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DOES ABORTION CAUSE MENTAL HEALTH PROBLEMS? THE EVIDENCE THROUGH AN OBJECTIVE SCIENTIFIC LENS AS OPPOSED TO THE APA'S RECENT ANALYSIS

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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. Analysis of each individual study. 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. 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 Ideation and Suicide

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
1. Fergusson, D. M., Horwood, J., & Ridder, E. M. (2006). Abortion in young women and subsequent mental health. <i>Journal of Child Psychology and Psychiatry</i> , 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	√ 27% of women who aborted reported experiencing suicidal ideation This effect was significant at the >.001 level, meaning there was on a 1 in 1000 chance that the result was due to chance. The risk was 4 times greater for women who aborted compared to never pregnant women and more than 3 times greater than women who for women who delivered
2. Gilchrist, A. C. et al (1995). Termination of pregnancy and psychiatric morbidity. <i>British Journal of Psychiatry</i> 167, 243	√	√	√ Comparisons included women who were refused abortion and women who chose abortion but changed their minds	√ Among women with no history of psychiatric illness, the rate of deliberate self-harm was significantly higher (70%) after abortion than childbirth
3. Gissler, M. et al. (1996). Suicides after pregnancy in Finland, 1987-94: Register linkage study. <i>British Medical Journal</i> , 313, 1431-4.	√	√	√ Compared women who aborted to those who delivered, miscarried, and the general population	√ Suicide rate was nearly 6 times greater among women who aborted compared to women who gave birth
4. Gissler, M., et al. (2005). Injury deaths, suicides and homicides associated with pregnancy, Finland 1987-2000. <i>European Journal of Public Health</i> , 15, 459-463.	√	√	√ Compared women who aborted to those who delivered, miscarried, and were not pregnant Distinguished level of risk associated with suicide and other forms of death.	√ Abortion was associated with a 6 times higher risk for suicide compared to birth.
5. Reardon, D.C., et al. (2002). Deaths associated with delivery and abortion among California Medicaid patients: A record linkage study. <i>Southern Medical Journal</i> , 95,834-41.	√	√	√ Use of homogenous population. Controlled for prior psychiatric history, age, and months of eligibility for state medical coverage	√ Suicide risk was 154% higher among women who aborted compared to those who delivered
6. 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. <i>Medical Science Monitor</i> 10, SR 5-16.	√	√	√ Controlled for stressors pre-and post-abortion, demographic and psycho-social variables (harsh discipline, sexual, physical, and emotional abuse, parental divorce, etc.)	√ 36.4% of the American women and 2.8% of the Russian women respectively reported suicidal ideation.

**Table 2: Scientific Studies Identifying Abortion
as a Risk Factor in Substance Use/Abuse**

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
1. Amaro H., Zuckerman B., & Cabral H. (1989). Drug use among adolescent mothers: profile of risk. <i>Pediatrics</i> , 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. <i>Journal of Youth and Adolescence</i> .	√	√	√ 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., Reardon, D. C., Rue, V., & Cogle, J. (2002). History of induced abortion in relation to substance use during subsequent pregnancies carried to term. <i>American Journal of Obstetrics and Gynecology</i> , 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.
4. Coleman, P. K., Reardon, D. C., & Cogle, J. (2005) Substance use among pregnant women in the context of previous reproductive loss and desire for current pregnancy. <i>British Journal of Health Psychology</i> , 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%).

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
<p>5. Reardon, D. C., Coleman, P. K., & Cogle, J. (2004) Substance use associated with prior history of abortion and unintended birth: A national cross sectional cohort study. <i>Am. Journal of Drug and Alcohol Abuse</i>, 26, 369-383.</p>	√	√	<p>Age Ethnicity Marital status Income Education Pre-pregnancy self-esteem and locus of control</p>	<p>√</p> <p>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</p>
<p>6. Fergusson, D. M., Horwood, J., & Ridder, E. M. (2006). Abortion in young women and subsequent mental health. <i>Journal of Child Psychology and Psychiatry</i>, 47, 16-24.</p>	√	√	<p>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</p>	<p>√</p> <p>6.8% indicated alcohol dependence, and 12.2% were abusing drugs. By age 25.</p>
<p>7. Hope, T. L., Wilder, E. I., & Watt, T. T. (2003). The relationships among adolescent pregnancy, pregnancy resolution, and juvenile delinquency, <i>The Sociological Quarterly</i>, 44, 555-576.</p>	√	√	<p>√</p> <p>Controls for a wide range of socioeconomic and demographic variables likely to influence juvenile delinquency.</p>	<p>√</p> <p>Compared to adolescents who ended their pregnancies through abortion, those who keep their babies experienced a dramatic reduction in smoking and marijuana use</p>
<p>8. Pedersen, W. (2007). Addiction. Childbirth, abortion and subsequent substance use in young women: a population-based longitudinal study, 102 (12), 1971-78.</p>	√	√	<p>√</p> <p>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.</p>	<p>√</p> <p>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</p>

