12. Pope, L. M., Adler, N. E., & Tschann, J. M. (2001). Post-abortion psychological adjustment: Are minors at increased risk? Journal of Adolescent Health, 29, 2-11.	√	√	Compared current results with those in other studies using similar samples.	Impact of Events Scale – Intrusion Subscale Score = 13.46, which is similar to adults experiencing a recent parental bereavement.
13. Rue, V. M., Coleman, P. K., Rue, J. J., & Reardon, D. C. (2004). Induced abortion and traumatic stress: A preliminary comparison of American and Russian women. Medical Science Monitor 10, SR 5-16.	√	√	Controls for severe stress symptoms prior to the abortion, other stressors pre-and post-abortion, several demographic variables, psycho-social variables (harsh discipline, abuse, parental divorce, etc).	The percentages of Russian and U.S. women who experienced 2 or more symptoms of arousal, 1 or more symptom of re-experiencing the trauma, and 1 or more experience of avoidance (consistent with DSM-IV diagnostic criteria for PTSD) were equal to 13.1% and 65% respectively.

14. Sivuha, S. Predictors of Posttraumatic Stress Disorder Following Abortion in a Former Soviet Union Country. Journal of Prenatal & Perinatal Psych & Health,17, 41-61 (2002).		√	.	35% of women had some posttraumatic consequences of abortion (elevated avoidance, intrusion, or hyper-arousal scores) 46% of women had evidence of PTSD, exceeding the cut-offs for intrusion and avoidance subscales. 22% of women experienced PTSD, exceeding the cut-offs on all 3 subscales.
15. Slade, P., Heke, S., Fletcher, J., & Stewart, P. (1998). A comparison of medical and surgical methods of termination of pregnancy: Choice, psychological consequences, and satisfaction with care. British Journal of Obstetrics and Gynecology, 105, 1288-1295.	√	√		1 month post-abortion: Cases of anxiety: 27%
16. Sullman et al. (2007) Comparison of pain, cortisol levels, and psychological distress in women undergoing surgical termination of pregnancy under local anaesthesia vs. intravenous sedation. BMC Psychiatry, 7 (24), p.1-9.	√	√	Baseline levels of depression, state anxiety, self-esteem, and functional disability.	The percentages of women experiencing PTSD symptoms after abortion were 17.5% and 18.2% at one and three months respectively.
17. Williams, G. B. (2001). Short-term grief after an elective abortion. Journal of Obstetrics, Gynecologic, and Neonatal Nursing, 30, 174-183.	√	√	Controlled for other forms of loss and psychiatric history. Control group with no abortion history.	History of elective abortion associated with more grief in terms of loss of control, death anxiety, and dependency than controls.
18. Urquhart D.R., & Templeton, A. A. (1991). Psychiatric morbidity and acceptability following medical and surgical methods of induced abortion. British Journal of Obstetrics and Gynecology, 98, 396-399.	√	√	.	Clinically significant feelings of anxiety at 1 month post-abortion by 10% of the sample.

Table 4: Scientific Studies identifying Abortion as a Risk Factor in Substance Use/Abuse.