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
9. Reardon D.C., Ney, P.G. (2002) Abortion and subsequent substance abuse. <i>American Journal of Drug and Alcohol Abuse</i> , 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
10. Yamaguchi D, & Kandel D. (1987). Drug use and other determinants of premarital pregnancy and its outcome: A dynamic analysis of competing life events. <i>Journal of Marriage and the Family</i> , 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.

**Table 3: Scientific Studies Identifying Abortion
as a Risk Factor in Depression**

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
1. Bradley, C.F. (1984) Abortion and subsequent pregnancy. <i>Canadian Journal of Psychiatry</i> , 29, 494.	√	√	√ Women with and without a history of abortion had similar demographic characteristics, obstetric experiences, and attitudes about labor and birth.	√ Women, who aborted, when compared to women without a history of abortion, were significantly more likely to report depressive affect during pregnancy and in the postpartum period.
2. Coleman, P.K., & Nelson, E.S. (1998). The quality of abortion decisions and college students' reports of post-abortion emotional sequelae and abortion attitudes. <i>Journal of Social and Clinical Psychology</i> , 17, 425-442.	√	√	√ Compared men and women with abortion experience. Time elapsed since abortion	√ Depression increased after abortion: female: 56.7%; male: 25.9%
3. Coleman, P. K., Reardon, D. C., Rue, V., & Cogle, J. (2002). State-funded abortions vs. deliveries: A comparison of outpatient mental health claims over four years. <i>American Journal of Orthopsychiatry</i> , 72, 141-152	√	√	√ Comparison groups likely very similar except for the abortion experience Controls for pre-pregnancy psycho-logical difficulties, age, and months of eligibility	√ Across the 4-yrs, the abortion group had 40% more claims for neurotic depression than the birth group
4. Congleton, G. & Calhoun, L. (1993). Post-abortion perceptions: A comparison of self-identified distressed and non-distressed populations. <i>International Journal of Social Psychiatry</i> , 39, 255-265	√	√	√ Compared women who self-identified as distressed and non-distressed only.	√ Depression reported in 20% of women who aborted.
5. Cogle, J., Reardon, D. C., & Coleman, P. K. (2003). Depression associated with abortion and childbirth: A long-term analysis of the NLSY cohort. <i>Medical Science Monitor</i> , 9, CR105-112	√	√	√ Controlled for prior psychological state and several other variables: age, race, marital status, divorce history, education, and income (stratification by ethnicity, current marital status, and history of divorce)	√ Women whose 1 st pregnancies ended in abortion were 65% more likely to score in the "high-risk" range for clinical depression. Differences between the abortion and birth groups were greatest among the demographic groups least likely to conceal an abortion (White: 79% higher risk; married: 116% higher risk; 1 st marriage didn't end in divorce: 119% higher risk).

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
6. Cozzarelli, C. (1993). Personality and self-efficacy as predictors of coping with abortion. <i>Journal of Personality and Social Psychology</i> , 65, 1224-1236.	√	√		√ 3 weeks after the abortion, depression was higher than general population norms, but lower than psychiatric norms.
7. Fayote, F.O., Adeyemi, A.B., Oladimeji, B.Y. (2004). Emotional distress and its correlates. <i>Journal of Obstetrics and Gynecology</i> , 5, 504-509.	√	√	√ Used a matched control group	√ Previous abortion was significantly associated with depression among the pregnant women
8. Fergusson, D. M., Horwood, J., & Ridder, E. M. (2006). Abortion in young women and subsequent mental health. <i>Journal of Child Psychology and Psychiatry</i> , 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	√ 42% of the women who had aborted reported major depression by age 25.
9. Harlow, B. L., Cohen, L. S., Otto, M. W., Spiegelman, D., & Cramer, D. W. (2004). Early life menstrual characteristics and pregnancy experiences among women with and without major depression: the Harvard Study of Mood and Cycles. <i>Journal of Affective Disorders</i> , 79, 167-176.	√	√	√ Employed demographic controls (age, age at menarche, educational attainment, and history of marital disruption)	√ Compared to women with no history of induced abortion, those with two or more were 2-3 times more likely to have a lifetime history of major depression at study enrollment. When only antecedent induced abortions were compared to no history of abortion, there was a three fold increase risk of developing depression later in life.
10. Major, B. et al. (2000). Psychological responses of women after first trimester abortion. <i>Archives of General Psychiatry</i> , 57, 777-84.	√	√	√ Controls for demographic characteristics, medical complications, and prior mental health	√ Two years post-abortion, 28% were not satisfied with their decision, 31% would not have the abortion again, and 20 % were depressed. Younger age and having more children pre-abortion predicted more negative post-abortion outcomes.

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
11. Major, B. Cozzarelli, C., Sciacchitano, A.M., Cooper, M. L., Testa, M., & Mueller, P. M. (1990). Perceived social support, self-efficacy, and adjustment to abortion. <i>Journal of Personality and Social Psychology</i> , 59, 186-197.	√	√		√ Immediately after abortion Mild depression 21% Moderate depression 11% Severe depression 4%
12. Miller, W. B., Pasta, D. J., & Dean, C. L. (1998). Testing a model of the psychological consequences of abortion. In L. J. Beckman and S. M. Harvey (eds.), <i>The new civil war: The psychology, culture, and politics of abortion</i> . Washington, DC: American Psychological Association.	√	√	√	√ 2 weeks post-abortion: 29.5% felt some guilt, 36.6% experienced some depression, 30.4% reported mood problems, 17.3% reported decreased relationship satisfaction, and 26.9% reported decreased interest in sex. 6-8 weeks post-abortion: 35.9% felt some guilt, 35.9% experienced some depression, 30% reported mood problems, 22% reported decreased relationship satisfaction, and 26% reported decreased interest in sex.
13. Pedersen W. (2008). Abortion and depression: A population-based longitudinal study of young women. <i>Scandinavian Journal of Public Health</i> , 36 (4):424-8.	√	√	√ Controlled for parental education level, parental smoking habits, parental support, and prior history of depression.	√ Women with an abortion history were nearly 3 times as likely as their peers without an abortion experience to report significant depression
14. Pope, L. M., Adler, N. E., & Tschann, J. M. (2001). Post-abortion psychological adjustment: Are minors at increased risk? <i>Journal of Adolescent Health</i> , 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.
15. Reardon, D. C., & Cogle, J. (2002) Depression and Unintended Pregnancy in the National Longitudinal Survey of Youth: A cohort Study. <i>British Medical Journal</i> , 324, 151-152.	√	√	√ Confined analyses to unintended pregnancy aborted or delivered. Controls 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)

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
16. Reardon, D. C., Cogle, J., Rue, V. M., Shuping, M., Coleman, P. K., & Ney, P. G. (2003). Psychiatric admissions of low-income women following abortion and childbirth. <i>Canadian Medical Association Journal</i> , 168, 1253-1256.	√	√	√ Comparison groups are likely very similar except for the abortion experience. Controls for pre-pregnancy psychological difficulties, age, and months of eligibility Extended time frame	√ 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.
17. Rees, D. I. & Sabia, J. J. (2007) The relationship between abortion and depression: New evidence from the Fragile Families and Child Wellbeing Study. <i>Medical Science Monitor</i> , 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 between the first and second data collection waves 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.
18. Schmiede, S., & Russo, N. F. (2005). Depression and unwanted first pregnancy: Longitudinal cohort study. <i>British Medical Journal</i> .	√	√	√ Age Age at first pregnancy 1992 marital status Education Family income	√ Percent of women exceeding the depression cut-off score on the Center for Epidemiological Studies depression scale after an abortion: Married White women: 16% Married Black women: 24% Unmarried White women: 30% Unmarried Black women: 38% Non-Catholic: 27% Catholic: 20%
19. 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. <i>British Journal of Obstetrics and Gynecology</i> , 105, 1288-95.	√	√		√ 1 month post-abortion: Cases of depression: 9%