Study	Time sequence	Co-variation	Controls and Other Strengths	Results/Magnitude of effect
1. Amaro H., Zuckerman B, & Cabral H. (1989). Drug use among adolescent mothers: profile of risk. *Pediatrics, 84,* 144-151.	√	√	Other forms of perinatal loss as comparison groups	Adolescent drug users when compared to nonusers were significantly more likely to report a history of elective abortion (33% vs. 16.3%). No associations were identified between drug use and parity or other forms of perinatal loss (miscarriage /stillbirth).
2. Coleman, P. K. (2006). Resolution of Unwanted Pregnancy During Adolescence Through Abortion versus Childbirth: Individual and Family Predictors and Consequences. *Journal of Youth and Adolescence.*	√	√	Demographic, educational, psychological, and family variables found to predict the choice to abort Exclusive focus on unwanted pregnancies	After implementing controls, adolescents with an abortion history, when compared to adolescents who had give birth were 6 times more likely to use marijuana.
3. Coleman., P.K., Coyle, C.T., Shuping, M., & Rue, V. (2009), Induced Abortion and Anxiety, Mood, and Substance Abuse Disorders: Isolating the Effects of Abortion in the National Comorbidity Survey. *Journal of Psychiatric Research. 43, 770– 776.*		√	Controlled for twenty two different demographic, history, and personal/situational variables mostly related to adverse life events.	Abortion was related to an increased risk for substance abuse disorders after statistical controls were instituted. An induced abortion was specifically associated with a 105%, 134%, 70.9%, 104% increased risk for Alcohol Abuse with or without Dependence, Alcohol Dependence, Drug Abuse with or without Dependence, and Drug Dependence respectively. Calculation of population attributable risks indicated that abortion was implicated in 9% of the incidence of

				Alcohol Abuse with/or without Dependence, 12.5% of the incidence of Alcohol Dependence, 7.1% of the incidence of Drug Abuse with/or without Dependence, and 10.4% of the incidence of Drug Dependence.
4. Coleman, P. K., & Maxey, D. C., Spence, M. Nixon, C. (2009). The choice to abort among mothers living under ecologically deprived conditions: Predictors and consequences. *International Journal of Mental Health and Addiction7, 405-422.*	√	√	Controls for the following variables: mother and father married at baseline, mother considered an abortion during first pregnancy, and relationship with father got worse or remained the same after first pregnancy confirmed, and 11 variables related to paternal involvement in the care of the child born at baseline.	Women who chose abortion when compared to women who delivered a second child were more likely to report recent heavy use of alcohol (239% increased risk) and cigarette smoking (99% increased risk).
5. Coleman, P. K., Reardon, D. C., Rue, V., & Cougle, J. (2002). History of induced abortion in relation to substance use during subsequent pregnancies carried to term. *American Journal of Obstetrics and Gynecology, 187,* 1673-1678.	√	√	Results were stratified by potentially confounding factors (marital status, income, ethnicity, and time elapsed since a prior abortion or birth)	Compared with women who had previously given birth, women who aborted were significantly more likely to use marijuana (929%), various elicit drugs (460%), and alcohol (122%) during their next pregnancy. Differences relative to marijuana and use of any elicit drug were more pronounced among married and higher income women and when more time had elapsed since the prior pregnancy. Differences relative to alcohol use were most pronounced among the white women and when more time had elapsed since the prior pregnancy.
6. Coleman, P. K., Reardon, D. C., & Cougle, J. (2005) Substance use among pregnant women in the context of previous reproductive loss and desire for current pregnancy. *British Journal of Health Psychology, 10, 255-268.*	√	√	Other forms of loss Age Marital status Trimester in which prenatal care was sought Education Number in household	No differences were observed in the risk of using any of the substances measured during pregnancy relative to a prior history of miscarriage or stillbirth. A prior history of abortion was associated with a significantly higher risk of using marijuana (201%), cocaine-crack (198%), cocaine-other than crack (406%), any illicit drugs (180%), and cigarettes (100%).
7. Dingle, K., Alta, R., Clavarino, A. et al. (2008). Pregnancy loss and psychiatric disorders in young women: An Australian birth cohort study. *The British Journal of Psychiatry, 193,* 455-460.	√	√	Controlled for maternal and familial factors, pre-existing behavior problems and substance misuse, and demographic factors.	Young women reporting an abortion history had almost 3 times a greater risk of experiencing a lifetime illicit drug use disorder (not including marijuana) and twice the risk for an alcohol use disorder compared to women who did not report an abortion.
8. Fergusson, D. M., Horwood, J., & Ridder, E. M. (2006). Abortion in young women and subsequent mental health. *Journal of Child Psychology and Psychiatry, 47,* 16-24.	√	√	Those who delivered and were never pregnant used as comparison groups. Controlled for maternal education, childhood sexual abuse, physical abuse, neuroticism, self-esteem, grade point average, smoking, prior history of depression, anxiety, suicide ideation, living with parents, living with partner	6.8% indicated alcohol dependence, and 12.2% were abusing drugs. By age 25. .
9. Fergusson, D.M., Horwood, J. H., & Boden, J. M. (2008). Abortion and mental health disorders: Evidence from a 30-year longitudinal study, *The British Journal of Psychiatry, 193,* 444-451.	√	√	Controls: Measures of childhood socio-economic circumstances, childhood family functioning, parental adjustment, exposure to abuse in childhood, individual characteristics, educational achievement, adolescent adjustment, lifestyle and related factors which included exposure to adverse events, and pre-abortion mental health.	Alcohol dependence: 188% increased risk associated with abortion Illicit drug dependence: 185% increased risk associated with abortion.