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
20. Söderberg H, Janzon L and Sjöberg NO (1998). Emotional distress following induced abortion. A study of its incidence and determinants among abortees in Malmö, Sweden. <i>European Journal of Obstetrics and Gynecology and Reproductive Biology</i> 79, 173-8	√	√	Utilized a case control data analysis strategy	√ 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. 76.1% said that they would not consider abortion again (suggesting indirectly that it was not a very positive experience).
21. Suri, R, Altshuler, L., Hendrick, V. et al. (2004). The impact of depression and fluoxetine treatment on obstetrical outcome. <i>Archives of Women's Mental Health</i> , 7, 193-200.	√	√	.	√ 46 women with a history of depression had a significantly higher mean number of prior therapeutic abortions than 16 women without a history of depression (.78 vs. .31). The mean number of prior pregnancies and spontaneous abortions did not differ.
22. Urquhart D.R., & Templeton, A. A. (1991). Psychiatric morbidity and acceptability following medical and surgical methods of induced abortion. <i>British Journal of Obstetrics and Gynecology</i> , 98, 396-399.	√	√	.	√ Clinically significant feelings of depression at 1 month post-abortion by 10% of the sample.

**Table 4: Scientific Studies Identifying Abortion
as a Risk Factor in Anxiety Disorders**

Study	Time sequence	Co-variation	Control	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. <i>Psychosomatic Medicine, 66</i> , 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. <i>General Hospital Psychiatry, 27</i> , 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., & Nelson, E.S. (1998). The quality of abortion decisions and college students' reports of post-abortion emotional sequelae and abortion attitudes. <i>Journal of Social and Clinical Psychology, 17</i> , 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%
4. Cogle, 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. <i>Journal of Anxiety Disorders, 19</i> , 137-142	√	√	√ All women were experiencing an unintended pregnancy Stratification by ethnicity, current marital status, and age.	The odds of experiencing subsequent Generalized Anxiety was 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.

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
5. Fayote, F.O., Adeyemi, A.B., Oladimeji, B.Y. (2004). Emotional distress and its correlates. <i>Journal of Obstetrics and Gynecology</i> , 5, 504-509.	√	√	√ Used a matched control group	√ Previous abortion was significantly associated with anxiety among the pregnant women
6. Fergusson, D. M., Horwood, J., & Ridder, E. M. (2006). Abortion in young women and subsequent mental health. <i>Journal of Child Psychology and Psychiatry</i> , 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.
7. Lauzon, P., Roger-Achim, D., Achim, A., & Boyer, R. (2000). Emotional distress among couples. involved in first trimester abortions. <i>Canadian Family Physician</i> , 46, 2033-2040.	√	√	√ Random sample of the general population of reproductive age used as 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.
8. Major, B., & Gramzow, R. H. (1999). Abortion As stigma: Cognitive and emotional implications of concealment. <i>Journal of Personality and Social Psychology</i> , 77, 735-745.	√	√	·	√ Two years after abortion: Intrusive thoughts - quite a bit: 3% - some intrusive thoughts: 62%
9. Sivuha, S. Predictors of Posttraumatic Stress Disorder Following Abortion in a Former Soviet Union Country. <i>Journal of Prenatal & Perinatal Psych & Health</i> , 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.

Study	Time sequence	Co-variation	Control	Results/Magnitude of effect
10. Suliman et al. (2007) Comparison of pain, cortisol levels, and psychological distress in women undergoing surgical termination of pregnancy under local anaesthesia vs. intravenous sedation. <i>BMC Psychiatry</i> , 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.
10. Pope, L. M., Adler, N. E., & Tschann, J. M. (2001). Post-abortion psychological adjustment: Are minors at increased risk? <i>Journal of Adolescent Health</i> , 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.
11. 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. <i>Medical Science Monitor</i> 10, SR 5-16.	√	√	√ Controls for severe stress symptoms prior to the abortion, other stressors pre-and post-abortion, several demographic variables, psychosocial 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.
12. 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. <i>British Journal of Obstetrics and Gynecology</i> , 105, 1288-1295.	√	√		√ 1 month post-abortion: Cases of anxiety: 27%
13. Williams, G. B. (2001). Short-term grief after an elective abortion. <i>Journal of Obstetrics, Gynecologic, and Neonatal Nursing</i> , 30, 174-183.	√	√	√ Controlled for other forms of loss and psychiatric history. Control group with no abortion history.	√ Women with a history of elective abortion experienced more grief in terms of loss of control, death anxiety, and dependency than controls.
14. Urquhart D.R., & Templeton, A. A. (1991). Psychiatric morbidity and acceptability following medical and surgical methods of induced abortion. <i>British Journal of Obstetrics and Gynecology</i> , 98, 396-399.	√	√		√ Clinically significant feelings of anxiety at 1 month post-abortion by 10% of the sample.