10. Hope, T. L., Wilder, E. I., & Watt, T. T. (2003). The relationships among adolescent pregnancy, pregnancy resolution, and juvenile delinquency, *Sociological Quarterly,44,* 555-76.	√	√	Controls for a wide range of socioeconomic and demographic variables likely to influence juvenile delinquency.	Compared to adolescents who ended their pregnancies through abortion, those who keep their babies experienced a dramatic reduction in smoking and marijuana use
11. Pedersen, W. (2007). Addiction. Childbirth, abortion and subsequent substance use in young women: a population-based longitudinal study, 102 (12), 1971-78.	√	√	Controls for social background, parental and family history, smoking, alcohol and drug use, conduct problems, depression, schooling, and career variables. Comparison groups included those who had never been pregnant and those who delivered.	Elevated rates of substance use (nicotine dependence: 400% increased risk; alcohol problems: 180% increased risk; Cannabis use: 360% increased risk: and other illegal drugs: 670% increased risk) compared to other women
12. Reardon, D. C., Coleman, P. K., & Cougle, J. (2004) Substance use associated with prior history of abortion and unintended birth: A national cross sectional cohort study. *Am. Journal of Drug and Alcohol Abuse, 26, 369-383.*	√	√	Age Ethnicity Marital status Income Education Pre-pregnancy self-esteem and locus of control	Compared to women who carried an unintended first pregnancy to term, those who aborted were 100% more likely to report use of marijuana in the past 30 days and 149% more likely to use cocaine in the past 30 days (only approached significance). Women with a history of abortion also engaged in more frequent drinking than those who carried an unintended pregnancy to term. Except for less frequent drinking, the delivery group was not significantly different from the no pregnancy group.
13. Reardon D.C., Ney, P.G. (2002) Abortion and subsequent substance abuse. *American Journal of Drug and Alcohol Abuse, 26,* 61-75.	√	√	Controlled for substance use prior to the abortion and age	Women who aborted a first pregnancy were 5 times more likely to report subsequent substance abuse than women who carried to term and 4 times more likely to report substance abuse compared to those who had a non-voluntary pregnancy loss
14. Yamaguchi D, & Kandel D. (1987). Drug use and other determinants of premarital pregnancy and its outcome: A dynamic analysis of competing life events. *Journal of Marriage and the Family, 49,* 257-270.	√	√		The use of illicit drugs other than marijuana was 6.1 times higher among women with a history of abortion when compared to women without a history.
15. Mota, N.P. et al (2010). Associations between abortion, mental disorders, and suicidal behaviors in a nationally representative sample. *The Canadian Journal of Psychiatry, 55* (4), 239-246.		√	Nationally representative sample. Controlled for the experience of interpersonal violence and demographic variables.	The increased risk for alcohol abuse, alcohol dependence, drug abuse, drug dependence, and any substance use disorder were equal to 261%, 142%, 313%, 287%, and 280% respectively.